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Valuing wildlife benefits of irrigation reservoirs: a case study of Veheragala

Parakrama Weligamage

*Department of Agricultural Economics and Business Management,
University of Peradeniya, Peradeniya.*

Economic development in the dry zone of Sri Lanka was based on external land augmentation through development of irrigation infrastructure. Irrigation reservoirs generate multiple benefits but information on values of all uses is not available to guide policy makers. The Veheragala Diversion Project of the Menik Ganga Basin of southeastern dry zone of Sri Lanka expects to augment water of the Kirindi Oya Irrigation and Settlement Project and alters the natural flow regime of the Yala Protected Area Complex (YPC). Objectives of this research were to a) develop a theoretical framework to determine the economic value of a quantity of water flowing through a national park, and b) to empirically value the water flow to YPC, and c) to compare these values with those generated by the agricultural sector through diversions to the Kirindi Oya Basin.

Details of rice production costs and benefits for two consecutive seasons were collected through a farm household survey of 180 randomly selected households in Kirindi Oya. Production function for rice with water quantity as an input was estimated and was used in predicting rice yields and allocating optimum quantities of water to maximize total incremental system net benefits. A contingent valuation study was conducted using Single bounded dichotomous choice methods in ten districts of Sri Lanka in the last quarter of 2008. Due to the national importance of the YPC, the general public of Sri Lanka was considered as participants in the hypothetical market. Mean willingness to pay (WTP) was estimated using the non-parametric survivor function approach.

Results indicate that net annual benefits generated by augmented water by farmers as SLR 137 million. General public is willing to pay towards enhancement of YPC through downstream releases of water. Present value of expected net benefits that would be realized by the general population of Sri Lanka is SLR 11.8 billion. This is several times of the net present value of SLR 0.8 billion realized by farmers. The study shows that benefits of irrigation reservoir are realized by general population of the country. Thus irrigation benefits extend beyond the conventional beneficiary population for irrigation reservoirs. Values placed by the general public can be considered as the value of water allocated for wildlife purposes. This information can be used by policy makers in allocating water among different uses.