

Valuing wetland ecosystem services in South Asian countries: A systematic review

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Abstract

In the recent years, there is a growing interest among the researchers for valuing environmental resources and their synthesis. Meta-analysis is one of the important statistical techniques for combining the findings from different independent studies. In this context, the present study deals with applying meta-analysis for wetland ecosystem services in respect of Asian countries specifically, Bangladesh, Bhutan, China, India, Pakistan, Nepal and Sri Lanka. The independent studies were identified based on the inclusion criteria and studies excluded based on the exclusion criteria (Scientific papers). A database has been constructed by extracting data from 47 studies in the context of valuation of ecosystem services for wetland using different methodologies between the years 1999 and 2013. Values were standardized as per 2013 USD per hectare per year. The database consists of four major classifications, namely wetland-types, characteristics, valuation methodologies and general information about wetlands with geographical location. There are four different Ordinary Least Square (OLS) models constructed using multiple independent variables with wetland value/ hectare. The first model consists of all the explanatory variables while the second consists of wetland type. The third model consists of wetland services whilst the fourth consists of valuation methodology in order to test the robustness of the model. Travel cost method, replacement cost method, and contingent valuation methods are widely used to estimate the wetland value compared to other methods. Further, these valuation methods explain the association of tighter budget constraint with lower household income and reduced ability to pay. The results show that the wetland area and wetland value are negatively significant, in which if wetland area increases, the value of wetland decreases by 0.33%. The constructed wetlands are positively significant to calculated wetland value which increases up to 12 USD/hectare. The regulatory service like disturbance regulation and water regulation are positively significant. This clearly shows that the value of wetland increases by 4 USD/hectare and 7 USD/hectare respectively. More importantly, the overall findings can be useful to inform and guide research and development on future empirical wetland valuation studies and to facilitate usage of value-transfer methods for valuing wetland.

Keywords: *Meta-analysis, South Asian wetlands, Valuation of wetlands.*

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