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Thesis Title	<i>Calculation of the economic and technical potential of the mitigation methods for local climate change, energy consumption and energy poverty</i>
Supervisor	M. Santamouris, Professor
Summary	<p>The most important problems of modern urban built environment are local climate change, energy consumption and energy poverty. Due to the continuous increase of the intensity of these problems, it is important to study in depth the mitigation methods and necessary actions for decreasing their effects, as well as the links between them.</p> <p>The purpose of the study is to compare the technical potential of these mitigation methods to reduce the intensity of local climate change and energy consumption, as well as the assessment of their economic potential through meaningful indicators such as the cost of application and the payback period.</p> <p>The study consists of three main parts. In the first part, it is confirmed by the literature that local climate change exists in Greek cities, known as the phenomenon of Urban Heat Island, and then determined its intensity for each city.</p> <p>In the second part, a typical district of Athens was chosen as the study area and determined through simulations of ENVI-met software to quantify the reduction of ambient temperature that five special scenarios cause. These scenarios are divided into installation of "cold" materials, increase of green coverage and installation of water volumes.</p> <p>In the third and final part, the economic potential of the temperature reduction scenarios has been investigated, then their implementation costs has been calculated and the payback period was estimated as an energy efficiency index.</p>
Key words	Urban Heat Island, Energy Consumption, Cool Materials, Urban Green, Cost Analysis
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