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**Valuation under uncertainty: Using the life-satisfaction approach to value the tangible and intangible benefits of flood control in the Philippines**

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**Abstract**

Non-market valuation approaches have been used to assess both tangible and intangible impacts of regulatory and/or provisioning ecosystem services. However, it is difficult to ensure reliable estimates under uncertainty, since these methods rely, inter alia, on people’s ability to (a) assess the probability of future events and their likely personal impact, and (b) then convert those estimates of impact into a ‘willingness to pay’ amount to avoid such occurrences. The life satisfaction approach allows one to assess impacts without requiring respondents to envisage an unpredictable future. We collected data from almost 400 households in a flood prone region of the Philippines. From 2008 to 2013, flooding generated an average of US$86 per annum in financial damages for each household. Additionally, many respondents felt that their lives, and/or that of family/friends, were threatened by floods. Our life satisfaction model predicted that the ‘average’ respondent required a one-off payment of between US$2,577 and US$3,221 (3.5 to 4.4 times the average annual income) to produce a similar positive impact on their life satisfaction as a future without floods. This estimated total compensation exceeds estimated financial damage by about 1/3 – the excess is an estimate of intangible flood costs.

**Key words:** project analysis, ecosystem services, disasters, life satisfaction approach