

# Urban Observatories: urban knowledge for decision-making

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**“Cities face a grand challenge:  
they must rethink themselves in the context of planetary  
change”**

(Alberti, 2017)

- Outputs of our study of urban observatories
- Experience of working with the Gauteng City-Region observatory
- Reflections and learning on interdisciplinary research from UCL STEaPP



# Urban observatories project



### Knowledge and urban green infrastructure

Analysing knowledge use in green infrastructure decision-making in cities, in collaboration with the GCRO.



### Governing the nexus of water, food, energy in cities

Working with an EPSRC consortium to understand the (urban) governance of water food and energy in cities.



### Urban Knowledge Formation

An EPSRC doctoral project investigating the dynamics and politics of urban knowledge in large projects planning



### Engineering Cities: a gender lens

Can we look at engineering cities with a better gender 'lens'? A pilot project supported by STEaPP



### Urban Connections

Investigating the global role of city leadership in partnership with the UK's ESRC, UN-Habitat and the World Bank



### Situating the New Urban University

A Marie-Curie fellowship on the role of universities as key urban development actors, funded by the European Union



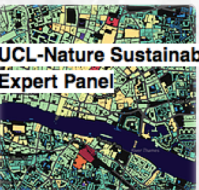
### Chile's city & business leadership

Supporting the Chilean Government's city leadership and business improvement districts programs, with FCO.



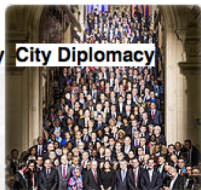
### Learning from Crisis in Cape Town

What urban evidence shapes responses to crises? STEaPP pilot aimed at learning from Cape Town's experience.



### UCL-Nature Sustainability Expert Panel

An international expert panel to review the state of the urban science-policy interface.



### City Diplomacy

A review of the challenges and trend in city networking and diplomacy, shaping how cities engage externally.



### Urban Observatories

A partnership with UN-Habitat and GCRO in Johannesburg assessing the roles of 'urban observatories' in policy.



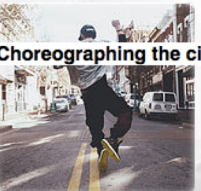
### Informal systems for disaster governance

What is the role of informal systems in tackling disasters? In collaboration with Red Cross and World Bank



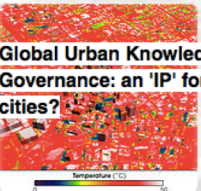
### Informed Cities

Analysing cities' information ecosystems and capacity for knowledge management, pump primed by STEaPP



### Choreographing the city

Linking dance and mobility? A pilot project connecting arts and engineering thinking on cities.



### Global Urban Knowledge Governance: an 'IP' for cities?

Assessing the knowledge architecture of Habitat III and the possibilities of an 'IP' for cities, funded by STEaPP



### Vaccinating the Nexus

Can cities learn from crisis? An EPSRC consortium analysing how to learn from shocks to the 'nexus'

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new Lab report on Equitable Transport Provision for London's Night Time Workers

a Nature Sustainability project  
science & the future of cities - an interim report

City networks & diplomacy  
learn more on the Lab's research

Choreographing the city  
new project on dance & mobility

recent publications

Give cities a seat at the top table  
Acuto, M.  
Habitat

Auckland: rescaled governance and post-suburban politics  
McIntyre, J.  
Regional Studies

from urban university to universities in an urban society  
Adelle, J.P.  
Regional Studies

City networks: breaking gridlocks or forging new look-ins?  
Acuto, M. and S. Rayner  
International Affairs

City diplomacy: learning with WHO Healthy Cities  
Morrisette, M. Acuto, Tsouros A.  
Global Health

Leave no city behind  
Parnell, S. and M. Acuto  
Science

a beginners guide to Habitat 3  
Robins, E.  
The Conversation



### Cities & Global Politics of the Environment

A Pivot book series for Palgrave Macmillan centred on cities & environmental politics.



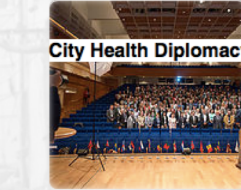
### the Future of the UK's City Leadership & Diplomacy

Reviewing state & challenges for city leadership and city diplomacy for the Government Office for Science.



### The Powers of Climate Action in C40 Cities

In partnership with ARUP and C40 Cities reviewing powers, barriers and impact of urban climate action.



### City Health Diplomacy

A partnership with the WHO Healthy Cities network to encourage more strategic health diplomacy for cities.



### Safer and Smarter Cities

Convening a technical working group with UN-Habitat linking smart city and urban safety innovation



### Best practices in urban water governance

How is water governed in cities? A project investigating expanding access to safe, quality drinking water.



### Global City Challenges

A discussion on the ways of understanding "global cities" in collaboration with Griffith University.



### Branding the City: let's make Sydney green, global, connected

Assessing promises and possibilities of European city branding with the Japanese Government's CLAIR

# UCL City Leadership Lab: Urban science

frontiers  
in Built Environment

SPECIALTY GRAND CHALLENGE  
published: 14 March 2017  
doi: 10.3389/fbu.2017.00008



## The Future of Urban Science

New Horizons in Research on Human Settlements

Dr. Anthony Townsend - September 2015

## Grand Challenges in Urban Science

Marina Alberti\*

Department of Urban Design and Planning, University of Washington, Seattle, WA, USA

**Keywords:** urban science, cities, complexity, big data, human-natural systems

Cities face a grand challenge: they must rethink themselves in the context of planetary change. Global urban development is a prominent feature of our new geological epoch, the Anthropocene (Crutzen and Stoermer, 2000; Ruddiman, 2015). Though scientists disagree on exactly when the Anthropocene began (Ellis et al., 2013; Foley and Lewis, 2013), there is strong evidence of human's profound effects on planetary evolution. Over the past century, the "great acceleration" of human activities associated with rapid urbanization has initiated fundamental ecosystem shifts that far exceed the natural range of variability exhibited during the Earth's previous half-million years (Steffen et al., 2015). These shifts represent uncharted territories for urban scholars, and the assumptions made by previous dominant theories and models (i.e., that the urban systems will respond predictably to urban pressures and to the feedbacks from environmental changes) are built upon structures of evidence of a world that no longer exists. The emergence of complex interactions among human, natural, and technological systems and the uncertain trajectories that characterize urban futures require that urban scientists critically review their assumptions and expand their capacity to ask new questions (Alberti, 2016).

Cities, now home to most of the world's population, generate over 90% of global economy, produce up to 75% of greenhouse gases, and consume 75% of energy and 60% of global drinking water (UN-Habitat, 2016). Urbanization is driving systemic changes in socioeconomic (Betts and Courtillot, 2007; Bloom et al., 2008; Glaeser, 2011; Angel, 2012) and ecological systems (Alberti, 2008, 2016; Grimm et al., 2008a,b; McDonnell et al., 2009; Niemelä and Breuste, 2011; Forman, 2014) by accelerating rates of interactions among people and places, multiplying numbers and strengths of connections, and expanding the spatial scales and influences of human activities to global levels (Young et al., 2006). It is increasingly evident that cities amplify the consequences associated with globalization such as the movements of people and products, access to, and disruption of natural resources, and threats to biodiversity (Lenzen et al., 2012).

The physical configurations of urban settlements are also evolving as social and technological accelerations promote dissolution of boundaries among traditionally labeled "urban," "regional," "suburban," and "rural" (UN-Habitat, 2008). Over the last century, the polycentric city structure has emerged as centralized cities have become increasingly connected to satellite cities and rural hinterlands, giving rise to the metropolises, the multicentric megacities, and ultimately our modern networked megaregions (Pickett and Zhou, 2015). In concert with these structural changes, the function of cities has also evolved. Infrastructural and technological progress, the emergence of service- and knowledge-based economies, and the accompanying increase in telecommunications, interdependence, and regional and global integration are evidences of cities' rapid shift from industrial productivity toward economic diversification (Rosa, 2009; McGrath and Shane, 2012; McHale et al., 2015; Pickett and Zhou, 2015).

Despite this increasing global interdependence and integration, today's urbanizing regions remain highly diverse with regard to physical structures, social organizations, biophysical environments, and political contexts. While there are important commonalities across many metropolitan regions, there is also great diversity across regions and across cities of differing sizes. Today, the fastest growing urban agglomerations are medium-sized cities and cities with less than 1 million inhabitants that are located in the global south. The UN (2014) estimates that about half of urban dwellers worldwide live in relatively small settlements of less than 500,000 inhabitants, as compared

Solid scientific advice is urgently needed to tackle the world's pressing global urban challenges. Shown is Dharavi, Mumbai, India, 2009.

Yet data availability does not immediately translate into better-informed urban management, nor fairer, greener, and more prosperous cities. For instance, some of the most useful transport data are often held by ride-sharing companies such as Uber and Lyft, especially in the Global South, with substantial legal and commercial barriers to use for the public good (4). Traditional census approaches, or uncertain and costly data generation and analysis methods, force many cities to "plan in the dark" as critical matters like infrastructure provision and extreme poverty are routinely undercounted (5).

### RETHINKING ADVICE

Several critical problems prevent solid research-based advice from informing city governance. There is no common "urban science"; realms as diverse as computer science and literature rarely work together in applied programs addressing urban challenges. Much better integration of different disciplines is paramount to success. Qualitative assessments based on ethnographic accounts are often perceived as of marginal policy importance versus quantitative big data depictions, despite the latter potentially being equally plagued with limitations. Urban science needs to be fit for (policy) purpose, and urban policy-makers must appreciate the value of multiple forms of research (6). But impact-savvy scholarship is still too rare and at times frowned upon in academia.

The disparity is also evident in the focus of science and capacity for data analytics. There is a "metrocentric" bias (7), with larger cities like London and Seoul growing their information capabilities and data-driven innovation, while smaller cities in the developing world and on the margins of global hubs tend to lag behind, even though they actually represent the bulk of urbanization. If we have tools (e.g., to monitor air pollution or geolocate street safety), we need a global effort to not limit them to the centers of the world's economy. A UN initiative, and support of national governments, are critical to step beyond the data power of the global cities and the market ebbs of the private sector.

Much of the most recognized, connected, and internationally effective urban analysis does not come today, at least prima facie, from scholarly institutions, further skewing the drivers of urban scientific advice toward complicating problems of impartiality and accountability in impact-oriented research. For instance, it is global insurance giant Swiss Re, not the UN, that holds some of the most comprehensive details of urban risk

on key matters like climate, disasters, and health, often surpassing, in speed, commitments, and global coverage, that of nations.

Scientific assessments have long been intertwined with urban management. Civil engineering has roots in 19th-century public health mapping and mobility data collection as "sanitary science" developed in response to cholera outbreaks in the largest hubs of the industrial revolution. Yet today, cities are asking for, sharing, and generating data as never before. Open data portals are well established, with London making more than 600 data sets available, Chicago more than 1000, and Seoul in excess of 4500. More cities are undertaking more performance reviews and data snapshots. Melbourne, with five such reports available in 2010, has 26 today, in line with trends in Singapore, New York, or Paris. Cities are seeking to capture the value of data production to instill innovation at the heart of urban policy. The Boston mayor's office of New Urban Mechanics, formed in 2010, has generated internationally visible data-driven innovations like Street Bump, using Global Positioning System smartphone accelerometers to report road damages.

Opportunities for cross-national connections of urban information have grown via city networks like C40 Cities (from 60 networks in 2009 to over 200 active today), with most Forums in February, can be uniquely bold in recognizing the potential of municipal action on global challenges. Despite being considered the "lowest" level of government, cities have developed a track record of global action

### URBAN SCIENCE

## Global science for city policy

It is time for a global reform of science advice to cities

By Michele Acuto\*

Research and data are increasingly at the heart of how we conceive of urban governance. Urban control rooms and city dashboards, championed by cities like Chicago, São Paulo, and London have been promising real-time snapshots and tracking over time of urban systems, via geolocated mobility data sets, social media inputs, environmental sensors, and other tools (1). At the international level, the importance of urban research and data has been enshrined in major United Nations (UN) processes, from the UN New Urban Agenda, the Sendai Framework for Disaster Risk Reduction, and the Sustainable Development Goals (SDGs) to the World Data Forum (2). Yet overall, the global state of data-informed urban governance remains underdeveloped, often promising, as with the dashboards, more than it actually delivers. It is time for a step change. A truly global reform of scientific advice to cities must take place on multiple interconnected fronts, linking a UN action plan on science and the future of cities, a "good advice" commitment by the private sector, and formalized partnerships for urban science at the local level. This scientifically informed urban reform, ripe for discussion at the upcoming UN World Urban Forums in February, can be uniquely bold in recognizing the potential of municipal action on global challenges. Despite being considered the "lowest" level of government, cities have developed a track record of global action

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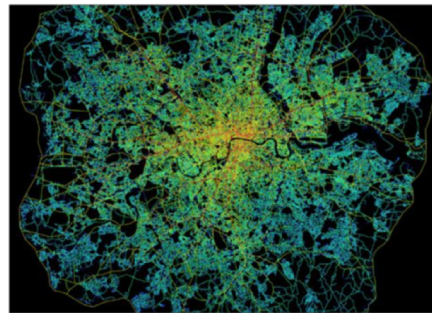


Image: Centre for Advanced Spatial Analysis

# Urban Observatories

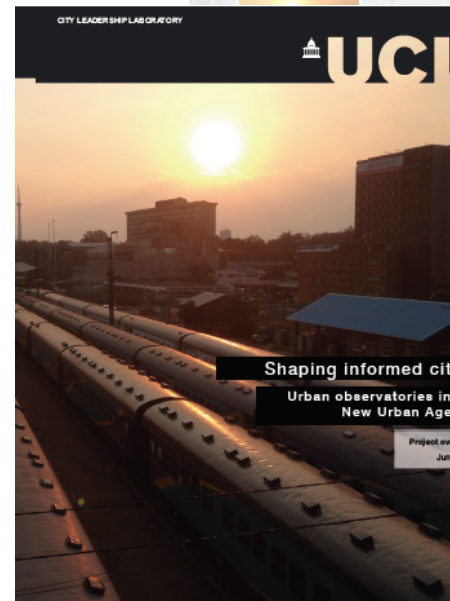
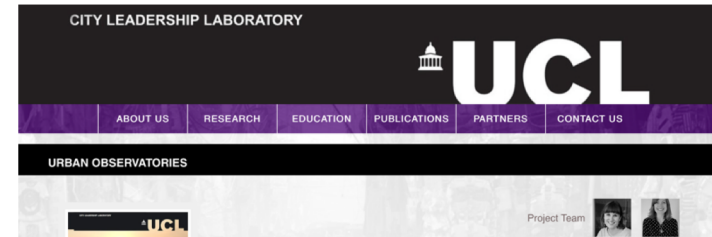
## The beginning: 'Shaping informed cities'

### What is an observatory?

- Partnerships
- Methods
- Outputs

### Why might this be a useful model?

- History: MDGs
- Future: SDGs, New Urban Agenda



play critical roles in decision-making, providing research and analysis relevant to urban issues, such as those flagged in UN-Habitat's New Urban Agenda. This work analyses activities of a diverse range of existing observatories with a view to effectiveness in different operating settings. While urban observatories are entities such as the UN-Habitat Global Urban Observatory (GUO), there is little information globally regarding the way in which these observatories operate.

will catalogue existing urban observatories, and create an up-to-date database of types and methodologies employed. Through development of case studies and rich findings this project aims to form an ongoing consultative and support network of interest.

ed in collaboration with the Gauteng City-Region Observatory (GCRO), a research collaboration between two local universities and the Gauteng Provincial



# Urban Observatories

## Scope and methods

### Cataloguing

- Taking UN-Habitat Global Urban Observatory list of observatories as a baseline to understand current spatial distribution and diversity
  - Desk study / literature review

### Case studies

- To understand in greater detail how individual observatories operate
  - Interviews (with observatories and their stakeholders)
  - Ethnographic work



# Urban Observatories

## Cataloguing

Name of Urban Observatory	City Name	Country	Do they still exist online?	Are they active online?	Archetype	Partners Involved	Methods	Types of Outputs
Sharan	Sharan	Algeria						
Circonscription Urbaine de Cotonou	Cotonou	Benin						
Circonscription Urbaine de Porto-Novo	Porto-Novo	Benin						
Mairie de Koudougou	Koudougou	Burkina Faso						
Ville de Ouagadougou	Ouagadougou	Burkina Faso						
Fonds de Promotion de L'Habitat Urbain (FPHU)	Bujumbura	Burundi						
Ville de Douala	Douala	Cameroon						
Communauté Urbaine de Yaoundé	Yaounde	Cameroon						
Mairie de N'Djamena	N'Djamena	Chad						
Observatoire Urbain de Brazzaville / Mairie de Brazzaville	Brazzaville	Congo						
Primature, Ministère de la Construction, du Logement, de l'Assainissement et de l'Urbanisme	Abidjan	Côte d'Ivoire						
ECA Regional Urban Observatory	Addis Ababa	Ethiopia						
Ethiopian Cities Association (ECA)	Addis Ababa	Ethiopia						
Mairie de Libreville	Libreville	Gabon						
Poverty & Gender Focal Points	Banjul	Gambia						
Policy Planning <b>Budgeting</b> Monitoring and Evaluation, Ministry of Water Resources, Works and Housing	Accra	Ghana						

# Urban Observatories

## Case studies

- GCRO as key case study to date
- Working for coverage across a range of regions

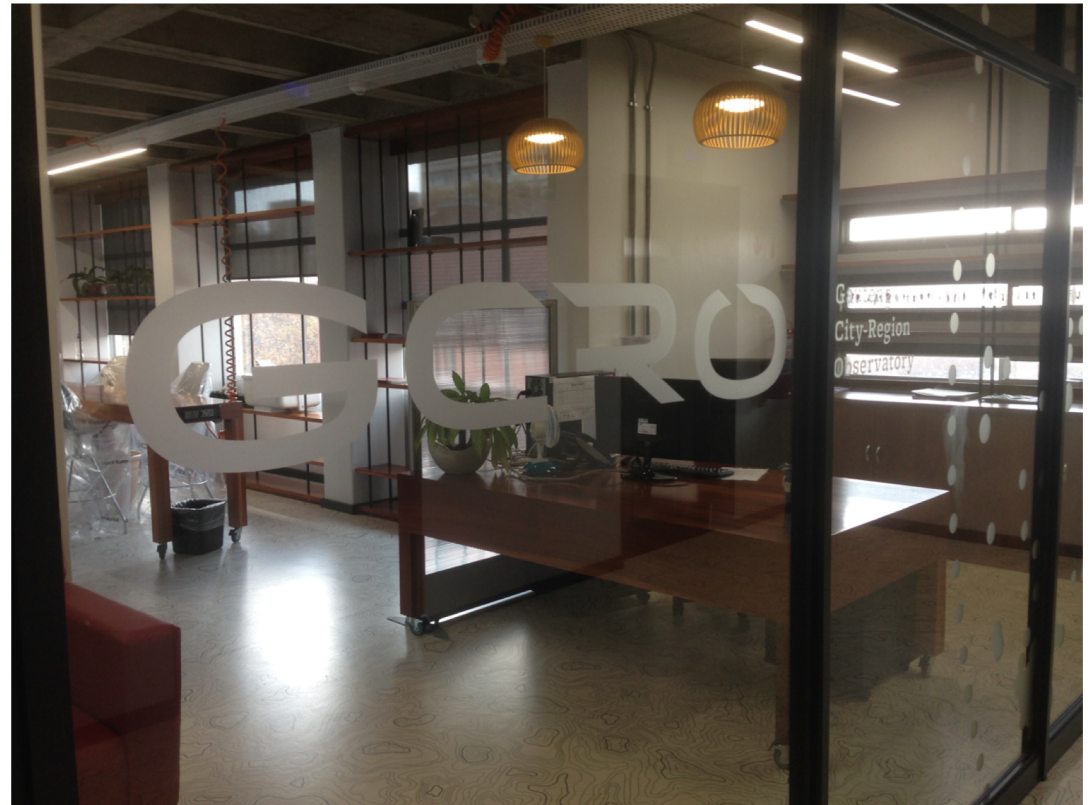


Photo credit to Joanna Sawkins

# Urban Observatories

## Current and future work

*'What is an urban observatory?' (coming soon!)*

### **UCL STEaPP, UCL Bartlett DPU**

- 'Urban observatories: by whom and for what?'

### **UCL STEaPP, University of Melbourne**

- Completion of observatories catalogue

### **UCL STEaPP, UN-Habitat, University of Melbourne, GCRO**

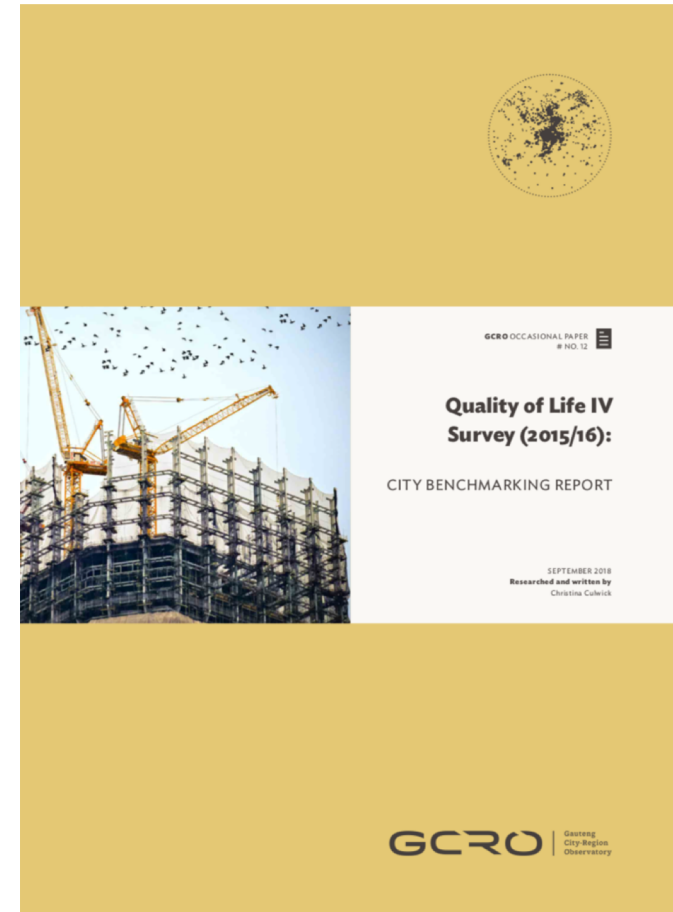
- Capacity building

# GCRO Experience

# GCRO Experience

## The Gauteng City-Region Observatory, Johannesburg, South Africa

- *Established:* 2008
- *Partnership:* University of Johannesburg (UJ), University of the Witwatersrand (Wits) Gauteng Provincial Government (GPG) and local government
- *Host institution:* Wits
- *Remit:* 1) Generate data to understand and compare Gauteng 2) Assist government and partners to interpret trends and forces shaping the city-region 3) Help weigh up key future policy choices



# GCRO Experience



“in its ecological aspect (which is not securely divisible from its cultural aspect) the garden also lies in a troubled but creative interzone between “nature” and “culture”; between wilderness and the tamed; between agriculture and aesthetics, utilising, blending, critiquing and redefining all these categories.” (Wylie, 2011)



Media release: GCRO's 5<sup>th</sup> Quality of Life survey (2017/18)  
Embargoed until 12h00 on Tuesday, 13 November 2018

## Extensive survey shows Quality of Life improving in Gauteng

The results of the Gauteng City-Region Observatory's 5<sup>th</sup> Quality of Life Survey (2017/2018) show that, despite very challenging economic conditions, overall quality of life in the province continues to improve. The survey also finds increases in residents' satisfaction with all spheres of government in the recent period.

GCRO has run its Quality of Life survey every two years since 2009. This iteration interviewed 24 889 respondents across Gauteng.

The results were launched at a high-profile event held today at the University of Johannesburg. The event was attended by Gauteng Premier David Makhura who also responded to the results.

GCRO Executive Director, Dr Rob Moore, said on the release of the survey's findings, “Economic conditions are clearly very challenging at the moment, with GDP per capita lower than it was ten years ago, and unemployment nearing 30%. In spite of this, our survey shows steady improvement in overall quality of life over time.

# GCRO Experience

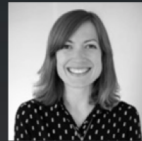
## Research experience



< BACK TO RESEARCH THEMES

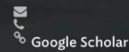
## Knowledge partnerships for urban futures: policy-oriented research alliances

Ongoing | Dr Carla Washbourne, Dr Rob Moore

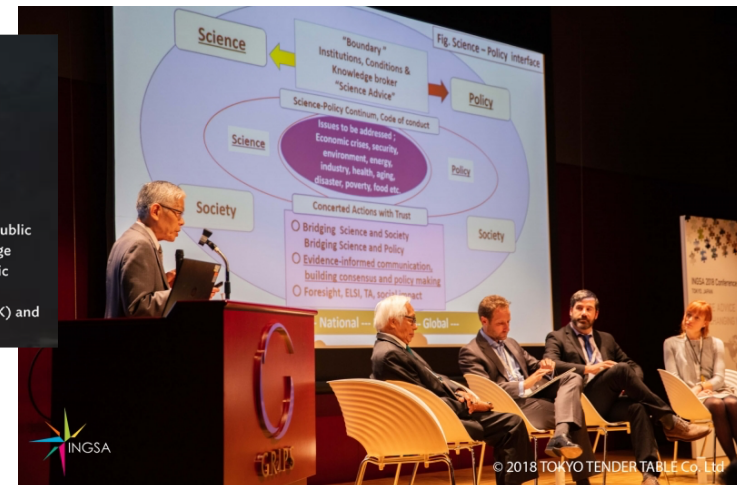


**Dr Carla Washbourne**

Research Associate



Carla is an interdisciplinary researcher working at the interface of science and public policy. She is a Lecturer in Environmental Science and Policy at University College London (UCL), in the department of Science, Technology, Engineering and Public Policy and member of the UCL City Leadership Lab. Carla completed her PhD in Geosciences and MSc in Engineering Geology at the University of Newcastle (UK) and her BSc (hons) in Natural Sciences at Durham University.



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# GCRO Experience

## Key takeaways

- Structure (form, approach): City-university partnership based on mutual resourcing and broad institutional support
- Partnerships: [as previous]
- Outputs: Journal articles, Research reports, Books, Data briefs, Occasional papers, Policy outputs, Map of the Month, Vignettes, Interactive websites, Photo essays and videos

...philosophy, skills and aptitudes, impact



# GCRO Experience

## Current and future work

*‘Mobilising Knowledge for Urban Governance’ (coming soon!)*

## Further research

- Stakeholder interviews in May / June 2019

## **UCL STEaPP, UN-Habitat, University of Melbourne, GCRO**

- Capacity building

# STEEaPP Experience

# STEEaPP Experience

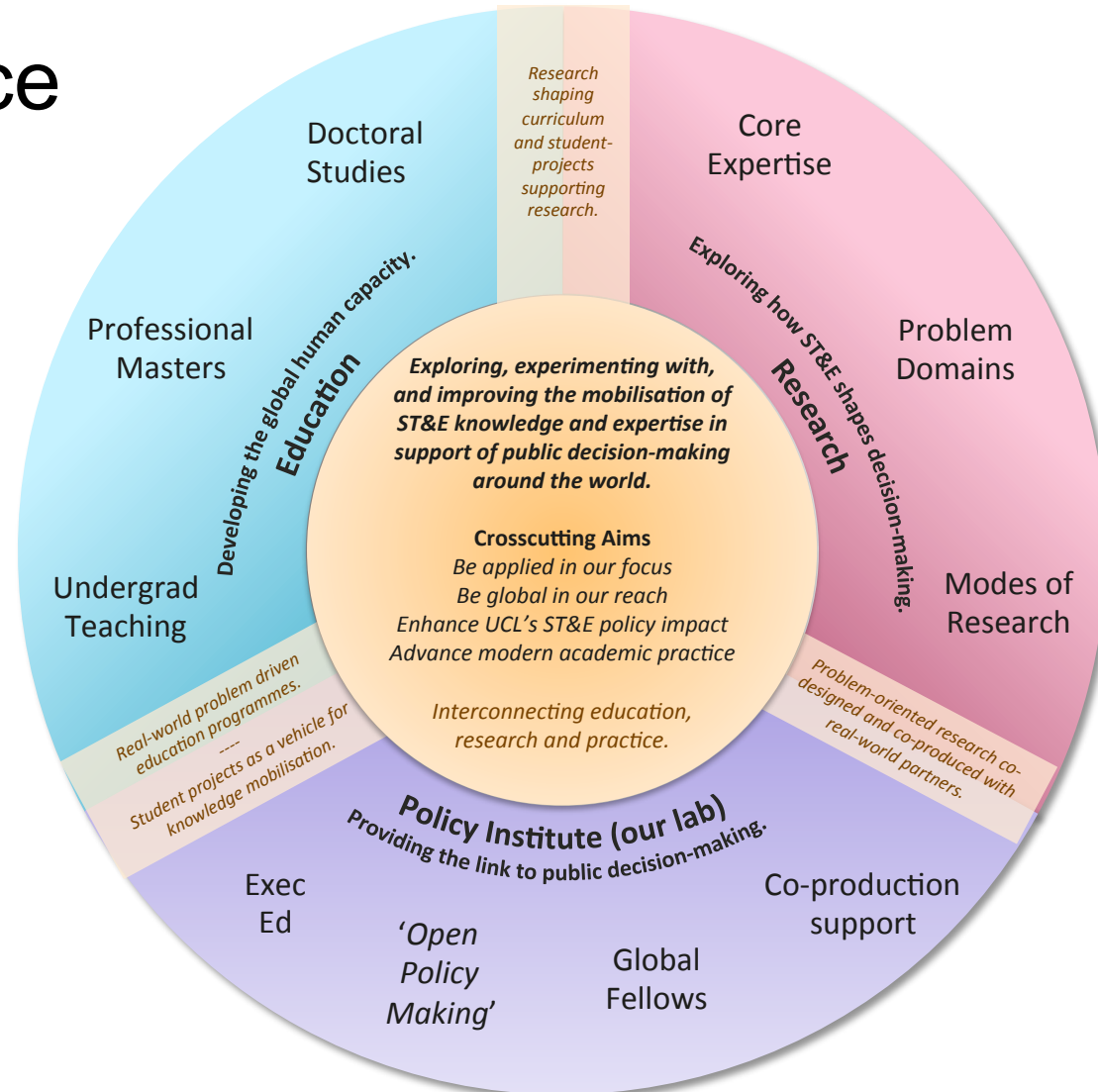
## Mission

“UCL Department of Science, Technology, Engineering and Public Policy (STEEaPP) mobilises science, technology, engineering and policy expertise to help change the world for the better”

# STeAPPP Experience

## Foundation

- STeAPPP sits across three world-class UCL faculties: the Faculty of Engineering, the Bartlett Faculty of the Built Environment and the Faculty of Mathematical and Physical Sciences.



# STeAPPP Experience

## Development and challenges

- Shared vision
- Language
- Research identity
- Policy engagement
- Working outside of traditional 'impact'
- Pedagogical approach

... working out the path to the destination we want to get to

# STEaPP Experience

## The future...



UCL STEaPP  
@UCLSTEaPP

Following



@UCLSTEaPPs new Head of Department @JoannaChataway introducing Honorary Professor @vickypope2 presenting about impacts of weather and climate:creating usable science #steappinconversation





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