

The Urban Climate Change Research Network

Radley Horton, Columbia University
Urban, Climate Change and Finance: COP 20 JICA Side Event
Japan Pavillion
Lima, Peru
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Urban Climate Change Research Network (UCCRN)

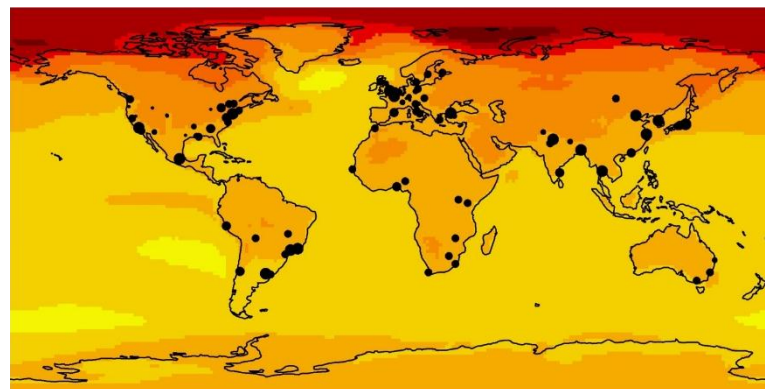
UCCRN Mission: *Enable cities to fulfill their climate change leadership potential in both mitigation and adaptation*

- A consortium of over **550+ scholars and practitioners** from over 100 developed and developing cities around the world
- First major publication – *First UCCRN Assessment Report on Climate Change and Cities (ARC3)*, a **four-year** effort by **100 authors** from **50+ cities** around the world. Worldwide launches in Bonn, Sao Paulo, Jakarta, Rio de Janeiro, Naples
- In the process of writing the *Second UCCRN Assessment Report on Climate Change and Cities (ARC3-2)*, with ~130 Authors. Scheduled to be published by end of 2015 by **Cambridge University Press**

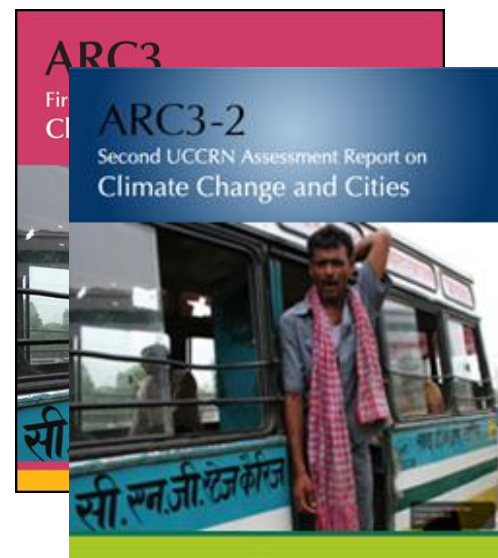
ARC3 Goal

To establish on-going, city-centered state-of-knowledge reports to urban decision-makers and help build capacity for action

Temperature Change (2050s) and UCCRN Member Cities



(35 CMIP5 models)



(Cover TBD)

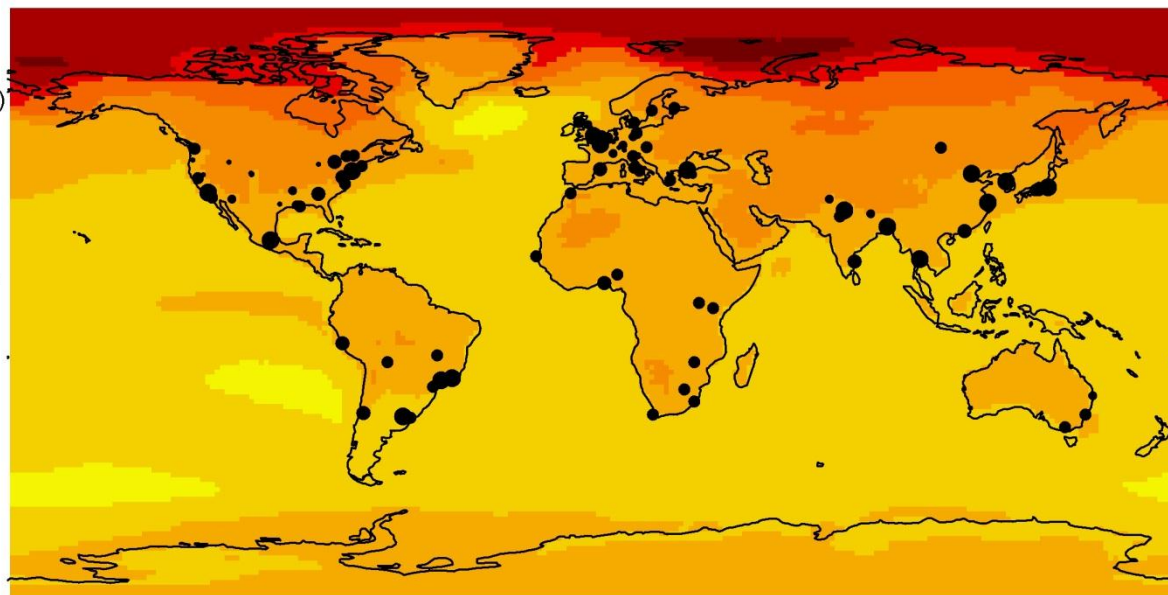
Temperature Change (2050s) and UCCRN Member Cities

City Size

Population of Metro Area

- Small (<500,000)
- Intermediate (500,000-1,000,000)
- Big (1,000,000-5,000,000)
- Large (5,000,000-10,000,000)
- Mega (>10,000,000)

Temperature Change (Degrees C)



UCCRN Member Cities

Africa

Abuja
Cape Town
Dakar
Durban
Harare
Johannesburg
Kampala
Nairobi
Rabat
Setif
Sfax
Lagos

Asia

Bangkok
Beijing
Chennai
Delhi
Dhaka
Eskisehir
Hong Kong
Jaipur
Kathmandu
Kyoto
Nagoya
Ningbo

Australia/Oceania

Gold Coast
Melbourne
Parkville
Sydney
Townsville
Wellington
Wembley

Europe

Aalborg
Athens
Barcelona
Berlin
Bonn
Bristol
Brussels
Copenhagen
Enschede
Exeter
Freiburg
Geneva
Glasgow
Groningen
Helsinki
Istanbul
Kokkola
Leipzig
London
Luxembourg
Naples
Newcastle upon Tyne
Oxford
Paris
Peterborough
Planken
Potsdam
Rome
Stockholm
Stuttgart
Tallinn
Trieste
Venice
Vienna

North America

Amherst
Atlanta
Aurora
Baton Rouge
Boston
Boulder
Cambridge
College Park
College Station
East Lansing
Englewood
Eugene
Guelph
Hauppauge
Idaho Falls
Kingston
Los Altos
Los Angeles
Martinez
Mexico City
Montreal
Mountain View
New Haven
New Orleans
New York
Norfolk
North Little Rock
Nyack
Ottawa
Reno
Sacramento
Saint Catherines
San Diego
Seattle
Toronto
Tucson
Washington DC
Yardley

South America

Brasilia
Buenos Aires
Concón
Curitiba
Lima
Montevideo
Rio de Janeiro
Santa Cruz
Santiago
Sao Paulo

*colors represent mean annual temperature change for a mid-range scenario (RCP4.5) from CMIP5 models (2040-2069 average minus 1971-2000 average).

(35 CMIP5 models)

ARC3-2 Outline

Front Matter: Co-Editor Bios, Pull-Out Quotes, Title Page, Table of Contents, Forewords, Preface

Summary for Urban Decision-Makers

Chapter 1 – Introduction

Section I: Cross-Cutting Themes for Climate Change and Sustainable Development

Chapter 2 – Urban Planning and Design

Chapter 3 – Mitigation and Adaptation: Barriers, Bridges, and Co-Benefits

Chapter 4 – Equity and Environmental Justice

Chapter 5 – Economics, Finance, and the Private Sector

Section II: Climate Science and Disaster Risk

Chapter 6 – Urban Climate Science

Chapter 7 – Disasters and Risk

Section III: Urban Sectors and Systems

Chapter 8 – Urban Energy

Chapter 9 – Water, Wastewater, and Sanitation

Chapter 10 – Urban Solid Waste Management

Chapter 11 – Urban Transportation

Chapter 12 – Housing and Informal Settlements

Chapter 13 – Urban Health

Section IV: Urban Ecosystems, Food, and Coastal Zones

Chapter 14 – Urban Ecology, Biodiversity, and Ecosystem Services

Chapter 15 – Urban Areas in Coastal Zones

Section V: Governance and Policy

Chapter 16 – Governing Carbon and Climate in Cities

Conclusions and Moving Forward

Appendix 1 – UCCRN Case Study Docking Station

End Matter: Case Studies and Topics; Acronyms and Abbreviations; UCCRN Steering Group, ARC3-2 Authors, and Reviewers; Index

Highlights on:

- Urban Demographics
- Urban Food Systems
- Sustainable Production and Consumption
- Attitudes, Perception, and Behavior
- Information and Communications Technology

**Durban Adaptation Charter for Local Governments
as adopted on the 4th December 2011 of the occasion of the
“Durban Local Convention: adapting to a changing climate”
- towards COP17/CMP7 and beyond -**

UCCRN ARC3-2 Chapters

Cross-Cutting
Themes

Urban Climate
Science

Environmental
Equity and Justice

Mitigation and
Adaptation

Cross-Cutting
Themes

Ecosystems and
Biodiversity

Economics and
Finance

Mitigation and
Adaptation

Governance

UCCRN/ARC3

1. *Mainstreaming adaptation as a key informant of all local government development planning*
2. *Understand climate risks through conducting impact and vulnerability assessments*
3. *Prepare and implement integrated, inclusive and long-term local adaptation strategies designed to reduce vulnerability*
4. *Ensure that adaptation strategies are aligned with mitigation strategies*
5. *Promote the use of adaptation that recognises the needs of vulnerable communities and ensures sustainable local economic development*
6. *Prioritise the role of functioning ecosystems as core municipal green infrastructure*
7. *Seek the creation of direct access to funding opportunities*
8. *To develop an acceptable, robust, transparent, measureable, reportable and verifiable (MRV) register*
9. *Promote multi-level and integrated governance and advocate for partnerships with sub-national and national governments on local climate action*
10. *Promote partnerships at all levels and city-to-city cooperation and knowledge exchange*

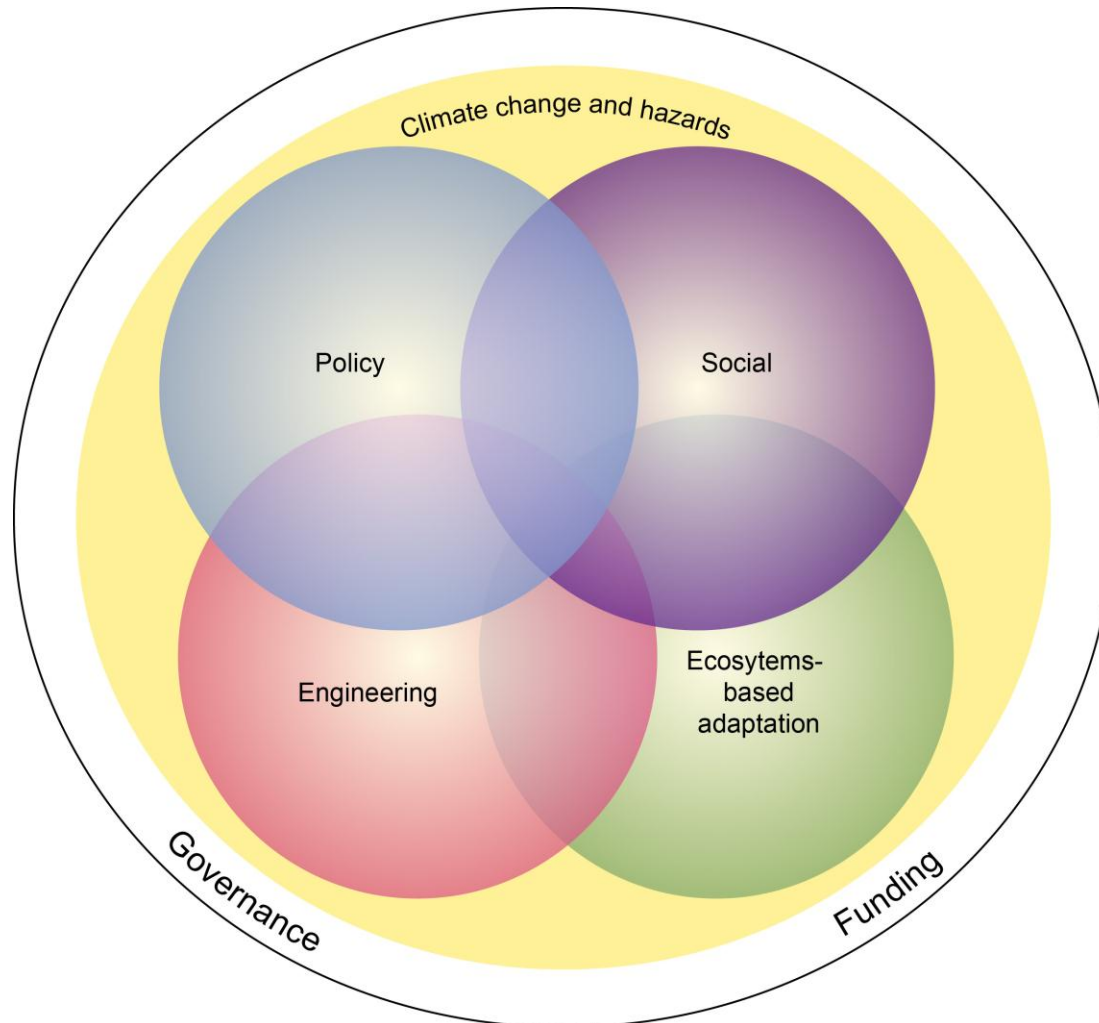
Factors That Enhance Metropolitan Region Resiliency

Flexibility	Capability to change, evolve and adopt alternative strategies (in either the short or longer term) in response to changing conditions.
Redundancy	Superfluous or spare capacity to accommodate increasing demand, extreme pressure, or the need for substitute services when another component is disrupted.
Resourcefulness	Capacity to visualize and act, to identify problems, to establish priorities and mobilize assets and human resources in order to achieve goals and respond swiftly when threats arise.
Safe Failure	Ability to absorb shocks and the cumulative effects of slow-onset challenges while avoiding catastrophic failure if thresholds are exceeded with minimal impact to other systems. Failure itself is accepted.
Responsiveness	Capability to re-organize, to re-establish function and sense of order following a failure in a rapid and responsible manner.
Learning	Ability to internalize past experience and failures, and use such experience to avoid repeating past mistakes and exercise caution in future decisions.

Key Players in Metropolitan Resilience

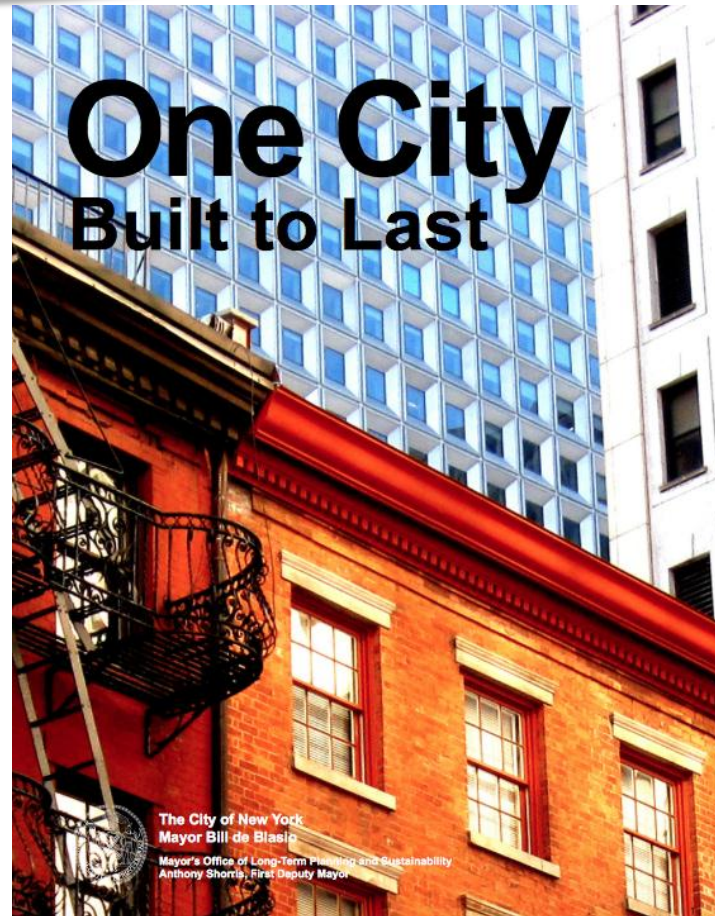
Key Player	Roles and Responsibilities
<p>Governments</p>	<p>Roles: Lead City, Metropolitan Region Municipal, State, and National Governments</p> <p>Responsibilities: Establishing councils, commissions, and task forces; coordinating key groups; conducting local risk assessments; setting policies and funding large-scale investments and projects</p>
<p>Citizen Groups</p>	<p>Roles: Grass-roots efforts in individual metropolitan regions; local chapters of international organizations; local non-profit groups engaged in community efforts</p> <p>Responsibilities: Information gathering for metropolitan planners and decision-makers; information dissemination to public; assessing social vulnerabilities</p>
<p>Infrastructure Managers</p>	<p>Roles: Managing critical metropolitan region infrastructure</p> <p>Responsibilities: Developing and implementing resilience planning to protect against climate events</p>
<p>Private Sector</p>	<p>Roles: Insurance companies; utility providers; other businesses</p> <p>Responsibilities: Designing, planning, and executing implementation of resilience measures and adaptation strategies; ensuring compliance with new regulations</p>
<p>Knowledge Providers</p>	<p>Roles: Academics from universities, government agencies, and private sector research groups</p> <p>Responsibilities: Co-generating climate risk information with decision-makers; tailoring information to the needs of individual metropolitan regions; communicating climate risk information and uncertainties to decision-makers and the public</p>

Approaches to Resilience Action



Policy, social, engineering, and ecosystems interact to respond to changing climate and coastal hazards. Overlapping areas illustrate opportunities for adaptation and resilience strategies that combine components of each domain.

New York City: Looking forward . . .



City of New York, 2014

“Global climate change is the challenge of our generation . . . New Yorkers will rise to the challenge. We will build on progress we have made to become more resilient to a changing climate and to mitigate the harmful greenhouse gas emissions that contribute to climate change. We are committing to reduce our emissions by 80 percent below 2005 levels by 2050, making us the largest city in the world to commit to this goal.” Mayor De Blasio