Study about energy saving that utilizes social foundation and about climate alleviation in a city

[Point]

This study utilized road surface power generation system that was made up by thermoelectric element, suggested a measure for alleviating temperature rise in a city and a road heating system for the purpose of reduction of electricity usage, and conducted a review about its effects. The effects were figured out by using numeric calculation model, regarding climate alleviation in a city, as the reduction of the maximum of 1.59 degrees in Tokyo and the maximum of 1.25 degrees in Osaka in the case with road surface temperature. Power generation and heat conduction of road surface power generation system were considered as factors that contributed to the reduction in road surface temperature, and especially heat conduction was considered to be the more significant factor for the temperature reduction. Furthermore, energy-saving effect was figured out by applying to road heating system, which confirmed the effect of approximately 1.9 times in Sapporo and approximately 3.2 times in Niigata.

Keywords: road surface power generation system, road heating system, thermoelectric element, road surface temperature, power consumption