Land Surface Temperature of Green Spaces and Surrounding.  
Case Study: Campus of Universiti Teknologi MARA, Shah Alam.

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Introduction

For a town planner, green area is always treated as an essential type of land use for a human settlement. Green area or open space is usually planned in a city (called as town park) and also in a neighbourhood unit (called as neighbourhood park). However, the importance of a green area is always being related to the recreational and social activities. Actually, the function of a green area is beyond than that. It is also necessary in reducing the temperature of the micro climate of an area. Accumulatively, by preserving more greens especially the forest in a city, the impact of urban heat island will be reduced. Study at Bangi New Town (Shaharuddin et al., 2008) showed a lower temperature reading (lower in urban heat island intensity) at green area or garden as compared to the build-up area in day time. Besides, greens also required in converting carbon dioxide into valuable oxygen for the sustainability of human lives. Previous study in Kuala Lumpur shows positive, strong and significant relationship between green/forest area and urban air quality (Ling et al., 2010), and positive impact of green area on air-related health condition of local residents (Ling et al., 2011).

Case Study

A study was being carried out in the campus of Universiti Teknologi MARA (UiTM) Shah Alam with the objective to measure the variation of land surface temperature at the varying distances from two (2) green areas (areas of study). The areas of study are Seroja College, and Academy of Language Studies (Table 1, Aerial Photo 1, and Aerial Photo 2). The temperature was recorded for three (3) periods of times i.e. morning (8 - 9 am), noon (12 - 1 pm), and evening (6 – 7 pm) for three (3) days. The average reading of every period was recorded. The Thermo Anemometer was used in recording the temperature.

Table 1: Temperature sampling points

<table>
<thead>
<tr>
<th>Academy of Language Studies</th>
<th>Seroja College</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Point A</strong></td>
<td><strong>Point B</strong></td>
</tr>
<tr>
<td>Green area (under a shaded tree)</td>
<td>Moderate distance from the green space</td>
</tr>
</tbody>
</table>

Note: the distance between point A and B, B and C, D and E, and E and F is approximately 50m.

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Results and Findings

In general, the study (Table 2) shows the increasing of temperature as sampling points moving away from green area. The concrete spaces (points B, C, E and F) were recorded with higher temperature readings as compared to green spaces (point A and D). Besides, point D was recorded with higher temperature than point A. Point A which is located under the shaded tree, meanwhile, the point D is on the open space / field.
### Table 2: Average temperature for the six (6) sampling points

<table>
<thead>
<tr>
<th>Place</th>
<th>Akademik Pengajian Bahasa UiTM Shah Alam</th>
<th>Kolej Seroja UiTM Shah Alam</th>
</tr>
</thead>
<tbody>
<tr>
<td>Point A</td>
<td>29.5 °C</td>
<td>30.4 °C</td>
</tr>
<tr>
<td>Point B</td>
<td>30.5 °C</td>
<td>30.6 °C</td>
</tr>
<tr>
<td>Point C</td>
<td>31.6 °C</td>
<td>31.3 °C</td>
</tr>
</tbody>
</table>

### Conclusion and Recommendation

From the summary of the findings, it shows a clear effect of greens (trees and grass) in reducing the land surface temperature of the study areas. Besides, it also shows that trees with larger surface of leaves are more effective in reducing the temperature as compared to grass.

Thus, in order to reduce the impact of urban heat island or global warming, more forest and green area should be preserved. Every city, town or neighbourhood unit should preserve its own forest or green area within its own boundary. A city should not just depending on rural areas in providing resources for the city, including preserving green area or forest for the cities. The cooling effect of greens is better when the greens are located close to us (or within our habitat) as compared to the greens which are located far from us. Even though, around 45% of total land area in Peninsular Malaysia is covered with forest (FDTCP, 2010), Malaysian major cities (Klang Valley) still suffering with the impact of urban heat island (Illyani et al., 2012). Therefore, any effort to preserve or provide green area should be emphasized at the more localised or city level and not only at regional or national level.

### References


