# ARE THERE DIFFERENCES IN WILLINGNESS TO PAY AMONG VISITORS AND NON-VISITORS OF TAMAN NEGARA NATIONAL PARK?

Zaiton Samdin

Institute of Tropical Forestry and Forest Product, Universiti Putra Malaysia, email: zaisa@econ.upm.edu.my Khairil Wahidin Awang Department of Hospitality and Recreation, Universiti Putra Malaysia

#### Abstract

Approaches such as the Contingent Valuation Method (CVM) have helped to assign dollar values to non-use values for non-market goods which, unlike other products, are not traded in the market. This study attempts to put a value on the above non-market values. This study used the CVM, with Willingness to Pay (WTP) as the elicitation method to measure the non-use value among visitors and non-visitors of Taman Negara National Park (TNNP). This study also will answer questions; are there any differences in the WTP of various market segments, based on nationality, gender, age, education and income among visitors and non-visitors? This study found that there was a different between visitors and non-visitors willingness to pay. It also found that visitors and non-visitors market segments such as nationality, income etc. are differed. Thus, information found in this study can be a fundamental source for park management in directing park pricing policy towards an efficient system. Although using WTP for this economic valuation cannot provide exact answers on the valuation of these natural resources, it can still provide a guideline on pricing strategy and give extra information for park management decisions, especially about park pricing. Thus, better decision-making processes can be practised if monetary values can be placed on these non-market goods.

Keywords: willingness to pay, contingent valuation method, entrance permit

### Abstrak

Contingent Valuation Method dapat membantu untuk menentukan nilai uang dari suatu produk yang tidak secara umum diperdagangkan. Penelitian ini akan menentukan nilai nilai bagi produk yang tidak mempunyai nilai. CVM akan digunakan untuk mengukur nilai dari kesediaan membayar (willingness to pay – WTP) berdasarkan *non-use value* dari pengunjung dan non-pengunjung Taman Negara National Park (TNNP). Penelitian ini juga meneliti perbedaan WTP berdasarkan segmen pasar yaitu kewarganegaraan, usia, jenis kelamin, pendidikan, dan pendapatan antara pengunjung dan non-pengunjung. Penelitian ini menggunakan data sekunder dan berlokasi di TNNP. Penelitian ini menemukan bahwa terdapat perbedaan market segmen berdasarkan kewarganegaraan dan pendapatan.

Kata kunci: willingness to pay, contingent valuation method, entrance permit

#### 1. Research Background

The non-market value is an attempt to estimate the economic value of goods and services that are not traded in markets. These include environmental goods and services, such as clean air and water. White and Lovett (1999) added, market for environmental goods does not exist and is not expressed. This market is commonly known as 'non-market goods'. The non-market goods can be defined as goods that are not traded and have no corresponding market price; these include environmental resources, outdoor recreation, and many other amenities (Kahn, 1995). As a result, these values are often disregarded or have been given inappropriate weightings

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(White and Lovett, 1999). Pearce and Moran (1994) believe that these environmental goods will bring significant benefits to society. The identification of these non-market goods, especially environmental goods, is important. The only option for assigning monetary values to them is to rely on the non-market valuation methods. Perrings (1995) asserts that better decision-making processes can be practised if monetary values can be placed on these non-market goods.

In general, the purpose and scope of this study is to investigate willingness to pay (WTP) among visitors and non-visitors for entrance permit at the Taman Negara National Park (TNNP). The specific objectives of this study are: (1) To estimate the mean value for setting prices for entrance permit through visitors and non-visitors WTP; and (2) To identify any differences in willingness to pay among visitors and non-visitors. This paper consists of 5 sections. The first section will focus on the general orientation of the study and TNNP. Section 2 will focus on literature of Contingent Valuation Method. Section 3 discusses on methodology. Section 4 discusses results. Finally, Section 5 will formulate conclusions.

# 1.1. Taman Negara National Park (TNNP)

Taman Negara National Park (TNNP) is claimed to be home to one of the oldest tropical rain forests in the world. It is the Peninsular Malaysia's greatest national park and covers an area of 4,343 sq km (Department of Wildlife and National Parks [DWNP], 1989). It was declared as a national park, through enactments by the states of Pahang, Kelantan and Terengganu in 1938/39 and given the name King George V National Park (Rubeli, 1976). After Malaysia's independence in 1957, the name was changed to Taman Negara, which means 'national park' (DWNP, 1986; 1987). The Taman Negara Enactments of 1938 and 1939 encompass three legislations. As noted before, TNNP straddles three states, Pahang, Kelantan and Terengganu, each state is having its own legislation. The largest is Taman Negara Pahang at 2,477 sq km, followed by Taman Negara Kelantan and Taman Negara Terengganu at 1,043 and 853 sq km respectively.

### 1.2. Profile of Visitors

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It has been found that trends and visiting pattern are changing; the current trend is to attract more local visitors to visit TNNP. This is in contrast with the previous times, when more international visitors visited the park. Table 1 shows that in 2005 there was a total of 37,819 Malaysian visitors (52.8 per cent) compared to 33,812 international visitors (47.2 per cent).

<u>Table 1. Malaysian and International Visitors to TNNP, 2001 - 2005</u>			01 - 2005
Year	Malaysian visitors	International visitors	Total
2001	26149	32383	58532
2002	30108	30048	60156
2003	33326	20904	54230
2004	31233	28793	60026
2005	37819	33812	71631
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1. Malaysian and	International	Visitors to	TNNP. 2001	- 2005
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Source: DWNP, 2005.

Table 2 shows visitor arrivals at TNNP in 2005 by nationality. The international visitors to TNNP were dominated by the Dutch, followed by the British and the Singaporeans, others were from Germany and France.

Country		Number of Visitors
1.	Holland	6009
2.	United Kingdom	5299
3.	Singapore	3071
4.	Germany	2947
5.	France	2122

1 able 2. International visitors Arriving at TMAP by Country, 2005 (10)	NP by Country, 2005 (10p 5)
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Source: DWNP, 2005.

## 1.3. Charges for Permits and Licences at TNNP

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Recently, TNNP has implemented several changes to the payments for permits and licences issued to visitors. These cover entrance permits, fishing licences, camera licences, camping fees, the canopy walkway and the hide. Visitors are entitled to enter the park for a month on payment of RM1 as an entrance permit. Other charges are shown in Table 3.

Permit and licences		Charges (RM)	
1.	Entrance permit	RM1/entry	
2.	Fishing licence	RM10/person	
3.	Camera licence	RM5/camera	
4.	Camping fee	RM1/day/person	
5.	Canopy walkway	RM5/person	
6.	Hide	RM5/person/night	

Source: DWNP, 2005.

# 2. Contingent Valuation Method

Contingent Valuation Method (CVM) is a method for valuing non-market goods and in this application users are asked on how much they would be willing to pay before they stop visiting the site altogether. Each respondent is asked on how much they would pay, above the current price (sometimes this price may be zero), for the good in question. Using this value, respondents' net WTP will be estimated (Mitchell and Carson, 1989). The main objective of CVM is to measure the economic value of nonmarket goods, such as recreational resources, wildlife, and environmental quality goods (Hanemann, Loomis and Kanninen, 1991; Hanemann, 1994).

According to McConnel (1985), WTP is the amount of money that a person is willing to pay and able to pay to enjoy the recreational facilities. It measures the value of the whole experience including the anticipation and perception for the trip, travel to the site, on site experience, travel back from site and recollection of experience. It is also a measure of whether an individual is willing and able to forego income or other goods or services in order to get more of another good or service. Jordan (1998) has discussed several WTP questions or elicitation methods and the following are their strengths and weaknesses. These are open-ended, bidding game, payment card and dichotomous choice of questions.

Open-ended questions are considered the easiest format because the questions are direct. For example, a question may be asked as 'How much are you willing to pay to enter this national park?' An open-ended value is expected from the respondent. The main disadvantage of this method is that it is difficult for the respondents to provide a value of some environmental goods spontaneously. In bidding game, the interviewer raises the respondent's willingness to pay until it reaches a maximum bid. The main advantage of this technique is that it is quite familiar to the respondents because it is just like an auction. It is also simple because this method requires only a yes/no response. A major disadvantage of the bidding game is related to the starting point bias.

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If the starting bids are well above the true WTP, they tend to overstate the revealed WTP while if the bid is below the WTP, it has the opposite effect.

In payment card, a respondent has to choose the best value which represents his maximum WTP from a series of values. The advantage of this approach is that the respondent has to only bid once from the range provided. Dichotomous choice is the most recommended form for CVM questionnaire. A respondent is asked whether he would be willing to pay a stated monetary value. The respondent is required to answer either a yes or no to that particular monetary value. A 'yes' answer will be given if the true WTP is in excess of the stated monetary value and 'no' otherwise. The main advantage of this method is that it is like a 'take or leave it' approach because it is a similar situation for consumers in making a purchase for ordinary goods and services. The main disadvantage is that it requires a large sample.

Basically, for a given contingent situation, respondents' are required to think and reveal their answer on WTP. Researchers have brought up many speculations due to the process of thinking that may affect the answer of the WTP questions. Respondents may be thinking about other goods and services when the interviewer asks about their WTP. To avoid this condition, researchers must be creative and have a better idea or technique that could simulate the exact situation. Researchers must make respondents understand what CVM actually measures and its purpose. All this will reduce biases in CVM i.e. Strategic Bias, Mental Bias, Design Bias and Interviewer Bias.

Strategic bias occurs when respondents understate or overstate their WTP in different environments. The respondents may understate their WTP when they believe that bids will be collected. On the other hand, if respondents believe that their bids are purely hypothetical, they may overstate WTP for an environmental benefit. Mental bias (Hypothetical Market Bias) occurs when someone purchasing of unfamiliar commodity represents a guess as to what the commodity might be worth, rather than an evaluation based on experience. People are better to evaluate product if they were told by the researcher what actually CVM measures, and how their response is important in CVM survey or they already have experienced with similar commodity. If not, it may lead to understatement and overstatement of their WTP on the hypothetical evaluation of commodities. Finally, hypothetical market bias depends on how questions are asked, how realistic respondents feel the hypothetical market and format or concept used in the CVM study.

Design bias depends on how the information is given to the respondents. The bias could be from the starting point of bidding games, research objectives, socio demographic characteristics of respondents and other factors. It is important to ensure the proper format of questions to be used which contain information including research objectives, the respondents' background information and other factors. Thus, simple, clear and realistic questions should be applied. How the interview is conducted and the interviewer in person can be sources of interviewer bias. Therefore, the image and performance of the interviewer are important to avoid distractions on stating bids of respondents. Respondents may overstate their WTP to impress the interviewer or understate their WTP is to the unpleasant performance of the interviewer.

### 3. Research Method

This study involved two groups of population, visitors and non-visitors to TNNP. The sampling procedure applied for the visitors' survey was systematic sampling, where every third visitor who entered the park was chosen. This technique was preferred because it was possible to get a precise sample and it was simple to practise. Stratified sampling was also used, and the sample was placed in two groups based on nationality, Malaysians and internationals. Since this study is interested in identifying the differences in WTP between Malaysian and international visitors, the best option was to stratify the sample. The TNNP gate was chosen as a survey venue for visitors. This was because this gate is the main entrance to the park, and thus there was a high possibility of obtaining a large sample, and increasing the representative sample.

In the non-visitors' study, purposive sampling was chosen; only those who were interested in visiting TNNP were selected as a sample. This was because the purpose of the study was to examine non-visitors' behaviour and preferences for visiting TNNP. Thus, the focus should be on non-visitors who intend to visit TNNP, not on those who are not interested in visiting. As with the visitors' survey, non-visitors were stratified 50:50 by nationality. The survey for nonvisitors, was conducted in two major cities in Peninsular Malaysia, Kuala Lumpur and Kuantan. Kuala Lumpur was chosen because it is the capital city of Malaysia, and the previous studies have shown that the majority of local visitors to TNNP came from big cities such as Kuala Lumpur. Furthermore, most international visitors arrive in this city first, before moving to their holiday destination. Kuantan is the capital city of Pahang, where TNNP is located. Since there was a strong chance of questioning respondents who were the representatives of the population generally, the survey venues were in the shopping malls and restaurants. In addition, it was more effective and convenient to conduct an interview when people had leisure time and were not hurrying to shop or having their breaks at restaurants and cafés. The visitor survey resulted in a total of 180 completed questionnaires, 80 Malaysians and 100 international visitors. Meanwhile, the non-visitors' survey yielded a total of 200 respondents, involved 100 Malaysians and 100 international non-visitors.

The questionnaire was divided into three sections: Characteristics of visit, Characteristics of paying and Socio-demographic characteristics. The first section was designed to obtain information on characteristics associated with TNNP such as sources of information about TNNP and reasons for visiting. The second section was designed to identify the characteristics of paying and the mean value of WTP for entrance fees at TNNP. This section asked respondents whether they were willing to pay if the current charge for entrance fee was increased. The final section of the questionnaire gathered information on demography of visitors and non-visitors such as nationality, age, gender, marital status, education and income. The questionnaire was prepared in two languages, English and Bahasa Melayu. It was originally designed in English and translated into Bahasa Melayu by a native speaker. Statistical Package for Social Sciences (SPSS) was chosen to analyse visitors' data. Descriptive analyses such as mean and frequencies were applied to obtain information on socio demographic and economic profiles and respondents' WTP.

The main purpose of this section is to identify some differences in WTP among visitors and non-visitors including nationality, monthly gross income, education level and gender. Several non-parametric tests, including the Pearson Chi-Square, Mann-Whitney and Kruskal-Wallis tests were applied. These tests are distribution-free because they do not make any assumption on the distribution of population. The first test used is the Pearson Chi-Square test (Chi-Square test). It is often used for comparing the relative frequencies of occurrence of observed categories and a specified frequency distribution for a categorical variable with more than two categories (Bryman and Cramer, 2005). The next two tests are the Mann-Whitney and Kruskal-Wallis tests; both have a null hypothesis that indicates an equality of some samples. One of the differences in these two tests is in the number of samples. The Mann-Whitney test is used to assess the difference between the distributions of two samples; for example, to compare whether monthly gross income between male and female are different or not. On the other hand, the Kruskal-Wallis test is used when there are more than two samples.

### 4. Results and Discussion

### 4.1. Mean Value of Entrance Permit for Visitors and Non-visitors

This study found that the mean value for entrance permit among visitors was higher than that among the non-visitors. For example, the mean value of an entrance permit among visitors was RM13.06; for non-visitors it was RM8.62 (See Table 4). Internationals visitors were willing to pay more for entrance permit, thus recording a high mean value (Table 4). One of the main

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reasons for this situation was that foreign visitors enjoy a favourable currency exchange rate, especially if they visit national parks in the developing countries such as Malaysia, Thailand and Indonesia. The mean WTP for an entrance permit among international visitors was RM18.47, compared to RM6.32 among Malaysians. The non-visitors, especially Malaysians, also recorded a low WTP. In other words, international non-visitors were willing to pay more for entrance permit, compared to Malaysians. (See Table 4).

Respondents	<b>Entrance</b> Permit
Visitors	13.06
Non-visitors	8.62
Malaysian Visitors	6.32
International Visitors	18.47
Malaysian Non-visitors	4.82
International Non-visitors	12.17

The WTP of respondents is strongly influenced by several factors, such as the individual's income, education, gender, age and cultural preferences. In this paper, the relationship between WTP for an entrance permit ('yes' or 'no') is investigated on each socio-demographic characteristic and also in the following categories: economic, nationality, gender, age, marital status, education level, monthly gross income, occupation, payment history, contribution to World Wildlife Fund (WWF) and members of a nature conservation organization.

Nationality is one of the important factors that influences the WTP of respondents. A study carried out at TNNP found that international visitors were willing to pay a higher price for a ticket compared to local visitors (DWNP, 2005). This is because, usually, international visitors have much more of the local currency (Ringgit Malaysia) due to the high exchange rate between it and other currencies. Table 5 summarises the results of the Chi-Square tests on the WTP of each characteristic for visitors/non-visitors. The value of the test statistic,  $X^2$  is 12.813. This value is significant since the p-value is less than 0.01. Similar results occur for non-visitors (Table 5) where the test of WTP is significant at p=1% and p=5%. This result indicates that nationality has some influences on WTP for both visitors and non-visitors to TNNP. The characteristic of gender does not have any influence on WTP among visitors and non-visitors, since it is not significant at p = 5%. (See Table 5).

The value of  $X^2$  that measure the association between levels of age and WTP among visitors is 5.906 (Table 5). This value is not significant at p = 5%. Thus, it can be concluded that WTP is not influenced by the age of the respondents. Similar results occur in non-visitors (Table 5) where value of  $X^2$  is not significant at p = 5%. Both visitors' and non-visitors' responses show that marital status does not have an association with the WTP. This is due to the small values of  $X^2$ , as presented in Table 5; (0.736 and 0.016). The education level of respondents is one of the most important factors influencing WTP. Table 5 shows evidence that there is a strong association between education levels and WTP among visitors. As an example, Diamantis (1998) found that most ecotourists had attained a high level of education and had graduated from university (in Wight, 2001). However, this characteristic does not have a significant relationship to WTP among non-visitors.

Theoretically, someone who has a high salary should have no difficulty in paying the entrance permit, compared to someone who has a low average salary. Among groups of visitors (Table 5) there are some explanations of the association between monthly gross income and WTP. Table 5 shows some association between occupation and WTP among visitors and nonvisitors. The value of  $X^2$  recorded is 7.830 and 18.595. This study finds that there is an association between payment history and WTP among visitors and non-visitors. The public is

more accepting of fees if they have paid for any recreational opportunities in the past (McCarville, 1991; McCarville, 1996). As regards contributions to World Wildlife Fund (WWF), groups of visitors and non-visitors show that there is no association between WTP and contributions to this organisation. There is no pattern of association between membership of any environmental or nature organisation and WTP among visitors and non-visitors as values of  $X^2$  are low (0.012 and 0.992).

Characteristics and WTP for E	Intrance Permit (Visitor an	nd Non-visitors)
Socio-Demographic	Value of X <sup>2</sup>	<i>p</i> -value
Characteristics		
Nationality	12.813	0.000 **
	(5.907)	(0.015*)
Gender	0.591	0.442
	(0.846)	(0.358)
Age	5.906	0.116
5	(0.016)	(0.899)
Marital status	0.736	0.692
	(0.016)	(0.899)
Education level	18.872	0.001 **
	(6.649)	(0.355)
Monthly gross income	8.090	0.018 *
, ,	(1.247)	(0.536)
Occupation	7.83	0.003 **
	(18.595)	0.029*
Payment history	15.216	0.000 **
	(6.493)	(0.011*)
Contribution to WWF	3.373	0.066
	(1.665)	(0.197)
Member	0.012	0.913
	(0.992)	(0.319)

Table 5. Association between Socio-Demographic and Economic aracteristics and WTP for Entrance Permit (Visitor and Non-visitors

Note: 180 visitors and 200 non-visitors are represented in Table 5. Source: Authors survey, 2004.

\* significant at p < 0.05, \*\* significant at p < 0.01.

# 4.2. The Association between Maximum WTP for Entrance Permit and Socio-Demographic and Economic Characteristics

This section will focus on two non-parametric techniques: the Mann-Whitney and Kruskal-Wallis tests. It will investigate the association between the maximum WTP for an entrance permit and the socio-demographic characteristics of visitors and non-visitors.

- a. Maximum WTP and Nationality. The Z-value found is 6.466; it is significant at p = 1%. This Mann-Whitney test revealed that there are some differences between Malaysians and international visitors in the mean ranking of maximum WTP. Corresponding results occur among non-visitors where the Z-value=-4.53 is also significant at p = 1%. Both groups show that internationals are more willing to pay higher prices than Malaysians.
- b. Maximum WTP and Gender. The Mann-Whitney test shows that there is no significant difference in the maximum WTP between the genders of visitors at a p-value greater than 0.05. On the other hand, there is a significant difference between the genders of non-visitors since p-value is less than 0.05. In this group, men are more likely to pay than women. This perhaps happens because men act as leaders and react to family decisions. In addition, they are often responsible for every payment made by the family.

- c. Maximum WTP and four nationality groups (European, American, Australasian, Other Asians). Kruskal-Wallis tests found that there were some differences between these groups of nationalities of visitors in the mean ranking of maximum WTP. It was seen that the comparison of the four nationality groups obtained  $X^2$  value=34.953; this value is significant at p = 1%. The highest mean rank is for Europeans (52.31). This indicates that Europeans have the highest score of WTP for entrance permits. Similar results are also reported for non-visitors where the highest mean rank is for Europeans with an average value of 66.09. Americans follow with 62.46. Europeans are willing to pay more because of the advantage in currency exchange; this study involved a large element of British tourists.
- d. Maximum WTP and income group. The Kruskal-Wallis tests revealed that there was a significant statistical difference between the maximum WTP and the income group of visitors, with a p-value of 0.000. It was also revealed that the highest mean rank was for visitors with an income level of more than US\$5,000. On the other hand, the highest mean rank for non-visitors was recorded at an income level of US\$4,001-US\$5,000.
- e. Maximum WTP and education level. Kruskal-Wallis tests found that the p-value was less than 0.05. This means that there is a significant difference between maximum WTP and the education level of visitors. The highest mean rank was for visitors with an education level of Masters/PhD. It indicated that this educational level group had the highest WTP for entrance permits. Since the significance level is greater than 0.05, this indicates that there was no significant difference between the maximum WTP and the education level of non-visitors.

### 5. Conclusions

The Chi-Square results show that there was a significant relationship between some sociodemographic and economic characteristics and the WTP of visitors and non-visitors. The first variable is nationality. The results indicated that nationality has some influence on WTP among visitors and non-visitors. Education level and monthly income also had an association with visitors' and non-visitors' WTP, as did occupation and payment history. The Mann-Whitney test revealed that there was a statistical difference in the maximum WTP for an entrance permit and the nationality of the visitors. In other words, there were some differences between Malaysians and internationals in the mean ranking of maximum WTP. Similar findings were also recorded for Malaysians and international non-visitors; internationals were willing to pay higher prices than Malaysians. A Kruskal-Wallis test showed that there was a statistically significant difference in the maximum WTP for an entrance permit in four national groups of visitors (Europeans, Americans, Australasians and Asians). It was found that Europeans were the most willing to pay, followed by Americans. Non-visitors reported the same results; European nonvisitors had the highest mean ranking of maximum WTP. The research also showed that there was a statistical difference between the maximum WTP (entrance permit) and the income groups of visitors and non-visitors. Education level was seen to have an association with maximum WTP (entrance permit) for visitors.

Having knowledge of visitors' profile, trip characteristics, and paying characteristics is an important ingredient for any development plan at any protected areas. This study supplies extensive information about these features, including non-visitors' profiles thus assisting in the development of more specific guidelines for TNNP. Several problems have arisen recently at the park, including inefficient pricing system, which appears as a result of an inefficient pricing policy. This resulted in insufficient funding. Park authority i.e. management of TNNP should revise the prices of entrance permit. If the pricing policy is well-designed, it will generate more income for TNNP, thus helping it to be less dependent on government subsidies.

In this study, the value of WTP was estimated. This can help the management park authority, especially in the introduction of a more efficient pricing system based on people's WTP. As discussed before, park authority can increase the price of entrance permit. This study also found a significant relationship between nationality and WTP. Recently, many protected areas have begun operating a differential entrance fee, or tiered pricing system. Here, international visitors pay more. Dual pricing is a good instrument to control the number of visitors; make shorter visits. In general, the authority of the park must consider the people who visit the park. The demographic, socioeconomic characteristic and the opinion of the visitors could be important inputs in order to ensure successful ecotourism programs.

The theory of non-market valuation using Willingness to Pay has been developed and applied to national park and protected areas, focusing on natural resource management issues. One of them is CVM; employed to measure the benefits of using park resources, recreational activities and natural amenities. To achieve sustainable ecotourism especially in national parks, it is important to identify the benefits and costs of utilising these resources. In other words, this non-market valuation is vital to valuing park resources which cannot be valued using the traditional net revenue analysis. Besides this, the non-market valuation is also important in measuring certain macroeconomic variables such as foreign exchange earnings, contributions to government revenues, employment generation, contributions to local economies and stimulation of infrastructure investment.

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