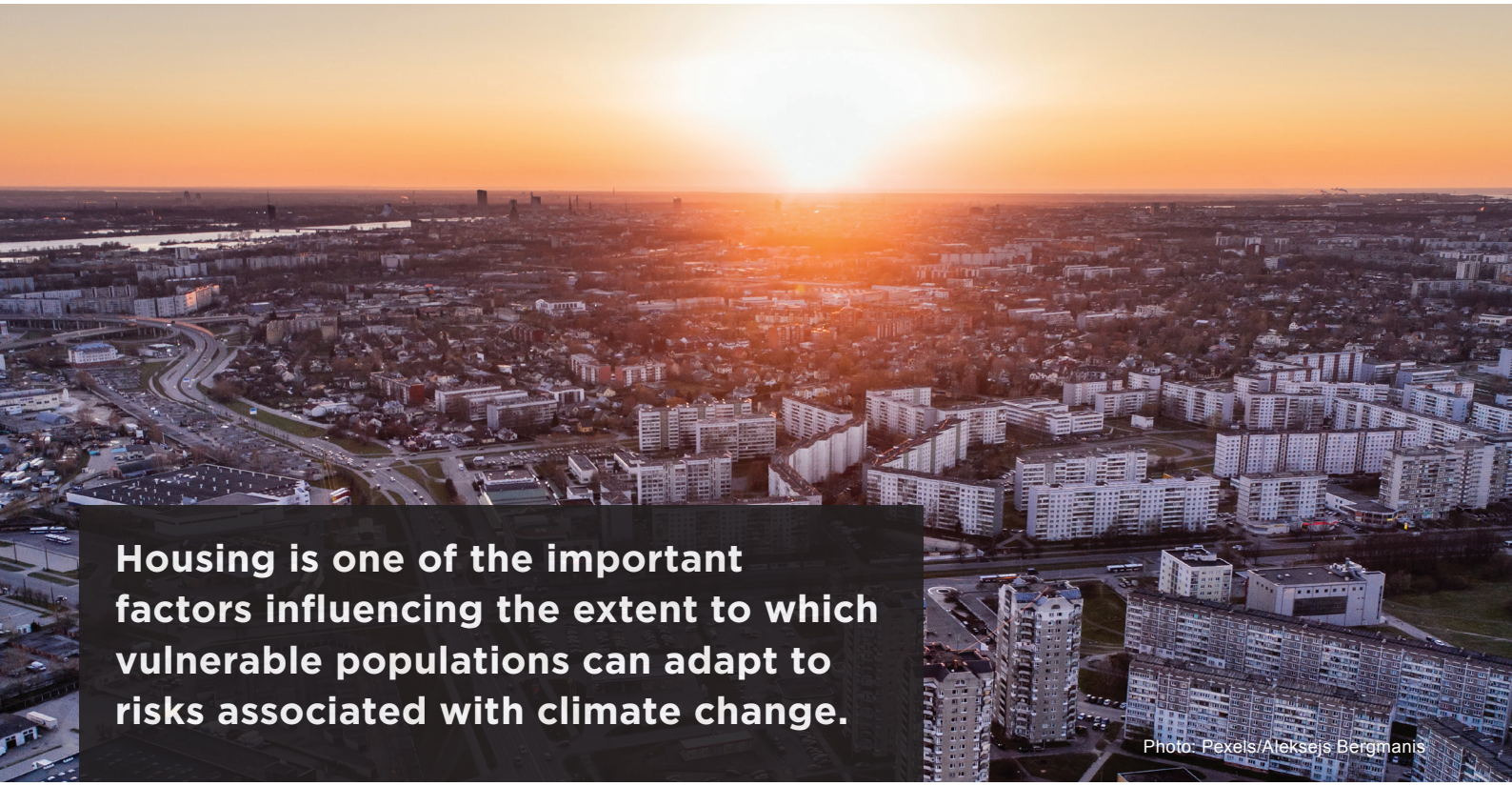
NSW GOVERNMENT

THE UNIVERSITY OF SYDNEY

Human Health and Social Impacts Node

Climate change, housing, and health: A scoping study on intersections between vulnerability, housing tenure, and adaptation responses to extreme heat



Housing is one of the important factors influencing the extent to which vulnerable populations can adapt to risks associated with climate change.

Photo: Pexels/Aleksejs Bergmanis

International studies demonstrate that vulnerable populations (such as elderly, youth, isolated, disabled, chronically or mentally ill, low income groups) are particularly susceptible to health risks arising from extreme weather events because of the limited capacity for those in vulnerable or unofficial tenure situations to modify their homes, as well as higher climate exposure arising from overcrowded, poorly maintained, or inadequate forms of shelter.

As the problem of affordable housing is increasing its range and impact, vulnerable populations are not captured by census-based survey methods. While much is known about the pre-existing health conditions which are most at risk from such predicted climate change issues as extreme heat events (age, cardiovascular disease, kidney disease, diabetes, people with mental health problems), the additional issue of vulnerable households, with or without these known morbidities, is not part of emergent climate change related health policies.

Given the limited existing data, this project involves an initial scoping study to explore the extent to which unaffordable, insecure or marginal forms of housing exacerbate existing climate-related vulnerability. Using housing types which identify likely vulnerable housing situations (specific dwelling types occupied by high need groups in low-cost social, private, rental and marginal forms of housing tenure), we test the climate change issue of extreme heat to explore risk profiles.

The project will also include a laboratory-based study in which the magnitude of physiological heat strain (e.g. elevations in heart rate and core temperature) experienced by residents of different housing scenarios during simulated extreme heat events (in a climate chamber) will be assessed.

The project will also assess the efficacy of different low-cost cooling technologies that might be used by these residents for mitigating the level of physiological heat strain that occurs during extreme heat events.

Potential communication strategies needed to raise awareness about adaptation options. A range of policy measures which might be introduced to reduce wider housing and health-related risks and vulnerabilities arising from climate change will also be explored through this project.

Research outcomes

- An understanding of the extent to which unaffordable, insecure or marginal forms of housing exacerbate existing climate-related vulnerability.
- Identification of risks associated with specific dwelling types occupied by high need groups in low-cost social, private, rental and marginal forms of housing tenure.
- Identification of the magnitude of physiological heat strain experienced by householders against housing typology during laboratory simulated extreme heat events.
- An understanding of the efficacy of low-cost cooling technologies for mitigating physiological heat strain during simulated extreme heat events.
- Suggested communication strategies to raise awareness about adaptation options.
- Supporting the development of a wider range of policy measures with housing and health professionals which might be introduced to reduce housing and health-related risks arising from climate change.

Who will use this information?

- Housing support officers and community workers in state and local government and in the community sector.
- Urban planners and designers who monitor changes in local housing development and provision.
- Health and building inspectors and local enforcement officers.
- Local health professionals.
- Residents of high-risk housing types.
- Heat-health policymakers in New South Wales.

Human Health and Social Impacts Node

Building on current sources of health and climate change information, the Human Health and Social Impacts Node will support the NSW Government by:

1. delivering robust, sector-specific information targeting the health system, vulnerable communities and government agencies
2. establishing baselines for monitoring, evaluation and analysis of adaptation programs that seek to protect and promote health, and strengthen the delivery of health services, in the face of a changing climate
3. improving understanding of vulnerability in the context of exposure, sensitivity and adaptive capacity
4. providing practical information on building resilience in communities and in the health sector.

The work program of the Node is informed by eco-social understandings of relationships between climate change and health. The approach taken acknowledges the range of environmental, social and economic consequences of climate change, including regional variation in impacts and vulnerability.

The Node is a partnership between:

- **Department of Planning, Industry and Environment**
- **University of Sydney**
- **NSW Health**

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