

Non-user benefits emanating from enhanced water flow to Yala Protected Area Complex^a

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Abstract

Water is a multiple use resource. Increasing scarcity and competition from various sectors is an important dimension to be considered in its management. Understanding of the value of water to different water uses is therefore necessary to assist decision making in water allocation among sectors. Although water used in agriculture can be valued using production function approaches, such direct valuation methods are not available for environmental uses. This paper uses non-market valuation methods to estimate the economic value of a committed flow through a unique ecosystem, Yala Protected Area Complex (YPC).

YPC is an important wildlife refuge situated in Southeastern Sri Lanka. Its large land extent, undisturbed nature, and abundance and diversity of fauna contribute to its uniqueness. Partially as a result, YPC is also the most visited national park in Sri Lanka. However, maintenance of the park's ecosystem depends on the flow of the Menik Ganga. This flow is regulated by the Veheragala Reservoir Project, and there is now discussion of reducing flow into the park by about half of the current level. The proposed plan also ensures dry season flow into YPC and has therefore been deemed acceptable as it ensures water flow during the dry season. However, there is a potential that farmers will demand further water releases during the dry season which could endanger the realization of the planned downstream water releases. So there is a potential trade-off between environmental and irrigation uses of the water.

A willingness to pay (WTP) survey was conducted in ten districts of Sri Lanka during the Fourth Quarter of 2008 to estimate the WTP of the general population of the country towards maintaining this important environmental resource. In the hypothetical market presented, participants were told of the need for financial contributions from the general public to ensure the release of a minimum downstream flow commitment of 50 MCM. Participants were also informed how this flow would enhance the ecosystem of YPC. A single bound dichotomous choice contingent valuation approach was used as the elicitation format. Non-obligatory voluntary contributions were solicited towards a trust fund that could be used to ensure release of the required quantity of water downstream during dry months.

According to the results of a binary logistic regression indicate that income, age, and religious attachments are important factors affecting the decision to contribute to environmental flow maintenance to YPC. College graduates are more likely to contribute while respondents from middle income classes and religious attachments contribute positively towards contribution. Non-significance of visitor status, sector of residence, and distance to YNP indicates that value of YPC's environment is appreciated by the general population irrespective of their previous experience as a visitor to YPC.

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65 percent of respondents were willing to pay something to assure maintenance of an adequate environmental flow in YPC. Estimated mean WTP for water releases to enhance YPC is 435 SLR per year. Over the requested payment horizon of ten years, the present value of aggregate WTP from the Sri Lankan population to enhance the ecosystem of YPC is 15.billion SLR. This quantity greatly surpasses the estimated 0.64 billion SLR present value of net benefits from rice farming which would be generated if the same quantity of water was used for irrigation for ten years (assuming current prices and input intensities). Thus, there is a clear opportunity for national welfare gain by assuring adequate flow in YPC.