

ECONOMIC VALUATION OF FOREST GOODS AND SERVICES

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Introduction

Tropical forests are the source of multitude goods and services. The extent and magnitude of these benefits are still largely unknown, particularly non timber forest products (NTFP) and forest services (recreation, watershed function, wildlife, etc. Many policy makers tend to assume that tropical forests have no economic value unless they are harvested for timber production (Lampietti and Dixon, 1995). Economic valuation of forest goods and services can provide quantitative estimate of economic values, which can be used as a basis in forest development planning or when evaluating various forest land use options. The objectives of the research are: (a) To develop methods for determining the economic value of forest goods and services; (b) to apply the methods and determine the economic value of forest goods and services; (c) to identify factors that contribute to the differences of economic values of forest goods and services; and (d) to formulate strategies for developing sustainable forest management based on the results obtained.

Materials and Methods

The methods used in this study involved three stages. Stage 1 relied heavily on previous studies and reports both from the theory and applied point of view. A general framework for economic valuation of forest goods and services was then developed. The second stage involved identification of research site, which this study was Air Hitam Forest Reserve (AHFR), Puchong, Selangor. The selection of AHFR was based on its role as a research and education forest. The third stage involved identification of benefits which can be derived from the AHFR, which include timber, medicinal plants, palms, wildlife, education, carbon storage, community needs, and recreation, and so forth. The methods for determining these economic values were developed. The quantitative estimate of economic value was made based on the type of goods and services identified using appropriate method developed in this study (e.g. residual value technique to value timber and travel cost method to value recreational benefits.

Results and Discussion

The economic value of timber resources of AHFR was estimated using residual value technique by aggregating data on timber volume, log price and logging cost. The stumpage values for trees above 30 cm dbh and above were estimated at RM5,279, RM9,520, RM30,318, RM25,260, RM17,170, RM14,500 per hectare for Compartments 1, 2, 12, 13, 14, and 15, respectively. The stumpage value for dipterocarp group was higher than that of the non-dipterocarp group by

as much as 60%. on average, the Meranti group accounted for about 40 percent of the total stumpage value. In addition, a study on economic valuation of tree species in a one hectare plot was also conducted. In this study, all trees with 5 cm dbh and above were enumerated and their economic value determined. The total stumpage value for all species 15 cm dbh and above was estimated at about RM26,221. The result from this one-hectare plot was higher than the estimated value of the two compartments using the inventory data. The economic value of recreational benefits was estimated based on 80 users. The results reveal that the users were mainly from the District of Petaling (46.3%), followed by the District of Gombak (20%), the District of Hulu Langat and Kuala Langat (11.2%), the District of Sepang (7.5%), and the remainder 3.8% were from the District of Klang. The average expenditures of RM12.36 per visitor made by the respondents in making the trip to experience the recreational services are for transportation, expenditure for foods and recreational services and recreational materials. The average consumer surplus per individual visit across all zones was estimated at RM1.23. The annual value of recreation benefits for AHFR was therefore RM4,428. Using a 10% discount rate and assuming a constant visitation rate in the future, the net present value (NPV) of AHFR was estimated at RM44,280 (Mohd. Shahwahid et al. 1998). The use of AHFR by local communities (orang asli) was also valued by asking them on their collection of forest resources. The results show that, in terms of species collected, the Orang Asli communities are more dependent on the forest reserve for food and fruits than for other purposes like housing construction, handicraft-making and medicine. While all the 24 animal species mentioned by the Orang Asli were hunted for their meat, 48% (10 species) of the plant species were for fruits. Birds and small mammals comprised 75% the animal species collected. The revenue that could have been generated and/or saved by collecting the timber and non-timber produce amounted to nearly RM110,000.00 for the year 1996 (Rusli et al. 1997).

Conclusions

The economic value of forest goods and services is important for long term forest development planning and to ensure sustainable forest management. The results from this research reveal that the economic value of timber resources, recreational benefits, and benefits derived from forest by local communities are substantial and significant. However, some of the economic values are still unknown. Future research on the economic valuation of forest goods and services should focus more on non-timber forest goods and services.

References

- Lampietti, J.A. and Dixon, J.A. 1995. To see the forest for the trees: A Guide to Non-timber Forest Benefits. Environment Department Paper No. 013, The World Bank, Washington D.C.
- Mohd. Shahwahid Hj. Othman, Awang Noor Abd. Ghani, Rusli Mohd, Shukri Mohamed, Faridah Hanum Ibrahim and Mohamed Zakaria Hussin. 1998. Valuing the recreational benefits of Air Hitam Forest Reserve. *The Malaysian Forester*. 61(1): 38-48.
- Rusli Mohd, Awang Noor Abd. Ghani and Abd. Rahim Othman. 1997. Indigenous people independence on non-wood forest produce: A case study. International Workshop on Non-wood Forest Products, UPM Serdang, Selangor. 14-17 October, 1997.