

The Impact of Land Use Land Cover Changes on Land Surface Temperature Case Study : Serang Municipality, Indonesia

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Serang municipality positioned as the center of Banten Province government and also as an alternative area and hinterland for Indonesia's state capital, Jakarta. In consequence, making Serang Municipality as one of most active transmigration destination in Java Island. According to Serang Municipality in figures 2016, the population density of Serang Municipality is 2.441 person/km² where most of its population inhabit urban area. The increasing amount of citizens that converted urban open space into settlement, roads, public facilities and decreased the amount of vegetation areas, making the temperature higher in urban area. Thus, land surface temperature could be an indicator of urban heat island (UHI).

Landsat images have been used extensively to observe temporal and spatial changes in land cover and land surface temperature in Indonesia. This study used Landsat 8 OLI/TIRS with acquisition date 19 October, 2013 and 21 June, 2016 path 123 and row 64. Land cover changes retrieved from supervised classification using maximum likelihood technique and the extraction of land surface temperature derived from NDVI.

The result demonstrated that land cover changes significantly influenced land surface temperature. Green open space in urban environment decreases the LST effect and provides advantages but it needs a new open space. Therefore, choosing a rooftop garden would be beneficial. Beside it does not need a new open space, it has many benefits both on the macro-citywide level and micro-building wide level.