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### Resilience: A Bridging Concept or a Dead End? "Reframing" Resilience: Challenges for Planning Theory and Practice Interacting Traps: Resilience Assessment of a Pasture Management System in Northern Afghanistan Urban Resilience: What Does it Mean in Planning Practice? Resilience as a Useful Concept for Climate Change Adaptation? The Politics of Resilience for Planning: A Cautionary Note

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INTERFACE

## Applying the Resilience Perspective to Planning: Critical Thoughts from Theory and Practice

Edited by Simin Davoudi and Libby Porter

# Resilience: A Bridging Concept or a Dead End?

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### Introduction

The world breaks everyone and afterward many are strong at the broken places. (Ernest Hemingway, *A Farewell to Arms*, 1929)

We live in challenging times with a heightened sense of uncertainty and constant reminders of the unpredictability of what might be lurking around the corner; be it catastrophic climate events, terrorist attacks, credit crunch, youth riots, or mass redundancies. For planners in the UK, this wider sense of unease is exacerbated by a decade of constant change and perennial attacks on the value of their professional contributions to society. Among the prescribed remedies for dealing with such a state of flux, the one that is rapidly gaining currency is “resilience”. It appears that resilience is replacing sustainability in everyday discourses in much the same way as the environment has been subsumed in the hegemonic imperatives of climate change (Davoudi, 2012). Yet, it is not quite clear what resilience means, beyond the simple assumption that it is good to be resilient. Despite this lack of clarity, there is a growing number of governmental and non-governmental reports which aim to develop ready-made, off-the-shelf toolkits for resilience-building (see for example: Edwards, 2009; Young Foundation, 2010; Cabinet Office, 2011). One such report, supported by the Department of Business and Innovation and Skills (BIS) considers “cross-dressing” as a way of building community resilience (RRAC, 2009, p. 10).

These beg the following questions: Is resilience in danger of becoming just another buzzword? Does its malleability mean that many divergent measures, including those that might otherwise appear indefensible, can be justified in the name of resilience? Or, is it a promising concept for planning theory and practice? And if so, what are the opportunities and limitations of translating resilience from the field of ecology into planning? As the opening essay for this *Interface*, this paper aims to shed light on these questions in order to stimulate debate on this slippery concept and its utility. The paper will, firstly, trace the origin of resilience and unpack its three fundamentally different meanings; secondly, present a number of emerging parallels between resilience thinking and what I call the

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interpretive approach to planning (Davoudi, 2011); thirdly, raise some critical issues to be considered when translating resilience from the natural to the social world, and finally, outline some concluding remarks.

This *Interface* includes five contributions, the authors of which are all responding, in different ways, to this paper. Keith Shaw's contribution provides additional insights into the concept of resilience and raises a number of questions about the politics of resilience. Two papers, one by Jamila Haider, Allyson Quinlan and Garry Peterson, and another by Cathy Wilkinson each present experiences of the deployment of resilience in planning practice. Each focuses on the use of the resilience assessment workbook method in two very different contexts: rural northern Afghanistan (Haider *et al.*) and urban northern Sweden (Wilkinson). These papers both show how the Resilience Assessment method brings together a number of interconnected drivers of change that rarely feature in conventional planning practices. The fourth paper, by Hartmut Fünfgeld and Darryn McEvoy, explores the dominant disaster management approaches in climate change adaptation strategies and how a resilience approach might shift this. A concluding commentary by Libby Porter and Simin Davoudi, draws the *Interface* together and asks some critical questions about a resilience approach for planning.

### What is Resilience?

Although resilience is a recent addition to planners' discursive repertoire, it is by no means a new concept. Coming from the Latin root *resi-lire*, meaning to spring back, resilience was first used by physical scientists to denote the characteristics of a spring and describe the stability of materials and their resistance to external shocks. In the 1960s, along with the rise of systems thinking, resilience entered the field of ecology where multiple meanings of the concept have since emerged, with each being rooted in different world views and scientific traditions. What set this development in motion was a seminal article published in 1973 by a Canadian theoretical ecologist, Crawford Stanley Holling. In that article, he made a distinction between engineering and ecological resilience.

#### *Engineering Resilience*

Holling defined engineering resilience as the ability of a system to return to an equilibrium or steady-state after a disturbance (Holling, 1973, 1986), which could be either a natural disaster, such as flooding or earthquakes, or a social upheaval, such as banking crises, wars or revolutions. In this perspective, the resistance to disturbance and the speed by which the system returns to equilibrium is the measure of resilience. The faster the system bounces back, the more resilient it is. The emphasis is on return time, "efficiency, constancy and predictability", all of which are sought-after qualities for a "fail-safe" engineering design (Holling, 1996, p. 31).

#### *Ecological Resilience*

Ecological resilience, however, was defined as "the *magnitude* of the disturbance that can be absorbed before the system changes its structure" (Holling, 1996, p. 33, emphasis added). Here, resilience is defined not just according to how long it takes for the system to bounce back after a shock, but also how much disturbance it can take and remain within critical thresholds. Ecological resilience focuses on "the ability to persist and the ability to adapt" (Adger, 2003, p. 1). The main difference between the two types is that ecological resilience rejects the existence of a single, stable equilibrium, and instead acknowledges

the existence of multiple equilibria, and the possibility of systems to flip into alternative stability domains. Despite this difference and the fact that they are rooted in different disciplinary traditions, what underpins both perspectives is the belief in the existence of equilibrium in systems, be it a pre-existing one to which a resilient system bounces back (engineering) or a new one to which it bounces forth (ecological).

Similar ideas about the existence of some illusive systems' equilibrium underpin mainstream economics and its holy grail of achieving Pareto efficiency.<sup>1</sup> In planning, too, the quest for spatial equilibrium has a long and enduring legacy going back to the modernist visions of a "good city". A classic example of this is the Charter of Athens which portrayed a good city as one which was in "a state of equilibrium among all its respective functions" (CIAM, 1933, no pp.). It then advocated that such a steady state was to be achieved by the power of plan. The equilibrium-based resilience is rooted in a Newtonian world view which considers the universe as an orderly mechanical device; a giant clock whose behaviour could be explained and predicted by mathematical rules and monitored by command and control systems. These assumptions are not dissimilar to the positivist approach to planning and its quest to order space and time (Davoudi, 2011). In this clockwork universe, a resilient system is one which may undergo significant fluctuation but still return to either the old or a new stable state.

#### *The Discourse of Bounce-Back-Ability*

The equilibristic view of resilience has been highly influential in a range of social science disciplines such as psychology, disaster studies, economic geography and environmental planning. For example, economic geographers often draw on these interpretations of resilience to explain the trajectory of regional economic change as "a process of punctuated equilibrium" in which outmoded institutional structures are seen as creating "path-dependent lock-in" and preventing economic resilience (for a critique of this approach, see Simmie & Martin, 2010). Similarly, in disaster studies, urban resilience is often defined as "the capacity of a city to rebound from destruction" (Vale & Campanella, 2005), with the focus often being on whether the city has recovered, in quantitative terms, its economy, population or built form. In psychology, where resilience thinking has made major inroads, the equilibrium model of resilience to trauma is defined as "the ability of adults ... who are exposed to an isolated and potentially highly disruptive event ... to maintain relatively stable, healthy levels of psychological and physical functioning" (Bonanno, 2004, p. 20). Analyses of climate change adaptation plans in England have also shown that their interpretation of resilience is at best ecological and at worst engineering (Fünfgeld & McEvoy, this issue; Davoudi *et al.*, forthcoming).

Furthermore, many of the references in governmental statements or everyday discourses are also implicitly, or explicitly, based on the engineering view of resilience, with an emphasis on bounce-back-ability. For example, in a 2005 article, the former government's first Intelligence and Security Coordinator described resilience as the "capacity to absorb shocks and to *bounce back* into functioning shape, or at the least, sufficient resilience to prevent ... system collapse" (D. Omand, quoted in Edwards, 2009, p. 18, emphasis added). Similarly, when launching Scottish Resilience, the former Cabinet Secretary suggested that the reorganisation was to "take all practicable steps to ... respond and cope with major shocks so we can *bounce back* quickly" (J.K. MacAskill, quoted in Edwards, 2009, p. 18 emphasis added). In his review of the 2007 UK floods, Sir Michael Pitt defined resilience as: "The ability of a system or organisation to withstand and recover from adversity" (quoted in Cabinet Office, 2011, p. 10). What all these have in common is an

understanding of resilience as a buffer capacity for *preserving* what we have and *recovering* to where we were (Folke *et al.*, 2010). The emphasis is on the return to “normal” without questioning what normality entails (Pendall *et al.*, 2010). A striking example of the potential undesirability of the “normal” is the 2005 Hurricane Katrina. It not only destroyed the physical fabric of New Orleans, but also revealed social processes which many people did not find as the acceptable, pre-disaster normal to which they wanted to return. On the contrary, what was aspired to was a “new normal” in social, economic and political terms (Pendall *et al.*, 2010).

The emphasis on bouncing back to where we were raises a number of normative issues which I will discuss later in the paper. Meanwhile, it is worth mentioning that such an emphasis also shapes the type of responses that are planned by the relevant institutions. That is why much of the resilience-building literature is dominated by post-disaster emergency planning, where the focus is on sudden, large and turbulent events, at the expense of gradual, small and cumulative changes. For example, the London climate adaptation strategy makes it clear that it uses a “‘prevent, prepare, response and recover’ framework which is developed by *emergency planners*” (GLA, 2010, p. 19, emphasis added). The UK Cabinet Office also focuses on emergency in defining resilient communities as: “Communities and individuals harnessing local resources and expertise to help themselves in an *emergency*, in a way that complements the response of the *emergency services*” (Cabinet Office, 2011, p. 11, emphasis added). Resilience is, therefore, often reduced to emergency responses and measured by indicators such as the length of time needed for the ambulance service to reach a given incident. A key feature of emergency responses is the emphasis on short-term damage reduction which although necessary is not a substitute for long-term adaptive capacity building. The latter is at the heart of the third conception of resilience, to which I turn.

### *Evolutionary Resilience*

Evolutionary resilience challenges the whole idea of equilibrium and advocates that the very nature of systems may change over time with or without an external disturbance (Scheffer, 2009). Some commentators call this socio-ecological resilience (Folke *et al.*, 2010). Others highlight the similarities between this view of resilience and the evolutionary perspective (Simmie & Martin, 2010). I concur with the latter view and call it evolutionary resilience. In this perspective, resilience is not conceived of as a return to normality, but rather as the ability of complex socio-ecological systems to change, adapt, and, crucially, transform in response to stresses and strains (Carpenter *et al.*, 2005). Systems are conceived as “complex, non-linear, and self-organising, permeated by uncertainty and discontinuities” (Berkes & Folke, 1998, p. 12).

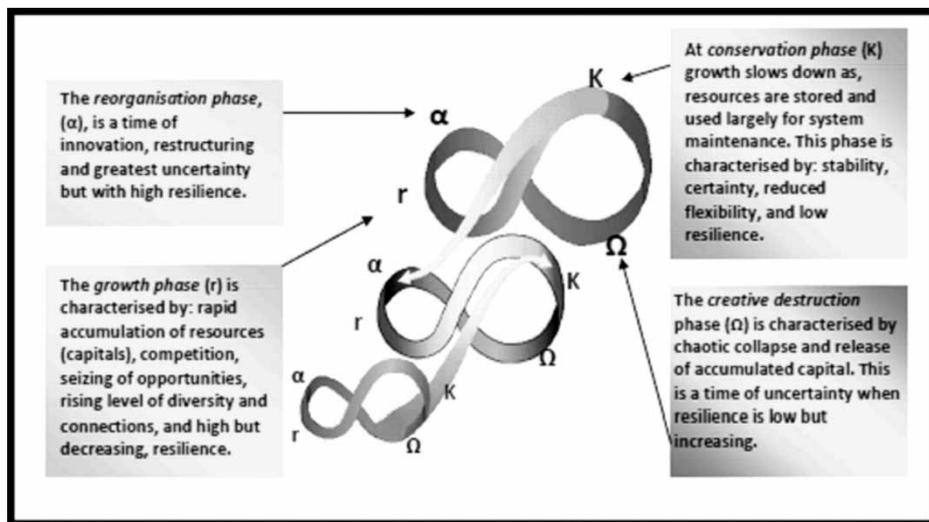
This view of resilience reflects a paradigm shift in how scientists think about the world. Rather than seeing the world as orderly, mechanical and reasonably predictable, they see it as chaotic, complex, uncertain, and unpredictable. Evolutionary resilience is embedded in the recognition that the seemingly stable state that we see around us in nature or in society can suddenly change and becomes something radically new, with characteristics that are profoundly different from those of the original (Kinzig *et al.*, 2006). It suggests that faced with adversities, we hardly ever return to where we were. This in itself is not such a ground-breaking idea. What is new is the acknowledgment that such regime shifts are not necessarily the outcome of an external disturbance and its linear and proportional cause and effects. Instead, it sees that change can happen because of internal stresses with no proportional or linear relationship between the cause and the effects. This means that

small-scale changes in systems can amplify and cascade into major shifts (reflecting Edward Lorenz's idea of "the butterfly effect"<sup>2</sup>) while large interventions may have little or no effects. It means that "past behaviour of the system is no longer a reliable predictor of future behaviour even when circumstances are similar" (Duit *et al.*, 2010, p. 367). This perspective challenges the adequacy of planners' conventional "toolkits" such as extrapolation of past trends in forecasting and for reducing uncertainties. Does this mean that in a world defined by constant change and uncertainty "planning is condemned to solve yesterday's problems" (Taylor, 2005, p. 157)?

### *The Panarchy Model of Adaptive Cycle*

The evolutionary understanding of resilience has been best articulated by the metaphor of the "adaptive cycle" and its graphical representation in Holling's famous model (see Figure 1). This refers to four distinct phases of change in the structures and function of a system: growth or exploitation, conservation, release or creative destruction, and reorganisation (Gunderson & Holling, 2002). The first loop of the cycle relates to emergence, development and stabilisation of systems' structure and functions, while the second loop relates to their eventual rigidification and decline, and at the same time the opening up of new and unpredictable possibilities (Simmie & Martin, 2010). It implies that as systems mature, their resilience reduces and they become "an accident waiting to happen" (Holling, 1986), and when systems collapse, "a window of opportunity" (Olsson *et al.*, 2006) opens up for alternative systems configuration. Holling uses the "omega" symbol for the creative destruction phase to denote the end phase, but one which is rapidly followed by an alpha phase of reorganisation and renewal. The omega phase is, therefore, the time of greatest uncertainty yet high resilience; a time for innovation and transformation; a time when a crisis can be turned into an opportunity (Gunderson & Holling, 2002).

Turning a crisis into an opportunity requires a great deal of preparedness which in turn depends on the capacity to imagine alternative futures: just such a capacity which does, or



**Figure 1.** The panarchy model of adaptive cycle. *Source:* Davoudi, et al (forthcoming) adapted from Holling and Gunderson (2002, pp. 34–41) and Pendall et al (2010, p. 76).

ought to, define planning in broad terms. Planning is thus about being prepared for innovative transformation at times of change and in the face of inherent uncertainties. I will come back to the parallels between evolutionary resilience and planning later in the paper.

The adaptive cycle presents a number of paradoxes, such as persistence versus change, flexible versus efficient, resilient versus transformational, and connected versus adaptable (Gunderson, 2000). To resolve these contradictions, Gunderson and Holling (2002) have developed the idea of “panarchy”, as opposed to hierarchy, which suggests that, firstly, the phases are not necessarily sequential or fixed, and secondly, systems function not in a single cycle, but rather in a series of nested adaptive cycles that operate and interact. They do so at multiple scales from small to large, at different speeds from slow to fast, and in various timeframes from short to long. This allows systems to be both efficient and innovative; they are highly connected yet also free to experiment because these properties manifest themselves at different times and scales. It is this panarchy model of adaptive cycle that underpins the evolutionary meaning of resilience. Resilience in this perspective is understood not as a fixed asset, but as a continually changing process; not as a being but as a becoming. Furthermore, resilience is performed when systems are confronted with disturbance and stress. This means that, for example, people might become resilient not in spite of adversities but because of them. Disturbance can be understood not just as acute shocks, but also as chronic slow burns. The evolutionary perspective broadens the engineering and ecological description of resilience to incorporate the dynamic interplay of persistence, adaptability and transformability across multiple scales and timeframes (Holling & Gunderson, 2002; Walker *et al.*, 2004; Folke *et al.*, 2010). This has brought the role of institutions, leadership, social capital and social learning into the scope of resilience (Olsson *et al.*, 2006).

Advances on this type of conceptualisation have been made largely by scholars working at the interface of social and ecological systems and their responses to change. As I mentioned earlier, resilience has also gained considerable prominence in social sciences. In the *Social Science Citation Index*, the annual references to resilience as a topic, although not necessarily the evolutionary perspective, increased by 400% between 1997 and 2007 (Swanstrom, 2008, p. 4). Scholars have begun to focus on synergies between evolutionary resilience and similar approaches used in disciplines other than ecology, such as regional economic theories (Simmie & Martin, 2010) and socio-technical studies (Janssen *et al.*, 2006).

### **Evolutionary Resilience and Interpretive Planning**

In planning, although resilience is a relatively new concept it is rapidly gaining salience. Indeed, there are some promising parallels between evolutionary resilience and the interpretive approach to planning because both put the emphasis on “fluidity, reflexivity, contingency, connectivity, multiplicity and polyvocality” (Davoudi & Strange, 2009, p. 37). Evolutionary resilience promotes the understanding of places not as units of analysis or neutral containers, but as complex, interconnected socio-spatial systems with extensive and unpredictable feedback processes which operate at multiple scales and timeframes. This resonates strongly with the relational understanding of spatiality which, according to Massey, is defined by “simultaneity of multiple trajectories” (Massey, 2005, p. 61). Evolutionary resilience discourages fixity and rigidity in the same way as interpretive planning discourages the modernist “will to order” (Davoudi, 2011). Both recognise the ubiquity of change, inherent uncertainties, and the potential for novelty and surprise. Both advocate the exploration of the unknown and the search for transformation. In my view

evolutionary resilience offers a useful framework which allows us to think in new ways about planning; ways that have a lot in common with interpretive planning and the relational understanding of space and time.

### Translating Resilience From the Natural to the Social World

Notwithstanding these parallels, we need to tread carefully when translating resilience thinking from the natural to the social world. There are at least four critical issues which deserve particular attention. The first one relates to the intentionality of human actions. The adaptive cycle seems overly deterministic, not allowing for human intervention to break cycles through their ingenuity, technology and foresight. Ecologists recognise this limitation and have, hence, suggested that in the social context adaptive cycles and their outcomes should be considered as tendencies rather than inevitabilities. This means that interventions in processes can indeed diminish, sustain, or enhance resilience. Intervention, in turn, raises a number of normative and political questions. The first one relates to the idea of self-organisation which is inherent in resilience thinking. When this is translated into the social context, it becomes highly charged with ideological overtones as it refers to self-reliance. It is argued that the emphasis on self-reliance in resilience thinking is a quintessentially American idea, referring to the ability of people and places to “pull themselves up by their bootstraps and reinvent themselves in the face of external challenges” (Swanstrom, 2008, p. 10). A close look at the resilience-building literature in the UK shows that a subtle version of “self-reliance” is repeatedly advocated. For example, the BIS-supported report on community resilience (mentioned above) argues that their “system dynamic diagram shows that if the Government takes greater responsibility for risks in the community, it may feel under pressure to take increasingly more responsibility, thereby eroding community resilience” (RRAC, 2009, p. 6). This seems to suggest that the government should retreat from its responsibilities; a favourable conclusion in the current neoliberal climate in the UK. Similarly, in their “Resilient Nation” report, Demos advocate that British society is increasingly “brittle” but resilience is built not by government and the institutions of the state, but by individuals and communities (Edwards, 2009). While the existence of engaged social networks help foster adaptive capacity and enhance transformative resilience, it is not a substitute for responsive and accountable governance. Advocating the rolling back of the state’s support for vulnerable communities in the name of resilience is a misguided translation of self-organisation in ecological systems into self-reliance in social systems: it advocates a kind of social Darwinism.

The second critical issue relates to the outcome or purpose of resilience: resilience to what ends? In ecological literature, the desirable outcome of resilience is sustainability, which is often defined uncritically. In the social context, defining what is desirable is always tied to normative judgements. Quite often, particular outcomes are perceived as “natural” or desirable, while others are dismissed as a lack of resilience. For example, in psychology, a return to social conformity may be considered as a desirable outcome of individuals’ resilience in the face of adversity. If the outcomes depart from the perceived desirable, reaching an alternative outcome may not be seen as a sign of resilience.

The third issue is the question of defining a system’s boundary. In a particular ecosystem, the analysis of resilience has to determine the “resilience of what to what”. This means that analysts inevitably focus on some things and discount others. In the social context, a bounded approach soon leads to exclusionary practices.

The fourth challenge of translating resilience from ecology to society relates to power and politics and the conflict over questions such as, what is a desired outcome, and resilience for whom? In the ecological literature, resilience is almost power-blind and a-political, partly because ecologists often subscribe to the idea that: "There are in nature no rewards or punishments, just consequences" (Westley *et al.*, 2001, p. 103). This may be true, but in society there are always rewards and punishments: some people gain while others lose in the process of resilience-building. Resilience for some people or places may lead to the loss of resilience for others. Therefore, in the social context we cannot consider resilience without paying attention to issues of justice and fairness in terms of both the procedures for decision-making and the distribution of burdens and benefits.

### Concluding Remarks

Pitfalls such as those mentioned above have led Swanstrom (2008, p. 6) to argue that, "applying the framework of ecological resilience to human institutions and governance processes generates paths to greater understanding, as well as dead ends." I am less pessimistic and believe that evolutionary resilience, with its rejection of equilibrium, emphasis on inherent uncertainty and discontinuities, and insight into the dynamic interplay of persistence, adaptability and transformability, provides a useful framework for understanding how complex socio-ecological interdependencies work. I also believe that it has the potential to become a bridging concept between the natural and the social sciences and stimulate interdisciplinary dialogues and collaborations. As far as planning is concerned, I think it offers promising parallels with the interpretive approach to planning, which are worth exploring further. However, in applying an ecologically rooted concept to the social setting, we need to tread carefully and ensure that in trying to understand society through the lens of ecology, we do not lose the insights from critical social science. In the social world, resilience has as much to do with shaping the challenges we face as responding to them.

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### Notes

1. This is named after Vilfredo Pareto, an Italian economist, who used the concept in his studies of economic efficiency and income distribution. It refers to situations in which any change to make any person better off would be impossible without making someone else worse off.
2. This suggests that the flap of butterfly wings in Brazil can set off a tornado in Texas.

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# “Reframing” Resilience: Challenges for Planning Theory and Practice

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## Introduction

It should come as no surprise that a concern with resilience has now firmly entered debates in planning theory and practice. The term has not only spread like wildfire through a number of social science disciplines (Shaw & Theobald, 2011), but has also been deployed by a wide range of decision-makers, policy communities and non-state actors. Much of the appeal of the term lies in it being sufficiently malleable to cut across the so-called “grey area” between academic, policy and practice discourse” (Bristow, 2010, p. 163). Above all, perhaps, it offers something in reaction to the uncertainty and insecurity produced by the quest for survival and adaptation when faced with contemporary crises. In this context, the rise of resilience can be viewed as part of the lexicon of the “new austerity”, where economic recession and public expenditure crisis, the depletion of natural resources and the challenge of mitigating and adapting to climate change constitute a crisis of an altogether different order (Wenban-Smith, 2011, p. 431). Such challenges also provides opportunities and, in the words of one recent contributor to this journal, “arguably creates a space for innovation and change that we have not seen for decades” (Bertolini, 2011, p. 430).

At the outset, I would agree with Davoudi (this issue) in her optimistic view that a focus on resilience can make an important contribution to debates in planning. In this short contribution I will concentrate on three features of the debate across the social and policy sciences that are relevant to the term’s application to planning theory and practice, namely: resilience as a contested concept, resilience as a radical agenda, and resilience as a framework for policy and practice.

## Resilience as a Contested Concept

Davoudi usefully draws attention to the different interpretations of the term and highlights the contribution to planning debates of what she refers to as “evolutionary” resilience, in contrast to the more limited “engineering” approaches to resilience. Her view, on the virtues of the former, is shared by a number of contributors to the wider debates on resilience in public policy and management where a contrast is drawn between traditional management approaches that emphasise “optimality, efficiency, stability, risk management and control” and resilient approaches stressing “flexibility, diversity and adaptive learning” (Leach, 2008). A key feature of these approaches, then, is the flexibility to “adapt to changed circumstances, to change, rather than to continue doing the same thing” (Adger, 2010, p. 1). This approach also highlights the importance of developing a capacity to seek out “the opportunities that always arise during a crisis to emerge stronger and better than before” (Seville, 2009, p.10).

I would perhaps be a little less concerned than Davoudi that interpretations of resilience are “power blind” and that the transfer of the concept from its original ecological roots

runs the risk of losing “insights from critical social science” (Davoudi, this issue). Indeed, recent attempts to “reframe resilience” (Shaw, 2012) have produced approaches to classification that identify the term’s political, ideological and normative underpinnings and view resilience as encompassing

a spectrum from discursive and deliberative politics to more antagonistic politics of resistance and struggle; all involve moves away from the managerialism that characterised early resilience approaches, towards conceptualising it in fundamentally political terms (Leach, 2008, p. 15).

Such an approach can be contrasted with more traditional approaches which have often served to obfuscate key questions such as, “resilience from whose point of view and resilience for what purpose?” (Leach, 2008, p. 13). From this perspective, resilience is clearly acknowledged to be an essentially contested and politically laden discourse “enwrapped with power relations and enabling some effects while closing down others” (Leach, 2008, p. 13). Indeed, rather than viewing this as problematic, “reframing resilience” allows values to be identified, choices to be made, and political pathways to be identified. Thus, embracing the politics of resilience is central to what the term has to offer.

Using this approach, two particular resilience discourses can be identified. First is a “survival” discourse that arises from the term’s roots in ecological sciences and disaster management. This discourse is one of uncertainty, vulnerability and recovery. Within this, vulnerable individuals, groups or organisations look to “recover, bounce-back and persist after a crisis”, through “taking timely action before the misfortune has a chance to wreak havoc” (Valikangas, 2010, p. 19). An alternative discourse to this, is one that “involves attending to possibilities for *life*, not just survival” (Leach, 2008, p. 13, emphasis added). Such a view holds out the possibility of optimistic alternatives centred on hope, renewal and transformation. Hence resilience involves a dynamic process of “bouncing forward” which provides for the adaptation and constant reinvention needed to innovate and to do new things.

The message for planning theory and practice is that rather than viewing resilience as bouncing back to an original state following the external “shock”, the term should be seen in terms of bouncing forward, reacting to crises by changing to a new state that is more sustainable in the current environment. It is to this radical approach to resilience that we now turn.

### **Resilience as a Radical Agenda**

The message from recent approaches to resilience across the social and policy sciences is that such a focus makes us question some of our “basic assumptions and measures of success and failure” (Christopherson *et al.*, 2010, p. 4). As suggested above, this would involve eschewing interpretations of resilience as “survival” as they are tied to conservative political values espousing a return to the status quo (“business as usual”). Such a survival discourse reflects more traditional, top-down responses to dealing with “threats” to security, and the dominance of managerial or technical solutions to problems based on disaster or risk reduction strategies. As one account notes, this approach to resilience is “in danger of a realignment towards interventions that subsumes politics and economics into a neutral realm of ecosystem management, and which depoliticises the causal processes inherent in putting people at risk” (Cannon & Mueller-Mahn, 2010, p. 633).

Instead, resilience should be viewed as having the potential to develop as a more radical and transformational agenda that opens up opportunities for political voice, resistance,

and the challenging of power structures and accepted ways of thinking (Bay Localize, 2009). This can be seen in how resilience is increasingly linked to progressive community-led environmental initiatives such as Transition Towns, and to approaches to climate change that argue for resilience as a “de-centred, de-commodified and de-carbonised alternative” (Brown, 2011, p. 14). The term is also applied to approaches to sub-national economic development that highlight alternatives to the predominant neoliberal discourse on growth and competitiveness (Bristow, 2010). Similarly, an analysis of post-recession urban development in London and Hong Kong argues that rather than seeing resilience as a process of bouncing back, a more radical deployment would view it as a “dynamic process in which change and constant re-invention provide the grounds for social, economic, and/or environmental strength” (Raco & Sweet, 2009, p. 6).

### **Resilience in Practice**

The debate on “reframing” resilience also offers insights from empirical studies that engage practitioners: an area viewed as underdeveloped in the context of planning (Wilkinson *et al.*, 2010). Thus, while recognising the importance of definitional propriety and conceptual rigor, “reframing resilience” also necessarily involves operationalising the concept of resilience and recognising the need to directly engage with practice, since policy decisions are “increasingly being made as a matter of urgency in areas from climate change and energy to agriculture, water and public health” (Leach, 2008, p. 15).

One recent study by Shaw and Maythorne (2012) of how emergency planners and climate change managers have understood and interpreted resilience confirms a number of the findings highlighted in an earlier study of the views of metropolitan planners undertaken by Wilkinson and colleagues (2010). The latter research highlighted the increasing appropriateness of the term itself in a period of austerity, its ability to integrate features of climate change adaptation and emergency planning, and its ability to act as a “strategic lynchpin” in relation to other policy areas such as economic planning and health and well-being. In this context the research supported the contention that there are “reasons to be cheerful” in relation to the growing understanding (among practitioners) of the positive features of the resilience agenda (Harrow, 2009).

However, there is still much empirical work to be done on how effective leadership for resilience can be further developed, how professionals can best learn about resilience, and how the appropriate balance between organisational resilience and other types of resilience (such as those operating at the level of the community or individual) can be operationalised. There is also scope for examining how different policy areas—from planning to local economic development to public health—have interpreted the resilience agenda, and whether there are opportunities for greater cross-service planning. The links between resilient management and the wider debates on governance, such as the focus on promoting “agile governance” (Demos, 2008), are also worthy of further examination.

### **Conclusion**

It is important to acknowledge that the application of a coherent resilience framework is not without its problems. These include the likelihood of conceptual “stretching”, the conflation of normative and empirical applications, and the risks that the term’s growing popularity leads to it being seen as “the answer”, a panacea for organisations and communities struggling to come to terms with a variety of external “threats”. In particular, I think that Davoudi is right to highlight the danger of the term being used as part of a

neoliberal focus on self-reliant individuals developing their own resilience. As one local authority participant in a study rightly noted:

Communities cannot be left to fend for themselves. Local authorities still need to support them, manage problems and provide the resources. I am concerned that since some communities have high levels of social capital or “natural resilience” this will be used as an excuse for government to step back and leave communities to tackle these problems on their own (Shaw & Maythorne, 2012, p. 14).

I would conclude by reinforcing Davoudi’s view that the resilience “turn” signifies how planning should be “prepared for innovative transformation” because resilience enshrines a radical challenge to the status quo. Thus, the use of a resilience framework should not be for the faint-hearted. For planning theory and practice, resilience offers nothing less than a paradigm shift: a fundamental questioning of the central tenets of contemporary approaches to planning. For example, the focus on resilience as a radical concept clearly challenges planning’s linear assumptions, as the acceptance of “ontological uncertainties” within debates on resilience ensures that “blue-print” planning (Wilkinson *et al.*, 2010, p. 31), while important, is no substitute for “great leadership and a culture of teamwork and trust which can respond effectively to the unexpected” (Seville, 2009, p. 11). This emphasis highlights some of the limitations of an overly planned approach to resilience and acknowledges the importance of the ability to improvise or to use imagination. Whatever the wider institutional or strategic implications of applying the resilience framework to planning theory and practice, perhaps it is ultimately the human dimension, based on an intuitive, “sense-making”, approach to unfamiliar or chaotic situations that remains the crucial challenge in an era of profound uncertainty.

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# Interacting Traps: Resilience Assessment of a Pasture Management System in Northern Afghanistan

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## Introduction

As suggested by Davoudi in the lead essay to this *Interface*, the concept of social-ecological resilience helps capture the dynamics of change, uncertainty and the interrelationships between complex social and ecological systems. Two key elements of resilience approaches are, first, a focus on understanding and managing systemic feedback processes, and second, addressing uncertainty and the unknown by building the capacity of people and nature to cope with change in flexible and innovative ways (Chapin *et al.*, 2009).

In this paper we provide some thoughts and reflections about the application of resilience assessment<sup>1</sup> as a tool to operationalize the concept, in a case study in the Ishkashim region of Northern Afghanistan. The Ishkashim Resilience Assessment was conducted in 2010/2011 by one of the authors (Jamila Haider) in her capacity as a practitioner working with a non-governmental organization in the region. The focus was to assess the resilience of a pastoral social-ecological system under new management by a pasture management committee (PMC). We present a summary of the findings of this assessment, and then use this case to illustrate some of the strengths and limitations of resilience assessment.

## *Resilience Assessment: An Overview*

Resilience assessment is a specific methodology and framework for analysing and managing the dynamics of resilience in social-ecological systems. It operationalizes the diverse theoretical and practical developments of resilience thinking in a way that is accessible to a diverse set of researchers and practitioners. It provides a set of participatory tools to help identify thresholds, drivers, dynamics, and actions that either contribute

to or erode resilience in social-ecological systems (Resilience Alliance, 2010). A formal “practitioner’s workbook” for resilience assessment was published by the Resilience Alliance in 2007. This resilience assessment workbook arose out of a wide range of work on both the theoretical and practical aspects of resilience (for a synthesis see Walker *et al.*, 2002) and on the Resilience Alliance’s collective expertise in working with practitioners, local people, governments and scientists to apply resilience concepts. The resilience assessment workbook method has therefore enabled the development of a community of practitioners, and provides a framework for resilience of increased utility, power, and accessibility.

While the workbook is focused on resilience theory and practice, its approach is rooted in a number of research traditions. Intellectually, its roots lie in a synthesis of adaptive environmental assessment and management, with uncertainty-focused participatory model-building approaches to ecosystem management that were developed in the 1970s (Holling, 1978). Approaches rooted in ecology have been cross-fertilized with institutional approaches to social systems. Ostrom’s work (1990) on governing the commons has been particularly important from a governance perspective, in addition to her later development of a hierarchical framework for analysing social-ecological systems (Ostrom, 2007). In addition, the theory and method of ecological anthropology (Berkes *et al.*, 2003), soft systems methodology (Checkland, 1981), participatory modelling (Bousquet *et al.*, 2002), and participatory learning and action (Pretty, 1995) have all influenced the development of resilience assessment as an operational tool and method.

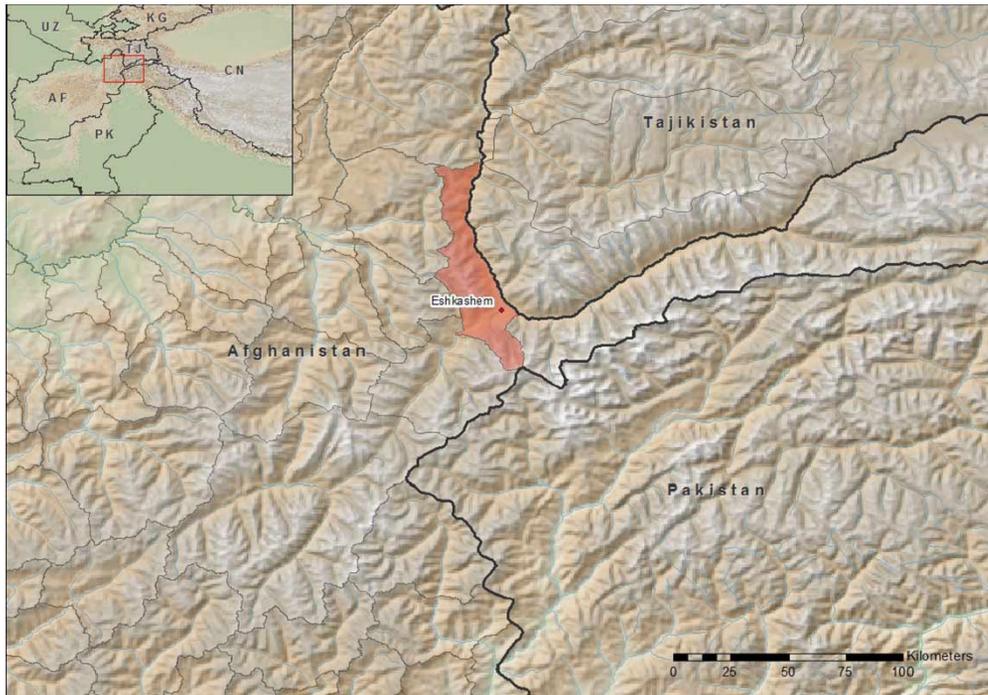
Development of the resilience assessment workbook method remains ongoing (see for example Schultz *et al.*, 2011) and it continues to be used by researchers and practitioners. It is useful in providing a set of strategic questions and activities to guide practitioners and scientists in constructing a conceptual model of a given social-ecological system, and then developing strategies to respond to and intervene in the dynamics of that system to manage resilience in a variety of different ecosystems and social contexts (Walker *et al.*, 2009; Forbes *et al.*, 2009; Biggs *et al.*, 2011). It was this resilience assessment tool that was applied to the complex social, political and ecological context of rural northern Afghanistan as discussed in the next section.

### Resilience Assessment in Ishkashim, Afghanistan

Three decades of war in Afghanistan have produced a great deal of political and ecological uncertainty. This instability makes a resilience approach particularly relevant. In 2010/2011 we assessed the resilience of a pastoral social-ecological system in Ishkashim, northern Afghanistan. Ishkashim was selected as a case study because three pasture management committees had been set up as pilot programmes, and therefore offered a timely and relevant way to assess the impact of this new governance structure. Moreover, the region was relatively accessible and secure.

Ishkashim is a high altitude desert steppe on the border of Afghanistan and Tajikistan and near Pakistan (see Figure 1). The people of the region are poor, and primarily earn their livelihoods from agriculture (Pain, 2010; WFP, 2009). The government of Afghanistan and many NGOs believe that overgrazing of rangelands and deforestation pose a significant threat not only to direct resource users, but also decrease the food security in the entire catchment (FAO, 2006). Accordingly, national and regional governments are currently forming new natural resource management laws and regional institutions such as pasture management committees with the goal of improving pasture management in the region.

In completing the resilience assessment workbook, a series of workshops and interviews were held with pasture management committee members and local NGO staff, and



**Figure 1.** Geographical location of Ishkashim. *Source:* Henriod, 2012

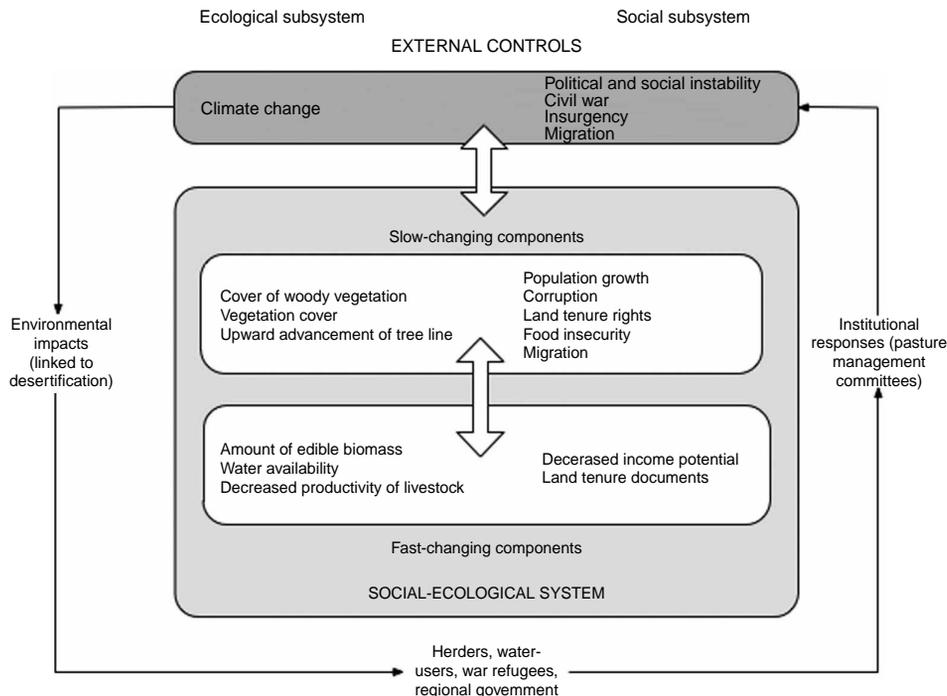
traditional ecological knowledge was used to evaluate Ishkashim pasture management systems' resilience to both internal and external forces of change. The resilience assessment workbook method outlines five stages for undertaking either a rapid or extended resilience assessment. These stages are describing the system, system dynamics, interactions, system governance, and acting on the assessment. The following sections provide a brief reflection on the "describing the system" and "probing system dynamics" stages of resilience assessment.

### **Describing Ishkashim Pasture Management as a Social-Ecological System**

Through a series of workshops, local participants defined the Ishkashim pasture management system as a social ecological system with desertification as the primary threat to integrated development. In the workshops, participants undertook activities that both mapped geographically and temporally the changing state of the system, and this helped develop a historical understanding of how the current system arose. The workshops defined key actors within the past system as herders, water users, and war refugees, and current actors as herders, water users and regional government. Participants conceptualized that these actors interacted around issues of water availability (determined by upper catchment health), livestock productivity and income. These important variables were seen to be shaped by two key but slower changes: first, in the amount of woody vegetation, and second, in land tenure. These two aspects were identified as key variables for pasture health. Land tenure and grazing practices were strongly influenced by corruption, food insecurity and population growth. The interactions between these fast and slow changing variables were strongly shaped by non-local (external) drivers: climate change, political instability, and war.

To help conceptualize this complex system of external drivers and internal system dynamics, we developed a conceptual model based on Chapin and colleagues' (2009) generalized social-ecological system diagram. This helped emphasize interactions among key variables and highlight the components of the Ishkashim pasture management system (see Figure 2). The diagram highlights how external controls such as climate change in the ecological domain and political instability and civil war in the social domain are driving forces that interact with key slow-changing variables at the scale of management such as the percentage cover of woody vegetation and land tenure. Slow changing variables often exhibit threshold behaviour and should therefore be monitored. Changes in fast-changing components are more responsive to management interventions and can have compounding effects on other parts of the system. Interactions across scales and domains highlight important system dynamics.

The resilience assessment also helped identify critical aspects of pasture management governance and their dynamics within this system. Ishkashim's pasture management has been influenced by the macro geopolitics in the region. As a consequence of its geographical isolation (Figure 1), and unique ethnic and religious identity as Ismaili Muslims, Ishkashim was able to remain relatively autonomous. However, the war led to changes in local farming practices and land ownership. With the majority of men fighting in the remote mountains as Mujahaddin, a lot of agricultural land was left unfarmed and was expropriated by local war commanders. Currently, land ownership is unclear and contested, because land tenure documents were destroyed during the war.



**Figure 2.** Conceptual model of Ishkashim pasture management as an integrated social-ecological system. *Source:* Diagram by the authors, modified from Resilience Alliance 2010

Rangeland was previously managed by local *shuras* (village councils comprised of a selected group of elders). Each village maintains management over their upper pasture (*ailoq*), but ownership of lower agricultural land is often disputed. However, three decades of war has eroded this management system (Hatch *et al.*, 2010). After the fall of the Soviet Union, the Afghan government gained insecure control over Ishkashim, but the powerful land owners continued to maintain a strong system parallel to the state in rural areas, and inequality of resource-use increased (Pain, 2010). The influx of donor aid in 2001 led to an attempt to counter the corruption and inequality of localized regimes through the National Solidarity Programme (NSP), which was instituted in 2003 by the Ministry of Rural Rehabilitation and Development to develop the capacity of Afghan communities to identify, plan, manage and monitor their own development projects (MRRD, 2006). Non-governmental organizations worked within the framework of NSP to establish community-based natural resource management committees as sub-sets of community development councils. Pasture management committees have been established in the past three years by active NGOs in the region in line with the NSP initiative in an attempt to manage areas of rangeland and grazing land both within a single community and sometimes among clusters of communities in ways that build on earlier community-based rangeland management. The committees are made up of local livestock owners, who are charged with both managing rangelands and solving issues that arise around common resources. While changes in sub-national governance structures have been considered widely successful in instituting a democratic election process, there has been less progress in creating security, as well as transparent, effective, and fair government.

### **Insights from Resilience Assessment**

Four aspects of the assessment were particularly pertinent in the context of Ishkashim. These are:

#### *Defining Boundaries*

Pastoral systems have inherently loosely defined boundaries depending on shifting edible biomass cover, snow cover and the obvious dynamism of transient communities. A flexible and adaptable definition of boundaries helps create more flexible management.

#### *Non-local Social-ecological Interactions*

The focus on defining system boundaries led to the identification of system drivers and stakeholders. The importance of non-local drivers revealed that developing a resilient local system requires an ability to cope with external pressures such as geopolitical and environmental factors (war, upward advancement of the tree line, and pasture degradation due to climate change were particularly important). The major disturbance identified in the assessment was that migration from the Pakistani border areas had increased significantly as rebel fighting in the high pastures intensified in the late 1980s. Thus pressure on pastureland was twofold: first, increased population in the valley from migration, and second, loss of grazing land due to fighting in the high pasture border region. Both of these pressures caused intensified grazing closer to the village. These non-local changes point to the need for management actions to deal not just with local dynamics but to also focus on managing the region's connections to the rest of the world.

### *Social-ecological Traps*

Past disturbances (e.g. migration and influx of war refugees) appear to have produced a social-ecological trap, where feedbacks between poverty, land degradation and overgrazing have perpetuated socially undesirable conditions. Such a situation can be described as a poverty trap, in which people are impoverished beyond their control (Bowles *et al.*, 2006; Collier, 2007) and have little ability to cope with shocks. Escaping from traps often requires multiple types of social and ecological change in favourable external conditions.

### *Escaping from a Poverty Trap*

Recently, pasture management committees have been created to respond to this situation, and they have developed a rotational grazing plan to cope with current and future fluctuations in human population. Reducing the resilience of a social-ecological poverty trap requires destabilizing the feedbacks that maintain the pathological system and creating new feedbacks that can create a more socially and ecologically rich future. This requires improving the connections between the local pastoralists and the district-level government by strengthening the capacity of regional-level institutions to support farmers, herders and water users. This will likely require reducing corruption. Ecological processes which might reverse negative impacts of desertification require more research, but the Resilience Assessment undertaken for Ishkashim pasture management suggests that understanding ecological changes (such as yearly variation in rainfall) and adaptive grazing plans in response to social pressures, would be a fruitful way to improve range quality.

### **Evaluating the Resilience Assessment Approach**

Resilience assessment is flexible and can be fairly easily modified to suit the resources, capacity and time of those undertaking the task but ultimately the benefits and outcomes are linked to the total time and resources invested. The assessment undertaken in this case study was completed over a period of four months, with two field visits. Other resilience assessments have involved large interdisciplinary teams, extensive field research, modelling and management recommendations (Walker *et al.*, 2009). There are a number of ways the resilience assessment workbook could be improved. First, the development of new tools for assessing how power asymmetries within a community affect resilience would be very useful, as the case of Ishkashim shows that this is a critical issue. Second, more tools are needed for strategic planning focusing on how to navigate a transition to a more resilient future. Third, a greater diversity of examples of applications of resilience assessments would be useful. Used here as a tool for rapid assessment of key system dynamics, the resilience assessment workbook approach yielded important insights into Ishkashim pasture management and importantly assisted in the development of a conceptual model of the region as a social-ecological system.

### **Conclusion**

Resilience assessment provides a planning tool for an integrated assessment of social-ecological systems that accounts for uncertainty, surprise and complex interactions across various spatial and ecological scales. It can be used to determine how maladaptive cycles can be broken through human intervention. It also shows the importance of complex and interacting political and social issues within a system. The cross-scale, interactive guidance provided by the resilience assessment workbook method provides an alternative to the linear production-based paradigm of planning and governance, which dominates

the development agenda in Northern Afghanistan. An improved understanding of system dynamics, historical critical thresholds, external and internal controlling variables are possible as a result of the resilience assessment process. This heralds new opportunities for system reorganization and transformation, and potentially more effective community-based governance structures.

### Acknowledgements

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### Notes

1. The RA can be downloaded on the Resilience Alliance website: <http://www.resalliance.org/> along with a global database of past and on-going assessments.

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# Urban Resilience: What Does it Mean in Planning Practice?

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## Introduction

Resilience has rapidly become an important urban policy discourse (Evans, 2011). The Association of European Schools of Planning (AESOP) hosted a Resilient Cities Symposium in 2010 and now has a “Resilience and Risk Mitigation Strategies” working group and in 2012, ICLEI—Local Governments for Sustainability will host the third Global Forum on urban resilience and adaptation. Research funders and policy directives are also prioritizing resilience. Yet what resilience means in practice for urban governance is yet to be thoroughly examined. Indeed, there is an apparent gap between the advocacy of social-ecological resilience in the scientific literature and its take-up as a policy discourse on the one hand, and the demonstrated capacity to govern for resilience in practice on the other. In this piece I reflect on findings from a year-long resilience project with a small strategic planning department of an urban municipality in Sweden. I am interested here in providing a practitioners’ perspective on what it means to think through resilience for planning practice.

## Luleå Kommun’s Exploratory Engagement with Resilience

Luleå Kommun is located just south of the Arctic Circle in Swedish Lapland. Luleå, a coastal town of approximately 45,000 serves as the regional centre for the Norrbotten region (roughly the northern quarter of Sweden). It was the Kommun’s strategic environmental planner (SEP), responsible for long-range strategic environmental planning across the region, who began to engage other staff and decision-makers at the Kommun in ideas of resilience. The SEP’s interest was sparked in 2006 through a plain language brochure on resilience released by the Swedish Environmental Department as part of a deliberate

attempt to bridge the science–policy divide. This brochure talked about linked social-ecological systems and how the need to be resilient in the face of change was as relevant for ecological systems as for social systems, giving examples of both. A conceptual framework that linked the social and the environmental and was focused on a capacity to be resilient to change was particularly interesting to the SEP as at the time she and a colleague (the strategic public health officer) were working through the connections between environmental and health issues at the Kommun. The strategic public health officer was familiar with similar concepts from the public health field including the work of Aaron Antonovsky (1979, 1987) who developed a theory about the factors that impact an individual’s resilience to stressors. For the following couple of years these two officers took the ideas up in discussion every now and then, and began to informally gather together more information and contacts. When in 2008 the dispersed strategic planning functions of the Kommun were brought together (public health, environment, land use, transport and social planning) into one small Strategic Planning Department (SPD), the team struggled to find a common language. Furthermore, they struggled to engage with other parts of the Kommun that were less strategically focused. As the SEP explained:

We see that our questions are experienced as very abstract, special, complicated/problematic, because in certain ways from our point of view, when we look at the system, human and environmental, our perspective is that relationships are complex, things are connected, they interact. This impacts that, which impacts the other, and then it comes back and affects that again. And we meet others all the time that work with other systems who see the world as a lot simpler ... I’m after a common language that in a common way can explain our perspective.

In the context of these combined struggles to communicate this perspective of interconnectedness, and a need to focus professional development activity for the SPD staff, the SEP suggested “resilience”. When she heard me give a public presentation on “Resilient Cities” at a public event in Luleå she asked if I would be able to work with them to explore the relevance of resilience for the Kommun. At the time I was completing my doctoral studies with the Urban Theme of the Stockholm Resilience Centre and had recently completed pilot work on urban resilience for strategic planning (Wilkinson *et al.*, 2010). We agreed to work together during 2010, and so embarked on an exploratory engagement of resilience for strategic planning at Luleå Kommun.

### **How to Explore Resilience Together?**

There are surprisingly few publications that address how a resilience approach to planning might be pursued in practice. In contrast to examples where intensive one-off workshops were held to explore the relevance of resilience to planning (see for example Wardekker *et al.*, 2009 and Wilkinson *et al.*, 2010) the Luleå project was over a longer time frame and more open and exploratory in nature, linked to professional development rather than a particular output or policy focus. My involvement was on the basis of a participatory action research project, and the purpose was quite high-level: to explore together the relevance of resilience for the SPD at Luleå Kommun. This broad scope was initiated by the Kommun but resonated with my earlier pilot research with senior planning officials who concluded that engaging with resilience really necessitated a “change management exercise” (Wilkinson *et al.*, 2010, p. 37).

We commenced with a full day workshop where I gave an introductory overview presentation interspersed with various exercises drawn loosely from the resilience assessment workbook (Resilience Alliance, 2007). This required discussion of key concepts including linked social-ecological systems, what social-ecological resilience means, adaptive capacity, the adaptive cycle, disturbance timelines, thresholds/regime shifts, cross-scale interaction and strategies for resilience (Wilkinson, 2011). The team, including the head of the SPD, the strategic environmental planner, strategic health planner, social planner and the strategic land use planner, met six times. Early in the process the team suggested I commence every working session with my overview presentation. This is very significant: that the participants asked for this repetition reveals a need for time to absorb the new concepts. That the process was flexible enough to allow for this reveals the advantage of long processes of learning. That they expressed the continued value of the repetition reveals how important it was for their personal and collective learning. As well as exploring the resilience of Luleå Kommun in general, three sectoral foci were chosen—food security, energy and youth—to explore resilience in more depth across both environmental and social issues.

### **A New Way to Capture the Dynamics of Urban and Regional Systems?**

The resilience assessment workbook method states that

managing resilience requires understanding how historical system dynamics have shaped the current system. Social-ecological systems are dynamic and . . . having a broad overview of system change through time can reveal system drivers, the effects of interventions, past disturbances and responses. (Resilience Alliance, 2007, p. 22)

Generating an historical disturbance timeline of the drivers of change in Luleå was thus one of the first exercises carried out. Through workshop exercises, the social, technical, economic, environmental and political drivers of change within the Kommun over time were identified (after GCVSDPA, 2009). This enabled complex stories to be shared, captured and then synthesized by identifying patterns or categorizing characteristics of different eras over time.

For example, with respect to climate change, as the glaciers have continued to retreat following the last ice age, the land in northern Scandinavia has continued to rise quite rapidly. This led to the relocation of the original settlement of Luleå to lower ground in 1649 so that ships could access the port. Now in the context of projected climate change-related sea level rises, Luleå is relatively well placed. With respect to the food system, several famines related to extreme cold were identified (1695–1697, 1860–1868). For centuries and until relatively recently people living in Luleå were primarily dependent on local food production. The Head of the SPD remembers never having fresh vegetables through the winter as a child. Over the past half-century however, food systems have been progressively globalized to the point where mangos, avocado and bananas can be purchased year round in Luleå, just south of the Arctic! None of these facts were new, but synthesizing them through the generation of a collective historical disturbance timeline enabled the team to generate a new shared understanding of the drivers that influence the Kommun. Members of the team expressed that they had never seen Luleå in this way before and the combination of social, technological, economic, environmental and political history was extremely useful for its richer picture of change dynamics. In the words of the Head of the SPD (an avid athletics fan) “you can’t be a good longer jumper without doing

a good run up.” As the department responsible for preparing the *Luleå 2050 Vision* he felt the exercise was a “good run up” to inform its implementation.

Another workshop exercise that was illuminating for the team was exploring alternative “states” and potential thresholds or tipping points for the food, energy and youth sectors. The team was particularly inspired by the example of the coral reef regime shifts I spoke of in my overview presentation (drawn from Bellwood *et al.*, 2004) which focused on thresholds and disturbances. We applied these tools to the three chosen sectors. With relation to youths for example, thresholds that critically determine whether a young adult is likely to be able to generate good life chances and deal with adversity include if they have been on sick leave for more than three months, didn’t finish high school, have been unemployed more than a certain amount of time, have no supportive adults or social network, and so on. The team saw value here to directly inform resource prioritization and discussion in the workshop often quickly moved to implications for policy. Interestingly, as this new knowledge was generated, the traditional zoning maps on the walls of SPD were literally covered over with the newly generated dynamic illustrations of the historical drivers of change and possible future trajectories for the Kommun.

### Setting the Strategic Agenda?

As well as wanting a common language to discuss diverse strategic matters within the SPD, there was a desire to find a better way to communicate matters of strategic concern across the rest of the Kommun and with politicians. Finding ways to engage with uncertainties was central to this as the SEP explained:

I don’t believe we manage uncertainties today. At all! I really believe we have a planning view that the world is unchanging. We know what it is, what comes, and so on. I believe that is the underlying view. Because the alternative is so difficult. We can’t manage to conceptualise it ... But I believe that everything happening around us now is pressuring us to be more receptive.

This quotation reveals entrenched linear thinking: the world tomorrow will be essentially the same as today and provides a stable basis on which to keep making similar decisions. Interestingly, addressing this problem framing was one of the key areas the SPD tackled following completion of the workshops. By late 2011, “capacity to handle change” was the first of six goal areas identified as platforms for implementation of the *Luleå 2050 Vision*. This had involved discussions with politicians about the importance of underlying resilience for the medium- to long term future of the Kommun. Whilst the politicians did not want to use the word “resilience” (which is not easily translated into Swedish) they embraced the idea of this goal more easily than any other. Resilience is now a specific part of the Kommun’s strategic agenda. Of course, the next challenge is to work through what this means in practice with a broader range of stakeholders.

This begs the question, what would we do differently if we were governing for resilience? A necessary first step is to define resilience “of what”, “to what”. During our workshops on the food sector the team clarified an interest in there being enough healthy, varied, tasty and fresh food (resilience “of what”) in the face of peak oil and peak fertilizer, climate change and in a way that avoided adverse ecological impact (resilience “to what”). The participants observed that no matter what the Kommun wanted to be resilient in the face of, building up local food security made sense. An inventory was undertaken of Luleå’s existing food system and current management efforts to explore the extent to which they were based on “strategies for resilience” (Wilkinson, 2011). As the team

worked through good and bad practices, discussion turned to challenging the dominant food production system and ultimately who pays for resilience.

A social-ecological system is assumed to be more resilient if there is diversity. Diversity usually requires redundancy. One pointy end of a resilience approach therefore often becomes who pays for this diversity, this redundancy. Who bears the cost now to provide diversity so that there is more resilience in the future? Who pays for the insurance policy if you like. Where this isn't paid for, whose resilience is being prioritized, now and in the future? In this way a resilience approach quickly raises actions that challenge the status quo. With respect to Luleå's food system, for example, having food available from multiple sources (locally produced but also connected to regional/global networks) is assumed to provide more security of supply in the face of unexpected disturbances. However, in the space of less than 50 years the food system has shifted from being primarily locally dependent to being primarily externally dependent. Whilst there are some initiatives to support the local food industry these have not reversed that trend. In a context of tight budgets and competing priorities the question of whether increased local food security becomes more of a priority is a political one.

### Concluding Reflections

The purpose of this piece has been to provide a performative account of strategic planning practitioners' close engagement with resilience in a context where learning was the primary outcome. Luleå Kommun's engagement with social-ecological resilience (the "evolutionary resilience" in the language of Davoudi in this issue) shows that this conceptual frame can provide a common language across diverse sectoral and disciplinary interests and practically inform high-level strategic agendas. It does this by providing language, metaphors, tools of analysis and empirical examples that challenge equilibrium assumptions of the dynamics of change, and management approaches that assume it is still possible to command and control (Wilkinson *et al.*, 2010). This is what attracted the strategic planners in Luleå to the concept in the first place. That planners see value in the concept gives support to Davoudi's call for further examination of the relationship between social-ecological/evolutionary resilience and other planning theories that emphasise multiple, contingent and relational dynamics of change including post-structural planning theory (Hillier, 2007), political economy perspectives (Swyngedeow, 2010), as well as the interpretive approach to planning (Davoudi, 2012, this issue). Davoudi (this issue) rightly urges care in translating concepts with origins in ecology to social phenomena, and points to power and politics as key issues. Every step of applying the resilience assessment workbook method with the Luleå planners involved significant value judgements. Who is in the room, what system focus is chosen, whose knowledge and whose resilience is prioritized? These questions are critical. But these issues of justice, fairness and legitimacy are no different than any engagement with sustainability. What I found so interesting in my work with Luleå was the participants' reflection that a resilience frame helped them to more quickly and pointedly highlight these deeper issues that can so often be glossed over in engagements with sustainability. In this sense, perhaps resilience offers new routes into framing these deeper, more structural issues, and bringing them into a planning agenda. For these reasons, our efforts in understanding resilience for planning must also pay attention to how resilience is enacted in planning practice.

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# Resilience as a Useful Concept for Climate Change Adaptation?

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Climate change adaptation has become an important public policy domain, since IPCC scientists published findings in 2007 that showed that the Earth's climate was already changing and that, due to the inertia in the global climate system, it will not be possible to avoid all impacts even with the most drastic of greenhouse gas emissions reductions. While adapting to climate change was a new area of work for many planners and decision-makers, its connections with well-established fields of policy and practice were apparent: urban and regional planning, disaster risk management, sustainable

development, and social justice and equity, to name but a few. Like sustainability, taking action on climate change was challenging not because it required a whole new set of paradigms, methods and policy instruments, but because it cut right across the demarcations of scientific disciplines and sectorally focused government departments.

Climate change adaptation poses challenges of a different kind for decision-makers. It requires navigating a raft of information generated at different scales, and involving a diverse range of actors in translating these into adaptation options that are socially and politically acceptable despite significant degrees of uncertainty. In spite of these complexities, however, one of the benefits of adaptation is that its success does not require the creation of a whole new set of planning and decision-making tools (although it may benefit from these). Rather, as Smit and Wandel (2006) point out, what is required is to mainstream considerations of current and future climate change into existing planning and decision-making instruments and systems.

This alignment of climate change adaptation with existing areas of planning and decision-making is also evident in the use of concepts used for describing the meaning and purpose of adaptation. Contrary to sustainability, which at the time of its introduction into the policy realm was a rather novel idea, adaptation is a well-researched phenomenon in fields such as evolutionary biology and ecology. In these disciplines, and in colloquial language, the concept of adaptation is well known, albeit interpreted in different ways. Translated into the context of climate change, adaptation can therefore be explained with familiar scientific terms, such as vulnerability, exposure, sensitivity, adaptive capacity, and, increasingly, resilience. However, most of these concepts—and we argue resilience in particular—are used in inconsistent ways and are often left unexplained. These inconsistencies impede the process of efficient planning for climate change adaptation across disciplinary and departmental boundaries. In this paper we look at the relationships between resilience, in its various guises, and different interpretations of climate change adaptation in light of Davoudi's thoughts (this issue) on the uses of resilience for planning theory and practice.

### How Does Resilience Relate to Climate Change Adaptation?

In recent years, the concept of resilience has gained currency in a number of policy domains (Davoudi this issue), and dealing with the impacts of climate change is a case in point. Reference to resilience is made in adaptation planning, policy development, and implementation, at different administrative scales. The resilience concept appears to be particularly pertinent for framing urban planning and development policies and programmes. At the international level, this has become evident by a number of influential publications, conferences, and projects focusing on climate change adaptation.

For example, the World Bank published a "primer" on "climate resilient cities" (Prasad *et al.*, 2009), which was directed at urban decision-makers in east Asia. International urban capacity-building programmes and conferences have used notions of resilience prominently in their approach and programming, such as "urban climate change resilience" (Rockefeller Foundation, 2012) and "resilient cities" (UNISDR, 2012; ICLEI, 2012). Resilience is also increasingly popular at the national level of policy-making. This is noticeable, for example, in Australian policy. In 2011, the Council of Australian Governments, the peak intergovernmental forum involving representatives of all three levels of government, adopted a National Strategy for Disaster Resilience (COAG, 2009). The strategy, aimed at providing high-level guidance on disaster management, makes ample reference to climate change impacts as an important factor in working towards greater disaster

resilience. In 2011, the Australian Government announced a A\$4.5 million climate change adaptation funding stream for local government, entitled “Building Resilience of Coastal Communities” (Commonwealth of Australia, 2011). Reference to resilience can also be found in many municipal climate change strategies and plans.

Yet how exactly is resilience defined in these instances? The short answer is that in many cases, resilience is not used in an exact, defined way, but more as a versatile (and seemingly fashionable) umbrella term, which loosely expresses some of the conceptual underpinnings of the adaptation approach taken. These uses of the concept, however, can be related to various definitions of resilience, including to the ones proposed by Davoudi in this issue.

For example, engineering resilience assumes a return to an equilibrium or a steady-state after disturbance, where what matters most in policy terms is the time needed for a system to bounce back to its original state. This type of resilience thinking is evident in adaptation measures designed to protect existing assets, people and places from the impacts of climate variability and, to a lesser extent, climate change. In quite a literal sense, engineering resilience thinking appears to be widespread: for example, as part of responding to global sea level rise. Here, building or augmenting physical infrastructure such as sea walls and flood levees is a common adaptation strategy. Likewise, beach nourishment embraces an engineering resilience point of view, where significant financial and technical effort is taken to replace sand lost through longshore drift or coastal erosion by sediment from outside the area. The engineering resilience framing therefore corresponds well with an understanding of adaptation as an end point (O’Brien *et al.*, 2007; Fünfgeld & McEvoy, 2011), where efforts focus on generating a tangible adaptation outcome, such as a community, a place, or physical infrastructure being “more adapted” to climate variability and change.

A more dynamic understanding of “ecological” resilience, where the system is assumed to flip into alternative equilibria after a disturbance, is often debated in the context of tipping points and their implications for climate change adaptation. Here the critical question is: how much adaptation needs to (and can realistically) be administered to prevent a system or its parts switching into an alternative state or dynamic stability? In climate change adaptation, such debates are most commonly found in matters closely related to the origins of the ecological resilience concept. In biodiversity management and conservation, climate change adaptation studies often examine a species’ or habitat’s vulnerability to climate change impacts such as increasing temperatures, drying, more frequent fires, sea level rise, and carbon dioxide fertilisation (Low, 2007). Here the ecological resilience concept seems most appropriate and can provide a framework for identifying critical thresholds (e.g. declining biodiversity and species loss), pointing to the need for more drastic adaptation action.

While most climate change adaptation efforts take account of the inseparability of social and ecological systems, suggesting that Davoudi’s notion of “evolutionary resilience” is prominent with the community of practice around climate adaptation, much adaptation policy is framed as risk management. For example, some of the most prominent municipal climate change adaptation strategies embrace a risk framing approach (e.g. GLA, 2010; City of Melbourne, 2009; Rosenzweig & Solecki, 2010), and “climate risk management” has become a term frequently used to guide government policy (e.g. Commonwealth of Australia, 2006). This in part can be interpreted as a pragmatic way of dealing with the uncertainty associated with the impact of climate change on complex, coupled socio-ecological systems.

We contend that the prominence of risk-based approaches and the risk management methodologies used are far from embracing an evolutionary understanding of resilience, even though they might acknowledge the linked nature of socio-ecological systems. This has become evident in at least two ways. First, they largely ignore one of the most important characteristics of coupled socio-ecological systems: that systems are always in flux and that transformation is an important part of the process. To the contrary, climate risk management is mainly concerned with conserving the status quo; with keeping a well-functioning system, such as a government organisation, operating in line with its proclaimed objectives. From a risk management perspective, most decision-makers at the helm of organisations would consider profound transformation as a system failure rather than part of a healthy process of maintaining resilience.

Second, climate risk management, with its linear focus on identifying sources of risk and devising strategies for their treatment, cannot sufficiently deal with chaotic system changes that occur without any sign of warning or external disturbance. This underlines our view that most implementations of climate risk management are bound by an engineering resilience understanding of bouncing back to the previous steady-state as quickly as possible. Moreover, by focusing on pre-empting possible disturbances and working towards avoiding or mitigating them, climate risk management all too often rejects altogether some of the fundamental characteristics embedded in resilience thinking, by implying that an ideal state of system is one where disturbances can be avoided or kept to a minimum. This view adopts a managerial, command-and-control understanding of systems, which is hard to unite with the literature on complex socio-ecological systems, their evolutionary nature, and ever-changing resilience.

### **Towards an Ecological Resilience Understanding in Climate Change Adaptation**

The observations above beg the question of what is lacking for aligning climate change adaptation planning, policy and practice more closely with the notion of evolutionary resilience, and the benefits of so doing? Much of the answer lies in the nature of coupled socio-ecological systems, for it is their continually evolving nature that points us to the limits and opportunities for “managing” climate change impacts. The main opportunity—and one that is only rarely realised in adaptation practice to its full potential—is to gain a better understanding of the system under consideration. Researchers, planners and decision-makers rarely clarify at the outset how their system of concern is being defined, what its boundaries are, and how it interacts with other systems beyond these boundaries (c.f. Smit *et al.*, 2000). Much of the documented effort on adaptation still relies on a top-down approach focused on climate science modelling and downscaling, aimed at increasing data confidence and reducing decision-making uncertainty. In light of the considerations of an evolutionary understanding of resilience, this effort seems rather one-sided. Climate science certainly has plenty to offer individuals working on adaptation, but it is only in the context of a given socio-ecological system that climate science information is able to guide decision-making. The implications of projected temperature change, for example, can only provide meaningful guidance to decision-makers on adaptation once they are able to understand how temperature change interacts with socio-ecological system components and trends, such as demographic change, local economic structure, environmental processes, and the institutions that govern these. Identifying potential local and regional impacts of climate change requires contextualising climate science information within the complex

interaction of non-climatic environmental processes, social behaviour, and the contested values humans attach to various parts of coupled socio-ecological systems.

## Conclusion

For climate change adaptation to draw on and benefit in practical ways from an evolutionary understanding of resilience, practitioners involved would need to, first of all, accept the limitations in understanding and forecasting a system's components and behaviour. To those used to regarding adaptation predominantly as an end point, this may appear as an impenetrable impasse to achieving practical and measurable adaptation outcomes. However, it underlines an understanding of adaptation as an ongoing process that revolves around social learning, institutional change and indeed the potential for transformation. None of this can occur without carefully negotiating and reviewing the values that underpin climate change adaptation, which ultimately define adaptation goals as much as its approaches.

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# The Politics of Resilience for Planning: A Cautionary Note

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## Resilience as a New “Buzzword” in Planning

Planning has a long history of absorbing new concepts and translating them into its theories and practices. Resilience is no exception. As all the contributors to this *Interface* note, resilience thinking, its approaches, vocabulary and metaphors are rapidly becoming part of the planning lexicon. The term itself is increasingly used in government policy and strategies. A growing number of planning scholars are also turning their attention to resilience, exploring what it means for both planning practices and planning institutions and governance. Being open to new concepts has engendered planners’ attention to innovation and their predilection for challenging the status quo. However, it has also given rise to uncritical acceptance of terms and concepts that are often unhinged from their philosophical or disciplinary lineages and used in slippery ways in both policy-speak and theory-invention. This resonates with what Sudjic (2008) wryly observes, “when one city has what seems like a smart idea for the ills that face it... then it’s only a conference away from infecting all its competitors” (p. 11).

Elastic concepts, such as “creative city” or “sustainability”, that are employed to justify diverse and even conflicting ends, need careful deconstruction. Their appropriation and use should be scrutinised through a critical lens. Based on a simple frequency count, resilience appears to be fast replacing sustainability as the buzzword of the moment. It may well follow a similar fate and become a hollow concept for planning: an empty signifier which can be filled to justify almost any ends. For these reasons resilience should command our attention. Anything that is uncritically and easily accommodated into our lexicon demands close investigation to clarify what ends it is serving. Equally, concepts that have the potential to transform the framing of planning problems and interventions deserve further analysis. The purpose of this *Interface* is to stimulate debate about these two-fold concerns. In these closing comments we attempt to synthesise the contributors’ reflections and raise some questions from a more critical perspective about the use of resilience in planning.

## Resilience as a Conceptual Reframing of Planning

The concepts and metaphors that resilience thinking brings to planning exert significant power. In this sense, there is a potential for it to reframe planning in ways that break open sterile analyses and rigidly conservative interventions, so that we can see them afresh. The importance of policy and practice framing, and further, the role of reframing as a potentially transformative activity, has been an important discussion in the planning field for a considerable time (Forester, 1989; Fischer, 2003; Rein & Schon, 1993). Contributors to this *Interface* write about the ways that “evolutionary” resilience turns the assumptions of positivist social science—those hallmarks of certainty, blueprints, forecasting and equilibrium that doggedly persist in planning—on their head. Some features of this reframing are particularly important, and all of the contributors here point to the various

theoretical and practical ways this reframing can occur. Firstly, resilience thinking offers concepts and methods for breaking planning out of its obsession with order, certainty and stasis. It considers transformation as normal, and dynamism as an inherent part of how systems operate, stressing “the importance of assuming change and explaining stability, instead of assuming stability and explaining change” (Folke *et al.*, 2003, p. 352).

Secondly, resilience thinking highlights the fundamental futility of preparing “blueprint” type strategies for systems that are non-linear, complex and intrinsically dynamic. Such an “engineering” mode of operation is still deeply embedded in planning policy, practice and methods. As Fünfgeld and McEvoy show in this issue, this seems to be most evident in climate change adaptation strategies which are programmed to address linear cause-and-effect relations in bounded systems. The comfort with which resilience thinking eschews any particular state to be “normal” is also potentially very liberating. If, after a disturbance or upheaval of some kind, a system transforms into something different, then this is not seen as a failure in resilience terms, but as an inherent possibility within that system. Under these assumptions, we would, for example, be better armed if we cease talking about returning to a “normal” housing market or a “normal” economy, and instead focus on the possibilities for transformation and change to a potentially better housing market or more just distribution of economic resources.

Thirdly, because resilience thinking does not decouple social and ecological systems, it offers distinct potential for addressing the complex, deep and dynamic socio-ecological problems we currently face. Resilience calls for a shift from the dominant “ecological modernisation” views of the environment, toward approaches that bring ecological values to the forefront of planners’ concerns.

Such potential offered to planning by resilience thinking is particularly usefully shown in the contributions in this *Interface* from Haider and colleagues, and Wilkinson. These two papers reflect on how the use of the resilience assessment workbook method made it possible to unravel, in a more transparent and coherent way, the linkages between socio-economic, ecological, cultural and political phenomena. How often in planning are we able to simultaneously conceptualise war, refugees, food instability, corruption and vegetation loss in our planning conversation, as Haider and colleagues reflect in their paper? In northern Afghanistan, a conventional planning approach would probably attempt to map and measure a discrete range of values such as vegetation type, catchment flow, land use and accessibility without paying much attention to the more fundamental drivers of change in the region. Similarly, in Wilkinson’s paper on applying the resilience assessment workbook in northern Sweden, practitioners were able to think through the linkages between planning, food security, young people and energy in quite different ways than the standard planning tools usually allow.

All these aspects of resilience thinking are potentially insightful and useful for planning theory and practice. Yet none of them are really new: we do not say this in a cynical way but to point out that very similar ways of “reframing” planning have been around, within and on the margins of, the field for some time. A deep affinity between resilience thinking and more “relational understandings of spatiality” (Davoudi, this issue) and urban governance, such as are offered by interpretive, communicative and post-structuralist conceptualisations, is already widely acknowledged (Wilkinson, this issue). We have long been able to draw on a number of other social sciences’ conceptual tools to criticise the “will to order” and the desire to control space and time (Friedmann, 1993; Sandercock, 2003; Scott, 1998). We have also drawn on alternative theoretical perspectives to develop more relational, fluid, and interpretive approaches to planning (Davoudi, 2011;

Davoudi & Strange, 2009; Healey, 2007; Hillier, 2007). In this sense, an “evolutionary” resilience approach to planning simply adds another voice to these long-established calls.

A significant fresh aspect that resilience thinking does bring to planning is its view of the social and the ecological as intrinsically interlinked, as mentioned above. While concerns about environmental issues have always played an important part in planning, with climate change being a recent prominent example, the theoretical concepts and practical tools that are used in planning do not appear to be well attuned to the concept of ecological systems as a fundamental condition of the social. We rarely see, then, the intrinsic connections between what we persistently define as categories such as “social” and “environmental”. Resilience thinking provides more than a new language to expose this fissure in planning, and that is to be welcomed.

### **Resilience from What, to What, and Who Gets to Decide?**

As with all translations and reframing, however, there is a danger that new ideas and concepts are taken out of their context and brought into planning uncritically. Often, there is a tendency to hide significant structural and political questions under the veneer and excitement of a “new theory”. Such a problem is writ large in resilience thinking, as its assumptions are themselves fundamentally depoliticised (for an excellent critique on this point see Hornborg, 2009). The critical questions that the contributors in this *Interface* are raising, particularly Davoudi and also Shaw, are especially pertinent. They call for further substantial and urgent work. To that end, we return here to the four key problems that Davoudi outlines in the opening essay to this *Interface*: 1) the problem of intentionality of human action, 2) the question of outcomes and who gets to define them as resilient or otherwise, and 3) the potential exclusions in determining system “boundaries”. Davoudi’s fourth problematic is one that sits across all these three, and it is the question of the political—resilience from what, to what, and who gets to decide?

Resilience is rooted, as the contributors here attest, in the natural sciences and particularly the science of ecology. As past experience has shown, any framework which applies natural science thinking to social phenomena can be deeply problematic. This is partly because of fundamental ontological and epistemological divergences: natural sciences seek to explain the natural world as matters of fact. Resilience science is no different. Translating the ontological assumptions about the nature of the world into the “socio” end of socio-ecological systems runs into problems that have been expounded, though by no means expunged, by decades of work deconstructing positivism to demote it from its domineering influence in social sciences and planning. These efforts have emphasised that the very categories “natural” and “social” are socially constructed and far from naturally occurring. To view them as phenomena for study means they are already positioned within webs of cultural, social and ecological significance: webs of our own making. Even the downplaying of the nature of change in social cycles from “inevitable” to “tendencies” as a potential solution offered by the advocates of resilience (mentioned in Davoudi, this issue) does not sufficiently expose, nor open for critique, the construction of categories for analysis.

These naturalising positions of resilience thinking are problematic for both theory and practice in planning. Socio-ecological contexts, not to mention crises, are never inevitable: they are produced, and could always be otherwise. This is a fundamental ontological assumption that a resilience approach to planning has difficulty disentangling. An example offered by Davoudi in this issue is that of the slippery slope to a neoliberal discourse of “self-reliance” where resilience concepts are quietly beginning to justify

policy directions that demonise those people or places who are deemed to be “just not resilient enough”, and support a withdrawal of state services under the conditions of “advanced marginality” that Wacquant (2008) so powerfully exposes. Equally, the depoliticised reading of “shock and disturbance” that is at the heart of resilience thinking tends to miss the most important sociological questions about shock and disturbance: who bears the brunt of crisis? What kind and level of “disturbance” is acceptable, and on whose terms? Whose interests are best served by “system collapse” or “dynamic transformation”? Shaw (this issue) helpfully highlights these critical points and suggests that “bouncing forward” represents a more radical agenda and an attractive and plausible proposition. But bouncing forward to what? The possibilities of transformation and the seduction of “forward” will also neatly and conveniently suit the neoliberal urban growth, regeneration and renewal agendas that have persistently dominated planning discourses for the past 30 years.

We are brought then, by this logic, to the difficult question of outcomes: resilience of what, to what? If resilience is mostly about preserving what we have and recovering to where we were then surely a first pertinent question must be: worth preserving and to what do we want to ‘recover’? Responses to the economic and social crises that currently grip Europe and the USA are obvious examples. There are still housing market commentators who persistently write in aspirational terms about “returning to normal” housing markets soon (Handley, 2012). Why would we want to return to “normal” when what has come to be normalised (over-inflated housing markets, predatory lending practices, gross wealth disparities) is so obviously and profoundly dysfunctional? The same problematic has always been evident in sustainability and planning, in urban regeneration (Porter & Shaw, 2009) and in many other places within the field where processes of depoliticisation and normalisation produce perverse policy constructs. The definition of an end point is clearly a political question, not one that can be helped by natural science ontological theories.

The problematic of the system boundary and how it is defined is a third important point raised by Davoudi (this issue). Each of the papers in this *Interface* point to boundary and system definition as a key challenge for applying resilience to planning, a challenge with significant learning potential as authors show. We noted earlier that one useful outcome of a resilience assessment method is the ability to link together phenomena that in mainstream planning approaches still remain firmly entrenched in “silos”. Yet, the political question is critical: what (and who) is excluded from the definition of the system through the delineation of boundaries? In addition, there is a question about the nature and scale of the systems under focus.

In applying resilience thinking to planning, there is a tendency to normalise the linked socio-ecological systems by geographical or sociological boundaries. It is striking, for example, the dearth of contributions that define “system” at the very broad socio-ecological scale of capitalism (Hornborg (2009) being an exemplary exception). Capitalism appears to be a superbly resilient system. Given the current interconnected social, economic and ecological crises, a critical systems analysis of the pernicious, violent and socially destructive resilience of advanced capitalism would surely be urgent. Such lines of questioning must also be applied from a critical social perspective to concepts such as “panarchy”, as they will further highlight the deep political problematic with applying resilience to planning. Panarchy is a profoundly attractive idea in principle. But what would a “mature” social system look like, and who gets to say? Applied to human settlements in a depoliticised fashion will easily and unproblematically support continued neoliberalisation of urban and planning policy.

What this critique amounts to is an urgent plea that the political questions of power, institutions, and the deeply unequal distribution of resources in society be taken seriously in our attempts to “reframe” planning from a resilience perspective. Perhaps there are aspects of resilience thinking that are just not appropriate for social contexts. The potential for a more linked understanding of the social and the ecological are extremely useful for continuing to chip away at the engineering and silo mentalities that stubbornly hang on in the corners of planning theory and practice. Yet the tendencies of resilience thinking to assume that “socio-ecological” categories exist naturally, strip away human agency, normalise phenomena as if they are inevitable, hide the mechanisms by which “systems” are socially constructed, and depoliticise the value choices underpinning courses of human intervention should strike a highly cautionary note. As the reframing of planning through a resilience lens gains currency, it is paramount that we continue asking critical questions about its potential depoliticisation of the planning field.

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