

# Policy Measures to Innovate Synergistic Co-actions for People's Health and Global Environment under Climate Change with Urban Heat Wave in Vulnerable Aging Society

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[Abstract]

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The purpose of this research is to analyze and evaluate the impact of the deterioration of the heat environment due to climate change on an evidence basis, develop support tools and design a process for a Living Lab to realize synergistic co-actions for people's health and global environment in light of an aging society and future urban vulnerability. The three subgroups will collaborate with each other by collecting detailed data related to heat stroke and developing prediction models, creating and implementing evaluation models and visualization and various adaptation measures at the detailed district level using spatio-temporal data, and developing and implementing methodologies for co-creation processes through the establishment and operation of living labs.

- A highly accurate heat stroke emergency transport prediction model is developed by using independently obtained heat stroke-related emergency transport data and correlating detailed location information with weather information by individual attribute. The model has improved accuracy, especially at the peak, and provides effective information for alerting the people. The model also estimates the number of emergency heat stroke cases under future climate conditions.

- Models are developed to evaluate vulnerability to heat stroke on a town-by-town and character-by-character basis by proposing a new index called the Urban Functional Agglomeration Index. For risk assessment, we propose a method to use the cumulative time of WBGT as a new alert indicator and developed a risk assessment model for each mesh unit of outdoor space using the cumulative time of MRT and human flow data. In addition, we develop a guidebook for heat stroke prevention, a causal structure model for behavior change, and a navigation system for avoiding heat stroke. Furthermore, as an adaptive infrastructure for outdoor spaces, we propose a heat shelter using wood and membranes, and clarified its heat mitigation effects based on the heat environment and physiological responses of the human body.

- A Living Labs is established and implemented to realize the co-creation process in industry, government, academia, and the private sector. Facilitator manuals, a process model, and evaluation models that promote co-creation are developed and applied in practice, showing that the adaptation measures work effectively and have a significant social impact.

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