

Abstract

The Millennium Ecosystem Assessment has categorised the ecosystem services into provisioning, regulating, supporting and cultural that ensures security, basic materials for good life, good health, social relations, and many more to the human wellbeing. Most of the services people obtain from various ecosystems are intangible but very crucial for the welfare of the human society. Forest is an important ecosystem that plays a very critical role as carbons sink, apart from others, and thus ensures the very survivability of the humans and other life forms on earth. Studies show that use of and dependency on common resource such as forest by the fringe communities is almost a universal practice. People living on the periphery of the forest ecosystems rely heavily on the provisioning services such as food, fuel, fiber, grass, etc. having a serious long term environmental implication. The heavy reliance of the peripheral people on the forests may change forest composition, ecosystem functions and resilience.

However, though the peripheral people rely heavily on the forest ecosystem most of them are unaware about the critical value of forest ecosystem to their lives. Therefore, economic valuation of forest ecosystem services is of utmost necessity. Economic valuation is a process of ascribing monetary values to the unquantifiable social and environmental services of the eco-system. The need for valuation arises from the fact that most of the intangible services enjoyed by the fringe dwellers are not taken into account while making environmental decisions leading thereby to missing markets. The failure to place monetary values on environmental goods and services will ultimately lead to their exploitation and loss.

While the existing studies from different forest areas have widened our knowledge on various aspects of forest-people interaction, there are still many other forest areas where empirical researches on the level of people's dependence on forests and determinant factors of forest dependence are still essential areas of research to be addressed. In other words, each and every forest area is important in its own way and contributes richly towards environment conservation. Against this backdrop the present study takes up Laokhowa and Burhachapori Wildlife Sanctuaries situated in the Central Assam districts of Nagaon and Sonitpur, Assam, India, aiming at quantifying and estimating the income share of the forest products to the total household income of the fringe dwellers. The study further attempts to estimate the value of the ecosystem services and seeks to assess the willingness of the peripheral people to pay for conservation of these important sanctuaries. Located between Kaziranga and Orang National Park these floodplain sanctuaries were once good repositories of biodiversity. But, presently the sanctuaries are grappling for survival owing to various anthropogenic pressures put by the people living beside the sanctuaries. A wide range of anthropogenic pressures such as illegal collection of forest products, massive cattle grazing, encroachment, etc. have been reported in these sanctuaries.

The study is carried out based on primary data. Empirical results are based on a study of 302 randomly selected households from the communities living in the villages within two kilometres from the edge of the sanctuaries. Moreover, 100 households located

beyond two kilometres have also been selected to form a control group. The purpose of forming a control group is primarily to assess their willingness to pay for forest conservation and the factors behind such decision. Three Participatory Rural Appraisal (PRA) methods namely, semistructured questionnaire, focus group discussion and key informant interviews are administered to collect data from the selected samples regarding their forest extraction. The results show that people collect significant amount of different provisioning services from Laokhowa and Burhachapori Wildlife Sanctuaries. Though these services are extracted primarily for domestic consumption a fair share of it is also sold in the forest gate markets by the poor and destitute to earn a subsistence livelihood. Results further show that about 28 percent of the household income of the respondents is obtained from the forests while individual income share may go up to 74 percent of the total income. In other words, the household dependency of the sample households on Laokhowa and Burhachapori Wildlife Sanctuaries is 28 percent. Results of the Tobit regression analysis carried out to examine the determinants of forest dependency has found the education of the household head, house structure, distance from the forest, cattle unit, household income, people living below poverty line and occupation as important determinants of forest dependency.

The analysis found the value of the provisioning services collected by the sample households from both the sanctuaries to be worth Rs. 8.7 million. The value of the sanctuaries would be much more than presented here if the value of other ecosystem services are estimated. On the other hand, fringe dwellers express their willingness to pay for conservation of the sanctuaries looking into the importance of the sanctuaries on their day-to-day lives. It comes to light during the household survey and focus group discussion that most of the respondents are very enthusiastic about a proposition of restoring the forest ecosystem of Laokhowa and Burhachapori WLSs. The overwhelming response can be gauged from the fact that besides offering monetary contribution 72 percent (or 187 out of 259) of the respondents, who wish to pay for conservation in monetary terms, also wish to get involved in different ways for conserving the sanctuaries. It is noteworthy that some of the respondents, very compassionate about forest, express their willingness to pay more in future provided the money so generated is utilised to its full. Thus, the mean and median WTP of the samples willing to pay for forest conservation are Rs 352.75 and Rs 100 respectively. The median is lower than the mean indicating that the majority of the respondents are willing to pay less than the mean WTP and that the response distribution is skewed due to a few numbers of high bidders. Results of the Tobit regression analysis for identifying independent variables have shown that family size, household income and cattle unit have a positive association with the willingness to pay of the respondents. On the other hand, forest dependency influences negatively the willingness to pay of the respondents for forest conservation. Since, the benefits of the forest ecosystem spills beyond the locality the willingness to pay of the people living beyond the fringe area (beyond two kilometres) have also been analysed. The analysis found the WTP of the people living beyond the fringe area from the forest boundary to be higher than the people living close to the forest boundary. The WTP for this group of respondents is Rs. 1110 and the analysis confirms that the household income of these respondents is the only independent variable influencing the WTP decisions positively and significantly. A few of the respondents also call for protest bids denouncing that forest conservation is the responsibility of the forest department.

Based on the findings, the study concludes that the immense values of the sanctuaries should not be ignored in designing strategies for conservation. The participatory approach should be encouraged and the local peoples' opinion should be respected and incorporated in decision making by the local forest managers. The study identifies the need of provision of basic education and awareness for the fringe dwellers so as to instil the conservation attitudes. With a view to get rid of the pressure of overgrazing, the huge un-inoculated and low milking cattle population of the fringe villagers are to be replaced with high milking variety.

