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Research paper

Issues and Challenges of Urban Heritage Trees Conservation in Malaysia Towards a Sustainable Site

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Abstract

Now, the rapid development of urban areas on land use has been changed from natural environment to built environment. In Malaysia, this situation causes a lot of urban trees have been felled to make way for urban development. In giving historical identity and cultural symbolic to landscape of the cities, usage of heritage trees are important. Moreover, heritage trees will create emphasize historical environment which give important roles of landscape to the cities. This paper main objective is to review the issues and challenges of Malaysia Urban Heritage Tree in Taiping Lake Garden, Kuching North City and Georgetown World Heritage Site. The goal of this paper is to induce public awareness in conservation of the heritage trees as part of landscape roles to create culture and historical value in cities. The purpose of the study is to analyzes the current issues and challenges of Malaysia Urban Heritage Trees Conservation, define the definition of Urban Heritage Trees and investigate the related governmental policies from previous research. The study has found that the data of Urban Heritage Trees in Georgetown still not recorded. The research on heritage trees must be conducted in George Town for data collection about the species, size, structure, condition, location, special considerations and quantity of Georgetown urban heritage trees. The data collected can be benefitted to support the integrated heritage database system in order to effectively manage the resource, develop policy and set priorities for heritage site conservation.

Keywords: *Natural environment; Public awareness; Urban heritage trees; World Heritage Site; Trees conservation*

1. Introduction

Conservation of heritage trees is a concern worldwide. Therefore, many countries have taken the initiative to raise awareness to the public regarding the importance of heritage trees and enact laws or declared policies to authorize the heritage trees conservation as part of the culture of the city. Heritage tree provide benefits and aesthetic value to the urban community that same as ordinary tree. Hence, heritage trees also has the same ecological-landscaping roles such as the interception of rainfall and releasing anger into surface water, reduce air pollution and increase property values in an area. In Malaysia's context, heritage tree conservation can be said as a new term. The heritage trees conservation efforts are deeply needed in law or policies and public awareness. Heritage trees can adapt in urban stress environment while others are sensitive to variety ecosystem. Normally, community will relate heritage trees as bestowed on their religion, spiritual or other symbolic values (Read, 2000). A century ago, *Pterocarpus indicus (angsana)* was recorded as earliest urban tree in Malaysia. It was planted in 1778 in Malacca (Koening, 1894) and in Penang (Burkill, 1966). Because of the impact of its wide diameter of canopy and fast in germination, *Pterocarpus indicus* was chosen as a popular tree for urban planting and remained in Malaysia and Singapore in 1990s (Philip, 1999). However, in 1935 these trees were reported being affected by unknown plant disease that spread rapidly in Malacca, Penang and Singapore (Furtado, 1935). In order of prevent the disease spreading to all trees, certain affected trees were removed by cut down the trees. This situation could have been avoided if it get through a regular tree inspection and correct maintenance technique. The Malaysia's management of urban heritage trees protection was poor, lacking of knowledge about the maintenance, and aspect of public security was underestimated (Sreetheran, Philip, Adnan & Siti Zakiah, 2006). Therefore, the protection of heritage planting become worst because of there was no any action to handle the problem (Zamil, 2012).

This rare and unique natural heritage asset conservation is a thought-provoking effort in developing countries, such as Malaysia, that the forceful burdens of rapid urbanization must be faced. Neither law nor public community has paid much attention on urban heritage tree protection, still the issue of heritage trees was overlooked or underestimated. Now, the rapid development of urban areas has changed the land use of the natural environment to built environment. In Malaysia, this situation causes a lot of urban trees have been felled to make way for urban development. In giving historical identity and cultural symbolic to landscape of the cities, usage of heritage trees are important. Moreover, heritage trees will create emphasize historical environment which give important roles of landscape to the cities. This paper main objective is to review the issue and challenge of Malaysia Urban Heritage Tree in Taiping Lake Garden, Kuching North City and Georgetown UNESCO World Heritage Site. The goal of this paper is to induce public awareness in conservation of the heritage trees as part of landscape roles to create culture and historical value in cities.

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1.1. Urban heritage trees

There are the several studies in the literature about the importance of protecting the heritage trees due a special characteristic was reported. According to Loeb (1992) studies represent that many trees in urban cities was decline and die prematurely due to urban stress ecosystem. The old tree is unusual to find that manage to survive from urban stress ecosystem in long term and be treasured by the community. The special attention in heritage tree conservation was given to remain the status of cultural heritage. Cloke and Pawson (2008) stated that trees can be mark as histories of the lives lived around them and also be marked by the changing of cultural settings in histories. Operational Guidelines for the Implementation of the World Heritage Convention was been use since 1992. The relationship between people and the natural environment have been accepted as cultural landscapes be considered as "natural heritage" (UNESCO, 2013).

Urban heritage trees can be backbone of the cultural landscape and society because of having particular natural or cultural characteristics and, hence, an effective protection policy was request (Mid, 2012). The urban heritage tree can be recognized and qualified by the following criteria; 1) the species of trees biological potential dimension was large size, 2) outstanding tree form, 3) unusual or rare tree species, 4) age of tree ideally over 100 years and 5) cultural, historical, commemorative or ecological significance (Jim & Zhang, 2013). Urban heritage trees be known as variously labelled as ancient, beautiful, big, champion, elite, exceptional, famous, heritage, historic, landmark, old, outstanding, remarkable, specimen, veteran trees, ancient, and old-valuable (Read, 2000; Browne, 2001; Meyer, 2001; Jim, 2005; Jim & Zhang, 2013). In the cities characterize as significant natural-cum-cultural resources of cities that give broad expanse of biological, historical and cultural values to urban community (Fay, 2002; Green, 2002, Jim and Zhang, 2013). According to Oregon municipal, age, size, species, quality, is of landmark importance, and its retention not unreasonably interfere with the use of the property upon which it is located are the criteria that should be viewed to classified as a heritage tree. Moreover, the criteria such as public accessible, tree health and historic element play important role in whether or not a tree or grove qualifies. Among the criteria to qualify a tree to be entitled as a Heritage Tree include: a girth of more than 5 meters, unique species and historical significance as proposed by National Parks for Singapore Botanical Garden in the Heritage Trees Scheme.

2. Methodology

The purpose of the study is to identify and analyzes the current issues and challenges of Malaysia Urban Heritage Trees Conservation in three case studies in Taiping Lake Garden, Kuching North City and Georgetown World Heritage Site from previous research. From this content analysis, researchers have come out the summary of study to find the solution and the future research to carry out.

3. Finding and Discussion

Three case studies were selected from the previous research to review the issue and challenge of urban heritage trees protected. The three case studies were Taiping Lake Garden, Kuching North City and Georgetown World Heritage Site. The summary can be seen in table 1.

3.1. Taiping lake gardens

During the British rule in Malaysia, Taiping Lake Gardens was established as first public garden in 1880 that originally is a mining ground. The garden area is 64 hectares and located near Bukit Larut. The brainchild of Colonel Robert Sandilands Frowd Walker gave the idea and Charles Compton Reade was developing it (1880 -1933). Charles Compton Reade and Lady Swenttenham were also responsible for planning the Kuala Lumpur garden town. There are ten scenic lakes and ponds, which give emphasize value to the gardens. The total quantity of urban heritage trees in Taiping Lake Garden was 70 trees. Six species of trees were found were *Samanea Saman* (61 nos), *Albizia Falcata* (2 nos), *Mesua Ferrea* (4 nos), *Ficus Benjamina* (1 nos), *Bertholletia Excelsa* (1nos), and *Peltophorum Pterocarpum* (1 nos). The issue of urban heritage trees in this site was too old age (130 years) and the tree structures need to conservation because a few of the heritage tree in poor condition to prevent risk to user. Meanwhile, the challenge of urban heritage tree in this site was conserving the urban heritage trees with correct maintenance techniques to assess the tree hazard rating, defects and disorders. Moreover, the public awareness on protect urban heritage trees need to be increased through education and promotional programmed to make public understand and appreciate the importance of urban heritage trees.

3.2. Kuching North City

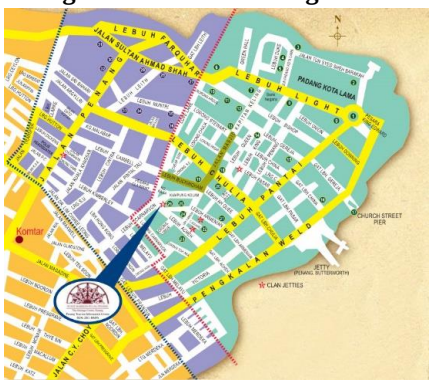
Kuching North City, two major roads in the state capital of Sarawak, that accommodates a population of over 500,000 in 370 km2 of land area and three open space areas were selected for this study area. In fact, the city is well-known as the main development zone during the reign of the Brooke's family era and also been established as the heritage sites. The total quantity of heritage trees in this study area was 183 trees. Ten species of trees were found in the five study areas were *Khaya senegalensis* (26 nos), *Samanea saman* (20 nos), *Tabebuia rosea* (22 nos), *Pterocarpus indicus* (26 nos), *Peltophorum pterocarpum* (31 nos), *Swietenia macrophylla* (42 nos), *Ceiba pentandra* (1nos), *Ficus microcarpa* (5 nos), *Calophyllum inophyllum* (2 nos), and *Fragrea fragrans* (8 nos). Issue of urban heritage trees in this study area is a converted from green environments into built environments development. Therefore, many matured trees that have historical and social values forced to cut down and the importance of urban heritage trees not being upkeep appropriately in maintaining overall setting of this heritage site. The challenge of this heritage site is to preserving and conserving the urban heritage trees are needed to maintain the historical and social value of this heritage site. Moreover, the public awareness on protect urban heritage trees need to be increased through education and promotional programmed to make public understand and appreciate the importance of urban heritage trees.

3.3. Georgetown UNESCO World Heritage Site

On 7th of July 2008, Georgetown and Malacca were formally gazette as a UNESCO World Heritage Site as "Historic Cities of the Straits of Malacca". Instead of having unique architectural and cultural townscape without parallel anywhere in east and Southeast Asia, Georgetown was the first British port town (UNESCO, 2008). At the end of 18th century, Georgetown represents an early development

from British period which is the oldest British colonial town in South East Asia and enclosed by Light Street, Beach Street, Chulia Street and Jalan Masjid Kapitan Keling. These streets had been stated as the main commercial district of the city. The case study areas cover a core zone area of 109.38 hectares. At Jalan Masjid Kapitan Keling, Esplanade and Padang Kota Lama there were numerous matured trees that have historical and social values were been identified (Shamsuddin, S., Sulaiman, A. B. & C. Amat, R., 2012) but the species, size, structure, condition, location, special considerations and quantity of urban heritage trees still not have data provided. The issue of urban heritage trees in this study area is a many green environments have been converted into built environments development. Therefore, many matured trees that have historical and social values forced to cut down and the importance of urban heritage trees not being upkeep appropriately in maintaining overall setting of this heritage site. The public awareness of protecting this urban heritage trees was very low. So, the challenge to increase the public awareness on protecting heritage trees through education and promotional programmed. Meanwhile, the urban heritage trees in this case study need to identified for preserving and conserving to maintain the historical and social value.

Table 1: Summary on Issue and Challenge of Malaysia Urban Heritage Trees in three case study

	Issue	**Quantity of Urban Heritage Trees**	**Challenge**
Taiping Lake Garden  (Source: JPBD, Majlis Perbandaran Taiping)	Heritage trees too old age (130 years) and the tree structures need to conservation because a few of the heritage tree in poor condition to prevent risk to user.	1) *Samanea Saman*: 61, 2) *Albizia Falcata*: 2, 3) *Mesua Ferrea*: 4, 4) *Ficus Benjamina*: 1, 5) *Bertholletia Excelsa*: 1, 6) *Peltophorum Pterocarpum*: 1. **Total: 70** (Ali, W. N. A., Hassan, N. & Hassan, K., 2013)	Conserving the heritage trees with correct maintenance techniques to assess the tree hazard rating, defects and disorders. Increase the public awareness on protecting heritage trees through education and promotional programmed.
Kuching North City  (Source: DBKU, Dewan Bandaraya Kuching Utara)	Green environments have been converted into built environments development. Many matured trees that have historical and social values forced to cut down.	1) *Khaya senegalensis*: 26, 2) *Samanea saman*: 20, 3) *Tabebuia rosea*: 22, 4) *Pterocarpus indicus*: 26, 5) *Peltophorum pterocarpum*: 31, 6) *Swietenia macrophylla*: 42, 7) *Ceiba pentandra*: 1, 8) *Ficus microcarpa*: 5, 9) *Calophyllum inophyllum*: 2, 10) *Fragrea fragrans*: 8. **Total: 183** (Zainudin et al., 2011)	Preserving and conserving the heritage trees are needed to maintain the historical and social value of this heritage site. Increase the public awareness on protecting heritage trees through education and promotional programmed.
Georgetown World Heritage Site  (Source: The Heritage Centre, Penang)	Green environments have converted into built environments development. Many matured trees that have historical and social values forced to cut down.	There were numerous matured trees that have historical and social values were been identified at Esplanade, Jalan Masjid Kapitan Keling and Padang Kota lama (Shamsuddin, S., Sulaiman, A. B. & C. Amat, R., 2012) but the species, size, structure, condition, location, special considerations and quantity of urban heritage trees still not have data provided.	Identifying the heritage trees that need to preserving and conserving to maintain the historical and social value. Increase the public awareness on protecting heritage trees through education and promotional programmed.

As showed in table 1, the urban heritage trees in Taiping Lake Garden was already be protected by preservation and conservation but the local authority for this Taiping Lake Garden need to overlooked into correct method to do the good treatment of old heritage trees to prevent risk for public safety. While, in Kuching North City and Georgetown has the same issue on heritage trees protection. Due on new development in cities, many heritage trees was unprotected. Therefore, the cities lost of natural historical values in maintaining overall setting of heritage site. The table 1 has stated the quantity of Urban Heritage Trees in Taiping Lake Garden (70 nos) and Kuching North City (183 nos) but in Georgetown the data of the quantity of Urban Heritage Trees still not recorded and it's just have identify the location of the mature trees. The research on heritage trees must be conducted in Georgetown for data collection about the species, size, structure, condition, location, special considerations and quantity of urban heritage trees. The data collected can be benefitted to support the integrated heritage database system in order to effectively manage the resource, develop policy and set priorities for heritage site conservation. Furthermore, the public awareness on protect urban heritage trees conservation also need to be increased thru education and promotional programmed to make public understand and appreciate the importance of urban heritage trees conservation.

4. Conclusions

In conclusion, urban heritage trees protection in Malaysia still needs to be improved by the law and policies implementation. The issue and challenge of urban heritage trees in Malaysia need to have solution to upkeep appropriately in maintaining overall setting of heritage site value. Due on new development in cities, many heritage trees was unprotected. Therefore, the cities lost of natural historical values in maintaining overall setting of heritage site. The study has found that the data of Urban Heritage Trees in Georgetown still not recorded. The research on heritage trees must be conducted in Georgetown for data collection about the species, size, structure, condition, location, special considerations and quantity of Georgetown urban heritage trees. The data collected can be benefitted to support the integrated heritage database system in order to effectively manage the resource, develop policy and set priorities for heritage site conservation. Furthermore the public awareness protecting on urban heritage trees need to increase by to actively promote thru education and promotional programmed, greater public understanding and appreciation of heritage trees and an importance of protecting them.

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