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**Valuation of Key Freshwater Ecosystem Services: A Case Study in Yagirala Rainforest**

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**Abstract**

Tropical lowland rainforests in Sri Lanka are subjected to degradation due mainly to conversion to other uses and population pressure. Valuation of ecosystem services has become important in terms of conservation of such landscapes. This study intends to estimate economic value of key freshwater aquatic ecosystem services associated with tributary ecosystem in the Yagirala Forest Reserve, a fragmented tropical lowland rainforest in south-west Sri Lanka. Surface water discharged from the tributary and the ornamental fish were identified as main provisioning services and recreation and education were identified as cultural services of the tributary. Physical measurements on freshwater resource and fish fauna were carried out at eleven sampling points along the selected tributary during the rainy season. Water flow was measured at the end point of the tributary, which connects to the main stream using flow rate measuring method. Economic value of water used for agriculture/industrial and potable/domestic use were estimated based on the tariff rates available. Ornamental fish fauna was counted using transects and valued using market prices related to export trade. Cultural services were valued based on visitor data maintained at the Research Centre at Yagirala. Economic value of water available for agricultural activities and industrial purposes were estimated as LKR 39 million and 3 million respectively. Value of water used for domestic purposes was LKR 9 million. Economic value of potential ornamental fish of the tributary was estimated as LKR 41 thousand for three species and considering sustainable extraction. Cultural services were estimated as LKR 14 thousand. The total value of the selected ecosystem services of the tributary for 3 months was estimated as LKR 51 million. The study highlights the importance of combining physical data in the economic valuation. The estimated values could provide justification for the protection of these ecosystems and investments for further value additions.

**Keywords:** Ecosystem services, Yagirala forest reserve, Economic value, Fresh water