



Studying local climate adaptation: A heuristic research framework for comparative policy analysis



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ABSTRACT

Climate change poses a significant risk for communities, and local governments around the world have begun responding by developing climate adaptation policies. Scholarship on local adaptation policy has proliferated in recent years, but insufficient attention has been paid to operationalization of the unit of analysis, and methods employed are typically inadequate to draw inferences about variation across cases. This article seeks to contribute to the conceptual and methodological foundations of a research agenda for comparative analysis of local adaptation policies and policy-making. Synthesizing insights from policy studies literature and existing adaptation research, the article identifies and operationalizes two aspects of public policy—policy *content* and policy *process*—which are salient objects of comparative analysis that typically vary from one community to another. The article also addresses research design, outlining a comparative case study methodology that incorporates various qualitative analytical techniques as the vehicle to examine these policy elements in empirical settings.

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1. Introduction

Climate change poses significant risks for cities and communities. Global changes in temperature and precipitation are projected to result in a range of negative local impacts, such as flooding due to overwhelmed drainage infrastructure, water supply deficits and greater wildfire activity caused by extended dry periods, and the longer-term risk of sea-level rise, which will exacerbate flooding and storm surge in coastal areas (IPCC, 2012, 2014a; McBean, 2004). Moreover, climate hazards such as extreme heat and severe storms are serious threats to human health and safety.

Governments around the world have begun responding to these risks through *climate adaptation policies*—courses of action designed to reduce the vulnerability of populations, assets, and operations to climate-related risk (Suskind, 2010; Henstra, 2012). Much of this policy development has taken place at the local level, and analysts have identified emerging local policy initiatives in both developed and developing countries (Carmin and Zhang, 2009; Satterthwaite et al., 2009; Hunt and Watkiss, 2011). Over the past decade, there has been a proliferation of studies documenting various aspects of local adaptation policy development, including

the enabling conditions that facilitate action, and challenges for local policy-makers (IPCC, 2014b).

However, adaptation is a nascent policy field. Our knowledge remains limited concerning the scope and substance of adaptation policies, as well as the processes by which policies are developed and implemented in this domain. This is attributable in part to research design: much of the policy analysis to date has been in the form of individual case studies, which are instructive, but generally do not lend themselves to comparison and knowledge cumulation (George and Bennett, 2005: 68). Moreover, though some studies have attempted to compare adaptation policy across jurisdictions, operationalization of the unit of analysis has received insufficient attention, and methods employed are typically inadequate to draw inferences about variation in policies and policy-making across cases (Dupuis and Biesbroek, 2013). Murtinho and Hayes (2012) assert that “by providing greater methodological clarity and purposefully working towards comparative studies, fieldwork scholars can provide an empirical foundation so that scholars, practitioners, and communities can learn and benefit from the diverse adaptation processes occurring in communities around the world” (p. 519).

This article aims to contribute to the conceptual and methodological foundations of a research agenda for comparative analysis of local adaptation policy. To this end, the article synthesizes insights from policy studies literature and contemporary adaptation

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research in order to identify and operationalize two salient objects for comparative adaptation policy analysis: policy content and policy process. Throughout the paper, the findings of existing case studies are used to illustrate variation in these policy-related research objects in order to illuminate the diversity of adaptation policy choices and processes in different local contexts. The final section addresses research design, focusing on a comparative case study methodology that combines qualitative research techniques as the vehicle to examine the content and process of adaptation policy-making in empirical settings.

2. Comparative policy analysis

Public policy is a course of action chosen by public authorities to address a problem (Pal, 2014: 2). Policy-making is assumed to be a purposive activity spearheaded by governments, which involves choices about whether and how public authority and resources will be used to address problems. One choice relates to *scope*: how much responsibility should the state assume, and how much should be borne by individuals, households, firms, and social groups? Governments choose to position themselves along a spectrum of intervention, ranging from little or no action at one extreme, and active, aggressive involvement at the other. A second choice relates to *means*. Governments have many tools to achieve policy objectives—exhortation, regulation, spending, and so on—but choosing among these instruments is one of the most contentious aspects of policy design (Salamon, 2002). Public policy is the cumulative result of these choices, which can be inferred from tangible outputs, such as decisions, expenditures, programmes, and pronouncements.

Policy analysis is a process of inquiry aimed at developing and critically assessing information to understand and improve public policies (Dunn, 2012: 2; Pal, 2014: 15). There is no universally recognized methodology for policy analysis. It can involve deductive methods—the application of general concepts, principles, and theoretical propositions to observed phenomena—as well as inductive analysis, in which generalizations are drawn from careful observations of empirical phenomena, which are then tested against other cases (Howlett et al., 2009: 20).

Comparative policy analysis refers to the systematic study and comparison of public policies and policy-making in different jurisdictions to better understand the factors and processes that underpin similarities and differences in policy choices (Schmitt, 2013). From an empirical perspective, comparing the policy responses of different governments to a common problem can be used to draw inferences about determinants of variation, and this serves as a foundation for theory-building (Gupta, 2012). Focused comparison also has instrumental value, in that it allows policy-makers faced with novel problems to draw lessons from the experiences of other jurisdictions, which can be used to design parallel domestic programmes (Rose, 2005). Although most policy studies in the comparative tradition have focused on similarities and differences at the national level, comparative analysis is also useful for studying local government policies (e.g., Lazar and Leuprecht, 2007).

3. Comparing local adaptation policy

Climate adaptation policy assumes that despite even the most ambitious efforts to reduce greenhouse gas emissions, some degree of climate change is inevitable, so impacts must be anticipated (Wigley, 2005; Hare and Meinshausen, 2006). It also acknowledges that climate variability already exerts stress on physical, social, and economic systems, which has not been sufficiently addressed (Ford, 2008). Analysts define adaptation in various ways, but a common thread is that it involves

“adjustments”—purposive changes to practices, processes, and structures to better cope with climate change and its impacts (IPCC, 2007). The central goals of adaptation policy are to reduce *vulnerability*—susceptibility to negative climate-related impacts—and to increase *adaptive capacity*, meaning the ability to adjust to climate change in order to moderate damages or cope with consequences (Smit and Pilifosova, 2003; Smit and Wandel, 2006).

In recent years, analysts have increasingly turned their attention to documenting the adaptation actions that are taking place around the world (e.g., Berrang-Ford et al., 2011; Ford et al., 2011). Some of this work has been comparative, seeking to describe and explain similarities and differences in policy outputs, but the predominate research focus has been the national scale (Biesbroek et al., 2010; Ford et al., 2013; Berrang-Ford et al., 2014). Given the place-based nature of climate adaptation, a similar programme of research that analyses and compares adaptation policies and policy-making at the local level is warranted.

For various reasons, the local level is argued to be the appropriate locus for adaptation policy development (Bizikova et al., 2008; Richardson, 2012). Local officials play a key role in public functions that are central to climate adaptation, such as land use regulation, building inspection, critical infrastructure protection, and emergency planning (Wakeford and McGillivray, 2006; Auld and MacIver, 2007). Close proximity to stakeholders and the public gives local policy-makers access to knowledge about place-based exposure and sensitivity to climate risks, which enables them to design strategies tailored to community needs (Larsson, 2003; Corfee-Morlot et al., 2011). Public engagement and mobilization in support of adaptation are more effective at the local level, because specific community risks tangibly demonstrate the importance of taking adaptive actions (Hunt and Watkiss, 2011). The local level is also an optimal site for policy experimentation, in that innovative practices can be tested on a smaller scale and then replicated in other communities.

However, local officials face significant challenges in developing adaptation policies. Both the public and policy-makers have difficulty grappling with the long-term nature of climate change, which requires measures to be implemented in anticipation of uncertain future threats (Wagner and Zeckhauser, 2012). Although citizens abstractly perceive climate change as a problem, the issue appears to lack sufficient salience and urgency to prompt sustained demands for government intervention, giving elected officials little political incentive to commit resources to adaptation (Lorenzoni and Pidgeon, 2006; Corfee-Morlot et al., 2011). Moreover, whereas the costs of adaptation are visible and immediate, the benefits are largely intangible and will accrue mainly in the future. In the face of more immediate priorities and a lack of public demand, decision-makers typically focus on the most pressing agenda items and invest in proposals that will generate short term returns (Reisinger et al., 2011; Simonsson et al., 2011). Finally, many communities lack the capacity to effectively formulate and implement adaptation policies (Crabbé and Robin, 2006; Measham et al., 2011). In light of the urgent need to adapt communities to a changing climate, understanding whether and how local policy-makers surmount these numerous obstacles is crucial.

Furthermore, local adaptation does not take place in isolation, but is rather embedded within a broader multilevel governance context, whereby institutional structures and procedures are shaped by rules and decisions made by other levels of government, and policy choices are influenced by non-governmental actors (Urwin and Jordan, 2008; Mukheibir et al., 2013). Adaptation is a responsibility shared by all levels of government, but the appropriate scale of action and division of tasks among local, regional, and national governments remain unclear (Gupta, 2007). Divided jurisdiction constrains local policy choices, in that specific adaptation options (e.g., raising the height of a levee or dyke) are

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