

Electricity pylon mapping and buffer analysis in Tsukuba, Ibaraki

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1. Motivation

There are many big electricity pylons located across Tsukuba city. These pylons have caused concerns over the years for their potential hazard to human health, due to strong magnetic fields generated by the electricity current.

2. Purpose

The purpose of this research is to map as many pylons as possible in the area around the campus of Tsukuba University, and to use GIS analysis to estimate the number of buildings in proximity to those pylons.

3. Study Area

The field work was conducted in the areas in proximity to the university campus, spanning an area from the north and the area of Hanabatake, to the south, in the area of Kenkyuugakuen.

4. Methodology

Field work was conducted using a smartphone (iPhone) as a GPS with a GPS kit software. Transportation was conducted by bicycle. The results were imported into GIS, and the points of each pylon were buffered with 150m zones. A selection analysis was done in order to determine the amount of buildings in these buffer zones.

5. Results and Discussion

In total, there were 32 pylons that were mapped. Close to the University and to the North the areas are more inhabited and there are many pylons with a lot of buildings around them. To the south and past Kenkyuugakuen, there are some pylons with buildings around them but the area is much less built up (figure 1). In total there were 843 buildings in the buffer zones of the pylons that were mapped. From the 32 pylons, 13 in total had 30 or more buildings in their buffer zone.



Figure 1 Electricity Pylon mapping and buffering in Tsukuba, Ibaraki

