

Section A The fields in this section are mandatory.		
Institution: Durham University		
Unit of Assessment: 14 Geography and Environmental Studies		
Title of case study: Cities and climate change: UN-Habitat guiding principles		
Period when the underpinning research was undertaken: Between 2008 and 2018		
Details of staff conducting the underpinning research from the submitting unit:		
Name(s):	Role(s) (e.g. job title):	Period(s) employed by submitting HEI:
Professor Harriet Bulkeley Dr Andres Luque-Ayala	Professor in Human Geography PhD Student; Postdoctoral Research Associate; Assistant Professor	October 2003 to present October 2010 to present
Dr Jon Silver	PhD Student; Postdoctoral Research Associate; Leverhulme Early Career Fellowship	October 2009 to October 2016
Dr Andrea Armstrong	Postdoctoral Research Associate	January 2012 to September 2013
Dr Laura Tozer Dr Sara Fuller	Postdoctoral Research Associate Postdoctoral Research Associate	January 2018 to present September 2009 to May 2012
Period when the claimed impact occurred: Between January 2014 and July 2020		
Is this case study continued from a case study submitted in 2014? N		
Section B		
1. Summary of the impact		
<p>Since 2013 Durham University research on the urban dimension of climate change governance has directly shaped the conceptual development and practical application of UN-Habitat's approach to urban climate governance, principally through Bulkeley's role in the development of their Guiding Principles for City Climate Action Planning and associated toolkit. Endorsed by 45 of the key transnational organisations working to support urban action on climate change, the Guiding Principles represent a step change in the global policy arena by articulating for the first time the fundamental basis upon which cities should take action. As well as advancing the position of cities and climate change in the UN system and amongst partner organisations, the Guiding Principles have been used to develop and evaluate strategies at the city scale.</p>		
2. Underpinning research		
<p>Research at Durham University, led by Bulkeley, has played a pioneering role in the field of urban climate change, and built sustained partnerships with UN-Habitat and other key actors in the international policy arena. Bulkeley's research has established that climate governance has an important urban dimension that is critical to achieving long-term global goals, including ensuring that climate action is sufficient to meet the 1.5°C Paris target and is compatible with the Sustainable Development Goals (SDGs). In particular, this work has identified the multiple ways in which cities govern climate change (reference R1), revealed the growth of 'experimentation' as a means through which climate change action is undertaken (R2, R3, R4), and demonstrated the critical importance of issues of social and environmental justice for designing effective policy and ensuring that the consequences of urban climate action are taken into account (R2, R3, R5).</p> <p>Bulkeley's research initially established that urban climate governance is a multilevel and multifaceted process, challenging the orthodox focus on the national or international scales as the most important arenas for climate action (R1). Because it involves multiple actors undertaking diverse actions, urban climate governance has significant potential for achieving the changes necessary to address global climate challenges. Having gained wide recognition for this perspective, further research led by Bulkeley during an ESRC Fellowship in 2008-2012 collected and analysed evidence of how climate governance happens in cities, identifying innovation at the urban scale as well as the conditions and constraints that shape urban climate action. This evidence base included a database of 627 climate experiments in 100 cities worldwide (R2). The evidence was supplemented by in-depth case-study research in five cities (Bangalore, Monterrey, Hong</p>		

Kong, Philadelphia, Berlin). Additional case-study work was undertaken by Durham PhD students in Cape Town and São Paulo (R2, R6). A further report commissioned by the Joseph Rowntree Foundation undertaken by Bulkeley and PDRA Fuller (2011) addressed climate justice as it related to urban climate governance (R5).

By building an evidence base and advancing new frameworks through which that evidence can be interpreted, the research has systematically demonstrated that a new form of governance through 'experimentation' has become central to urban responses to climate change (R2, R3, R4). Experimentation involves purposive interventions in urban socio-technical systems designed to respond to the imperatives of mitigating and adapting to climate change in the city (R3, R4). The research demonstrated that in order to develop more effective strategies for mitigating and adapting to climate change, city governments, nation states and transnational organisations need to engage with the diversity of experimentation in different urban contexts, how these experiments are conducted, and their implications for urban governance and urban life. Rather than relying on existing models of urban planning, harnessing the power of experimentation means fostering new governance arrangements that involve a wide range of urban private and civil society actors (R2, R3, R6). The research found that this shift raises profound questions of justice (R2, R6), demonstrating that existing concepts of climate justice fail to properly consider its urban dimensions and that the explicit inclusion of justice principles is imperative for the long-term success of urban climate governance (R2, R5). Crucially, the research revealed that the existing multilevel governance frameworks used by transnational networks and international organisations to deliver urban action were unable to support this new mode of experimentation. Existing approaches assume that knowledge precedes policy design and that implementation follows a highly structured planning process, in which public authorities can be held to account for ensuring just outcomes. Experimentation, in contrast, proceeds through an iterative process where implementation, learning, and contestation are simultaneous, and where there are multiple actors involved in securing just outcomes. The research found that new mechanisms capable of supporting experimentation alongside traditional planning approaches would be needed if their potential to deliver long-term, transformational change was to be realised, including ways of enabling coordinated action by different actors while promoting justice (R2, R5, R4).

3. References to the research

Note: underline indicates Durham employee during the research and/or at time of publication. Citation data are from Google Scholar, updated 1 September 2020.

R1: Bulkeley, H. (2013) *Cities and Climate Change*. Routledge, London. (1510 citations)

R2: Bulkeley, H., Castan-Broto, V., and Edwards, G. (2015) *An Urban Politics of Climate Change: Experimentation and the Governing of Socio-technical Transitions*. Routledge, London. (Returned to REF2021; 258 citations)

R3: Bulkeley, H., and Castan-Broto, V. (2013) Government by experiment? Global cities and the governing of climate change. *Transactions of the Inst. of British Geographers* 38, 361-375, doi:10.1111/j.1475-5661.2012.00535.x. (Returned to REF2014; 792 citations)

R4: Edwards, G.A.S., and Bulkeley, H. (2018) Heterotopia and the urban politics of climate change experimentation. *Environment and Planning D: Society and Space* 36, 350-369, doi:10.1177/0263775817747885. (31 citations)

R5: Bulkeley, H., Edwards, G.A.S., and Fuller, S. (2014) Contesting climate justice in the city: examining politics and practice in urban climate change experiments. *Global Environmental Change* 25, 31-40, doi:10.1016/j.gloenvcha.2014.01.009. (223 citations)

R6: Bulkeley, H., Luque-Ayala, A., and Silver, J. (2014) Housing and the (re)configuration of energy provision in Cape Town and São Paulo: Making space for a progressive urban climate politics? *Political Geography* 40, 25-34, doi:10.1016/j.polgeo.2014.02.003. (31 citations)

4. Details of the impact

Impact of the Durham research on international climate change policy and practice has occurred through Bulkeley's lead role in co-authoring the UN-Habitat's Guiding Principles for City Climate Action Planning (evidence sources **E1**, **E2**). UN-Habitat directly supports capacity building for urban governance and is the UN agency responsible for implementing the UN's 2016 New Urban Agenda, which is focused on climate change and the SDGs. It is the central international institution responsible for bringing together urban and climate change agendas, with a recognised mandate to do so by all UN member states.

Before the REF2021 period, Bulkeley was commissioned to write on the mitigation of climate change for UN-Habitat's 2011 Cities and Climate Change: Global Report on Human Settlements (Chapter 5). Her research was also used by the Organisation for Economic Co-operation and Development, International Energy Agency, the World Bank, and other international organisations to support and substantiate the position that climate change was a multilevel governance issue with an important urban dimension. In addition, Bulkeley provided the evidence base for the Strategic Review of International City Climate Networks commissioned by the Children's Investment Fund Foundation, the key funder for the influential C40 Cities Leadership network, and published in March 2013 (**E3**). That impact pre-dates the REF2021 period and we do not claim it here, but it provides an important pathway to impact during the period because it resulted in direct participation with a range of organisations working to design, implement, and finance urban climate action. Bulkeley was subsequently invited to be Contributing Lead Author on the relationship between cities and climate change for the 5th Assessment Report of the International Panel on Climate Change (IPCC) (2014; WG III Chapters 12 and 14). This culminated in the co-production of the Global Research and Action Agenda on Cities and Climate Change Science at the inaugural CitiesIPCC meeting in Edmonton, Canada, in March 2018 (**E4**). In the words of the Head of Programmes for the Coalition for Urban Transitions, a transnational initiative supporting national governments to tackle climate change through urban action, *'Harriet's research continues to set and shape the global agenda'* (**E5**).

As a member of the Advisory Group of the UN-Habitat Cities and Climate Change Initiative, Bulkeley has played a key role in the development of the UN-Habitat Guiding Principles for City Climate Action Planning (UNHGP) from their inception and through their ongoing 2020 revision. Bulkeley was one of three academics on the eight-person drafting committee for the UNHGP (**E1**) and was a lead research academic contributor to the accompanying toolkit, published in 2017 (**E2**). The UNHGP provided the focus of UN-Habitat's involvement in the 2015 Paris Climate COP and were launched at that event, with Bulkeley as part of the delegation.

The UNHGP are a series of eight principles developed to underpin a step change in how urban policymakers plan and deliver action for climate change. Their aim is to provide a global benchmark of the fundamental building blocks needed for effective and socially just climate action that could be used by the wide array of organisations now working on urban climate action. While many different tools and frameworks had been developed to support cities in implementing climate plans, the UNHGP responded to three important imperatives. First, most existing frameworks were built for cities with high levels of capacity and resources. The UNHGP were intended to be a flexible framework that would support cities at all levels of development. Second, by focusing on the underlying principles of good climate action planning, the UNHGP were designed to be capable of supporting more traditional plan-based action as well as the growing mode of governing through experimentation. Third, the UNHGP provided the first framework that explicitly identified climate justice as a critical dimension of effective urban action.

According to the UNHGP, city climate action plans should be ambitious, inclusive, fair, comprehensive and integrated, relevant, actionable, evidence-based, and transparent and verifiable. The accompanying toolkit was developed to allow UN-Habitat and other actors (including city governments and other transnational organisations) to operationalise the principles. Based on her research, Bulkeley proposed several of the principles (ambitious, fair, inclusive and relevant) and supported the formulation of the other principles through corroborating their significance with

the evidence base of climate change experiments summarised in section 2. In particular, Bulkeley ensured that principles of justice were explicitly written into the UNHGP in ways that captured the importance of fairness and inclusivity (E1, Paragraphs 18 and 46). As UN-Habitat states, *'Issues of social justice are particularly important to UN-Habitat's mandate, and Professor Bulkeley's research helped us to formulate principles that place these issues as central to effective climate action at the city scale'* (E6). In addition, her research was used to support the idea that climate action at the urban level should be relevant to its context and the multiple actors engaged (E1, Paragraph 29), and that such action must first and foremost be ambitious, building on the potential for innovation shown in the evidence base on experimentation (E1, Paragraph 38). Bulkeley developed explicit recognition in the UNHGP of the multiple modes of governing climate action, drawing on the key research conclusion that planning frameworks need to be opened up to accommodate the new mode of experimentation (E1, Paragraphs 39-41 and Figure 3). UN-Habitat state that Bulkeley's *'research has been an invaluable resource and she has played a key role in the development of the guiding principles'* (E6).

UN-Habitat have described the publication of the UNHGP as *'a landmark moment for UN-Habitat, representing the culmination of several months of intense work with our partners to produce guidance that could be used by the wide variety of cities with whom we work to advance their work on climate change and the flagship report that we presented as an agency to the 2015 Paris Climate COP'* (E6). The UNHGP have come to serve as a key vehicle through which (a) UN-Habitat has advanced the cities and climate change agenda within the UN system, and (b) networks and individual city governments seeking to enhance climate action on the ground have been able to both set the agenda and ensure that action is pinpointed at the most critical issues. We describe these further impacts in turn.

Advancing the position of the cities and climate agenda within the UN system

The UNHGP are central to how UN-Habitat advocate globally for the role of cities and urban action in addressing climate change. They provided an important step for the organisation in developing their niche position as the only UN agency capable of working between international and local levels to advance climate action through the use of strategic frameworks and technical advice. Within UN-Habitat's Climate Change Unit, they helped *'crystallise'* what their *'priorities for working with cities on climate action should entail'* (E6). Crucially, the UNHGP have allowed UN-Habitat to bring the overall weight and importance of urban climate action to the fore within the UN system and with partner organisations; the Lead Programme Officer of the unit says that

'The Guiding Principles also served to cement the importance of climate change as an agenda within the organisation more broadly, by demonstrating how climate action is central to UN-Habitat's core mission of enhancing urban sustainability through the New Urban Agenda and the sustainable development goals. They have proven an important means through which to demonstrate to external actors that UN-Habitat sees the climate change agenda as a critical issue, whilst also helping to translate this agenda internally [within the UN] by showing its relevance to wider goals and principles of urban planning and development' (E6).

Subsequently, UN-Habitat has identified strengthened climate action and improved urban environment as one of its four strategic goals for 2020-2023, and a new version of the UNHGP is being developed in order to underpin this mandate. By invitation, Bulkeley has taken a leading role in the early stages of the revision process, sitting on UN-Habitat's review and drafting committees. Due to COVID-19, the process of developing the UNHGP was put on hold in March 2020 but is expected to resume in early 2021 (E6).

Enhancing climate strategy and evaluation at the city scale

The UNHGP have informed the support, policy advice, and training that UN-Habitat provides to individual cities in order to advance climate action (E6), including Glasgow (UK), Vilankulo (Mozambique), Rajkot (India), and Legazpi (the Philippines). For example, in Glasgow the UNHGP and toolkit were used by UN-Habitat to conduct an evaluation of the city's climate action plan. The assessment concluded that the city's adaptation plans were not transformative in the sense of addressing and improving the underlying structural vulnerabilities of communities. Moreover, UN-

Habitat found that Glasgow's *Resilient Strategy*, while representing an advanced state of planning that considers the needs of a range of communities, could be improved in relation to the principle of fairness (E7). The UNGHP have also been used by UN-Habitat to design the second phase of their Urban Low Emissions Development Strategies Programme (E6). Funded by the EU and undertaken with Local Governments for Sustainability, the programme supports low emission and resilient development in more than 60 cities in 8 countries.

Beyond the direct work of UN-Habitat, the UNGHP have provided an important resource for partner organisations that advance city climate action planning. For example, they have been integrated into the indicators used by the World Wildlife Fund in its One Planet City Challenge (E8, p.11) which seeks to evaluate and support urban climate change planning and has involved over 400 cities in 5 continents to date. The Challenge is used annually to identify national and international finalists who meet UNGHP-based criteria for advancing transformative climate action planning. The World Wildlife Fund then works with finalists to further develop action on the ground and best practice for other cities to follow. The UNGHP have thus formed a benchmark against which international performance on climate action planning is evaluated, recognised, and promoted, supporting city-level action around the world.

It is also notable that Metro Vancouver, a region that led on climate action by developing its first strategy in 1990, has adopted the UNHGP for its Climate 2050 Strategic Framework (E9). The framework seeks to further the ambition of the region to carbon neutral by 2050 and to ensure resilience to the impact of climate change. The city has highlighted the benefit of using the UNHGP in encouraging '*consistent and comparable approaches*' to effective climate action planning around the world (E9, p.11). Given that Metro Vancouver has been at the forefront of climate action, their use of the UNHGP is an important measure of their utility and capacity for framing and motivating climate action at the city level.

5. Sources to corroborate the impact (indicative maximum of ten references)

- E1: UN-Habitat (2015) *Guiding Principles for City Climate Action Planning: Version 1*. Nairobi. The principles and toolkit are available at <https://unhabitat.org/the-guiding-principles>
- E2: UN-Habitat (2017) *Guiding Principles for City Climate Action Planning: Toolkit for City-Level Review*.
- E3: *Strategic Review of International City Climate Networks*, The Children's Investment Fund Foundation (CIFF). Final Report, March 2013.
- E4: *Global Research and Action Agenda on Cities and Climate Change Science*, CitiesIPCC Climate Change Science Conference, Edmonton, Canada, 5-7 March 2018.
- E5: Testimony from the Head of Global Programmes, Coalition for Urban Transitions.
- E6: Testimony from the Lead Programme Officer, Climate Change Unit, UN-Habitat.
- E7: *Guiding Principles for City Action Planning. Assessment Report, Glasgow*, available at <https://unhabitat.org/sites/default/files/download-manager-files/Glasgow.pdf>
- E8: *WWF One Planet City Challenge Assessment Framework*, available at http://awsassets.panda.org/downloads/wwf_opcc_2019_updated_assessment_framework.pdf
- E9: *Metro Vancouver Climate 2050 Strategic Framework*, Vancouver, revised July 2019, available at http://www.metrovancouver.org/services/air-quality/AirQualityPublications/AQ_C2050-StrategicFramework.pdf