



Principles for supporting city–citizen commoning for climate adaptation: From adaptation governance to sustainable transformation

Christine Wamsler*, Sanne Raggars

Lund University Centre for Sustainability Studies (LUCSUS), Sweden



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ABSTRACT

This paper examines whether or not specific forms of adaptation governance that involve city administrations and citizens can help (or hinder) creating a foundation for more sustainable climate adaptation and transformation. Based on the analysis of recurring patterns of social adaptation dilemmas (caused by the interdependencies between adaptation providers and beneficiaries), associated actor constellations, policy approaches, and gaps, this paper presents principles for supporting city–citizen commoning for climate adaptation (i.e. joint actions needed to create systems to manage, shared, adaptation resources). The presented principles can assist in facilitating the management of public goods for adaptation, including privately-provided adaptation goods, and relate to four strategic aims: i) the effective management of collective and individual resources; ii) comprehensive risk reduction; iii) sustained local–institutional linkages (mainstreaming); and iv) matching different actors' views, efforts and capacities. The principles synthesise and extend the literature by considering, and providing space for, a comprehensive understanding of risk and its root causes, and for alternative rationalities or ('nonrational') behaviors intended to address them. The latter takes account of the subjectivities (e.g. emotional attachments to resources and seascapes), which are as important as power structures with respect to how climate adaptation is managed. In fact, subjectivities are central to the operation of city administrations as they are an integral part of how people understand their relationship to others. In an adaptation context, this means focusing on practices and interactions that are required for taking adaptation actions, and how they can both promote and frustrate attempts to collaborate. We conclude that the developed principles can support more sustainable climate adaptation and transformation by holistically addressing existing adaptation dilemmas, actor constellations, and the associated policy gaps that make current approaches ineffective.

1. Introduction

Climate change and increasingly frequent and severe disasters pose serious challenges to sustainable development (IPCC, 2014) and the division of tasks between actors when managing and adapting to such events (O'Brien et al., 2009; Adger et al., 2013; Wamsler, 2016). While city administrations play a key role in governing climate change and associated impacts (Bulkeley, 2010; Kern et al., 2005; Wamsler, 2014), their effectiveness directly relates to citizens' behaviour and level of engagement (Agrawala, 2011; Härtel and Pearman, 2010; Tompkins and Eakin, 2012).

The interdependencies between citizens and city administrations in climate governance are complex and manifold. They relate not only to citizens' legal responsibility to protect their property (SCCV, 2007; Newig et al., 2014; Wamsler, 2016), but also to individual adaptation choices that can increase or reduce society's climate resilience

(Agrawala, 2011; Tompkins and Eakin, 2012; Wamsler, 2014). They also relate to citizens' support for, or hindrance of, public adaptation¹ and associated social dilemmas (Bisaro and Hinkel, 2016; Geaves and Penning-Rowsell, 2016; Tompkins and Eakin, 2012; Wamsler and Brink, 2014a,b; Wamsler, 2014, 2016). Accordingly, the latest Assessment Report (AR5) of the Intergovernmental Panel on Climate Change (IPCC) emphasises that new governance structures and institutions are needed to resolve climate-related conflicts (IPCC, 2014).

Society's climate resilience is ultimately determined by the interplay of public policy and actions undertaken by a range of private actors, including individuals and households (cf. Agrawala, 2011). Thus, there is a need to understand how commons can be protected and/or created in ways other than mere privatization. Despite this situation, little is known about citizen–municipality linkages and cooperation for climate adaptation. Hence, it also remains largely unknown how these interactions could best assist in overcoming social adaptation challenges (cf.

* Corresponding author.

E-mail address: christine.wamsler@lucsus.lu.se (C. Wamsler).

¹ Adaptation that is initiated and implemented by governments at all levels. Public adaptation is usually directed at collective needs (IPCC, 2001).

Bisaro and Hinkel, 2016; Malik et al., 2010; Tompkins and Eakin, 2012; Wamsler, 2014).

Against this background, we examine whether or not specific forms of cooperation between city administrations and citizens can help to build a foundation for (more) sustainable climate adaptation. After a description of the analytical framework and methods used (Section 2), the results are presented as a set of identified patterns and gaps in current approaches (Section 3). On this basis, some principles for supporting city-citizen commoning and the effective management of (collective and individual) resources for sustainable climate adaptation are presented (Section 4). Finally, their relevance in relation to the current literature and policies are highlighted, together with further research needs.

2. Methodology

In this paper we bring together the outcomes from two decades of research on how public and individual adaptation efforts interact before, during and after hazard/ climate impacts. We present a meta-evaluation of past cross-country, cross-city and city-specific case studies in order to distil principles for supporting city-citizen commoning and the effective management of the (collective and individual) resources that are key for sustainable climate adaptation. The assessed case studies were carried out during 2003–2017, in the context of major research projects financed by the Swedish Research Council FORMAS, The Resilient Regions Association, and The Swedish International Development Cooperation Agency (Sida).

Our meta-evaluation is based on our analysis framework (presented below), and focuses on the identification of patterns in a sample of 52 identified cases of public–individual adaptation interactions in relation to: i) privately-created public adaptation goods or services, ii) associated social dilemmas, iii) policy approaches, and iv) related gaps. The criteria for identifying the cases are shown in Fig. 1, Supplementary Material (Appendix A). Where the case study summaries did not provide sufficient information for our data analysis, we reviewed the original data.²

2.1. Analytical framework

Our conceptual analysis framework (presented in Fig. 1) builds on, and links, three key concepts, namely: sustainable climate adaptation, collaborative adaptation governance, and commoning.

2.1.1. Sustainable climate adaptation

Sustainable climate adaptation is here understood as collective processes and actions that can enable people to cope better with climate impacts in order to reduce their impacts on well-being and the disruption of key natural resource flows for present and future generations (cf. Tompkins and Eakin, 2012; McNeeley et al., 2012). It requires the active consideration of social justice and environmental integrity issues (Eriksen et al., 2011). The concept is based on: i) the recognition that not every adaptation to climate change is a good one, and ii) the need to distinguish between desirable and undesirable types of adaptation (Eriksen and O'Brien et al., 2007). Scholars have increasingly shown that the latter depends on the (level of) inclusiveness and flexibility of the combined set of adaptation measures employed, rather than the effectiveness of a single measure, and how it is institutionalised/mainstreamed (Wamsler and Brink, 2014a,b; Wamsler and Pauleit, 2016). Inclusiveness refers here to the approach taken to address all types of risk factors (i.e. hazards, vulnerability, response and recovery capacity (Wamsler and Brink, 2014a). Flexibility relates to the number

and diversity of activities implemented for each type of measure (Wamsler and Brink, 2014a).

2.1.2. Collaborative adaptation governance

The collective activities taken to respond to, and anticipate, climate impacts are systematised as the concept of collaborative adaptation governance. Adaptation governance is an emerging research field that strives to understand the role of institutional arrangements and collaboration in adapting to climate change (Bisaro and Hinkel, 2016). Various theories can be applied to collaborative governance arrangements that take different groups' and individuals' involvement in adaptation into account, such as co-production or co-creation (e.g. Bason, 2010; Bremer, 2015), co-governance (Kooiman et al., 2008), collaborative planning (e.g. Healey, 1997/2006), collaborative, inclusive or participatory governance (e.g. Ansell and Gash, 2008; Newig and Fritsch, 2009; O'Brien et al., 2009; Renn and Schweizer, 2009), or adaptive governance (Baird et al., 2014; Folke et al., 2005). Overall, collaborative adaptation governance aims to overcome traditional collaboration and participation structures to support transformative adaptation, as incremental change is insufficient to achieve system-wide changes that foster sustainability (IPCC, 2014; Kates et al., 2012; Pelling et al., 2015). Such traditional structures are founded on listening and the inclusion of some stakeholders' points of view, rather than moving towards a structured collaboration process where every partner contributes according to their capacities in order to attain a common goal (cf., Dilling and Lemos, 2011; ISPRA, 2014; Knieling, 2016; Wamsler, 2017).

2.1.3. Commoning

The described transformations require creating solutions for commons-related problems, also called social adaptation dilemmas. This includes problems regarding i) the use of commons for adaptation (e.g. the use of water or land to maximize individual adaptation benefits that negatively impact the needs of others), and ii) the creation of adaptation commons through private action (e.g. the creation of public services in form of flood risk reduction provided by individual measures to retain excess storm water on private land). The latter relates to the emergent recognition of the need for private action to create public adaptation goods or services (Bisaro and Hinkel, 2016; IPCC, 2014; Stern, 2007; Tompkins and Eakin, 2012). It is also based on evidence of increasing vulnerability derived from the absence of privately-provided public adaptation (Tompkins and Eakin, 2012).

Accordingly, there is a significant opportunity to advance the understanding of adaptation governance by integrating insights that have been developed in the extensive commons literature in relation to institutions that work to overcome social conflicts or dilemmas, which derive from the complex interdependencies between adaptation providers and beneficiaries (see above). It can help to understand (and support) collective action in adaptation governance, where natural conditions can give rise to certain types of social dilemma (Ostrom, 1990; Ostrom et al., 1994). As climate change affects natural conditions and associated commons, it may alter social dilemmas or create new ones.

By drawing on insights from the commons literature, Bisaro and Hinkel (2016) identified six different types of social adaptation dilemmas (presented in Table 1), together with effective policy approaches/instruments for overcoming these dilemmas (presented in Fig. 1). In addition, the effectiveness of these policy approaches/instruments can be assessed in relation to the type of provider of privately-created public adaptation goods or services (Tompkins and Eakin, 2012; Fig. 1). Private providers can, for instance, include individuals who value the goods more than the cost of supply (known as Olsonian Privileged Groups), altruists who are motivated by factors such as helping other people, or profit- or welfare-maximising actors who are seduced by various means to provide adaptation goods or services (Tompkins and Eakin, 2012). This also relates to the actors'

² The original data consisted of secondary data analysis, and more than 160 interviews and group discussions with municipal staff and citizens. The case study summaries are published in Wamsler (2007, 2008, 2015, 2016, 2017), Wamsler and Brink (2013, 2014a, 2014c, 2015), Wamsler and Lawson (2011, 2012), and Brink and Wamsler (2017).

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