



On the Development of Urban Adaptation Strategies Using Ecosystem-based Approaches to Adaptation – Impact Evaluation

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Currently running project UrbanAdapt deals with the adaptation of cities on changing climatic conditions including, but not limited to, summer heat waves. These activities include assessment of city's energy balance in terms of interactions of solar radiation, atmosphere, and urban environment. Micro-scale models allow studying proposed adaptation measures such as tree alleys, bodies of water, etc. The impact of different adaptation measures on citizens who live in environmental conditions of growing effect of urban heat island is investigated. For evaluating the impact of proposed strategic adaptation measures a concept of Physiological Equivalent Temperature (PET) is adopted. In comparison to single values of air temperature, air humidity, global horizontal irradiance, wind speed, and other meteorological indexes, concept of PET has added value in determining the value of important biometeorological index in easily recognizable quantity such as °C. Microscale models are used to downscale urbanized meteorological model to the street level and to study the connection of meteorological variables, biometeorological indices and various adaptation measures. Through these models the effects of the solar radiation (including sky view factor), radiation from buildings, air quantities and other meteorological indexes are taken into account when determining the PET. Within this contribution, various models' inputs pre-processing methods, model outputs, and the results of the proposed strategic adaptation measures impact evaluation are presented.