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Public Perceptions towards Tree Risk Management in Subang Jaya Municipality, Malaysia

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Abstract

The study was conducted to identify the cause of trees located in urban reserve could threatened the public safety. It highlights on the tree species selection, preparation of planting areas, tree function. Maintenance requirements are the most critical issues for tree management in urban areas. The study area is Subang Jaya Zone was administrated by Subang Jaya Municipal Council. The tree species distribution and safety in urban reserve areas was analyzed by quantitative and qualitative methods. It was based on knowledge of tree biology, its principal function, and target probability risks based on the location of trees. The risky trees without proper maintenance will lead to the fallen trees.

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Keywords: Tree risk management; urban conflict; safety; planning

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1. Introduction

The statistics indicate the public complaints regarding of tree fallen received by Subang Jaya Municipal Council (MPSJ) for three years (2012–2014) are 5512 cases (Iresponz, 2014). Trees are the most important plants for providing shade as well as their aesthetic value in the city (Misni, 2013). These trees have potential to run the risk of falling. The incidences of fallen trees bring many adverse effects to the city. It can cause traffic congestion if tree fallen across a primary road. Closing the road immediately make the traffic getting worst and congested because of an emergency action from local authorities or contractors to clear the tree fallen waste. These are among the example of the adverse impact of emergency fallen trees incidents. At the very least, trees are tall, large, and dense structures that can lose parts or catastrophically fail (Coder, 1996). These cases are the most critical issues faced by local authorities. The risk of fallen tree cannot be predicted. Various measures have been taken by local authorities progressively but, such incidents continue to occur, especially when rain and bad weather happen during wet seasons and an active storm. Matheny & Clark (2009) found that the trees in cities experience different wind patterns than trees in forests. The interaction between the components of tree crown can prevent the generation of natural harmonic sway frequencies and minimize extreme dynamic loads that would potentially cause mechanical failure (Matheny & Clark, 2009). The cases always happened in the housing area, main roads such as highways, protocol road, walkways and other public spots. Genesis of the fallen tree is not only damaging public assets, properties or vehicles, but can particularly injure the public. According to Barker (2009) there are four important aspects related to tree risk management; the integrating urban forestry management in emergency management, increasing public safety, promoting tree health and sustainability, and operating more efficiently. The aim of the study is to develop the basic principles towards tree management and considering the tree safety managing in the public areas. The study were based from the current situation and scenario of the tree risk management in MPSJ administration areas, tree planting design and its maintenance, and finally to assess the needs of trees in the urban environment from the public opinions.

2. Literature review

The urban trees function is to reduce the extreme heat urban conditions. It also provides a conducive urban green reserve space in urban environments for pedestrians and vehicles. There are many efforts to plant trees in urban reserve by local authorities for urban greenery programs, but without the strategic planning it will not give a huge impact to the cities. These trees need to manage in a proper way from it was planted, their maturity period, and until the end of its lifespan. Duntemann (2006) defines the Tree Management Plan is the current tree risk program for the city. It articulates the community's total policy on risk trees, both at the micro and macro scales. Urban tree management includes maintenance, protections and prevention problems (Coder, 1996). Sixteen topics of towards BMP's are tree biology, tree identification, soil science, water management, nutrition and fertilization, tree selection, installation & management and pruning. The others are tree support, diagnosis, plant health care, risk assessments, constructions, urban forestry, safety workers and working on trees (Lily, 2010). Tree biology is the study of structure and function and the relationship between them while physiology is the study of the biological, physical, and chemical processes within these components, providing the basis for the function. The trees also have a system of defense. It is easy to forget that many trees can grow more than 30m in height if conditions are favorable. Many trees grow wider than tall, and roots have the potential to extend well beyond the farthest reaching branches.

According Mann (2014), the soil compaction is the process of applying energy for loose soil to consolidate it and remove any voids, increasing the density and consequently load-bearing capacity. The Causes of the failure or the tree installation and establishments are poor root system, insufficient water, excessive water, deep planting, compacted soil and plant specimens (RHS, 2014). Trees that structurally pruned when young should have a little structural defect (such as co-dominant stems) which means it should less potential for failure at maturity. It also to develop well spaced branches. Clustered branches such as these are often weakly attached. Urban tree management is critical to the health and quality of life within our cities. Then, the tree risk management plan should be fully integrated with tree planting and tree pruning programs, and share a common goal of promoting healthy and structurally sound trees (Pokorny, 1992). The trees usually fall by natural disasters such as the storms, floods and hurricanes. Currently, there are so many cases about tree fallen faced by local authorities. The cost and budget

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