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Transitioning to resilience and sustainability in urban communities

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ABSTRACT

Adapting to the challenges of rapid urban growth and societal change will require mechanisms for efficient transitioning to an embedded resilience. This has become central to the exploration of methods for achieving truly sustainable urban growth. However, while transitioning and resilience are useful descriptors, they can be abstract or conflicting ideals and their meanings obscured by a lack of concrete examples, both being barriers to many planning objectives. In this paper, we hold a lens over key issues in transitioning to resilience in urban areas by outlining emerging challenges that may offer directions towards operationalising how cities might transition to a more resilient future, while ensuring that communities are at the center of the process. The emerging and challenging areas – geospatial ICT, green infrastructure planning, novel design using collaborative responses, climate planning, limiting urban sprawl and short-circuit economic approaches – are explored as viable facets for devising and sustaining urban transition strategies. We conclude with a discussion on the need for developing a synergistic approach in practice to facilitate transition.

Introduction

There is now a plethora of interlocking discussions on resilience and resilience thinking. Resilience can have different nuances (Porter & Davoudi, 2012). It can be used to describe a response to environmental disturbance or how habitats and ecosystems can re-organise spontaneously after a disturbance (Holling, 1973). It can be used to describe the vulnerability of a system to irreversible change (Adger, 2006). It can mean the capacity for adaptation within a system and, in relation to human systems, the ability to learn and adapt. The interaction between humans and ecosystems can have divergent effects within urban settings, since on the one hand there is a drive to live more sustainably while concurrently there is the drive to sustain communities and livelihoods. The notion of urban resilience is a relatively new concept and is still hotly debated (Ernstson et al., 2010). It has been defined as "the degree to which cities are able to tolerate alteration before reorganizing around a new set of structures and processes" (Alberti et al., 2003, p. 1170).

While there are numerous studies of resilience and urbanisation, little is known of the impact that participation by urban stakeholders may have on communities and environments or the effects that 'greener' environments may have on communities (Lee & Maheswaran, 2010; Tzoulas et al., 2007). However, it may be possible to conceive of the varying dimensions of urban change and the core aim of provisioning for resilient systems. One conception of this is shown in Fig. 1, where we seek to illustrate some of the dimensions of resilience as they may apply in a challenging urban setting. Each of the 'sides' of the discussion features a key element in understanding pathways to finding solutions to challenges to urban resilience. For example, some of the underpinning barriers to urban resilience planning relate to historical and infrastructural development, geopolitical location and ecosystem processes such as vulnerability to flooding. In addition, some of social barriers include the capacity of a community to adapt and to influence adaptive processes, local planning policies, the degree of community capital and the relative size of an area within the larger entity. Finally, there are significant downward stressors, such as power asymmetries, a globalized economy and demographic change. Embedded within these and other issues is the notion of resilience. At the 'corners' or 'edges' of this conception, resilience and

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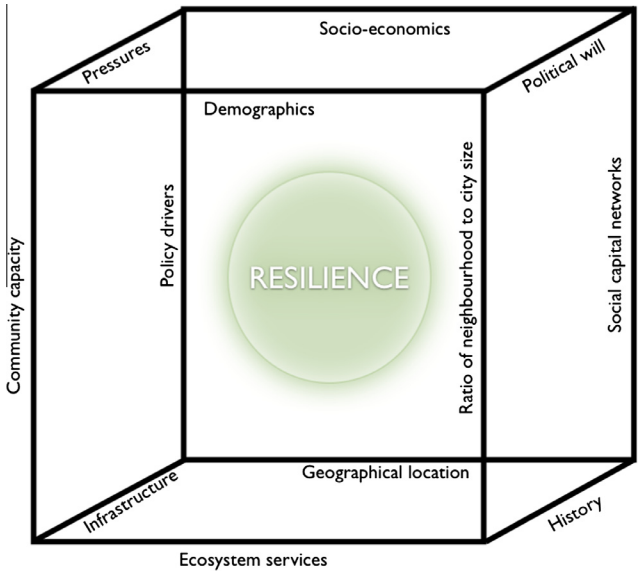

Fig. 1. A stylised conception of resilience in an urban setting.

sustainability planning requires a diverse range of disciplines and perspectives.

This paper identifies and explores several key questions that apply across urban and spatial planning. These questions emerged from preliminary research for designing a new multidisciplinary urban transition project, TURAS (Transitioning towards Urban Resilience and Sustainability). This project, which commenced in October 2011 (see www.turas-cities.eu), is a product of the coming-together of differing disciplines (e.g. spatial planning, landscape architecture, climate science, economics, sustainability science and ecology) motivated by the desire to see truly interconnected research manifested into demonstrable strategies for urban areas. Therefore, the aim of this paper is not to limit the discussions to several disciplinary arenas, nor is it to be reductive or prescriptive at the expense of other experiences, rather it is to propose that the journey towards a meaningful transition may begin when these arenas become embedded in urban planning and design policy. Thus this paper aims to draw attention to areas with a high potential for demonstrating effective and realistic transitioning policies.

Resilience

The emergence of resilience as a driver of urban policy has resulted in a turn towards a more integrated, multi-disciplinary and open planning system, one that views community stakeholders as central to the planning process and one that sees the planner as innovative, creative and holistic (Lawrence, 2004; Ling, Handley, & Rodwell, 2007), working within a theoretical framework of multi-disciplinarity and multi-functionality (Ahern, 2011). Such an approach has been discussed and debated in the context of rural landscape planning and management (Naveh, 2000; Palang, Alumae, & Mander, 2000). Resulting rural policies reflect this. There is now an emerging narrative at a European level for the promotion of multi-functionality in rural landscapes, which is seen as the best mechanism for sustaining rural livelihoods and nature conservation (Antrop, 2004; Berkel & Verburg, 2012; Slee, 2007; Vos & Meekes, 1999). Such debates are poorly developed in urban landscapes (Wilkinson, 2012b), though resilience as a planning theme has been given high priority and thus expectation. Resilience is an emergent property of a system and cannot be understood or predicted by explaining the parts (Berkes & Turner, 2006). Resilience simultaneously absorbs change and provides the capacity for change. Therefore, complex systems (where human and ecological communities are inter-reliant) are self-organising at critical points of stability and cannot be viewed using linear thinking, nor fully or adequately planned for using a reductionist approach, such as zoning or regulation for example. Adger (2000, 2006) proposes that social resilience mirrors ecological resilience and may be central to achieving sustainable development programmes. Thus, the importance of utilising multiple perspectives in the analysis and management of complex systems as well as the recognition that local, non-expert knowledge has a high value in landscape management is evident. Folke, Hahn, Olsson, and Norberg (2005) explore the community side of this issue and they suggest that a form of environmental governance may be used to link local stakeholders and expert actors to generate resilience against uncertainty and unpredictability, and this has been used to envision resilience-based scenarios with respect to climate change (Gidley, Fien, Smith, Thomsen, & Smith, 2009) and collaborative planning (Selman, 2004).

Recent debates on the difficulties of incorporating resilience policies into practice (e.g. Porter & Davoudi, 2012) reveal that while deconstructing resilience offers insights and opportunities for multi-faceted approaches (Davoudi, 2012) this does not always offer insight into practical or operationalised implementation. Responding to these challenges requires building or stimulating social and ecological resilience (Wilkinson, 2012a). It will require solutions that also address existing socio-economic, cultural and historic urban development challenges, and this creates a very complex problem for planners and practitioners. Urban development, whether compact or dispersed, results from a variety of forces, some working on the individual and some on the systemic level. In many European cities, traditional planning has often focused on addressing, among many things, design responses to complex social challenges and damaged or depleted neighbourhoods (Kennedy, Pincetl, & Bunje, 2011). This has resulted in specific design prescriptions that tackle the initial issue but cannot respond to changing social structures, improving environmental and cultural awareness or newer values of, and demands from, public spaces. These newer, complex demands include collaborative approaches to the conservation, restoration and augmentation of ecosystem services, such as biodiversity, flood control, waste management, air quality and carbon sequestration (Berkes & Turner, 2006; Colding, 2007; Cook, Hall, & Larson, 2012; Folke, Holling, & Perrings, 1996). In addition, there is a growing awareness that the future of civil society is inextricably linked to maintaining and valuing ecosystem services in an attempt to retain ecological and social resilience (Alberti & Marzluff, 2004; Hubacek & Kronenberg, 2013; MA, 2005). Furthermore, health research is now showing the inter-relatedness between citizen health and quality of life and high quality environmental conditions and green spaces (Lee & Maheswaran, 2010; Maas, Verheij, Groenewegen, de Vries, & Spreeuwenberg, 2006).

Moving closer to ensuring resilient urban communities will require a long-term and integrated approach to city planning and development (Antrobus, 2011). This may involve significant and meaningful participation by all stakeholders, as has been discussed in relation to diverse urban issues such as recreation (Huang, 2010), sanitation (Lüthi, McConville, & Kvarnström, 2009) and flooding (van de Meene, Brown, & Farrelly, 2011), to name but a few. However, stakeholder engagement can yield outcomes that can be contested (Collier & Scott, 2008), which is perhaps a natural property of human collaboration, so it is necessary for planners to drive the transition process using modern collaborative and holistic tools as well as achievable and demonstrable exemplars. So, how transition to a resilient urban society draws upon