



ENVIRONMENTAL VALUATION PRACTICES AND CHALLENGES IN MALAYSIA: A REVIEW OF METHODS AND POLICY IMPLICATIONS

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Abstract

This study highlights the critical role of environmental valuation in informing sustainable development in Malaysia, focusing on its role in assessing the economic value of environmental goods and services. Environmental valuation is crucial for providing policymakers and stakeholders with essential information to conserve and manage natural resources effectively. The study identified four primary environmental valuation methods used in Malaysia: Travel Cost Method (TCM), Contingent Valuation Method (CVM), Cost-Benefit Analysis (CBA), and Willingness to Pay (WTP). TCM emerged as the most frequently applied method due to its simplicity and effectiveness in estimating recreational benefits derived from ecosystems, while CVM was employed to gauge public willingness to pay for conservation. The study also highlighted several challenges faced by valuers, including difficulties in obtaining reliable data, identifying appropriate sampling methods, constructing effective questionnaires, time constraints, and determining suitable valuation techniques. Strengthening policy frameworks for environmental valuation is vital to enhance the adoption of accurate methods and improve valuation practices in Malaysia. This research explores the challenges of environmental valuation practice in Malaysia that hinder the effective valuation practices.

Keywords: Environmental valuation, Valuation method, Valuation practices, Real estate, Built environment, Sustainability

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INTRODUCTION

Malaysia's economic boom has brought forth environmental challenges, including pollution, deforestation, and biodiversity loss. To address these issues, the government has introduced environmental policies, emphasizing the importance of environmental valuation in decision-making. Environmental valuation assesses the economic worth of environmental goods and services. Despite its importance, there's a lack of awareness among Malaysian valuers about its application and benefits (Biswas, 2023; Vaghefi et al., 2015).

Valuers need to adapt traditional valuation methods to account for the unique characteristics of environmental resources. Recent government policies prioritize sustainable development and environmental conservation, but awareness among valuers about environmental valuation remains low (Guijarro & Tsinaslanidis, 2020). Environmental valuation awareness among practitioners is important, this could be enhance through the integration valuation results into the policymaking process (Pearce & Seccombe-Hett, 2000). Failure to incorporate environmental factors in property valuation could lead to overexploitation of natural resources and environmental degradation. Valuers' limited understanding of environmental valuation methods poses challenges.

Insufficient literature and integration of valuation results into decision-making processes hinder effective environmental policy implementation (Abdullah et al., 2018). Additionally, there's a need to develop holistic valuation approaches that capture diverse ecosystem values and consider environmental aspects in property transactions. The research aims to identify environmental valuation practices and challenges in Malaysia. By strengthening valuers' comprehension and addressing existing implementation gaps, this study aims to enhance the economic assessment of natural resources, support more informed decision-making, and advance sustainable development practices. In this context, there is a pressing need for environmental studies in Malaysia to further improve environmental behaviour and awareness within the community (Razali et al., 2025).

This study holds significant potential for enhancing the understanding and utilization of environmental valuation among valuers in Malaysia. It aims to provide insights to various stakeholders, including valuation professionals, environmental organizations, property investors, academia, and researchers. The research scope focuses on the practices of environmental valuation in Malaysia and the challenges faced by valuers regarding its implementation. Qualitative data collection methods, such as in-depth interviews with key informants like environmental valuation experts, policymakers, and valuers, are utilized to gather insights into the current state of environmental valuation practices in Malaysia.

LITERATURE REVIEW

Classification of Valuations: Direct Vs. Indirect

Valuation methods are categorized into direct and indirect approaches. Direct valuation involves assessing individuals' preferences and behaviours to estimate the economic value of environmental goods and services. Contingent valuation (CV) and stated preference methods, like choice experiments, are commonly used in direct valuation. CV presents hypothetical scenarios to individuals, eliciting their willingness to pay or accept compensation for environmental changes. Stated preference methods gauge individuals' preferences and value trade-offs for environmental attributes. Direct valuation methods are valuable internationally but may face challenges in Malaysia due to cultural differences and the complex nature of environmental goods (Pek, 2014).

Indirect valuation, or revealed preference methods, estimate environmental resource value indirectly through market behaviour or existing market data (Pek et al., 2010). Hedonic pricing examines the relationship between market prices of goods and their environmental attributes, while Travel Cost Analysis assesses the economic value of recreational sites based on travel expenses. While indirect valuation methods offer insights into the economic value of environmental resources, their application may be limited by data availability and market relevance in the Malaysian context.

Environmental Valuation Method

Environmental valuation methods provide frameworks for quantifying the economic value of ecosystem services and resources. The environmental valuation methods in Malaysia include Discounted Cash Flow (DCF), Cost-Benefit Analysis (CBA), Contingent Valuation Method (CVM) and Empirical and Analytical Models. Discounted Cash Flow (DCF) estimates the intrinsic value of an investment by projecting future cash flows and discounting them to their present value (Schumacher & Klönne, 2018). Key steps include projecting cash flows, discounting them using a suitable rate, and conducting sensitivity and scenario analyses. While widely used, DCF relies on accurate projections and is sensitive to discount rate selection.

Next, Cost-Benefit Analysis (CBA) evaluates ecosystem-related projects by comparing economic benefits with costs (Turner, 2016). In Malaysia, CBA is used for valuation projects like reforestation. The challenges of CBA implementation include monetizing non-market values and capturing the full range of ecosystem services. Therefore, the opportunities for improvement include refining estimation techniques and considering the distributional impacts. Meanwhile, the Contingent Valuation Method (CVM) assesses individuals' willingness to pay for environmental improvements (Samdin, 2008). In Malaysia,

CVM is used for valuing water quality improvements (Mahirah et al., 2015). Challenges of implying CVM include survey design and cultural differences, while CVM opportunities lie in refining techniques and incorporating local factors for valuation. The last environmental valuation method are Empirical and Analytical Models. Empirical and Analytical Models estimate the economic value of ecosystem services. In Malaysia, studies have used hedonic pricing to value the proximity to green spaces. Challenges of Empirical and Analytical Models include data availability and representativeness, while opportunities exist in leveraging geospatial analysis and remote sensing technologies alongside the method application (Li et al., 2016).

Practices of Environmental Valuation in Malaysia

Environmental valuation in Malaysia spans into various domains, including biodiversity, ecosystem services, environmental quality, natural resource extraction, and ecosystem restoration and conservation efforts (Islam et al., 2024, Sunoto et al., 2020). Studies in Malaysia employ methods like contingent valuation and choice experiments to estimate the economic value of biodiversity. Past studies by Mzek and Mohamad, (2022) used choice experiments to indicate public willingness to pay for Malayan tiger conservation attributes in Taman Negara Park in Pahang, Malaysia, emphasizing its economic importance. Efforts have been made to value ecosystem services like water provisioning and quality regulation using methods such as market price and replacement cost analysis.

Study by Nitanan et al. (2020) highlighted the economic benefits of protecting and sustainably managing forests for water resources in Malaysia. Studies employ contingent valuation and hedonic pricing to assess the economic value of improved environmental quality. Other research such as Freeman et al. (2019) used contingent valuation to measure the willingness to pay for cleaner air in urban areas, offering insights into potential air pollution reduction policies. Methods like cost-benefit analysis and resource rent analysis are used to estimate the economic value of natural resource extraction. Asnor et al. (2022) assessed the economic viability of mineral extraction projects in Malaysia, considering financial returns and associated costs. Valuation methods, including contingent valuation, assess public willingness to pay for ecosystem restoration projects. Meanwhile study by Pindilli et al. (2018) demonstrated the economic value of peatland restoration in terms of carbon sequestration and biodiversity conservation.

Based on the past studies it is shown that the practices of environmental valuation in Malaysia reveals the economic significance of biodiversity, ecosystem services, and environmental quality. Diverse methods like contingent valuation and choice experiments showcase public willingness to pay for conservation and restoration efforts (Yusoh et al., 2022; Sunoto et al., 2020).

These findings of the past studies could guide sustainable policies, promote environmental preservation to enhance the ecological and economic resilience.

Challenges of Environmental Valuation Practices

In Malaysia, valuers play a crucial role in assessing the value of property, assets and land development including natural resources. However, limited awareness and understanding of environmental valuation among valuers pose significant challenges. Many valuers in Malaysia predominantly rely on conventional methods that emphasize comparison and market-based approaches. This preference is because of limited exposure and familiarity with environmental valuation method. This leads to challenges in assessing the economic value of non-market ecosystem services, potentially resulting in undervaluation or neglect of environmental aspects in the valuation process (Abdullah et al., 2018). Initiatives have been undertaken to enhance valuers awareness and education regarding environmental valuation.

There is a pressing need for continued professional development through training programs by professional organizations, academic institutions, and government agencies to familiarize the valuers with environmental valuation. Collaboration between environmental experts, economists, and valuers is encouraged to facilitate knowledge exchange and discussion. Interdisciplinary dialogue and collaboration provide valuers with insights into valuation method and data sources required to effectively integrate environmental factors into assessments. Opportunities exist to further enhance valuers awareness of environmental valuation in Malaysia. Continued professional development programs focusing on environmental valuation can equip valuers with necessary knowledge and skills. Additionally, promoting research and case studies showcasing successful environmental valuation practices can inspire valuers to adopt these methods in their valuation practice (Vejaratnam et al., 2023; Al-Saleh & Taleb, 2010).

RESEARCH METHODOLOGY

This study adopts a qualitative research approach, employing a purposive sampling technique. The qualitative analysis is used to explore and examine the challenges and practices associated with environmental valuation among valuers in Malaysia. Qualitative methods, such as in-depth interviews, were utilized to gather rich, detailed insights directly from the individuals involved in the valuation process (Gerring, 2017).

The selection of key informants, namely valuers from reputable organizations involved in property assessment and valuation, ensured that the collected data represented a diverse range of perspectives and experiences within

the field. These interviews were conducted in the year 2023 using semi-structured guides, allowing for a balance between predefined questions and the flexibility to explore emerging themes and ideas raised by the interviewees. Before conducting the interviews, the researchers took steps to establish the credibility and authenticity of the study. Support letters from academic institutions were obtained to validate the research's legitimacy, which also served as a means of gaining trust and cooperation from the participants. Additionally, participants were encouraged to suggest other potential interviewees from their networks, further broadening the scope of the study. Once the interviews were completed, the data underwent thorough analysis using content analysis techniques.

Content analysis involves systematically organizing and categorizing the interview transcripts to identify recurring themes, patterns, and relationships within the data. The content analysis is manually done by the researchers to extract meaningful insights from the respondents, provide findings on the challenges faced by valuers in environmental valuation practices and the various approaches they employ to overcome these challenges. By focusing on the primary data collection, the research aimed to ensure the reliability and validity of the findings. Primary data, gathered directly from the participants, is considered more credible than secondary data sources as it reflects the firsthand experiences and perspectives of those involved. Overall, this approach provided a comprehensive understanding of the insight of environmental valuation practices in Malaysia, offering valuable insights for both research and practical application in the field

RESULTS AND DISCUSSION

The qualitative approach in this study involved collecting essential data from selected respondents to achieve the research objectives. Nine respondents were carefully chosen based on their qualifications and experience in the property valuation field. Each brought valuable insights to the study, contributing from their respective professional backgrounds. For instance, the first respondent, with 12 years of experience, holds the position of *Pegawai Penilaian Kanan* at the Valuation and Property Services Department (JPPH) Perak. Respondent 2, with 16 years of experience, serves as *Penilai Daerah* at JPPH Taiping. Respondent 3, representing the Institut Penilaian Negara (INSPEN), brings 10 years of expertise as a *Pegawai Penilaian*. Similarly, Respondent 4, a *Pegawai Penilaian Kanan* at JPPH Alor Setar, has 13 years of experience in the valuation field. The study also includes respondents from the National Property Information Centre (NAPIC) Putrajaya, JPPH Kuantan, JPPH Sandakan, JPPH Kelantan, and JPPH Gombak, with valuation experience ranging from 8 to 14 years. This diverse panel of respondents, with their varied roles and extensive experience, provided

comprehensive perspectives on property valuation practices, contributing significant data to the study's findings.

Based on the interview that was conducted with the respondents, the common practice for environmental valuation in Malaysia among the nine respondents is Travel Cost Method as shown in Table 1. The interviews conducted with nine respondents in Malaysia revealed that the Travel Cost Method (TCM) is commonly used for environmental valuation. However, the respondents showed diverse expertise in various property valuation practices. For instance, some respondents were proficient in methods like the Contingent Valuation Method (CVM), Cost-Benefit Analysis (CBA), and Willingness to Pay (WTP), while others were familiar with the Travel Cost Method and Inventory Log. These insights provide a comprehensive understanding of the different approaches employed by valuers in Malaysia. Furthermore, the respondents shared their experiences and challenges encountered in their valuation practices. Issues ranged from difficulties in data collection and constructing questionnaires to challenges in obtaining accurate information and securing respondent cooperation. Some respondents expressed satisfaction with the feedback received, while others highlighted specific obstacles they faced, such as the time-consuming nature of deriving values or the lack of commitment in survey responses for data collection. These varied responses shed light on the diverse perspectives and experiences of valuers for environmental valuation Malaysia.

Table 1: Common Methods used for Environmental Valuation in Malaysia

Common Methods used for Environmental Valuation in Malaysia	R1	R2	R3	R4	R5	R6	R7	R8	R9
Travel Cost Method (TCM)	/		/	/	/	/	/	/	/
Contingent Valuation Method (CVM)	/							/	
Cost Benefit Analysis (CBA)		/							
Willingness To Pay (WTP)			/						

Source: Author's analysis (2023)

Table 1 highlights the common methods used for environmental valuation in Malaysia, as identified by nine respondents (R1-R9). Methods such as the Travel Cost Method (TCM) and Cost-Benefit Analysis (CBA) are widely recognized, while the Contingent Valuation Method (CVM) and Willingness to

Pay (WTP) have more limited application, reflecting varying familiarity among practitioners.

Regarding regulatory or policy frameworks affecting environmental valuation, the responses are varied. While some respondents indicated the presence of guidelines within their departments for assessing natural resources, others expressed uncertainty or stated the absence of specific frameworks. This suggests a range of awareness and understanding among valuers regarding the regulatory landscape for environmental valuation in Malaysia. Additionally, challenges related to data quality and availability were addressed by the respondents as shown in Table 2.

Table 2: Difficulties Encounter by Valuers in Environmental Valuation

Difficulties Encounter by Valuers in Environmental Valuation	R1	R2	R3	R4	R5	R6	R7	R8	R9
Difficulty in obtaining respondent feedback and the time-consuming nature	/	/			/				
Data collection from other agencies			/						
Challenge of constructing a questionnaire				/					
Limited data availability						/			
Data accuracy						/			
Determination of the actual costs									/
None							/		

Source: Author's analysis (2023)

While some respondents acknowledged limitations in data availability and challenges in obtaining suitable comparative information, others perceived no specific issues with data quality or availability. This variation in perspectives underscores the complexity of factors affecting the accurate valuation of environmental resources in Malaysia. The respondents' feedback revealed methodological challenges faced by valuers in choosing and implementing environmental valuation practices in Malaysia. These challenges include the time-consuming nature of obtaining respondent feedback and deriving values, difficulties in acquiring precise and high-quality data, challenges related to sampling data and ensuring representative datasets, issues with questionnaire construction, and the determination of a suitable methodology. While one respondent perceived no particular methodological challenges, others

emphasized the complexities involved in deciding on the most appropriate approach and data availability.

Additionally, insights were provided into the challenges related to monetizing non-market environmental goods and services in Malaysia. Respondents highlighted the need for a clearer understanding and a more refined approach compared to conventional valuation methods. While some respondents directly acknowledged the existence of challenges in this aspect, others expressed doubts about the reliability and accuracy of the process. Overall, the responses reflected a mixed perception among the respondents regarding the challenges associated with monetizing non-market environmental goods and services in Malaysia, with varying levels of emphasis on the complexities involved. Overall, the responses provided valuable insights into the practices, experiences, and challenges encountered by valuers in Malaysia when employing environmental valuation methods. The diversity of perspectives and experiences highlighted the need for tailored approaches and continued efforts to address challenges in environmental valuation practices in Malaysia.

While some participants perceive no challenges related to data quality and availability, others encounter difficulties in accessing reliable data, which can affect the accurate valuation of environmental resources. Methodological challenges faced by valuers include the time-consuming nature of data collection, acquiring high-quality data, sampling, constructing questionnaires, and determining suitable methodologies as shown in Table 3. Challenges in monetizing non-market environmental goods and services arise from the increased complexity associated with economic assessments and the lack of access to reliable data. These findings collectively underscore the multifaceted nature of environmental valuation in Malaysia and the need for addressing various challenges to ensure accurate and reliable valuation outcomes.

Table 3: Methodological challenges encountered by valuers in choosing and implementing environmental valuation methods

Methodological challenges encountered by valuers in choosing and implementing environmental valuation methods	R1	R2	R3	R4	R5	R6	R7	R8	R9
Acquiring Precise and High-Quality Data / Data Reliability		/				/			
Identification of Data Sampling			/			/			
Constructing a Questionnaire for data collection				/				/	
Time-Consuming	/								
Determination of Valuation Method									/
None							/		

Source: Author's analysis (2023)

Table 3 identifies various methodological challenges faced by valuers in implementing environmental valuation methods. A key issue highlighted by respondents is acquiring precise and reliable data, which is critical for accurate valuation. Challenges in identifying appropriate data sampling methods and constructing effective questionnaires for data collection were also noted by several respondents. The time-consuming nature of these processes poses an additional hurdle, reflecting the complexity and effort required for environmental valuation. Furthermore, some respondents highlighted difficulties in determining suitable valuation methods, underscoring a gap in expertise and familiarity with advanced techniques. These challenges collectively impact the efficiency and accuracy of valuation practices.

The research findings highlight various aspects of environmental valuation in Malaysia, including common methods used, challenges encountered, policy frameworks affecting valuation practices, difficulties faced by valuers, and challenges related to data quality, availability, and methodology. The most common methods used for environmental valuation in Malaysia include the Travel Cost Method (TCM), Contingent Valuation Method (CVM), Cost Benefit Analysis (CBA), and Willingness To Pay (WTP). TCM is particularly popular due to its practicality and applicability in Malaysia's diverse natural attractions, especially for assessing the economic value of natural sites visited by tourists.

However, challenges such as difficulties in obtaining accurate data, participant engagement, and determining the actual costs are encountered by valuers using these methods. Many participants are unaware of regulatory or policy frameworks affecting the selection and use of environmental valuation methods, suggesting a need for clearer guidelines and regulations in this area. Difficulties in using environmental valuation techniques include resource constraints, interagency collaboration challenges, methodological complexity, and the importance of comprehensive and accurate data.

CONCLUSION

The study aimed to explore the practices and challenges of environmental valuation in Malaysia, recognizing it as a tool to assess the economic value of environmental goods and services. Environmental valuation provides critical information for policymakers and stakeholders to effectively conserve natural resources. This study identified both the practices and challenges faced by valuers in Malaysia. Based on the findings, four main environmental valuation methods are commonly used in Malaysia: the Travel Cost Method (TCM), Contingent Valuation Method (CVM), Cost-Benefit Analysis (CBA), and Willingness to Pay (WTP). TCM emerged as the most widely used method due to its simplicity and effectiveness in estimating the recreational benefits generated by ecosystems. CVM was also utilized to measure public willingness to pay for environmental conservation. However, CBA and WTP were less frequently applied, possibly due to issues of complexity and perceived appropriateness.

The study also highlighted several challenges faced by valuers, including difficulties in obtaining accurate data, identifying appropriate sampling techniques, designing reliable questionnaires, time constraints, and selecting suitable valuation methods. To address these issues, the government should introduce training programmes to strengthen valuers' competencies in environmental valuation techniques and improve the overall quality and consistency of practice. The development of policy frameworks for environmental valuation practices is crucial to facilitate the selection and application of accurate methods for valuing environmental goods and services. This study had some limitations, including a small sample size, a focus exclusively on the Malaysian context, and the qualitative nature of the research. Future studies could address these limitations by increasing the sample size, extending the research timeline, and adopting a mixed-methods approach. The findings of this study provide a foundational basis for strengthening environmental valuation practices in Malaysia, particularly in the context of the country's diverse ecosystems and rapid urbanisation. By addressing these challenges, the study contributes to advancing sustainability initiatives,

enhancing environmental preservation, and promoting greater ecological and economic resilience.

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DISCLOSURE STATEMENT

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