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# Climate change and overheating: A multi-level risk assessment of impacts on Greek cities

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Climate change and overheating pose significant risks and challenges for humans, for the environment, and for contemporary cities. Among its consequences, urban overheating, extreme weather events and heatwaves very often affect human life at various levels, developing several societal, economic, and natural hazards. The Mediterranean region is one of the most exposed to climate change risks areas in the world, due to its specific climate and geographic characteristics in combination with the existing socio-economic gaps, population growth and migration levels. Countries and cities located around the Mediterranean area suffered from increased temperatures and heatwaves several times in recent years. Indicatively, Cooling Degree Days -an indicator expressing the demand for space cooling due to increased weather temperatures- have increased by around 57% since 1979 in Greece, according to official statistics. Following the need to address these challenges, this study aims to identify and evaluate the impacts and risks of overheating in the context of climate change in Greek cities. It uses the method of Operational Risk Management in three steps. Firstly, it investigates the hazards and risks of climate change through extended research in the recent literature, classifying them to risks for humans (health, employment), environment (disaster of ecosystems) and cities (building environment, economy, society). Secondly, the assessment of the identified hazards is implemented through the evaluation done by different city stakeholders involved in urban activities (public entities, research and academy, private sector, non-governmental organizations, citizens). The results from the stakeholders are used at a later stage for calculations, leading to a ranking of the hazards by importance/severity and by probability of happening soon. The findings could shed light on the most vulnerable aspects of the cities affected by climate change. This evaluation and the resulted ranking could be also an important finding for policymakers to design and implement Disaster Risk Reduction (DRR) and climate adaptation policies.
Keywords: climate change; heatwaves; Operational Risk Management; hazards severity