

Scientists create framework to guide development and assessment of urban climate action plans

November 30 2023



Due to a high concentration of people and activities in cities, they are at the forefront of battle against climate change. Credit: Ayyoob Sharifi, Hiroshima University

With the world projected to be highly urbanized by 2050, cities are encouraged to take urgent climate actions to mitigate and adapt to the

threats of climate change. As climate change intensifies and urbanization increases rapidly, local governments are expected now more than ever to lead climate action planning. However, [studies](#) show the limitations of the existing climate action plans (CAPs).

So scientists from Hiroshima University have created an Urban Climate Action Planning (UCAP) framework to guide the development of urban CAPs and support the assessment of the level of suitability of these plans.

Their work was published as a critical review in the journal [*Renewable and Sustainable Energy Reviews*](#).

More than half of the world's population presently resides in urban areas, and this number continues to rise. At the same time, [urban areas](#) are the most vulnerable to a changing climate and its associated challenges, including heat waves, floods, storm surges, and other natural hazards.

Cities are responsible for over 70% of [global greenhouse gas emissions](#) and consume more than two-thirds of the world's energy. Scientists know that it is necessary to move beyond the "business as usual" approach to achieving sustainable urban development. The importance of urban CAPs in reducing greenhouse gas emissions and adapting to the impacts of [climate change](#) is already well documented.

Recent research has highlighted the need for urgent urban climate actions to drastically reduce [greenhouse gas emissions](#) and develop systems for climate adaptation.

The Hiroshima University scientists noted the pressing need for a more scholarly criticism of the existing CAPs and their suitability in guiding climate adaptation and mitigation efforts.

"Here, we propose the UCAP framework to guide the development of suitable CAPs that are comprehensive and consistent with globally accepted standards and benchmarks. Their study further pilot-tested the UCAP framework with climate plans from 257 cities worldwide," said Prince Dacosta Aboagye, a doctoral student from Ghana at Hiroshima University.

The framework is intended to guide the development of suitable CAPs. In practice, their goal is for the framework to serve as a tool for developing city-specific CAPs that are consistent with acceptable climate action planning standards and benchmarks.

In their UCAP framework, the scientists used approaches in relevant existing climate action planning tools. They also included emerging concepts from academic studies and climate planning reports to enhance the comprehensiveness of the framework.

Their proposed UCAP framework includes 43 globally acknowledged criteria across three stages of climate planning. The suitability analysis shows that more than half of the existing urban CAPs have a medium level of suitability, with almost 40 percent having a weak level of suitability.

"We discovered that urban CAPs adopted or published recently (since 2018) are more likely to be suitable than those adopted or published earlier (2015 to 2017). Remarkably, urban CAPs from the Global South are more suitable than those from the Global North, probably due to the influx of consultants and experts in supporting CAP development in Global South cities," said Ayyoob Sharifi, a professor at Hiroshima University.

The authors hope to see more city governments adopting the UCAP framework to develop suitable climate plans to guide urban climate

adaptation and mitigation efforts. This will contribute to reducing the climate risk of urban residents and play an integral role in achieving global climate goals.

"In the future, we hope to explore the impacts of suitable CAPs on urban climate mitigation and adaptation efforts. We will build the capacity of city governments and policymakers on the use of the framework for developing and evaluating the suitability status of their CAPs. We will also urge corporate and educational institutions to adopt the UCAP framework in their [climate](#) planning," said Aboagye.

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More information: Prince Dacosta Aboagye et al, Urban climate adaptation and mitigation action plans: A critical review, *Renewable and Sustainable Energy Reviews* (2023). [DOI: 10.1016/j.rser.2023.113886](https://doi.org/10.1016/j.rser.2023.113886)

Provided by Hiroshima University

Citation: Scientists create framework to guide development and assessment of urban climate action plans (2023, November 30) retrieved 1 May 2024 from <https://phys.org/news/2023-11-scientists-framework-urban-climate-action.html>

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