Planning Responses to 'Shock' and 'Slow-Burn' Events
The Role of Redundancy in Regional Resilience

A collaborative research seminar series

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Background

CURS are hosting one of two events in the UK and Japan between January and March 2013, organised jointly by the University of Birmingham and Waseda University. The principal aim of the seminars is to examine current thinking on regional resilience and the role of redundancy in adapting to 'shock' and 'slow-burn' events (Pendall et al, 2010; Pike et al, 2010; Simmie and Martin, 2010) as well as aiming to enhance collaboration between researchers on this topic. The Birmingham seminar comprised a **workshop (/schools/gees/research/projects/regional-resilience/birmingham-workshop.aspx)** exploring redundancy in relation to theory, governance & structures, resources and application and a **site visit and discussion in Longbridge (/schools/gees/research/projects/regional-resilience/longbridge-visit.aspx)** , Birmingham.

Research context and content

The concept of resilience within the academic and policy literature has largely grown out of the natural and physical sciences and has been defined relatively early on in the literature as a system's ability to "absorb change and disturbance and still maintain the same relationships between populations or state variables" (Holling, 1973, p.14). Redundancy is a key property and means of improving the resilience of systems and has been defined as "the extent to which elements, systems, or other units of analysis exist that are substitutable, i.e., capable of satisfying functional requirements in the event of disruption, degradation, or loss of functionality" (Bruneau, et al, 2003, p.737).

Redundancy is about resource and the mechanisms that allow flexibility to respond to shocks. This takes many forms within socio-technical systems (i.e. urban & regional planning) including physical assets, governance processes, role of agents, socio-demographics and path dependence. Redundancy is therefore a key component in physical and natural systems as a means of establishing equilibrium by providing mechanisms of survival and adaptation that are activated during or following a shock. It can therefore be expressed as the degree to which systems are insured against loss of function (Gitay, Wilson and Lee, 1996) and measured in terms of the resources necessary for returning to equilibrium.

Objectives

The seminars in **Birmingham (/schools/gees/research/projects/regional-resilience/birmingham-workshop.aspx)** /**Longbridge (/schools/gees/research/projects/regional-resilience/longbridge-visit.aspx)** and Tokyo/Kesennuma explore aspects of resilience and redundancy in both the UK and Japan drawing on urban and regional responses following sudden environmental or natural shocks (eg: Tohoku earthquake) and slow-burn socio-economic shocks (eg: recession, plant closure, austerity measures) their impact on urban and regional systems and the response of agents.

The overall objectives of the seminars are to:

- develop comparative perspectives in social scientific and cultural definitions and meanings of resilience and redundancy in the UK and Japan;
- identify how redundancy can enhance the adaptive capacity of urban and regional systems and how this could be measured;
- compare resilience policies and strategies in the UK and Japan reviewing recent urban and regional planning responses to 'slow-burn' and 'shock' events in the UK and Japan;
- draw out policy and academic implications and make recommendations for policy and research agenda around comparative studies on redundancy within adaptive systems.

The Birmingham workshop specifically addressed:

- The relevance of redundancy and resilience to urban and regional 'systems';
- How redundancy could be measured and its applicability across scales;
- Development of a research agenda taking forward themes discussed during the day
- A dissemination and publication strategy for workshop papers and presentations
- Key lines of enquiry for the Japan based seminars (Tokyo and Kesennuma) to support the research and dissemination strategy.

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