

Inputs provided by: *Urban Climate Change Research Network (UCCRN)*

1. General description of mandates and objective(s) of your organization / associated network with institutional structure

Despite two decades of nation-state led negotiations, global action on climate change is today primarily led by cities, out of sheer necessity. More than half the world's population is urban and another two billion peoples are expected to move into cities by 2050. Global economic activity is concentrated in cities, giving rise to the fact that cities account for over 70% of global greenhouse gas emissions. Most climate change knowledge assessments have focused on continental and national scale issues, however, such as food production, water supply and forest growth. Less attention has been directed at understanding urban climate change challenges—urban heat island effects, coastal flooding, public health risks – where the vulnerabilities are amplified due to high population levels and complex interdependent urban systems. Cities, coastal and inland, and in a wide range of geographic locations, demand an iterative and continuous state-of-the-knowledge assessment process to ground their unique climate change risks and responses to adaptation and mitigation in science-based policymaking.

To support appropriate city-level action, the Urban Climate Change Research Network (UCCRN) was established in May 2007 at a side event to the C40-Large Cities Climate Summit being held in New York City. UCCRN, an initial group of 100 researchers in 60 cities, was created to provide knowledge to the C40 cities and other urban decision makers to enhance climate science based policymaking. The Network (www.uccrn.org) is housed within the Columbia University Earth Institute (<http://www.earth.columbia.edu/>).

The UCCRN's first major publication was *Climate Change and Cities: First Assessment Report of the Urban Climate Change Research Network* (ISBN-10: 1107004209) published by Cambridge University Press in 2011, which we characterize as the First ARC3. The ARC3 report represents a four-year effort by 100 authors from dozens of cities around the world, and is the first-ever global, interdisciplinary, cross-regional, science-based assessment to address climate risks, adaptation, mitigation, and policy mechanisms relevant to cities. The assessment articulates urban climate risk frameworks, climate science for cities, and derives policy implications for key urban sectors—water and sanitation, energy, transportation, public health—and systemic issues through land use and governance.

UCCRN consists of a Steering Committee, a global management team, and 450+ international members. Day-to-day coordination for the ARC3 process is jointly shared by the three principal co-chairs of UCCRN, who are based at the New School University, the City University of New York, and Columbia University. The global Secretariat is based at the Columbia University Earth Institute. The Earth Institute is a global leader on sustainable development research and practice and has the technological and institutional capacity to house this secretariat. The global management team has a track-record of collaborative research that draws on the comparative advantage of each of their host Universities, which in turn builds on the global network of scholars and their host institutions around the world.

2. Relevant operational framework(s)

The heart of UCCRN is its world-class researchers, many of whom are leading academics, IPCC authors, and practitioner scholars. They are knowledge and information generators from universities, think tanks, and expert groups around the world. These individuals are often involved with providing climate change information and advice to decision-makers for the cities in which they are based, and represent an interdisciplinary skill set of social and natural sciences.

City leaders have had two responses to the First UCCRN Assessment Report on Climate Change and Cities (ARC3). **First**, the report received strong endorsements from leading Mayors and other officials with direct responsibility for cities, including the Mayors of Mexico City, São Paulo, and Toronto, the Governor of Lagos State, and senators from across Indonesia. The report includes forewords written by the former Under-Secretary General of the United Nations; the Chair of the Intergovernmental Panel on Climate Change (IPCC); the Mayor of New York City; and a Special Advisor to UN Secretary-General Ban Ki-Moon. These endorsements all reinforced the value that local decision makers place on urban-

scale climate information. **Second**, since the First ARC3 was published, local government officials, city networks, international organizations and many urban stakeholders have contacted UCCRN expressing interest in an updated report as conditions- i.e. vulnerabilities, impacts and adaptation and mitigation strategies - are rapidly changing and evolving on the ground.

To facilitate ongoing and active learning, the content of UCCRN's second solutions-based assessment will be developed through a series of workshops at global events of leading urban climate stakeholders, including the World Bank, UN-Habitat, C40 Cities Climate Leadership Group, ICLEI Local Governments for Sustainability, United Cities and Local Governments (UCLG), and Metropolis.

A central product of this sustained urban climate change assessment will be *Climate Change and Cities: Second UCCRN Assessment Report*, or ARC3-2.

The aim of the ARC3 process is to ensure ever-deeper coverage of knowledge related to climate change and cities while simultaneously facilitating increased response capacity within cities themselves. Therefore, ARC3-2 will be an innovative, adaptive, and decentralized process that will be carried out in regions closer to cities that lead action and innovation on climate change.

This interactive assessment process has the potential to engage and build the capacities of many hundreds of city decision-makers since UCCRN members are distributed in large, medium, and small cities around the world. They are uniquely placed to engage city decision-makers in on-going capacity building for adaptation and mitigation.

3. Focus areas of risk management for loss and damage associated with climate change impacts

The First UCCRN Assessment Report on Climate Change and Cities (ARC3) addressed sectors that are vulnerable to loss and damage, including water sector, energy sector, and transportation sector. Water supply and wastewater treatment systems will be impacted due to climate change. Inland supplies will see more droughts and floods, and wastewater treatment plants located in coastal areas and riverine flood plains will have high potential costs of impacts and adaptations. Transportation sectors may also have very high climate impacts, especially in coastal areas where a significant amount of transportation infrastructure is located at or below the current sea level. The energy sector, like communications, is one in which there could be large costs from climate change if ongoing improvements in system reliability are not implemented as part of regular and substantial reinvestment. Public health will be impacted by climate change to the extent that costs could be large if ongoing adaptations to extreme events are not implemented. Costs could also be large if appropriate adaptations are not implemented in other sectors that directly affect public health, particularly water resources and energy.

The Second Assessment Report (ARC3-2) will further address these sectors, as well as other vulnerable sectors such as ecosystems, coastal zones, and communications.

4. Geographic coverage

The UCCRN ARC3 report was written by ~110 authors from over 50 developed and developing country cities around the world, and included 46 city case studies. The UCCRN ARC3-2 report will continue to add to this list of cities, covering all continents.

5. Key stakeholders

The UCCRN plays a key role in supporting a burgeoning 'network of networks' related to climate change and cities. Key stakeholders with strong synergistic activities with ARC3 include:

- **Cities**, with a focus on decision makers including Mayors (or equivalent), Mayoral advisors, City planners, City

department heads, and Managers of urban sectors (e.g., energy, water, sanitation, transportation, health, green space etc.).

- **City Networks including general city groups** such as UCLG, Metropolis, and Africities, and climate change-focused groups such as C40 Large Cities Climate Leadership Group and ICLEI.
- **Nation States** including national government decision-makers concerned with urban development and the poor, national aid agencies, and national agencies concerned with climate change.
- **International Development Agencies** with programs that focus on cities, such as UN-HABITAT, UNEP, the World Bank, and Cities Alliance, etc.

Other groups that UCCRN supports include non-governmental organizations (NGOs), non-profits as well as private firms such as private-sector city planning and engineering firms and other stakeholders concerned with the long-term developmental needs of cities, particularly nation-wide slum upgrading.

UCCRN members are scholars and experts from universities and research organizations. They span a broad range of expertise including climate scientists; urban heat island and air quality experts; climate change impact scientists; social scientists, including political scientists, planners, and economists; and urban designers and planners.

UCCRN has actively worked to expand membership geographically (with an emphasis on enhancing the involvement of developing country scholars) and to strengthen specific skill sets in areas where regional capacity is lacking. Both goals will be achieved through the creation of four global research centers that can provide more geographically-targeted research and support for local researchers and practitioners. These will be recruited via a tender process for local universities and research institutes in key cities in important regions: e.g., Asia, Latin America, Africa, and Europe. The global centers will also help us to formalize our urban climate assessment and action framework, allowing UCCRN to update the ARC3 report on a regular basis.

6. Implementation modality / delivery mechanisms

Please provide information related to the technical, financial and institutional support mechanism

Please provide information related to reporting, if any

7. Key activities / outputs to date

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8. Any additional information and contact details

UCCRN Co-Chair: Cynthia Rosenzweig, NASA Goddard Institute for Space Studies and Columbia University

Phone: +1-212-678-5562

Email: crr2@columbia.edu

Address: 2880 Broadway, New York, NY 10025, USA