

# Willingness to Pay for Conservation and Sustainability of Lenggong Valley as World Heritage Site (WHS)

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## Abstract

According to archaeologists, Lenggong Valley (LV) is linked to the earliest known human inhabitant in Southeast Asia as well as the region's only thoroughly documented prehistoric human skeleton. It is important although, since it was only named a World Heritage Site (WHS) in June 2012. Thus, not much of the people are aware of the importance of maintaining the heritage site. As for LV, lacking in maintenance is the main issues that contribute to the lack of maintenance. Due to lack of maintenance has led to some issues where the UNESCO can remove LV as the WHS in the UNESCO list. Therefore, the understanding of local people and tourist can help in the success of the future conservation and sustainability within the area. The main objective of this study is to examine the economic values that local people are willing to pay to visit LV, Perak. While the specific objective of this research is to investigate the local community engagement and perception towards the importance LV as WHS. Next, is to determine the factors that influence local community Willingness of pay to visit LV. Lastly, is to determine the demographic factors that influence local community willing to pay to visit LV. For this study, a random sample of 400 respondent were carried out. 300 are from local residents from two villages adjacent to the heritage site were interviewed using questionnaires. The data was analysed using SPSS version 17. This research received funding from Ministry of higher education, Malaysia (MOHE) under Fundamental Research Grant Scheme (FRGS) with project code No: FRGS/1/2020/WAB10/TAYLOR/02/1.

**Keywords:** World Heritage Site, Willingness to Pay, Lenggong Valley, Stakeholder's, Local Community

## Introduction

The United Nations Educational and Scientific Organization (UNESCO) uses this as a broad framework for a World Heritage Site (WHS) designation since it has enabled a global standard (UNESCO). However, Zhang (2010), argues that these standards are largely restricted to the scientific value as determined by experts and are rather arbitrary. Additionally, according to Mason (2002), if the conservation area is to be successful in safeguarding the precious cultural heritage assets, one must acknowledge that it has a significant physical, economic, and social

significance. Increasing the social significance of heritage assets is the key to creating a conservation strategy that is both sustainable and effective. This is to guarantee that conservation efforts are sensitive to environmental, economic, and social factors (Mason, 2002). Natural and cultural heritage assets are key components of tourism destinations, acting as attraction factors for tourist flows as well as contributing to the destination's comparative advantage and competitiveness. Most of the studies stated that visitors in general are less likely interested in visiting cultural heritage sites due to the lack information about heritage site. Besides that, in recent research on cultural heritage state that cultural heritage assessment is the lack of empirical references on the economic valuation of cultural heritage preservation. According to Throsby (2007), valuing a cultural heritage depends greatly on the public's perception of the issue. A significant societal factor in the sustainability of their history is the public's participation in valuing cultural assets. It will be more effective to analyse the value by involving a variety of stakeholder groups with an interest in a location or item, as this will increase the sustainability of conservation efforts to manage and protect their legacy (Avrami et al., 2000). The value of public goods can be estimated through community engagement in a number of ways and according to a number of established approaches. One of the finest ways for a community to recognise, assess, and decide how much to value something is through economic valuation (Throsby, 2007).

### **Malaysia World Heritage Site**

Malaysia is linked to four World Heritage Sites (WHS). Two of them fall under the cultural category, while the other two under natural. The obligation to preserve cultural heritage has been impacted in Malaysia by the country's current rate of development, economic expansion, growing educational levels, and the concomitant rise in leisure time. Protecting the nation's natural heritage, tangible and intangible cultural heritage, underwater cultural heritage, and valuables like money, coins, gold, silver, or anything anchored to the ground or the bottom of a river, lake, or ocean is the responsibility of the Department. Despite these advancements, there are still issues with legislation implementation and enforcement due to a lack of enforcement personnel to monitor the enormous number of archaeological and cultural sites scattered around the country. Some archaeological sites are difficult to manage because of their remoteness and position deep into the jungle. In comparable situations, a number of museums, like the Sabah and Sarawak Museums, have hired a workforce with the help of the locals to monitor and protect the sites. As more visitors go to Malaysia to see its historical landmarks, locals are learning to value the importance and advantages of heritage and cultural tourism. The UNESCO WHS designation has also increased the possibilities for cultural sites to be protected internationally. Tourism and inward migration have grown as a result of the restoration of this specific WHS (UNWTO, 2011).

### **Archaeological Heritage of the Lenggong Valley, Perak**

One of the oldest human settlements in peninsular Malaysia is in the Lenggong Valley. An outdoor museum with a large collection of historical artefacts dating back around 1.3 million years is called the Lenggong Archaeology Museum. The UNESCO designated it as a World Heritage Site on June 30, 2012. A well-planned and well-managed municipal tourism programme has a favourable impact on the local economy and quality of life, according to a study by (A. Khadar et al., 2014). The potential for successful domestic industries including lodging, dining, transportation, souvenirs, and the local community economy, as well as an improvement in quality of life, are just a few of the benefits. In addition, some communities

are unwilling to take part in WHS conservation programmes or contribute in any way to the preservation of Lenggong's cultural or historical heritage because they are unaware of the advantages that will come from the designation of Lenggong as a WHS (Jaafar et al., 2015). Living standards rise as a result of community involvement, with tourism growth serving as a supplementary benefit to the WHS's UNESCO designation (Jaafar et al., 2014). Many of the advantages of juvenile involvement in WHS protection are comparable to those attained through adult involvement, such as general public participation. The sustainable development of upcoming tourist destinations depends on community involvement in WHS protection and tourism development (Nicholas, Thapa, & Ko, 2009; Rasoolimanesh & Jaafar, 2016). Local inhabitants' quality of life is improved and heritage site conservation programmes are made more sustainable by their involvement in WHS heritage management and tourism development (Nicholas et al., 2009; Sirisrisak, 2009). According to the 1987 Washington Charter for the Conservation of Historic Towns and Urban Areas, "Resident participation and involvement are essential to the success of the conservation programme and should be encouraged." Young people in the Lenggong valley were not particularly interested in future conservation efforts, according to a study by Jaafar, Noor, et al. (2014).

According to a study by (Mat Stafa Rapidah et al., 2018), the Lenggong Valley consistently draws a sizable number of tourists each year, and both tourists and students alike frequently visit the area because of its renowned archaeological site. According to the trip advisor app, there are no entrance costs at the Lenggong Valley Museum. Additionally, a variety of travel agencies provide trips to the Lenggong Valley at various prices depending on the pickup location and amenities. Lenggong Valley, however, has drew criticism, with many people lamenting the absence of essential infrastructure and transportation. Additionally, according to a study by Jaafar et al. (2015), inhabitants with negative sentiments feared that Lenggong's classification as a World Heritage Site would disturb their lives, the peace, and result in a host of new problems for the community. A well-planned and well-managed municipal tourism programme has a favourable impact on the local economy and quality of life, according to a study by (A. Khadar et al., 2014).

### **The Importance of The Heritage Site Conservation**

According to research on heritage conservation in Malaysia, it is still in its infancy. According to Ahmad Basri and Suhana (2000), historic settlements have served as living museums that have served as reminders of our history and have allowed us to learn about our heritage, culture, and values as well as how to respond to our constructed environment. Additionally, according to Abdul Ghafar (1998), there are several reasons why heritage needs to be kept and conserved. First, it might be done to demonstrate respect for the past. Second, it might take part in safeguarding records of the country's achievements and expansion. People, especially the younger generations, would learn to value their own culture and legacy through conservation. Thirdly, it might be done to preserve the scale and proportion of a historical area's physical features. Finally, it might be done to improve the tourism sector, which would boost the local and national economies. Today, there is a growing emphasis on heritage building conservation in Malaysia. This is due to the fact that conservation efforts assist the community and the entire nation in a variety of ways. The existence of historical heritage buildings is maintained by conservation efforts, which are an effective step in ensuring their preservation. The destruction of cultural heritage structures in Malaysia is usually becoming

more and more of a threat, not only from conventional damage but also from changes in social and economic conditions. As a result, it should be put into practise.

### **Willingness TO Pay for Conservation and Sustainability**

Lenggong Valley, which is Perak, Malaysia is one of the protected areas for the conservation and protection of the world heritage site by UNESCO. Because the current prices for the majority of cultural heritage sources are no longer appropriate given the current state of the economy, the majority of empirical studies on the conservation of cultural heritage have demonstrated that the price of admission does not clearly define the benefits of cultural heritage (Ariffin, 2015). According to the study done by (Azrin et al., 2020) state that, the local economy has altered as a result of rising inflation each year and the introduction of several new government initiatives. Therefore, it is important to perform economic revision studies to determine the true value that may be translated into the advantages of cultural heritage, thereby assisting in the growth of local community, state, and national economies. The goal of this research study is to evaluate the economic worth of a cultural heritage by investigating the evaluation techniques that have gained widespread recognition in the economics field, particularly among environmental and cultural economists, and their applicability to the Lenggong Valley World Heritage Site. As a result, the maximum sum that a respondent would be ready to pay for the suggested management of the heritage site conservation can be determined by an economic value analysis. Due to its adaptability, this technique has been widely employed by the authorities to estimate the willingness-to-pay (WTP) value. According to Mourato and Mazzanti (2002), this approach is more practical for determining the cultural heritage value of all WHS. The reason Lenggong Valley, Perak being choose for this study is because out of 4 world heritage sites in Malaysia Lenggong is the only heritage site that are not being taking care. The oldest human skeleton discovered in Southeast Asia, known as Perak Man, was discovered in Malaysia's Lenggong Valley, where people first lived almost 2 million years ago. However, the UNESCO status of these sites is in great danger due to the state of their sites, which include signs that are rotting and boardwalks that are broken.

### **Literature Review**

#### *Cultural Heritage Site Conservation*

The term "cultural heritage" refers to both tangible and intangible assets that contain distinctive aspects that have captured the spirit and character of the country. These include historic buildings, locations, customs, and other significant properties. Cultural heritage is the collective legacy of a state, a cultural group, and most importantly, of all people. The safeguarding of cultural heritage materials forms the main tenet of conservation. When attempts are made to stop the deterioration of the historical resources over time, conservation becomes more important (Tunbridge & Ashworth, 1996). It places a strong emphasis on making the most of heritage assets so that people can enjoy them and utilise them recreationally while also working to preserve the heritage's essential values for coming generations (Pearce & Ozdemiroglu, 2002). According to Timothy and Boyd (2003), government agencies in developing nations often list and protect heritage at the national level. As a result of the numerous associations and conservation organisations, quasi-public types of guardianship are becoming more popular in industrialised countries. Beyond national borders, there are a number of international organisations that act as the protectors of the organisations in charge of designating and protecting culturally significant objects. Additionally, the most well-known organisation is UNESCO, whose World Heritage Listing

(WHL) seeks to protect and confer international prestige on buildings or locations of special historic, cultural, and ecological qualities throughout the world.

### **Attitude, Cultural Knowledge, and Awareness**

A heritage site's viability is influenced by attitudes, cultural knowledge, and a broad understanding of the region (Kamamba, 2003; Timothy & Boyd, 2003). Relationships between the stakeholders and their legacy would be strengthened by a favourable attitude toward cultural heritage and development, which might help foster a sense of collective responsibility for a site (Chhabra, 2010; Landorf, 2009). One of the main causes of human risks is a lack of understanding of cultural heritage and its significance. On the other side, improved heritage preservation and reduced damage to the locations could result from enhanced stakeholders' and visitors' understanding (Stubbs, 2004).

### **Conservation and Management**

The majority of nations have laws governing national, state, and local levels of cultural preservation. The government could designate a site as protected under a heritage protection plan. Anyone who fails to protect a site's cultural worth could face legal repercussions. By using the appropriate legal procedures, this is done in order to safeguard the public interest. According to Avrami et al (2000), cultural heritage values must be considered as a component of any conservation development approach in order to make sure that the conservation interventions were sensitive to both social and physical contexts. Additionally, they believed that by involving local communities in the upkeep and preservation of their cultural heritage, analysing values through a participatory process that has included the various interest groups with a stake in a location or object could support the sustainability of conservation efforts. Therefore, attempts to keep the past as it should have been the foundation for sustained marketing of the heritage (Chhabra, 2010). A good legacy management system is shown to be quite significant in addition to that. Such a system should have well defined procedures and qualified personnel in charge of site maintenance and control (Arthur & Mensah, 2006). Regular maintenance has been shown to be the most fundamental and significant method of conservation, and it should include regular monitoring, the identification and elimination of potential hazards, and the correction of minor deteriorations (China ICOMOS, 2004). However, involvement, accountability, transparency, the application of the law, and effective communication should be the hallmarks of good governance at the local level (Arthur & Mensah, 2006; Shipley & Kovacs, 2008).

### **Heritage Interpretation and Visitor Management**

Heritage guides and visitor management were shown to be crucial for a successful sustainable heritage tourism industry (Kamamba, 2003). Tourism benefits are typically attained through thorough knowledge of historic places and effective tourist management. According to Al-Hagla (2010), the cultural history was discovered to be crucial to the sustainability of the cultural heritage assets through the direct encounters where the tourist would discover, experience, and consume. ICOMOS has stated that the larger social, cultural, historical, and environmental surroundings, as well as the setting, must be considered when interpreting the significance of cultural heritage sites (Al-Hagla, 2010). It is a well-known truth that intergenerational justice and the ongoing use of resources depend on authenticity and heritage conservation (McKercher & Cros, 2002). Events that highlighted local culture may be created or promoted to draw more visitors and foster a sense of community pride. But care



must be taken to make sure that the regional history and culture were also presented with reverence and compassion (Chhabra, 2010).

### **Funding and Incentives**

The Royal Town Planning Institute (2000), determined that financial incentives and support were the most effective ways to achieve successful sustainable conservation programmes. They might be found in the areas of cultural heritage, tourism, urban renewal, transportation, art, sport, and education, among others. While there were opportunities, they were not long-term, and regular funding was needed to ensure the sustainability of the heritage assets. It was crucial to find additional funds in order to preserve the heritage items. Emerton, Bishop, and Thomas (2006), identified a wide range of potential strategies for boosting the protected regions' economic viability. They include remote money provided by management or NGOs, local funding provided by local governments or NGOs, private businesses, tourism fees, cost reductions, service charges, etc (Emerton et al., 2006). When the locations saw a lot of visitors, Emerton et al (2006), found that visitor fees were very promising. Additionally, the visitor costs might be controlled in accordance with the number of visitors. Cultural heritage management and conservation have been judged necessary in many developing nations with better planned tourism in order to boost costs and revenues while also being more sensitive to the social and cultural aspects (Chhabra, 2010). Through the strengthening of local constituency for the preservation of cultural assets, such earnings could further raise not only the local level of life but also conservation efforts (Baral, Stern & Bhattarai, 2008). This would not only reduce the revenues that the locals could use to pay for their standard of living and other social costs associated with economic development, but it would also be a factor in boosting tourism (Mansfeld, 1992).

### **Community Involvement and Partnerships**

The crucial importance of stakeholders in the decision-making processes relevant to the development of heritage tourism has also been addressed by Pearce and Ozdemiroglu (2002). Researchers have discovered that this strategy might promote sustainability and offer built-in social advantages. The local community was multi-ethnic and might include a variety of constituencies, according to Chhabra (2010). It is essential to involve stakeholders, guests, locals, and the environment in order to avoid potential conflict (Aas et al., 2005; Landorf, 2009). Long-term effectiveness of a sustainable conservation plan is proven to be significantly influenced by local and community interests as well as local organisations and people (The Royal Town Planning Institute, 2000). Therefore, in order to ensure their support, the needs and goals of the multi-ethnic communities inside the WHSs must be taken into consideration. The advantages of tourism should be distributed evenly among the communities and other stakeholders in order to accomplish this goal. According to Xiang (2009), it is important to include the primary stakeholders who live in and around the heritage site, the local community. Their personal sustainability should be a crucial component of the overall sustainability of the heritage (Hall & McArthur, 1993). It was also discovered that the stakeholders' involvement in the management of the heritage source was crucial for empowering the local societies and enhancing the just distribution of the source's benefits (Landorf, 2009).

**Willingness to Pay**

WTP generally has a greater impact on how conservation and sustainability are measured. More than half of the tourists surveyed in this study, according to research by Jurado-Rivas & Sánchez-Rivero (2019), said they would not pay more for more sustainable tourism services, demonstrating a lack of awareness of the drawbacks of tourist management that departs from sustainability principles. Additionally, the study conducted by Kim, Cheng, and O'Leary (2007) reveals that some tourists are prepared to spend at least twice as much as the existing entry charge to visit a heritage site, demonstrating the economic importance of a world heritage site. According to Kim, Cheng, and O'Leary (2007), the money made by collecting entry fees from visitors might be used to advertise the site, conduct research, upgrade facilities or services, or repair existing structures. Depending on tourists' willingness to pay, entrance fees to heritage sites may be implemented as a way to control demand, according to Mourato, Ozdemiroglu, Hett, and Atkinson's (2004), theories. The revenue can also be used to manage and safeguard the cultural site in order to accomplish the dual objectives of generating income from tourists and improving the welfare of the local populace. High WTP ratings, according to study by Kim et al (2007), allay users' worries about strategic behaviour. Since each visit requires money, genuine users are more likely to disagree with a wider variety of prices. According to certain research (Kostakis & Sardanou, 2012; Liere & Dunlap, 1980), a variety of sociodemographic characteristics influence a person's willingness to pay. One of the best ways for society to decide on the relative worth of cultural artefacts in order to conserve a long-term historic site is through economic valuation. The long-term sustainability of cultural heritage is significantly influenced by the public's engagement in appreciating it (Azrin et al., 2020).

In a research by Chambers et al (1998), participants were asked to choose one of seven payment cards to estimate a one-time special gift for a historical monument. By requesting contributions to a particular trust fund in exchange for the reconstruction of the mediaeval Arab tower, Salazar and Marques (2005) evaluated the worth of a cultural heritage landmark in Spain, the Pirate's Tower. Education level also affects differences in willingness to pay (Alves & Benavente, 2014; Halkos & Matsiori, 2012; SHECHTER & ZEIDNER, 1988). In conclusion, the majority of earlier studies aimed to determine the worth of cultural heritage objects by asking locals to estimate their WTP for taxes or donations. Since cultural heritage assets are an essential resource for the tourism sector, it is required to assess the use value from the perspective of user-groups, particularly tourists (Kim et al., 2007).

**Methodology***Primary Data Collection*

The primary data collection being collected through questionnaire which will be distributed to the local people also to the tourist that visit Lenggong Valley World Heritage Site. The questionnaire consists of four sections. Sections A shows demographic information. Sections B focus on attitude and behavior of local people and tourist toward conservation and sustainability of Lenggong. While section C and D focus on funding and willingness to pay towards conservation and sustainability of Lenggong Valley WHS. The sample size are among people age from 21 up to 61 and above. Total of 400 questionnaire being distributed to the local community and tourist.

### **Contingent Valuation Method (CVM) Studies**

By using a survey, the contingent valuation approach is utilised to calculate the economic values of various ecosystem and environmental services. This method's great degree of flexibility allows for the valuation of more non-market goods and services than any other non-market valuation strategy. It is the most well-liked method for figuring out non-use values and can figure out both use and non-use values. Of all the non-market valuation techniques, it is also the most debatable. The contingent valuation method's application is typically a difficult, time-consuming, and expensive procedure. The contingent valuation survey needs to be correctly developed, pre-tested, and implemented in order to gather valuable data and deliver significant findings. Survey questions on contingent value must be detailed about environmental services and a particular setting that survey participants can easily understand and comprehend. In other words, a CV survey to determine the financial impact of an environmental improvement cannot be focused on the upgrade itself, but rather on increases in the specific environmental services that the development is anticipated to offer.

Over the years, the study of CVM has been used widely. It has been used in various kind of areas in economics such as health economics (Bayoumi, 2004), cultural economics (Chiam, Alias, Khalid, & Rusli, 2011) and as well as in environmental economics (Hanemann, 1994). The purpose of this section is to provide an empirical studies of CVM technique that have been done in Malaysia and as well as in other various countries. It is believed that, if the monetary values can be placed on the habitat or area of land, there would be a better chance for a non-market benefit real value being reflected in the decision-making process. Then, there would be a better decision can be made concerning their optimal level of provision to society. In the previous study, there are two useful purposes for conservation in economic valuation. In general, most of the studies of economic value shows that people that involved directly on the environmental activities which is considered as use values are more than willing to pay for the conservation because they are aware that all their contribution or money will be invested in the conservation and improving the quality of services (Samdin, 2010). Thus, towards the end, the result of CVM studies can be useful in contributing the proper information for decision making and policy purposes in biodiversity and protected area management (Kamri, 2013).

The questionnaire for this research study was broken up into four main sections, with each covering one of the following topics: socioeconomic characteristics, attitudes, and behaviours towards the Lenggong Valley, funding and willingness to pay for the valley's preservation and sustainability, and so on. The format of the CV questionnaire was taken from the research done by Pearce and Ozdemiroglu in 2002 and Tuan and Navrud in 2008. More information on these four components is provided below:

#### **Part A: Demographic Information**

Associated socioeconomic data, such as sex, age, educational attainment, work position, and income level, were acquired in the assessment's first section. This socioeconomic information was crucial.



### **Part B: Attitude and Behavior toward Conservation and sustainability of Lenggong**

The first section of the questionnaire asked about views of the WHS designation, cultural tourism and its advantages for protecting heritage sites, the worth of cultural assets that cannot be used today, and conservation management. This section was intended to:

In this study, a variety of question types adopted the 5-point Lickert's Scale. In an effort to raise the standards of measurement in social research, the Likert's Scale is a sort of composite measure (Md Nor, 2009). To gauge the relative weight of each item, the scale in this study employed the typical answer categories of "strongly disagree," "disagree," "partially agree," and "strongly agree."

### **Part C: Funding**

This section gathered data on the stakeholders' perspectives on the creation of the Lenggong Valley Heritage Conservation money and which organisation would handle the money most effectively.

### **Part D: Willingness to Pay**

This section's goal was to investigate the stakeholders' perspectives on how much money should be donated to preserve the Lenggong Valley WHS. The stakeholder responses (locals and visitors) on their WTP value for the Lenggong Valley WHS conservation were used to help create the questions for this section. A sort of "payment card" known as a "payment ladder" offers a variety of WTP values in descending order from small to big. The responders were instructed to mark out the sums they knew they would not pay and tick the amounts they were certain they would. The numbers may be consistent with the usual yearly fees for local responders and the fees for each visitor to the Lenggong Valley HCF. The payment ladder approach provides information on the highest sum respondents would be certain to pay and the lowest amounts they would absolutely not pay in addition to illustrating the respondents' degree of support for expressing their WTP value.

### **Sampling Strategy**

#### *Local Community/Residents*

According to Orbasli (2000), the residential community is more than just a beneficiary. They must be acknowledged as important figures in determining a location's future. Residents of Kota Tampan and Pekan Lenggong were chosen as the first category of respondents for this study. Randomly chosen respondents were those who were at least 21 years old and resided in Kota Tampan. The sample would be representative of the population because each person has an equal chance of being chosen from the population (Keppel, 1999).

#### **Tourist/Visitors**

The visitors who have visited Lenggong Valley, both local and international, make up the second group of study stakeholders. The United Nations World Tourism Organisation (UNWTO) defines a tourist as someone who travels at least fifty (50) miles from home and spends more than twenty-four hours—but not more than one repeated year—in locations other than their usual residence for leisure, business, or other reasons unrelated to the use of an activity that is compensated from within the location stayed. The respondents for this research study were chosen at random from the Lenggong Valley region.

### Main Survey

For local community questionnaire, a total of 300 household were visited. While for tourist questionnaire, a total of 100 tourist were surveyed. Due to lack of facilities and infrastructure of Lenggong Valley, there is not much visitors that come to visit Lenggong Valley.

### Factor Analysis

Finding the underlying variables or factors that explain the pattern of correlations within a group of Likert-scale variables is the aim of factor analysis. Factor analysis is used to develop hypotheses about causal mechanisms or to choose variables for additional research (Factor Analysis in SPSS, n.d.).

### Dichotomous Choice Contingent Valuation Method (DC-CVM)

#### *Estimation Method for CVM*

Respondents are given a bid amount and asked if they would be ready to spend it on a trip to the Lenggong Valley in this closed-ended inquiry. In this work, a single-bounded DC technique formulation was adopted. Respondents are prompted to select "Yes" if they concur and "No" if they disapprove to this one-time payment option. The respondents' maximum WTP is indicated by a "Yes" response. Contrarily, the single bound strategy is simpler to implement than the double bound, especially for gathering data and making estimates (Calia & Strazzera, 2016). People are questioned about their financial preferences for an imagined environmental change brought on by a legislative change. A hypothetical situation with a potential change—such as one in the quantity or quality of the environment—and a suggested course of action are presented to people in a DC format. Following a question on the individuals' WTP for the adjustments, a set of predetermined prices will be presented. By applying dichotomous choice questions, the researcher can only rely on the assumption that the respondent's WTP is more than the bid value or less than the bid value and that they construct broad intervals around their WTP. In order to calculate the common welfare statistics, binary data models must be fitted. The most fundamental of these models is that a person's response to the WTP inquiry is determined by an unstated, underlying WTP quantity that is normally distributed (logistically). Let WTP be the undiscovered WTP informally:

$$WTP_i^* = \mu + \varepsilon_i \quad (\text{Eq 5})$$

Where  $\mu$  is both mean and median WTP,  $\varepsilon$  is a zero-mean normal (logistic) error with mean zero. The model is completed by specifying the mapping from the latent variable to the observables:

$$WTP_i = 1 \text{ if } WTP_i^* > B \text{ and } WTP_i = 0 \text{ if } WTP_i^* \leq B \quad (\text{Eq 6})$$

where B is the bid that was assigned to respondent i, WTP = 1 means that the response is a "YES," and WTP = 0 means that the response to the payment question is a "NO."

### The Empirical Result

In logit analysis of CV data, each of variables in the regression models was evaluated for their statistical significance. Initially, preliminary regression is applied before the data could be used in the final regression logit models. Preliminary regression models help to identify the inclusion of each exploratory variable in the final regression models. Socioeconomics such as income, gender, age and education level, as well as the factor extracted from the previous factor analyses were included in preliminary regression. Value of 1 is given if respondents who

accepted the characteristics of interest in regression. For example, 1 is used to code the answer 'Yes' to the question:

“By considering your current income and expenses,  
would you willing to pay RM x in the future to visit Lenggong Valley?”

Then the value of 0 is for a 'No' answer if they rejected the offer. In order to obtain the best possible final regression model, only variables that were statistically significant in the preliminary regression models were included in the final regression models. Insignificant variables were dropped in the final regression models. The results of final regression models are reported in Table 5. These results answering the last objective of determine factors that influence stakeholders' willingness to pay for the conservation and sustainability of Lenggong Valley WHS.

Table 5  
*Final Regression for Logit Models*

Variables	Preliminary	
	Coefficient	P-Value
Constant	1.6	0.572
Bid Price	-0.077	0.010***
Income	0.000184	0.000061***
Gender	-	-
Age	-0.12	0.006*
Education	-	-
Malay	e: 0.327	0.173***
Occupation	-	-
Factor 1(Benefits)	0.065	0.022***
Factor 2(Attitude)	0.065	0.027**
Factor 3(Economy)	-	-
Log Likelihood		1223.328
Chi squared		142.211
Nagelkerke R Square		0.164
Percentage Correct		0.756

\*, \*\* and \*\*\* denotes significant at 10%, 5% and 1% level respectively

Therefore, to generate the optimal logit models, only statistical variables are kept in the final logit models. Explanatory variable estimates had a special statistically meaningful contribution. Socioeconomic factors like income, age, race, Factor 1 (Benefits), and Factor 2 (Attitude) were determined to be significant in the WTP calculations based on the results of the estimates. The "Bid Price" variable was evidently significant at the 1% level. The sign was negative as anticipated, indicating that the bid price was extremely considerable and had a negative impact on respondents' likelihood of saying "Yes" to contributing to the preservation and sustainability of Lenggong Valley. It demonstrates that in a hypothetical market, when suggested bid prices rise, respondents are less likely to answer "Yes." Respondents reject the given price as it rises, which is consistent with the law of demand, which states that as a good's price rises, fewer people want it.

A positive sign and 1% level of significance were established for the income variable. This indicates that, in comparison to those with lower incomes, they were ready to pay more for conservation as their income increased. Malay variables are discovered to be significant at the 1% level for races employing a dummy variable, with an exponent value of 3.27. It demonstrates that Malay are 3.27 times more willing to pay than other races (Chinese, India). Benefits (Factor 1) and Attitude (Factor 2) were both statistically significant at the 1% and 5% levels, respectively, with a positive coefficient indicating that respondents were more willing to pay for conservation than respondents who responded less favourably to the factors. Regression was used to determine respondents' WTP for Lenggong Valley WHS preservation and sustainability. It's crucial to assess the model's overall fit while calculating regression models. The model's chi-squared value in this study is 142.211, and its statistical significance level is  $p < 0.001$ . The model explains around 16% of the variation in the outcome, according to the Nagelkerke R-square value of 0.164. Finally, in 75.6% of the situations, the logit models now properly predict the outcome.

### Willingness to Pay (WTP) Estimation for CVM

The theoretical framework created by Hanemann (1984) and Cameron (1988) was applied to get the welfare estimates of willingness to pay, as previously discussed in the methods chapter. The major goal of this study is to explore the economic values that stakeholders are prepared to pay for the conservation and sustainability of Lenggong Valley. The results of the regression in this part provide a response to that question. Following Cameron (1988) and Loomis (1990) it is assumed that there is a linear relationship between an individual's WTP and independent variables. The mean willingness to pay of local communities and tourist was derived from the following equations:

$$WTP = (\beta_0 + \beta_{INC} * INC + \beta_{AGE} * AGE + \beta_{MALAY} * MALAY + \beta_{F1} * F1 + \beta_{F2} * F2) / \beta_{BID}$$

Where,  $\beta_0$ ,  $\beta_{INC}$ ,  $\beta_{AGE}$ ,  $\beta_{MALAY}$ ,  $\beta_{F1}$ ,  $\beta_{F2}$ , and  $\beta_{BID}$  are estimated parameters for constant term, income, age, Malay, benefits Attitude, and bid price. Based on the estimation from the local community WTP values, the calculate mean of WTP is RM39.04, Where it indicates that the respondents are willing to pay average of RM39.04 yearly for the sustainable of Lenggong Valley WHS. RM741,760 is the value of Lenggong Valley that local communities are willing to pay yearly for the conservation. Table 6 shows the detailed summary of the exact values in Ringgit Malaysia. While for the tourist mean WTP values was RM28.05 per visit. With the minimum of zero and maximum of RM500.00.

Table 6

#### *Values of Willingness to Pay of Local Communities*

Mean	RM39.04
Maximum	RM500
Minimum	RM0
Population in Lenggong, Perak	19,000 ((Lenggong District Council,2022).
Value of Willingness to Pay (VWTP)	RM741,760

Table 7

*Calculation for Value of Willingness to Pay (VWTP)*

Value of Willingness to Pay (VWTP)
= Mean x Population
= RM 39.04 x 19,000
= RM 741,760

### Conclusion

This study proved that Malaysian historic site management frequently fails to use sustainable methods when estimating the worth of cultural heritage objects. In Malaysia, heritage conservation from an economic standpoint has been found to be a novel approach to the design and management of cultural sites. The research demonstrates that the Lenggong Valley WHS is supported by the stakeholders for its long-term viability and preservation. Tourists and residents in the area are aware of how crucial it is to safeguard the archaeological site. As a result, they assist in preserving and supporting the Lenggong, Perak, Cultural Heritage site. The study's data analysis found significant differences between local and tourist stakeholders on the WTP value, attitude towards the Lenggong Valley World Heritage Site's designation as a UNESCO World Heritage Site, and the advantages of cultural tourism for its preservation. It was shown that the priority of preserving the non-use value did not differ considerably between residents and visitors. The research also found that the stakeholders were important for understanding the significance of the WTP, how they felt about the Lenggong Valley WHS's position as a UNESCO World Heritage Site, and how to manage conservation there. The local populace would pay RM39.04 year, while tourists will pay RM28.05 every visit, according to the WTP value. More local respondents than visitors expressed a desire to pay more for the protection of cultural assets. It was discovered that visitors were more appreciative of the UNESCO WHS designation than locals were. It was also found that visitors had a more favourable opinion of the benefits of cultural tourism for conservation than did residents.

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