Contingent Valuation Method: A Practical and Participatory Resource Valuation in Upland Philippines

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Abstract. Valuing upland resources is essential to ensure its sustainability of use. This paper examined which existing method or technique of upland valuation best suits the Philippine setting. Employing a literature review, articles from different journals and websites were analyzed. Given sufficient data that Contingent Valuation Method (CVM) is practical and participatory, CVM was found to be the most commonly employed technique. These results can guide policy development on upland resource valuation.

Keywords: Contingent Valuation, Economics, Philippines, Sustainability, Sustainable Development Goals

Introduction

The planet has a plethora of resources and wonders, on which highly depends human civilization e.g. the economy. Oceans, rivers, mountains, waters, soils, and air resources are essential to human well-being (World Wildlife Fund, n. d.). Resources are categorized based on their strategic geographical positioning: the lowland and upland resources. At one hand, lowland resources are found at the foot of a slope less than 18% elevation. These are usually encompassed with rice fields and farms, where these areas are extensively used for human subsistence. On the other hand, upland resources are natural resources that inherently originate in slopes 18% or greater than elevation, such as timber, water resources, upland minerals, etc. However, both types of resources, especially upland resources, are subject to human overexploitation.

The Philippines is among Southeast Asian countries with a vast array of upland resources. The country's uplands and forestlands account for 50% of 30 million hectares of land, categorized as hilly and mountainous.

Filipinos, locals and migrants, depend on upland resources for an emporia of irreplaceable services such as provisions, regulation, culture and aesthetics (Landicho & Quizon, 2020). However, these resources are subject to challenges as the Philippine uplands are at high risk and vulnerable to

inappropriate resource utilization due to the increasing number of upland occupants (Bales et al., 2014).

One third of Filipinos (around 24 million people including indigenous, tribal, and marginalized communities) are living and cultivating an estimated upland area of 6 million hectares (Executive Order No. 606; Legaspi et al., 2021). With land utilization comes adverse effects such as abrupt degradation of the land resource and the reduction of ecosystem services.

The Sustainable Development Goals (SDGs) issued by the United Nations in 2015 aim to change the ways and means of life. These 17 goals aim to revolutionize global processes into something sustainable, innovating the realm of economic, social, and environmental spheres to be achieved by 2030 (Singh et al., 2022). This review underscores goals 11, 12, and 15: Make Cities and Human Settlements Inclusive, Safe, Resilient and Sustainable, Responsible Consumption and Production and Life on land, respectively. Goal 11 acknowledged the growth of the human population and the need to build cities that adhere to the needs of the civilization, emphasizing safe space and affordable and resilient cities with green and culturally inspiring living conditions. Moreover, 11.9 of the latter goal, Implement Policies for Inclusion, Resource Efficiency, and Disaster Risk Reduction, aims to increase the carrying capacity of cities and human settlements in utilizing and commencing policies that are connected and have plans towards efficiency on resource utilization, mitigation, and climate change adaptation. Goal 12 is anchored on sustainable utilization and production patterns. This stresses the need to efficiently create policies and robust governance that focus more on regulating the consumption of resources to avoid abrupt resource depletion due to the increase of consumption along with the increasing global population making the present and future generations to avail of these resources equitably. Additionally, goal 15 stresses the need to conserve and restore the terrestrial ecosystem and sustainably manage forest/terrestrial resources, combating desertification caused by forest resource depletion due to deliberate resource consumption and land conversion (United Nations, n.d.).

Various methods were used to compensate or subsidize the effects or the usage of a wide array of services the upland provides to intervene in the effects of these unwanted effects. Valuing resources regarding economic and social significance would help the decision-makers determine the effects of choices in the amount undertaken and how long it will take to rehabilitate the damaged or overused ecosystem services (World Wildlife Fund, n. d.). This estimation of the amount involves people deciding how much they are willing to expend to rehabilitate the environment. Achieving

these goals can be addressed by applying various modalities including resource valuation methods.

This paper aimed to assess the existing valuation methods and techniques for upland resources in the Philippines. The result of this analysis would help decision-makers devise or strengthen policies on valuing upland resources towards rehabilitation, conservation and sustainability.

Methodology

This paper employs analysis of various articles from different journals/websites (Journal of Environmental Science and Management, Resources, Journal of Philippine Development and Australian Water Partnership) gathered and tabulated the journal name, article title, author/s, resources valued, and valuation method employed. Saturation point (Saunders et al., 2018) was considered to avoid redundancy of the information drawn from the surveyed literature.

After tabulation, the researcher determined that the valuation method used across the surveyed journals/websites was interpreted based on its practicality and availability of literature and applications on various research. The selection of journals/websites is based on the top five results from search engines using the keywords “upland resources,” “valuation methods,” and “Philippines.”

Results and Discussion

This section presents the articles presented in tabular form drawn from journals and websites where various researches about the existing valuation methods of upland resources in the Philippines were gathered during article finding step (Table 1).

Water is found to be a resource that is consistently valued across the articles that were surveyed (Australian Water Partnership; Palanca-Tan, 2015; Ureta et al., 2016; Jalilov, 2017), while forest resources were found the least (Francisco & Espiritu, 1999). Although Economic Valuation using Cost-Benefit Analysis, Hedonic Pricing Method, Market-Based Valuation Method, and Travel Method Analysis were also found in the articles (Australian Water Partnership; Francisco & Espiritu, 1999; Palanca-Tan, 2015; Ureta et al., 2016; Jalilov, 2017), Contingent Valuation Method (CVM) was found to be the most common. The efficiency and practicality of CVM, usually applied to water resources and rehabilitation of specific ecosystem services, is widely attested (Francisco & Espiritu, 1999; Palanca-Tan, 2015; Ureta et al., 2016; Jalilov, 2017). Thus, it is perhaps to be considered as the most pervasive method of valuation.

Table 1. Upland Resource Valuation Methods in the Philippines

Article	Journal/ Website	Author/s	Resources Valued	Valuation Method
The case for valuing the water in the Philippines	Australian Water Partnership	Australian Water Partnership	Water Resources	Economic Valuation Using Cost-Benefit Analysis
Value of Clean Water Resources: Estimating the Water Quality Improvement in Metro Manila, Philippines	Resources	Jalilov, 2017	Water Resources	Contingent Valuation Method (CVM) and Hedonic Pricing Method
Knowledge, Attitudes, and Willingness to Pay for Sanitation Services: A Contingent Valuation Survey in Metro Manila, Philippines	Journal of Environmental Science and Management	Palanca-Tan, 2015	Water Resources	Contingent Valuation Method(CVM)
Valuation of Forest Resources in Watershed Areas: Selected Applications in Makiling Forest Reserve	Journal of Philippine Development	Francisco & Espiritu, 1999	Forest Resources	Employed a wide array of valuation methods: Travel Cost Method and Contingent Valuation Method
A Ridge-to-Reef Ecosystem-Based Valuation Approach to Biodiversity Conservation in Layawan Watershed, Misamis Occidental, Philippines	Journal of Environmental Science and Management	Ureta et al., 2016	Watershed Resources	Contingent Valuation Method (CVM) and Market-Based Valuation Methods

The contingent valuation method is one of the most flexible and ideal for a wide range of resources, especially upland resources. It is a method that allows people to participate in putting value to resources through

surveys or interviews wherein the interviewer can ask the pulse and preference of the community on how much money they are Willing To Pay (WTA) for a particular service or product.

As to the availability of data, CVM has a wide array of applications wherein it can be applied in valuing any resources, either in upland or in lowland resources, and it is evident in various literature and articles where CVM was used as a primary tool of valuation. Given that the data of this method is vast, researchers or even policy-makers can use this method as a deciding factor in putting value as it is a participative type of valuation and is considered holistic since the people were given a chance to decide on how much they are willing to give up to avail on specific resources based on their collective socioeconomic status and the demand of resources in the community where they are living. Once the data are done and extrapolated, it will result in promising values that can be utilized to put a value on the resources present. Also, it has been noted that the data on the method is available, and the literature survey would be easy, which would help establish the credibility of the method itself.

However, according to the Food and Agriculture Organization (n.d.), in one of the case studies that the organization has published online, CVM would implicate the services to rehabilitate the resources like in Davao City where a survey was conducted that was anchored using CVM revealed that water pollution control is not their priority or "not a high priority" of the residents. They think other environmental problems need to be funded aside from this. These responses may affect the administrators' decision once these would be the basis of contribution and funding. Hence, the contribution would be biased as it is influenced by the perception of the people as to what facet of the community or environment that is needed to be addressed and subsidized.

In terms of practicality, CVM can be used efficiently since the method can elicit real-life data and demographic information, plus the people's preference on how much they are willing to spend on a particular product. Further, combining these two (demographics and WTA) would produce a more conclusive inference on resource valuation and weighing and making decisions. However, the CVM may have been deemed a practical model for valuing resources. Still, the downside is that the approach is anchored to the assumption that the respondents provided accurate and unbiased answers to hypothetical questions that anchor to hypothetical scenarios (Baker et al., 2014). The integrity of this valuation method may be practical since it is tailored to fit the sociodemographic status of every respondent. However, it is smeared with the inaccurateness of the response of every individual who

participated during the interview or survey since the perspective is based only on a non-existent scenario, but it refers to it.

CVM can be considered as an applicable upland resource valuation method in the Philippines as this would help put a value on upland resources that have direct and indirect significance to ensure sustainability and the perpetual existence of upland resources of the country. However, the downside of the latter method is that uncertainties of responses shadow it since it is anchored to a hypothetical scenario, which may affect the perception of the respondent on how much money or subsidy they are willing to give to specific environmental resources like water resources to flourish or exist sustainably. Nonetheless, despite the disparity of the data given, CVM would be an indispensable tool to promote inclusive decision-making and service offerings.

Conclusion

CVM can be an efficient tool for valuing upland resources in the Philippines. Given sufficient data that this method is practical and participatory, it can be an ideal tool that would provide comprehensive valuation. However, a precaution when using CVM is the absence of a stable measure which might lead to the undervaluation of resources as it is contingent on arbitrary responses.

Therefore, scenarios presented to respondents must be posed in a way that elicits responses closest to the value they will actually set. Notwithstanding the practical and participatory character of CVM, the potential undervaluing of resources due to the reliance on bargaining raises fundamental ethical questions concerning the value of ecosystem resources—a pressing concern for the achievement of the sustainable development goals.

References

Baker, R., Donaldson, C., Mason, H., & Jones-Lee, M. (2014). Willingness to pay for Health. Encyclopedia of Health Economics, 495–501. https://doi.org/10.1016/b978-0-12-375678-7.00503-4

Bales, M., Cagasan, E., Asio, Ma. V., Baculfo, J. D., Flandez, L. G., Ramos, A., & Come, W. (2014). Participatory assessment of resources and needs of upland communities: A case in Inopacan, Leyte, Philippines. Annals of Tropical Research, 259–277. https://doi.org/10.32945/atr36s18.2014

The case for valuing water in the Philippines. Australian Water Partnership. (n.d.). https://waterpartnership.org.au/the-case-for-valuing-water-in-the-philippines/

FAO. (n.d.). Annex case studies. Economic valuation of water resources in agriculture. https://www.fao.org/4/y5582e/y5582e0b.htm

Francisco, H., & Espiritu, N. (1999). Valuation of Forest Resources in Watershed Areas: Selected Applications in Makiling Forest Reserve. Journal of Philippine

Development, XXVI. https://pidswebs.pids.gov.ph/CDN/PUBLICATIONS/pidsjpd99-1forest.pdf

Jalilov, S.-M. (2017). Value of Clean Water Resources: Estimating the Water Quality Improvement in Metro Manila, Philippines. Resources, 7(1). https://doi.org/10.3390/resources7010001

Landicho, L., & Dizon, J. (2020). Development pathways of upland farmers in selected sites of Conservation Farming Villages (CFV) program in the Philippines. Journal of Environmental Science and Management, 60–75. https://doi.org/10.47125/jesam/2020_sp2/05

Legaspi, R. M., Toribio, E. C., Yohanon, E. P., Predo, C. D., & Vergara, D. G. (2021). Assessing the profitability and sustainability of upland farming systems in Cambantoc subwatershed, Philippines. IOP Conference Series: Earth and Environmental Science, 892(1), 012066. https://doi.org/10.1088/1755-1315/892/1/012066

Official Gazette of the Republic of the Philippines. (2007). Executive order no. 606. https://www.officialgazette.gov.ph/2007/02/27/executive-order-no-606-s-2007/

Palanca-Tan, R. (2015). Knowledge, attitudes, and willingness to pay for sewerage and sanitation services: A contingent valuation survey in Metro Manila, Philippines. Journal of Environmental Science and Management, 18(2), 44–52. https://doi.org/10.47125/jesam/2015_2/05

Singh, H. P., Singh, A., Alam, F., & Agrawal, V. (2022). Impact of sustainable development goals on economic growth in Saudi Arabia: Role of Education and training. Sustainability, 14(21), 14119. https://doi.org/10.3390/su142114119

Saunders, B., Sim, J., Kingstone, T., Baker, S., Waterfield, J., Bartlam, B., Burroughs, H., & Jinks, C. (2017). Saturation in qualitative research: Exploring its conceptualization and Operationalization. Quality & Quantity, 52(4), 1893–1907. https://doi.org/10.1007/s11135-017-0574-8

United Nations. (n.d.). The 17 goals | sustainable development. United Nations. https://sdgs.un.org/goals

Ureta, J. C., Lasco, R., Sajise, A. J., & Calderon, M. (2019). A ridge-to-reef ecosystem-based valuation approach to biodiversity conservation in Layawan watershed, Misamis Occidental, Philippines. Journal of Environmental Science and Management, 19(2), 64–75. https://doi.org/10.47125/jesam/2016_2/07