

# Public Tourism Infrastructure: Challenges in the Development and Maintenance Activities

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**Abstract.** In Malaysia, the tourism sector is a major contributor to the nation's development and is spearheaded by the government's efforts in investing heavily towards providing sufficient and well-functioning public tourism infrastructure. This infrastructure should be ideally developed with a clear and systematic maintenance plan in hand. The challenge herein is not merely providing the necessary infrastructure to sustain tourism activities but rather a pro-active approach towards establishing and subsequently maintaining this infrastructure at its optimal level. The aim of this paper therefore is to identify critical aspects that need to be in place to further enhance the Malaysian tourism industry. The paper discusses the issues and challenges that need to be addressed as a precursor towards an effectively developed and maintained tourism infrastructure system. Development issues that have been identified revolve around the dimensions of quality, quantity and ability of the public agencies involved, particularly issues of inadequate infrastructure, quality of infrastructure and the capability of the agencies in undertaking efficient maintenance activities. These issues were found to lead towards challenges of working with resource constraints, lack of an effective maintenance culture and system as well as the need for clear and effective policies and strategies.

## 1 Introduction

Tourism is an important industry in many countries including Malaysia. Various studies have shown that tourism influences many things such as the quality of life, cultural development, economic growth and also infrastructure. In Malaysia, tourism industry contributes the highest revenue after oil and gas industry. In order to further develop the tourism industry, the government has spent billions ringgit to develop tourism infrastructure and facilities for tourism.

According to Grigorescu [1] public infrastructure is important for economic growth and one of the main factors of the failure to attract foreign investor is due to poor development of infrastructure. Moreover, the provision of infrastructure is one of the key factors that contribute to the increasing number of tourists.

In Malaysia, most of the developed infrastructures are funded by the government and this type of infrastructure is referred as public infrastructure. These infrastructures are referred as public infrastructures where normally can be categorized under five groups, namely water and sanitation, telecommunications, power supply, roads, and ports.

Most of tourist destinations in Malaysia, particularly in the urban areas, have good tourism infrastructure due to the government's commitment to improve the tourism industry. According to The Saigon Times [2], Malaysia is one of the ASEAN countries with the capability to provide sufficient tourist infrastructure while Vietnam is still lagging behind. The government has always taken seriously the need to provide adequate tourism infrastructure. As an example, in the country's development plan, especially in the Seventh Malaysia Plan (7<sup>th</sup> MP) to Tenth Malaysia Plan (10<sup>th</sup> MP) a large sum of money was allocated to fund the development of tourism infrastructure in Malaysia.

As a valuable asset to the country, public tourism infrastructure should be maintained efficiently and effectively to ensure that it can be used in accordance with the original purpose of its development. The main objective of the maintenance of infrastructure is to prolong the service life of an infrastructure by delaying or minimizing the damage, obsolescence and the failure of the infrastructure to function. In addition, infrastructure is also maintained in order to protect the function, value and appearance of any asset.

Tun Abdullah Badawi, the fifth Prime Minister of Malaysia has voiced his concern on the issue of public tourism infrastructure. He stated that Malaysia has first class infrastructure but third class mentality in maintaining the available infrastructure [3]. In his speech during the NAFAM conference in Kuala Lumpur in 2007, Badawi mentioned that the government has been spending billions of ringgit to preserve public infrastructure due to poor infrastructure maintenance.

The purpose of this paper is to discuss the critical aspects that need to be addressed in order to create a positive image of Malaysia's tourism industry. Then, a discussion on the issues and challenges in maintaining public infrastructure is highlighted to serve as a catalyst to plan and implement actions to eliminate or minimize the negative impacts due to poor maintenance of public infrastructure.

## 2 Public tourism infrastructure in Malaysia

For tourism sector, Middleton and Hawkins [4] explained that tourism infrastructure involves a method of transporting, maintaining or preserving natural resources; construction in the natural environment; and the provision of legal services, recreational facilities and basic infrastructure such as gas, water and sewage. Tourism infrastructure can be discussed in two different contexts, namely public and private tourism infrastructure. Public infrastructure is considered as the "Economic Overhead Capital" or "Social Overhead Capital" [5].

This means that the infrastructure is one of the factors or mechanisms that influence the level of social and economic development of a country. Public tourism infrastructure is also referred to any general and basic physical asset provided by government agencies to support tourism activities at minimum or no charge (not based on profit). Typically, public tourism infrastructure consists of basic needs that serve as an initiator of a program or activity. In contrast, private tourism infrastructure is referred to the infrastructure provided or facilitated by a person or a group to generate profit.

Under normal circumstances, the government is the party responsible to provide or develop public infrastructure. This is because the development of infrastructure projects is costly and risky. In addition, the investment to develop infrastructure are not attractive due to the rate of return means long terms, do not generate profit and most of the time no income as direct forms of return [1].

In the 1970s, the Malaysian government's priority in tourism industry was to provide basic infrastructure such as highways, airports and tourism sites all over Malaysia. Government's commitment towards tourism development was shown through the increasing amount of funds being allocated in the next few years. In the Second Malaysia Plan (2<sup>nd</sup> MP), the allocated funds tourism industry including marketing and promotion stages were RM 17.2 million. Meanwhile, during the Ninth Malaysia Plan (9<sup>th</sup> MP) in 2006 to 2010, the allocation increased approximately 136% to RM 1.8 billion from the Eight Malaysia Plan (8<sup>th</sup> MP) [6].

Compare to other Southeast Asia countries, Malaysia appears to be among the top countries with first-class tourism infrastructure [7]. Malaysia's capabilities to develop tourism infrastructure should be continued in order to create a sustainable development of tourism sector. Moreover, Malaysia's popularity as a tourist destination is influenced by the ability to provide adequate tourism infrastructure. However, according to a report by World Economic Forum [8], Malaysia's achievement in tourism infrastructure is still at an intermediate stage compared to Singapore and Thailand.

Development and provision of tourism infrastructure is seen as a pre-requisite to become a popular tourist destination. An attractive tourist destination is not only relying on its natural resources, but also on its available infrastructure and facilities. tourism infrastructures are the main factor considered in choosing tourist destination. Infrastructure plays an important role in the tourism industry of an urban area as it affects the level of tourist satisfaction; and adequate and good condition of infrastructure will reduce the number of negative response received from tourists. Business Opportunities created from the development of infrastructure are also beneficial to the shareholders of tourism industry.

This is in line with the statement made by Lerner and Haber [9] as they explained that the development of infrastructure is considered as one of the key factors in developing tourism enterprise. Therefore, for the growth of tourism industry, each tourist destination must be equipped with a variety of infrastructure such as roads, airports, ports and terminals.

### **3 Challenge in the development and maintenance of public tourism infrastructure**

The development and maintenance of tourism industry should be emphasized by researchers, academics, civil servants and also independent agencies (NGO). This is because the aspects of development and maintenance of infrastructure are interlinked with each other and both of the aspects make a huge impact on the growth of Malaysia's tourism industry. Consistent growth of the tourism sector is only possible with the provision of related infrastructure.

Hence, consistent maintenance of infrastructure is vital to preserve the functionality of infrastructure and to ensure the infrastructure remains as high value asset of the government. According to BS 3811, maintenance can be defined as all technical and administrative actions undertaken to maintain or restore the functionality of an item (physical asset). Lind and Muyingo [11] further explained that maintenance can be considered as actions taken to restore or maintain the condition of an item so it can perform a specific function as intended by the maintenance process.

In the tourism sector in Malaysia, the discussion on the maintenance of public infrastructure, specifically in the context of urban tourism, is very limited. Previous studies only discussed in the context of user's satisfaction on the available infrastructure. However, according to reports from various media and articles, there are many challenges and issues regarding the maintenance of public tourism infrastructure such as financial burden, damage that disrupts the functionality of infrastructure and the infrastructure are not being used optimally.

In terms of the development of the public tourism infrastructure, the related issues can be viewed from several dimensions which are quality, quantity and ability of an agency. The main issue that is often discussed is the quantity of the available infrastructure as it is directly related to the inadequacy of public tourism infrastructure. Typically, the government is responsible in providing various needed infrastructure.

The development of public infrastructure by the government (central, state or local government) is conducted in limited sizes and quantities; sometimes the development of the infrastructure does not meet current demand. This occurs when the development of the infrastructure takes place without understanding current market or is conducted on ad-hoc basis. Without sufficient market research, there is a possibility for insufficient development of infrastructure.

Some of the infrastructure has been built without considering the increasing demand in the future. Consequently, the infrastructure developed can only accommodate current tourists for a short period of time. The issue of inadequate tourism infrastructure is also due to the financial constraints of the government as the cost to develop an infrastructure is high. Table 1 shows the allocated funds for tourism industry in the Eight Malaysia Plan (8<sup>th</sup> MP) and 9<sup>th</sup> MP. Consequently, the government is unable to handle many development projects of infrastructure in within the same time frame. According to Meyer [12] the lack of cooperation by private agencies in developing tourism infrastructure is also one of the factors that cause the insufficiency of tourism infrastructure.

**Table 1.** Expenses and Provisions of Tourism Development, 2001 - 2010

Program	8th MP Expenses (RM Million)	9th MP Expenses (RM million)
	243.1	652.1
Environmental Protection and Beautification Facilities, Infrastructure and Maintenance Accommodation	459.4	1,034.8
Other	31.7	115.0
	49.4	46.0
<b>Total</b>	<b>783.6</b>	<b>1,847.9</b>

*Source: Unit Perancang Ekonomi [11]*

Private agencies are also inclined to focus on the development of profitable tourism infrastructure that can generate a profit in a short period of time. Due to this, the government has to borne the financial burden of developing public tourism infrastructure. Various responsibilities of the government have led to the development of tourism infrastructure being halted. To express the importance of private agencies to get involved in the development of tourism infrastructure, the government has established Tourism Infrastructure Fund in 2011.

The objective of this fund is to encourage the involvement of private agencies in the development of tourism infrastructure [13]. Through this, a special fund was established to enable the private sector to gain capital to fund the development of tourism infrastructure. Furthermore, rate of interest charged was reduced to 3.75 percent to reduce the burden of loans made by private agencies. In addition, inadequate infrastructure is also associated with the failure of the contractors who have been appointed by the government to build infrastructure within a given period of time. Consequently, many constructions projects are abandoned.

There is also challenge with the quality of tourism infrastructure. The main issue is the poor quality of tourism infrastructure. This occurs due to several factors such as financial constraint, ineffective monitoring by government agencies and irresponsibility of the appointed contractors. The poor quality of infrastructure will cause various problems such as premature damage, unsafe usage and problems with the functionality of the infrastructure. These problems can lead to dissatisfaction and negative reactions from tourists. This has been explained that the quality of support services (including tourism infrastructure) is one of the determining factors that influence the level of tourist satisfaction in Pulau Kapas, Terengganu [14].

The next issue of the development of tourism infrastructure is the ability of government agencies to manage the infrastructure where this situation has been mentioned by previous studies such as JBIC [15] and Vaugeois [16]. The government of Malaysia is divided into three levels, namely, federal, state and local governments. Each level of has its own department that manages the development of infrastructure in a certain region, state or province. Each agency has different size, knowledge and expertise. For large agencies, especially agencies under federal and high density state government, they are more capable in handling development projects of infrastructure. In contrast, agencies under state or local government have limited capability to handle infrastructure development projects due to financial constraint.

In the context of public infrastructure maintenance, there are various issues being discussed by researchers, academics and civil servants. The most critical issue being discussed is the lack of maintenance activities being conducted to preserved public infrastructure. Studies on the implementation of public tourism maintenance are not being emphasized. The implementation of maintenance activities has been a challenge for a long time [17]. It is often regarded as a key factor in strengthening the tourism infrastructure.

Deterioration or damage in the functionality of an infrastructure is due to the lack of proper maintenance as it causes premature deterioration of infrastructure. Generally, inadequate maintenance program can be defined as the lack of maintenance activity or program on an infrastructure or the failure to perform maintenance activities as decided during the planning stage. The development of an infrastructure must be accompanied by maintenance activities to avoid obsolescence and damage. Ongoing neglect of maintenance activities will lead to a severe damage of an infrastructure. However, various issues and challenges arise as different maintenance programs are needed to preserve different types of infrastructure.

The main challenge that has been highlighted from previous studies such as [15-16] on the maintenance of tourism infrastructure is resource constraint. The effectiveness and feasibility of maintenance activities depend on the available resources [17]. There are many resources that must be provided by the government to enable maintenance activities such as financial, personnel, equipment and material. Each infrastructure must be maintained properly due to a number of factors such as aging, environment, human behaviour and many other possible factors.

Thus, the increasing number of infrastructure available leads to a higher demand of maintenance activities. Consequently, government must provide more resources to support maintenance activities, especially financial resources and this will increase the financial burden of the government. However, the government is trying to cut their operating cost due to the economic downturn. In return, the implementation of maintenance of tourism infrastructure will be limited due to financial constraint as the cost to maintain tourism infrastructure is very high.

As an example, a total of RM 8.94 million was allocated for the maintenance activities of public tourism infrastructure in Segamat Johor with RM 8.83 million was used to repair roads and pavements and RM 110,000 was spent to preserve Jeram Tinggi Waterfall as the centre of recreation and tourism. From these figures, it can be concluded that the government will need to allocate a huge sum of money to maintain various tourism infrastructure in Malaysia.

Resource constraints in the maintenance of public tourism infrastructure can also be associated with an organization's capability to manage their resources. According to Alejandrino-Yap [17], governments still fail to allocate necessary funding towards maintenance activities despite having adequate resources. Failure to manage resources is often associated with incapability of maintenance staff to maintain tourism infrastructure. Without adequate skills, the process of resource management cannot be handled properly, leading to losses and wastage of resources. Furthermore, resource constraints in the maintenance of infrastructure also caused by unnecessary development of technologies related to maintenance activities. The lack of knowledge regarding the technologies involved will lead to inefficient and ineffective maintenance activities.

The lack of an effective maintenance management system is also one of the major issues in maintaining public tourism infrastructure. This is because the maintenance management process is often associated with various difficulties [15]. To ensure that all maintenance activities can be fully implemented as required in the planning stage, the management mechanism must be integrated by the maintenance team. Hence, the term of maintenance management is referred to an effective tool to carry out an effective maintenance work. The lack of management process will lead to a failure in carrying out maintenance work.

Maintenance management involves a long-term strategic planning to meet the needs of infrastructure maintenance. Through the integration of systematic management, the implementation of all maintenance activities will be based on four levels of management i.e. planning, organizing, implementing and monitoring. In addition, maintenance management enables the infrastructure to be maintained systematically as per conditions such as condition-based maintenance, time-based maintenance and performance-based maintenance. Poor maintenance management is usually due to the lack of top management support coupled with maintenance activities being conducted on an *ad hoc* basis, the absence of guidelines or specific maintenance procedures, inability of the management team and many more.

The absence of a maintenance measurement method is an issue in urban tourism. The need to evaluate maintenance programs is actually not a new concern. According to Parida and Kumar [16], factors that influence the need to evaluate maintenance programs are as value of maintenance program, investment requirements, review of resource allocation, safety, health an environment issues as well as information management. Performance measurement is vital in managing the performance of a program. A system to measure maintenance activities should be developed with clear indicators because it can be used to identify the gaps and weaknesses of a process. A system to measure the performance of a maintenance program is important to ensure the functionality and safety of an infrastructure in the long run.

Moreover, a discussion on the issues and challenges of public infrastructure maintenance in urban tourism has been linked with the lack of policies and specific maintenance strategies. According to Lee [22], the government should have a definite maintenance policy in order to develop an effective maintenance program. The maintenance policy can be also considered as an important factor in creating high quality retention programs. Maintenance policy is seen as a guideline that indicates the core mechanism of different maintenance activities. In the context of public infrastructure maintenance, maintenance policy explained the objective and method that must be considered by an organization (including government agencies) in implementing any maintenance program. Policies enacted should be able to clarify the framework of infrastructure maintenance, the method of operational management, the availability of funding for maintenance purpose and the level of priority for all maintenance activities.

Maintenance strategy is also referred as a tactic and tool used to realize the maintenance plans as well as to define the roles of the related maintenance and it is critical as it requires an understanding of the functionality of an asset; “what the assets are supposed to do and not to do, when it needs to be done and how assets interact with each other” [18]. Maintenance strategy must be adapted in a maintenance program in order to explain the maintenance approach in the development of maintenance policies. Lastly, the issue and challenge that should be discussed is the lack of maintenance culture. According to Abdullah, the money spent by the government to maintain public buildings is being wasted due to poor maintenance culture. The problem of poor maintenance due to human behaviour can be solved by adapting the concept of maintenance culture. Through this concept, people will be reminded on their role and responsibility to maintain an infrastructure. This will create awareness and ultimately lead to the culture of maintaining public infrastructure. The culture of maintenance can be regarded as an important strategy to attract voluntary participation from any interested entity to practice a good habit in maintaining infrastructure. This culture will enable the effective implementation of public tourism infrastructure.

## 4 Conclusion

The aim of the development of public tourism infrastructure is to attract more tourists. In developing countries like Malaysia, the government is striving to provide tourism destinations with adequate infrastructure. Infrastructure, as a man-made asset, is influenced by many factors that can lead to damage or destruction. To prolong the life and functionality of public infrastructure, good maintenance program must be implemented effectively and efficiently. Failure to practice good maintenance program will cause various problems which ultimately will affect the government's investment. This paper discussed various critical issues faced by the development and maintenance of tourism infrastructure. Even though the level of issues involved cannot be determined clearly, all parties must take the issues seriously as the loss incurred by the government is actually exhaustive and it impacts all walks of life in Malaysia.

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