

The ‘resilience trap’? Exploring the utility of resilience for climate change adaptation in UK city-regions

Abstract

This article examines how adaptation is interpreted across different UK city-regions by governance and policy actors, finding that the discourse of adaptation is giving way to resilience. This is explained by the value of resilience as a discursive construct in mobilising and co-ordinating policy actions. Resilience has greater appeal as a framing device over adaptation to such actors given its potential to enable buy-in from a wider city-regional governance network. However, this article also highlights the ‘resilience trap’: the dangers of adopting short-term strategies, rebranding existing strategies and widening governance networks that obfuscate subnational mobilisation around adaptation. It then reflects on how governance actors may act to avoid the resilience trap.

Keywords: Adaptation; Resilience; Policy discourse; Climate governance; Subnational scale; City-region.

1. Introduction

The scientific evidence for human-induced climate change suggests that the earth is warming at an unprecedented rate and that this warming is already having an impact on physical and human systems (ROSENZWEIG et al., 2008; IPCC, 2014a) Governments and policy-makers have promoted two main strategies to combat this. Firstly, mitigation, which reduces the amount of greenhouse gas (GHG) emissions that cause global warming (IPCC, 2014b); and secondly, adaptation, which adjusts physical and human systems to cope with the effects of such warming (SMIT and WANDEL, 2006; IPCC, 2014c). Successful adaptation is increasingly recognised as being dependent upon locally distinct risk-management approaches through ‘collective’ governance rather than top-down government action (NIEUWAAL et al., 2009). This reflects the limitations of scientific data and modelling in predicting climate impacts at the subnational scale (DEMERITT, 2006).

As such, subnational actors including regional and local governments, are increasingly regarded as having a key role to play in both delivering adaptation strategies and co-ordinating bottom-up governance action that work across multiple political scales (BULKELEY and BETSILL, 2013; ADGER et al., 2005; BAKER et al., 2012; BERRANG-FORD et al., 2011; JONES, 2011). This also reflects a recognition that the inevitable surprises of climate change are likely to unfold on a regional and local scale where adaptive response becomes central (HOLLING, 1996). In the UK, adaptation has evolved through key legislation such as the 2008 Climate Change Act, and resultant policy initiatives including the UK Climate Change Risk Assessment (CCRA), the National Adaptation Programme (NAP) and the National Policy Planning Framework (NPPF) (for more UK adaptation policy description see PORTER et al., 2015). However, whilst NAPs are a statutory requirement in devolved regions, it is not statutory for all local authorities to report on adaptation actions; organisations that conducted the 2012

CCRA did so on a voluntary basis. This has led to the national adaptation programme in the UK being criticized for lacking co-ordination, stakeholder involvement and having unclear divisions of responsibilities (BIESBROEK et al., 2010). Furthermore, given its non-statutory status, it has been reported that funding for adaptation remains piecemeal (PORTER et al., 2015; ASENOVA et al., 2015) and will continue to be so in the future (WARD, 2015).

Indeed, there has been limited evidence to date that climate change adaptation is in fact trickling down appropriately to local government levels (TOMPKINS et al., 2010), let alone becoming a more collective governance issue at the subnational scale. One potential reason for this is that policy-makers can interpret adaptation in often quite different ways (LEVINA and TIRPAK, 2006). This may reflect how key socio-institutional processes of human behaviour, decision-making and agency in particular socio-spatial contexts create differences in the evaluation and knowledge of specific risks (MCDANIELS et al., 2008), and the skills and willingness to embrace change (ADGER et al., 2005; KYTHREOTIS et al., 2013).

In this regard, the rising prominence of the concept of resilience in the context of climate adaptation raises interesting questions. The socio-ecological notion of resilience, defined as the ability of human communities to withstand external shocks and to recover (ADGER, 2000), is developing greater traction in the policy discourse and practice around climate change at all spatial scales including the subnational scale (SHAW and THEOBALD, 2011). Resilience is rapidly emerging as an idea whose time has come in both academic and policy discourses, particularly around climate change and environmental management, where it is developing widespread appeal. It is a concept which has multiple disciplinary origins but which is commonly understood to entail both robustness and strength (i.e. the ability to withstand a shock), and the rapidity and flexibility of response (or ability to recover quickly from a shock).

In relation to climate change, resilience can be regarded as being constitutive of both mitigation and adaptation activities: mitigation can increase the robustness of the system, whilst adaptation can increase the rapidity of recovery (MCDANIELS et al., 2008). Resilience is however increasingly acknowledged to be a ‘fuzzy’ concept which is open to multiple interpretations in policy contexts (e.g. WHITE and O’HARE, 2014). This raises interesting questions as to the status and interpretation of resilience in subnational climate change governance, particularly given the potential significance and value of fuzzy concepts in galvanising action and debate (MARKUSEN, 1999; LAGENDIJK, 2003).

The purpose of this paper is thus to explore how resilience and adaptation are defined by policy and governance stakeholders dealing with climate change in selected UK city-regions. In particular, this article interrogates the meaning and relevance of adaptation and resilience in policy discourse, and explores what factors are influencing their relative discursive appeal. In the broad context of resilience, this article focuses on adaptation rather than mitigation given the increasing emphasis upon adaptation at the subnational scale.

The paper is now organised as follows. The next section defines adaptation, mitigation and resilience and draws upon literatures on discourse formation and change to provide insights into why certain ideas and concepts rise to prominence in policy discourse. Using empirical data derived from interviews in selected UK city-regions, section three illustrates and seeks to explain the growing appeal of resilience in climate change discourse and practice at the subnational scale in the UK. Section four explores some of the potentially dangerous consequences of this shift which this article refers to as the ‘resilience trap’. Here it points to some of the potential dangers in the prioritisation of a discourse which is associated with a focus on short-term responses to extreme weather events rather than longer-term adaptation.

The article then concludes by reflecting upon how governance actors may act to avoid the dangers of the resilience trap.

2. The discourses of adaptation and resilience

There is a strong literature seeking to conceptualise the meanings of adaptation, mitigation and resilience in relation to climate change and environmental management. Mitigation definitions are broadly based upon lowering anthropogenic greenhouse gas (GHG) emissions. More specifically, mitigation has been defined as ‘the effort to control the human sources of climate change and their cumulative impacts, notably the emission of greenhouse gases’ (IPCC, 2014b, p.114). Mitigation (alongside adaptation) has been linked to academic work on resilience, particularly resilient cities and urban areas (LEICHENKO, 2011; REVI, 2008). Furthermore, policy neutral advice from the Intergovernmental Panel on Climate Change (IPCC) advises that limiting GHG mitigation actions by governments can hinder climate resilient pathways (IPCC, 2014c, p.1112-1115). Whilst this article acknowledges the contribution of mitigation to engendering more effective urban resilience, this paper focuses on adaptation and resilience given the prominence afforded to adaptation policy at the subnational scale. Whilst definitions of adaptation vary, they generally coalesce around adjustments that reduce society’s vulnerability to climate shocks and change (SMIT and WANDEL, 2006). Subnational governments are well placed to promote adaptation policies that reduce climate vulnerability and increase the resilience of communities to climate impacts (MAZMANIAN et al., 2013), owing to their greater flexibility of response to climate shocks and their potential to be more innovative than national and international policy-makers (PUPPIM DE OLIVEIRA, 2009).

Resilience is also subject to varying definitions owing to its wide disciplinary basis. A broad distinction can be made between two different conceptions of the term (PENDALL et al.,

2010). The first is based on the engineering conception of resilience which focuses on the resistance of a system to shocks and the speed of its return or ‘bounce-back’ to a pre-shock state or equilibrium. The faster the system returns to equilibrium, the more resilient it is. The second is based on an ecological conception of resilience which embraces a system’s ability to withstand or absorb changes of state variables (HOLLING, 1961, 1973; ROSENZWEIG, 1971) as well as its capacity to respond and recover quickly from a shock and thus to return to an equilibrium state after a temporary disturbance.

Resilience is rapidly emerging as an idea whose time has come in both academic and policy discourses, particularly around climate change and environmental management, where it is developing widespread appeal. Hollings’ ecological conception of resilience is widely referred to in understanding resilience as an adaptive management process and has been critical in helping translate resilience thinking from the ecological world to complex human/social systems (DAVOUDI, 2012). The use of complexity theory has since been applied to developing an understanding of how social-ecological systems can become more resilient in the context of emerging ‘wicked’ issues such as the vulnerabilities and adaptations of people and places associated with climate change (GALLOPÍN, 2006; VOGEL, 2006; VOGEL et al., 2007; YOUNG, 2010; ENGLE, 2011; NELSON et al., 2007). In relation to climate change, resilience is commonly understood to embrace both the capacity to withstand the disruptive effects of climate change and the speed and flexibility of response and recovery. As such, resilience can be regarded as being constitutive of both mitigation and adaptation activities: mitigation can increase the robustness of the system, whilst adaptation can increase the rapidity of recovery (MCDANIELS et al., 2008).

From its basis as a descriptive ecological term, resilience has been frequently redefined and extended by heuristic, metaphorical, or normative dimensions (BRAND and JAX, 2007). The appeal of resilience amongst policy actors carries some dangers however. Resilience is acknowledged to be a ‘fuzzy’ concept which becomes increasingly vague and woolly when it travels from being a descriptive ecological concept to become a feature of policy discourse (WHITE and O'HARE, 2014; WELSH, 2014; OLSSON et al., 2015). Resilience in policy statements thus often blends descriptive and normative dimensions and is conceived very broadly as an approach to adaptive governance or as a metaphor for the flexibility of a social-ecological system over the long term (BRAND and JAX, 2007). This raises interesting questions as to why resilience has gained traction amongst climate change policy-makers and what, if any, are the consequences of its fuzziness of meaning in practice.

Discursive and interpretive approaches to understanding policy provide an interesting perspective from which to understand how and why certain descriptive concepts travel into policy language and communication and become salient (e.g. HAJER, 1995; HOWARTH, 2005). Critical discourse analysis focuses upon examining policy-makers views, interpretations and communications to explore how language is used, concepts defined and narratives for action created. Discourse is defined as being derived from and dependent upon a range of social practices and norms which work together. This draws attention to how discourses are formed and shaped and to the possibility of contrasting sets of influences working to provide divergent discourses, or particular discourses rising to prominence (HOWARTH, 2005). It recognises that policy discourses are ultimately shaped by social interactions and interests as much as by ideas and a rational or structured approach to policy-making.

The value of critical discourse analysis in the context of climate change policy lies in its ability to both provoke interrogation of the utility of certain concepts for advancing particular policy goals, and in its alignment with the recognition that physical-material phenomena such as climate change resilience, may have culturally based social attributions of meaning given to them (CHRISTMANN et al., 2014). ADGER (2000) asks whether ecological understandings of resilience actually resonate or can be linked with social interpretations of resilience within institutions. The literature acknowledges a tendency to reify the physical aspects of climate change (e.g. scientific models of future climate) to support policy, rather than our social and cultural understandings (DEMERITT, 2006; HULME, 2011; YEARLEY, 2009; ASPINALL, 2010; JASANOFF, 2010; PALSSON et al., 2013). The understanding of climate change science and policy solely around predictive narratives of physical sciences is problematic however, if, as suggested by DUIT et al. (2010), society is amidst a third wave of complex systems thinking which conceives that human actions are central in developing more effective governance interventions for climate resilience *and* adaptation. Thus, regardless of the structural arrangements in any institution that are designed to support resilience in any system, it is human dimensions and processes – the social construction of key concepts and socially shared interpretations of risk and desirable adaptive behaviour – that need to be more fully investigated in understanding the effectiveness of policy action (BRISTOW and HEALY, 2014).

Various studies have deployed critical discourse analysis techniques to show that the way in which climate change and resilience are perceived is dependent on the specific social systems in the context in which they are negotiated (OPPERMANN, 2011; BROWN et al., 2011). CHRISTMANN et al. (2014) also demonstrate that local climate-related perceptions vary considerably such that it is possible to discern a local construction of climate change. This

reflects the role of specific local cultures with their own narratives, rationales and temporal structures.

There is increasing recognition that in terms of climate policy implementation (and integration), the understandings and action(s) of policy and governance actors at various spatial scales are both paramount and potentially highly variable. They play a fundamental role in (future) positioning their institutions to enact certain implementation processes based on policy imperatives that may have been decided ‘upscale’, and yet may implement them very differently. For example, in the European Union (EU) a particular (environmental) Directive is specific in some form, but the implementation actions that are subsequently deployed at national levels may differ markedly because of the diversity and policy interests of different EU nations (JORDAN, 1999; HOOGHE, 1996). This process continues with the transfer of policy decisions down from the national to the subnational scale. For example, URWIN and JORDAN (2008) have found that certain adaptation policies are fundamentally altered, mutated and undermined as they are translated from the national to the subnational scale, failing to capture some of the cross-sectoral and cross-scalar governance approaches needed for a more holistic, system-based adaptation response. Whilst existing national policies like the UK CCRA and NAP attempt to integrate various cross-sectoral concerns, they struggle to achieve this in practice given the potential for conflict between economic development priorities and climate adaptation plans. Furthermore, temporality also has a significant effect on the integration of climate policies at subnational scales of governance (LORENZONI et al., 2000a; LORENZONI et al., 2000b). Notwithstanding the limitations of science informing adaptation practices (KIRCHHOFF et al., 2013), such work suggests that subnational scales of governance – particularly more densely populated urban areas where there is increased exposure to climate

risks – should be the primary lens of analytical focus if adaptation policy design and governance is to be more iterative, anticipatory and therefore more effective.

To date, however, there has been limited interrogation as to the rise of resilience as a discourse in subnational climate change policy and, particularly, its relation to adaptation which has to date provided the focus for climate change policy interventions at this scale. The purpose of this article is to help address this gap by exploring empirically how a range of subnational policy and governance actors currently understand and operationalise adaptation and resilience in their practical everyday decision-making processes.

3. Resilience and adaptation in subnational policy discourse

3.1 Methodology

There have been growing calls for greater empirical interrogation as to how the resilience concept is interpreted and deployed in the discourses and practices of policy-makers (WELSH, 2014). This paper utilises empirical data from 28 interviews with governance and policy stakeholders conducted across a number of UK city-regions during 2014: Cardiff city-region, Glasgow city-region and the Yorkshire and Humber sub-region (comprising Leeds, York and Hull city-regions), as well as key national stakeholders involved in promoting climate adaptation and resilience policy across the UK. These city-regions were selected primarily because they reside within different political and administrative governance contexts with differing priorities as regards adaptation (see below for further discussion). Other studies have solely focussed on empirically analysing public sector responses at the local authority level (e.g. PORTER et al., 2015; ASENOVA et al., 2015), but given that other research has argued that successful adaptation responses rely on both horizontal and vertical multi-scalar governance responses from a variety of actors (ADGER et al., 2005; BOYD and JUHOLA,

2015), this research has examined the perspectives of non-state actors too. This article specifically focuses on understanding how governance actors define and interpret resilience and adaptation in policy discourse and on exploring why particular discourses are becoming prominent. Further details on interviewees and their professional roles are shown in table 1.

INSERT TABLE 1 HERE

Interviewees were principally selected using the snowballing interview technique. This enables the researcher to get inside a particular research network whilst simultaneously allowing the network to develop the sample of interviewees rather than the researcher randomly interviewing respondents that they feel could contribute to the research (VALENTINE, 2005). A semi-structured generic topic guide was used to interview the respondents. This guide consisted of a number of general themed questions surrounding adaptation governance and policy including the individual and organisation, funding, climate adaptation definitions and policies, climate resilience definitions and policies, stakeholder relationships (governance) and changes, challenges and the future. Interviews were transcribed using Microsoft Word, then using a grounded theory approach the interview data was coded, conceptualised into groups and categorised to derive certain themes or theories, rather than testing out an existing theory inductively or deductively (CORBIN and STRAUSS, 2008). This form of exploratory analysis abductively drew concepts from the empirical data rather than fitting the data into pre-conceived patterns (DUBOIS and GADDE, 2002). Case study areas were deliberately chosen that spanned England, Scotland and Wales (and thus different subnational governance contexts) because, as explained earlier, local government responses to adaptation have been based on initiatives and advice (rather than legislation) from central government. Therefore one would expect local governance responses to promoting adaptation to be patchy and uneven.

The spatial unit of analysis – the city-region – was also chosen because recent years have seen the local level given wider spatial jurisdiction in climate change planning issues through the National Policy Planning Framework and the Local Adaptation Advisory Panel (DCLG, 2012; HM GOVERNMENT, 2013). This article also acknowledges the importance of work that has concentrated on how cities have been integral in responding to the challenges of climate change (e.g. BULKELEY and BETSILL, 2013; ROSENZWEIG et al., 2010). However, the city-region scale has become the preferred scale for subnational governance in the UK in recent years, particularly in England and in relation to the imperatives to support economic development objectives at an appropriate scale (PARR, 2005; RODRÍGUEZ-POSE, 2008). It is increasingly acknowledged however, that the city-region scale should not simply be viewed as appropriate in terms of an economic and administrative logic (HEALEY, 2009). The physical size of city-regions means that sustainability issues such as climate change require greater strategic focus across a geographical scale that offer for the potential for economic development needs to be mindful of social and ecological concerns (WHEELER, 2009).

Furthermore, institutional support and effectiveness at addressing climate change challenges is likely to vary considerably across UK city-regions (FORUM FOR THE FUTURE, 2010). Some UK city-regions appear to be becoming more attuned to climate adaptation and resilience policy than others. For example, Glasgow has recently been invited to sign up as one of three UK cities to a worldwide climate change city coalition mayors compact (GLASGOW CITY OF SCIENCE, 2015) and is a member of the Rockefeller Foundation's 100 Resilient Cities network (ROCKEFELLER FOUNDATION, 2015). Different policy frameworks are also clearly emerging across the different constituent parts of the UK according to their degrees of devolution. At the UK level, central government is, through the 2008 Climate Change Act, statutorily required to put in place a policy framework for national risk assessments every 5

years, a UK Committee on Climate Change (which comprises an adaptation sub-committee), the National Adaptation Programme and the UK Adaptation Reporting Power. The 2008 Climate Change Act covers all the devolved areas of the UK. Yet additionally, the Climate Change (Scotland) Act of 2009 does require public bodies (including local authorities) in Scotland to report on adaptation if required by Scottish Ministers. In Wales, on April 1st 2016, the Well-Being of Future Generations Act came into force, which requires local authorities to lead on future adaptation issues through public service boards. These statutory requirements suggest that subnational governance actors (state and non-state) will have an increased role in promoting local adaptation strategies and initiatives and bringing multiple actors together.

3.2 Fuzzy definitions and the growing appeal of resilience

Across all climate policy actors in the city-regions in our study, it was clear that resilience was becoming prominent in their language and communication and widely used— a rise paralleling the burgeoning use of resilience in various policy and consultation documents relevant to their fields of work. According to one local government climate officer, “it has become the in-word to use post-2007” – a rise he attributed to its use in the area of emergency planning which is rising to the fore in the context of crisis. Most clearly acknowledged that resilience in policy discourse had become something of a buzzword (as DAVOUDI, 2012) and yet remained very ‘fuzzy’ in terms of definition and open to multiple interpretations, a typical comment being “resilience can mean different things to different people”.

The fuzziness of resilience in policy discourse is most potently illustrated in the tendency for governance actors to conflate resilience and adaptation in practice. One interviewee working on adaptation analysis at the UK national level commented on resilience: “It’s starting to be used interchangeably with adaptation really isn’t it? I attended a meeting... we looked at

mitigation a lot but also adaptation and the feeling amongst the people on the group was that they preferred the term resilience because it wasa term that the farming community could sort of understand a bit and it sounded like a more practical sort of term to be using.” Another senior local policy interviewee who is also a member of the Local Adaptation Advisory Panel for the Department of Environment, Food and Rural Affairs (DEFRA) commented, “I tend to use them together, adaptation and resilience... So your adaptation measure might be to put in flood defences which subsequently enables you to increase your resilience so you are back in business three days later rather than twelve months later...”

However, some interviewees were keen to highlight the important differences between adaptation and resilience. For example, one local climate policy manager in Glasgow said, “[T]hey are sort of, they are slightly different things. Obviously resilience is the more sort of pertinent one I think for higher up policy-makers ‘cos [sic] that’s needing to be able to respond to something when it occurs. Obviously there’s a large part of adaptation that comes through planning which is far more longer term and that’s the tricky bit that involves building in the business cases and what not....I mean resilience is an important part of adaptation but it’s not the whole thing.” Another local climate officer also claimed, “[T]here is a difference. Adaptation is that kind of classical, but all-encompassing IPCC definition... of the change that we are facing and the challenge of adapting to that, whereas resilience is much more a kind of response side for me”. Articulating that difference in practice was clearly illustrated as problematic amongst our interviewees however and for many, resilience was typically understood as being about “being prepared for what is coming” and as capturing speed of crisis response.

Whilst many interviewees highlighted the potential for confusion around the definition of resilience, they perceived this fuzziness as offering certain advantages. For example, a third sector representative who works very closely with local government on climate change stated that resilience is a preferred term because it is a better understood concept – “I think people get resilience” - and is seen by many key actors to better encapsulate the need for coping with change and responding to extreme events. Another climate policy interviewee remarked, “People resonate with the word resilience because they understand it probably from a personal capacity.”

The intuitive appeal of resilience also reflects the fact that it is a term that is used across a range of other subnational policy-making areas such as emergency planning and community development, and because of its seemingly unarguably positive connotations. For example, one local climate policy officer from Cardiff claimed, “people just didn’t like the adaptation word, but when we started using resilience no-one could really argue with that. Well of course we want to be a resilient city and resilient local authority... when we went out to the community as well we’ve done work with the emergency management unit. They use the resilience term as well, people don’t like adaptation, it sounds a bit formal...” Hence, resilience appears to have broad appeal not least because it is a term used in everyday language and in a range of policy areas in subnational governance and where it appears to be understood as something which works to promote effective self-organisation and action.

Other reasons for the growing appeal of resilience are also evident however. A climate policy officer commented that “part of the reason why we may be aligned to using... resilience more as opposed to adaptation is because [we are] one of the cities that is now part of the Rockefeller Foundation Resilient City Network... people are comfortable with the way that that term has

been used there because of the membership of that network, so it makes sense for consistency that that is used in terms of communicating around climate resilience.” In many cases, resilience is also now becoming institutionalised *within* the organizational apparatus of government. For example, one local government sustainability manager stated, “I’ve noticed quite a lot of meetings I go to now whereas people were called previously the climate change manager; all of a sudden they are now the resilience manager.” Similarly, in many city-regions, climate change forums have been re-named as resilience forums. Another interviewee commented, “For me resilience has a slightly harder edge to it than adaptation just from the way it sounds; it sounds a bit more dramatic, it’s more spikey...I think it’s a case of a natural evolution of the role climate change officers have in order to survive in their local environment within local authorities.” One interviewee observed that climate change adaptation has been mainstreamed into activities associated with civil contingencies and business resilience.

The appeal of resilience also reflects its apparent ability to mobilise action with greater immediacy. A local climate officer working in the Yorkshire and Humber sub-region highlighted the preference of using the term resilience over adaptation in policy implementation: “I think it’s to attract a greater involvement from people at all levels. When you talk about [the] need to do an adaptation measure people switch off. When you say you’ve got to be resilient to something like flooding, or extreme temperatures they seem much more interested than when its adaptation...” Adaptation appears to be associated with longer-term, preparatory actions which are challenging to conceive of and implement, whereas resilience provokes a sense of immediate risks and priority action.

In addition to this, however, they also acknowledged that resilience is more appealing because it brings a wider variety of stakeholders into climate policy discussion, including actors from

the community and business sectors. The appeal of the term resilience over adaptation lies partly in its integrative nature, and potential to act as a boundary spanning object. For example, one local climate policy officer from the Leeds city-region argued how resilience was an integrative term, “You use a phrase to describe... the audience you want, that will appeal to them but you can sweep up against so many things in terms of, you know,... it is a good capturing phrase.” Another stated that it “can be framed to basically communicate and win the support of different players”. This has the potential to engender more networked forms of governance across the city-region for adaptation issues like flooding. As one local sustainable development policy officer working in the Hull city-region argued, “You have your businesses, you have got your communities. We always talk about business resilience, community resilience. Resilience was used quite a lot... in terms of the communities being resilient to flooding, whether it was property protection or wider scale protection. You might talk about resilience in the insurance context perhaps, especially the changes that have happened with flood insurance over the last year and negotiations going on there.” Resilience is thus understood by the business sector and communities and enables them to be brought into the climate change dialogue.

3.3 The ‘resilience trap’

The empirical evidence reported here points to a growing preference to use resilience over adaptation in climate change policy discourse at the city-region scale. This begs the question as to the implications of this for adaptation policy and practice. Is there a danger of adaptation being neglected or downgraded as a climate policy imperative at subnational scales? This danger is part of what this article refers to as the ‘resilience trap’.

In deploying the word ‘trap’, this article is not intending to argue that resilience is wholly problematic (e.g. because it might ostensibly be equated with necessarily ‘good’ outcomes at a particular scale), but rather to point to some potential dangers in the prioritisation of a discourse which is associated with a focus on short-term responses to extreme weather events, or “what a community needs to do in a flooding event”, for example, at the expense of longer-term adaptation to climate change. Several interviewees observed that a responsive notion of resilience dominates and that as one policy officer put it, “there’s a large part of adaptation that comes through planning which is far more longer term”. One local policy officer working on adaptation issues acknowledged that “there’s possibly a danger that the other longer term aspects of adaptation... get side-lined in favour of it.”

A further aspect of the resilience ‘trap’ is the potential for the discourse to be used by some policy-makers to re-badge existing climate initiatives or actions as something new, when in fact the activity has not changed. An interviewee from the third sector in Cardiff was quick to point out this danger arguing that the growth of the resilience discourse “gives the impression that something new is being addressed or it’s a new approach that we now have to put all our efforts into understanding ...well actually there’s decades of history that we could look back on and learn from instead of just thinking there’s always something new to address a problem.”

Another interviewee working on climate adaptation policy at the national scale warned of the inherent dangers of using the term to bring together a wider variety of governance actors and perhaps obfuscate tangible progress in terms of action: “I don’t care two hoots what you call it; it’s what you do that counts and I think that is where government is at its weakest”.

5. Conclusion

This article has examined the growing appeal of resilience in the discourse around climate change policy at the subnational scale. It has found that across a sample of UK city-regions, resilience has assumed greater significance in the policy discourse. Furthermore, a particular notion of resilience – resilience as preparedness and responsiveness to crisis – has developed particular appeal, although interpretations of resilience do vary. These emergent alternative interpretations of resilience highlight the importance of language and discourse in the way that policy and governance actors frame responses to climate change (OPPERMANN, 2011; RIBOT, 2011). As such, this article argues that evident variance in subnational policy implementation of climate change adaptation may be affected in part at least by how key ideas are interpreted and perceived as much as by problems of translation in the science across policy scales (URWIN and JORDAN, 2008).

Whilst the notion of resilience deployed by subnational governance actors here is acknowledged to be something of a buzzword and invariably fuzzy, this breadth of meaning and interpretation is largely perceived in pragmatic terms to be distinctly advantageous. The appeal of resilience lies principally in its existing use in everyday language by individuals understanding their own capacities to cope with change, and in its increasingly widespread use by other organisations and in other policy contexts where preparedness for risk has to be articulated and understood, and appropriate responses galvanised and configured. In some cases, resilience has been actively transported into climate policy discussions through the influence of powerful external actors such as the Rockefeller Foundation – a practice and outcome which warrants further research. In general, resilience appears to have suitably stoical and positive connotations as a discursive term, and one which is widely regarded as having

significant potential to encourage cross-sectoral dialogue (as SHAW, 2012) and mobilise a sense of urgency in the importance of being crisis-ready.

This article utilises the notion of the resilience trap to point to some of the potential dangers of the development of this way of framing resilience for climate change adaptation. SHAW and MAYTHORNE (2012) have argued that the use of resilience can be positive in terms of providing a strategic lynchpin in austere times. However, the interviews conducted also illustrate how the subnational policy discourse on resilience could result in the promotion of strategies that can reify responses to extreme events in the short-term rather than focus on long-term, potentially more transformative adaptation to climate change (BERRANG-FORD et al., 2011; WISE et al., 2014; PELLING, 2011; FORD et al., 2011). A responsive notion of resilience is emerging which shows signs of becoming absorbed into wider crisis response and civil contingency actions which whilst undoubtedly laudable, run the risk of overriding any focus on longer-term climate change adaptation and still less mitigation measures. Furthermore, the scope for confusion around the definition of resilience in practice runs the risk of hindering the development of clear and practical policy action. For example, MACKINNON and DERICKSON (2013) suggest the term ‘resourcefulness’ may be a suitable replacement of the term resilience given its current propensity to reify dominant modes of global capitalism and place greater burdens on subnational governance and policy actors to adapt to global economic and climate shifts.

Further research is clearly needed to more fully understand these risks and their potential to influence climate adaptation in practice. This article has focused on discursive developments rather than exploring practical policy action and clearly there is more work to be done in understanding how practical policy interventions are shaped in practice. There is also clearly a

need to better understand the nature and scale of any differences in policy practices in different city-regions depending upon the role played by key interests and actors in promoting particular discourses and the realities of developing networked governance approaches where different policy powers, resources and priorities effectively collide. It is however possible to suggest that policy-makers may take certain actions to avoid falling into the resilience trap not least of which acknowledging the dangers of over-emphasising the short-term and developing a clear understanding of how resilience relates to, and differs from, adaptation and mitigation. For example, policy-makers working at the city-region scale will need to ensure long-term planning is incorporated more explicitly into local and community action plans and that a wide range of stakeholders and delivery bodies are involved in this. This is a current policy challenge in Wales where the Well-Being of Future Generations Act requires public service boards to explicitly plan for the long-term resilience of local communities.

However, it is not just the challenge of balancing these competing policy priorities that influences how effectively adaptation imperatives are translated into effective subnational policy action on the ground, but also how the science around it is interpreted and perhaps more specifically, mediated discursively to invoke practical subnational action (CORFEE-MORLOT et al., 2010).

References

- ADGER N. W., ARNELL N. W. and TOMPKINS E. L. (2005) Successful adaptation to climate change across scales, *Global Environmental Change* **15**, 77-86.
- ADGER W. N. (2000) Institutional Adaptation to Environmental Risk under the Transition in Vietnam, *Annals of the Association of American Geographers* **90**, 738-58.
- ASENOVA D., BAILEY S. J. and MCCANN C. (2015) Public sector risk managers and spending cuts: mitigating risks, *Journal of Risk Research* **18**, 552-65.
- ASPINALL R. (2010) Geographical Perspectives on Climate Change, *Annals of the Association of American Geographers* **100**, 715-8.
- BAKER I., PETERSON A., BROWN G. and MCALPINE C. (2012) Local government response to the impacts of climate change: An evaluation of local climate adaptation plans, *Landscape and Urban Planning* **107**, 127-36.
- BERRANG-FORD L., FORD J. D. and PATERSON J. (2011) Are we adapting to climate change?, *Global Environmental Change* **21**, 25-33.
- BIESBROEK G. R., SWART R. J., CARTER T. R., COWAN C., HENRICHS T., MELA H., MORECROFT M. D. and REY D. (2010) Europe adapts to climate change: Comparing National Adaptation Strategies, *Global Environmental Change* **20**, 440-50.

BOYD E. and JUHOLA S. (2015) Adaptive climate change governance for urban resilience, *Urban Studies* **52**, 1234-64.

BRAND F. S. and JAX K. (2007) Focusing the Meaning(s) of Resilience: Resilience as a Descriptive Concept and a Boundary Object, *Ecology and Society* **12**.

BRISTOW G. and HEALY A. (2014) Building Resilient Regions: Complex Adaptive Systems and the Role of Policy Intervention, *Raumforschung und Raumordnung* **72**, 93-102.

BROWN T., BUDD L., BELL M. and RENDELL H. (2011) The local impact of global climate change: reporting on landscape transformation and threatened identity in the English regional newspaper press, *Public Understanding of Science* **20**, 658-73.

BULKELEY H. and BETSILL M. M. (2013) Revisiting the urban politics of climate change, *Environmental Politics* **22**, 136-54.

CHRISTMANN B. G., BALGAR K. and MAHLKOW N. (2014) Local Constructions of Vulnerability and Resilience in the Context of Climate Change. A Comparison of Lübeck and Rostock, *Social Sciences* **3**.

CORBIN J. and STRAUSS A. (2008) *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory* Sage, Thousand Oaks, CA

CORFEE-MORLOT J., COCHRAN I., HALLEGATTE S. and TEASDALE P.-J. (2010) Multilevel risk governance and urban adaptation policy, *Climatic Change* **104**, 169-97.

DAVOUDI S. (2012) Resilience, a bridging concept or a dead end?, *Planning Theory and Practice* **13**, 299-307.

DCLG (2012) National Planning Policy Framework, in GOVERNMENT C. A. L. (Ed).
DCLG, London.

DEMERRITT D. (2006) Science studies, climate change and the prospects for constructivist critique, *Economy and Society* **35**, 453-79.

DUBOIS A. and GADDE L.-E. (2002) Systematic combining: an abductive approach to case research, *Journal of Business Research* **55**, 553-60.

DUIT A., GALAZ V., ECKERBERG K. and EBBESSON J. (2010) Governance, complexity, and resilience, *Global Environmental Change* **20**, 363-8.

ENGLE N. L. (2011) Adaptive capacity and its assessment, *Global Environmental Change* **21**, 647-56.

FORUM FOR THE FUTURE (2010) Sustainable Cities Index. Forum for the Future,
London.

GALLOPÍN G. C. (2006) Linkages between vulnerability, resilience, and adaptive capacity, *Global Environmental Change* **16**, 293-303.

GLASGOW CITY OF SCIENCE (2015) Glasgow is 1st Scottish city to sign up to worldwide climate change city coalition.

HAJER M. (1995) *The Politics of Environmental Discourse: Ecological Modernisation and the Policy Process*. Clarendon Press, Oxford.

HEALEY P. (2009) City Regions and Place Development, *Regional Studies* **43**, 831-43.

HM GOVERNMENT (2013) The National Adaptation Programme. Making a Country Resilient to a Changing Climate, in DEFRA (Ed), p. 184. The Stationery Office, London.

HOLLING C. S. (1961) Principles of Insect Predation, *Annual Review of Entomology* **6**, 163-82.

HOLLING C. S. (1973) Resilience and Stability of Ecological Systems, *Annual Review of Ecology and Systematics* **4**, 1-23.

HOLLING C. S. (1996) Engineering resilience versus ecological resilience, in SCHULZE P. C. (Ed) *Engineering Within Ecological Constraints*, pp. 31-44. National Academy Press, Washington DC.

HOOGHE L. (1996) Introduction: Reconciling EU-wide Policy and National Diversity, in HOOGHE L. (Ed) *Cohesion Policy and European Integration: Building Multi-level Governance*. Clarendon Press, Oxford.

HOWARTH D. (2005) Applying discourse theory: the method of articulation, in
HOWARTH D. and TORFING J. (Eds) *Discourse Theory in European Politics: Identity,
Politics and Governance*, pp. 297-315. Palgrave Macmillan, Basingstoke, UK.

HULME M. (2011) Reducing the Future to Climate: A Story of Climate Determinism and
Reductionism, *Osiris* **26**, 245-66.

IPCC (2014a) Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global
and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of
the Intergovernmental Panel on Climate Change, p. 1132, Cambridge, United Kingdom and
New York, NY, USA.

IPCC (2014b) Climate Change 2014: Mitigation of Climate Change. Contribution of
Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate
Change. IPCC, Cambridge, United Kingdom and New York, NY, USA.

IPCC (2014c) Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II
and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change, p.
151. IPCC, Geneva, Switzerland.

JANSSEN M. A., SCHOON M. L., KE W. and BÖRNER K. (2006) Scholarly networks on
resilience, vulnerability and adaptation within the human dimensions of global environmental
change, *Global Environmental Change* **16**, 240-52.

JASANOFF S. (2010) A New Climate for Society, *Theory, Culture & Society* **27**, 233-53.

JONES S. (2011) Climate Change Policies of City Governments in Federal Systems: An Analysis of Vancouver, Melbourne and New York City, *Regional Studies* **47**, 974-92.

JORDAN A. (1999) The implementation of EU environmental policy: a policy problem without a political solution? *Environment and Planning C: Government and Policy* **17**, 69-90.

KIRCHHOFF C. J., CARMEN LEMOS M. and DESSAI S. (2013) Actionable Knowledge for Environmental Decision Making: Broadening the Usability of Climate Science, *Annual Review of Environment and Resources* **38**, 393-414.

KYTHREOTIS A. P., MERCER T. G. and FROSTICK L. E. (2013) Adapting to Extreme Events Related to Natural Variability and Climate Change: The Imperative of Coupling Technology with Strong Regulation and Governance, *Environmental Science & Technology* **47**, 9560-6.

LAGENDIJK A. (2003) Towards Conceptual Quality in Regional Studies: The Need for Subtle Critique - A Response to Markusen, *Regional Studies* **37**, 719-27.

LEICHENKO R. (2011) Climate change and urban resilience, *Current Opinion in Environmental Sustainability* **3**, 164-8.

LEVINA E. and TIRPAK D. (2006) Adaptation to Climate Change, Key Terms, p. 25. OECD/IEA, Paris, France.

LORENZONI I., JORDAN A., HULME M., KERRY TURNER R. and O'RIORDAN T.
(2000a) A co-evolutionary approach to climate change impact assessment: Part I. Integrating socio-economic and climate change scenarios, *Global Environmental Change* **10**, 57-68.

LORENZONI I., JORDAN A., O'RIORDAN T., KERRY TURNER R. and HULME M.
(2000b) A co-evolutionary approach to climate change impact assessment — Part II: A scenario-based case study in East Anglia (UK), *Global Environmental Change* **10**, 145-55.

MACKINNON D. and DERICKSON K. D. (2013) From resilience to resourcefulness: A critique of resilience policy and activism, *Progress in Human Geography* **37**, 253-70.

MARKUSEN A. (1999) Fuzzy Concepts, Scanty Evidence, Policy Distance: The Case for Rigour and Policy Relevance in Critical Regional Studies, *Regional Studies* **33**, 869-84.

MAZMANIAN D. A., JUREWITZ J. and NELSON H. T. (2013) A Governing Framework for Climate Change Adaptation in the Built Environment, *Ecology and Society* **18**.

MCDANIELS T., CHANG S., COLE D., MIKAWOZ J. and LONGSTAFF H. (2008) Fostering resilience to extreme events within infrastructure systems: Characterizing decision contexts for mitigation and adaptation, *Global Environmental Change* **18**, 310-8.

NELSON D., ADGER W. and BROWN K. (2007) Adaptation to Environmental Change: Contributions of a Resilience Framework, *Annual Review of Environment and Resources* **32**, 395-419.

NIEUWAAL K. V., DRIESSEN P. P. J., SPIT T. J. M. and TERMEER C. J. A. M. (2009) A State of the Art of Governance Literature on adaptation to climate change. Towards a research agenda. Knowledge for Climate (Nationaal Onderzoeksprogramma Kennis voor Klimaat, KvK), Utrecht.

OLSSON L., JERNECK A., THOREN H., PERSSON J. and O'BYRNE D. (2015) Why resilience is unappealing to social science: Theoretical and empirical investigations of the scientific use of resilience, *Science Advances* **1**.

OPPERMANN E. (2011) The discourse of adaptation to climate change and the UK Climate Impacts Programme: De-scribing the problematization of adaptation, *Climate and Development* **3**, 71-85.

PALSSON G., SZERSZYNSKI B., SÖRLIN S., MARKS J., AVRIL B., CRUMLEY C., HACKMANN H., HOLM P., INGRAM J., KIRMAN A., BUENDÍA M. P. and WEEHUIZEN R. (2013) Reconceptualizing the 'Anthropos' in the Anthropocene: Integrating the social sciences and humanities in global environmental change research, *Environmental Science & Policy* **28**, 3-13.

PARR J. (2005) Perspectives on the city-region, *Regional Studies* **39**, 555-66.

PELLING M. (2011) *Adaptation to Climate Change: From Resilience to Transformation*. Routledge, Abingdon.

PENDALL R., FOSTER K. A. and COWELL M. (2010) Resilience and regions: building understanding of the metaphor, *Cambridge Journal of Regions, Economy and Society* **3**, 71-84.

PORTER J. J., DEMERITT D. and DESSAI S. (2015) The right stuff? informing adaptation to climate change in British Local Government, *Global Environmental Change* **35**, 411-22.

PUPPIM DE OLIVEIRA J. A. (2009) The implementation of climate change related policies at the subnational level: An analysis of three countries, *Habitat International* **33**, 253-9.

REVI A. (2008) Climate change risk: an adaptation and mitigation agenda for Indian cities, *Environment and Urbanization* **20**, 207-29.

RIBOT J. (2011) Vulnerability before adaptation: Toward transformative climate action, *Global Environmental Change* **21**, 1160-2.

ROCKEFELLER FOUNDATION (2015) Glasgow's Resilience Challenge. 100 RC, Rockefeller Foundation, New York.

RODRÍGUEZ-POSE A. (2008) The Rise of the “City-region” Concept and its Development Policy Implications, *European Planning Studies* **16**, 1025-46.

ROSENZWEIG C., SOLECKI W., HAMMER W. W. and MEHROTRA S. (2010) Cities lead the way in climate-change action, *Nature* **467**, 909-11.

ROSENZWEIG C., KAROLY D., VICARELLI M., NEOFOTIS P., WU Q., CASASSA G., MENZEL A., ROOT T. L., ESTRELLA N., SEGUIN B., TRYJANOWSKI P., LIU C., RAWLINS S. and IMESON A. (2008) Attributing physical and biological impacts to anthropogenic climate change, *Nature* **453**, 353-7.

ROSENZWEIG M. L. (1971) Paradox of Enrichment: Destabilization of Exploitation Ecosystems in Ecological Time, *Science* **171**, 385-7.

SHAW K. and MAYTHORNE L. (2012) Managing for local resilience: a strategic approach, *Public Policy and Administration* **28**, 43-65.

SHAW K. (2012) “Reframing” Resilience: Challenges for Planning Theory and Practice *Planning Theory & Practice* **13**, 308-12.

SHAW K. and THEOBALD K. (2011) Resilient local government and climate change interventions in the UK, *Local Environment* **16**, 1-15.

SMIT B. and WANDEL J. (2006) Adaptation, adaptive capacity and vulnerability, *Global Environmental Change* **16**, 282-92.

TOMPKINS E. L., ADGER W. N., BOYD E., NICHOLSON-COLE S., WEATHERHEAD K. and ARNELL N. (2010) Observed adaptation to climate change: UK evidence of transition to a well-adapting society, *Global Environmental Change* **20**, 627-35.

URWIN K. and JORDAN A. (2008) Does public policy support or undermine climate change adaptation? Exploring policy interplay across different scales of governance, *Global Environmental Change* **18**, 180-91.

VALENTINE G. (2005) Tell me about...: using interviews as a research methodology, in FLOWERDEW R. and MARTIN D. (Eds) *Methods in Human Geography: A guide for students doing a research project* Pearson, Harlow.

VOGEL C. (2006) Foreword: Resilience, vulnerability and adaptation: A cross-cutting theme of the International Human Dimensions Programme on Global Environmental Change, *Global Environmental Change* **16**, 235-6.

VOGEL C., MOSER S. C., KASPERSON R. E. and DABELKO G. D. (2007) Linking vulnerability, adaptation, and resilience science to practice: Pathways, players, and partnerships, *Global Environmental Change* **17**, 349-64.

WARD B. (2015) UK Government Failing to Lead on Climate Change Communication. Huffington Post.

WELSH M. (2014) Resilience and responsibility: governing uncertainty in a complex world, *The Geographical Journal* **180**, 15-26.

WHEELER S. (2009) Regions, Megaregions, and Sustainability, *Regional Studies* **43**, 863-76.

WHITE I. and O'HARE P. (2014) From Rhetoric to Reality: Which Resilience, Why Resilience, and Whose Resilience in Spatial Planning? *Environment and Planning C: Government and Policy* **32**, 934-50.

WISE R. M., FAZEY I., STAFFORD SMITH M., PARK S. E., EAKIN H. C., ARCHER VAN GARDEREN E. R. M. and CAMPBELL B. (2014) Reconceptualising adaptation to climate change as part of pathways of change and response, *Global Environmental Change* **28**, 325-36.

YEARLEY S. (2009) Sociology and Climate Change after Kyoto: What Roles for Social Science in Understanding Climate Change? *Current Sociology* **57**, 389-405.

YOUNG O. R. (2010) Institutional dynamics: Resilience, vulnerability and adaptation in environmental and resource regimes, *Global Environmental Change* **20**, 378-85.