

Alongkorn Intaraksa 2014: Role of Latent Heat Flux and Sensible Heat Flux in Urban Zoning, Design and Planning. Doctor of Philosophy (Environmental Science), Major Field: Environmental Science, Department of Environmental Science. Thesis Advisor: Assistant Professor Surat Bualert, Ph.D. 96 pages.

Heat energy stored within the earth that determines to change of ambient air temperature, it can be categorized into two types, the latent heat flux (LE) and the sensible heat flux (H). Both of them have related inverse in each type, when the latent heat flux is increasing, the sensible heat flux will always decrease. And when the sensible heat flux is decreasing, the latent heat flux will always increase too.

This research applies the capability of green area to find energy balance and reduce the heat caused by cement materials in Bangkok city. The research studies heat energy in different ratios of cement area to green area, i.e., 100% cement area to 0% green area (type 1 area), 75% cement area to 25% green area (type 2 area), 50% cement area to 50% green area (type 3 area), 25% cement area to 75% green area (type 4 area) and 0% cement area to 100% green area (type 5 area). An Ultrasonic Anemometer is used to calculate the heat energy ratio based on Bowen Ratio methodology together with a Net Radiometer to find the net radiation and collecting data in March to April 2014, which was the summer of Thailand.

The result of this study reveals that the most suitable ground area ratio are 50% cement area to 50% green area and 25% cement area to 75% green area or in the Bangkok city should have green area 50 up to 75% of the total of Bangkok area. And the suitable point of Bowen ratio is 2.6 – 3.2.

---

Student's signature

---

Thesis Advisor's signature