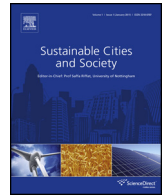




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Sustainable urban development: Use of the environmental assessment methods

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ABSTRACT

The need to protect the environment from the wanton ecological destruction of unfettered economic growth and conspicuous consumption is unquestionable. What is still in question, however, is how environmental assessment methods can be used as a means to evaluate the sustainability of urban development. For while the number of environmental assessment methods available to evaluate the sustainability of urban development has increased notably over the past decade, questions still remain as to the integrative and multi-scalar nature of their evaluations. At their most basic these controversies boil down to the question: is the logic of building assessment integrative and can the method(ology) it uses be scaled-up so as to 'up-the-ante' and offer city-wide evaluations of sustainable urban development? This paper reports on the work the BEQUEST network has undertaken to develop such an integrative and multi-scalar assessment methodology and sets out the types of assessment methods it is possible to use in 'upping-the-ante' and providing such city-wide evaluations.

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1. Introduction

Questions about the use of environmental assessment methods to evaluate the sustainability of urban development (SUD) have become common place over the past decade and while it is now possible to read about case study applications, concerns are still raised about the integrative and multi-scalar nature of such exercises (Ding, 2005; Dammann & Morten, 2006). This paper provides an up-dated account of SUD in terms of the framework and protocols BEQUEST has devised as an integrative and multi-scalar assessment methodology for evaluating the sustainability of urban development. Having laid down the protocol-based definition of SUD that BEQUEST has adopted, the paper goes on to set out the post-Brundtland directory of (integrative and multi-scalar) environmental assessment methods which the network has put together to use in evaluating the sustainability of urban development.

It should be noted: the Building Environmental Quality Evaluation for Sustainability (BEQUEST) network, offers a unique and notably singular reading of 'integrative and multi-scalar'. The reason for this is fivefold. First it systematically cuts across established stakeholder interests in the built environment as part of the search for SUD. Secondly, being systematic it focuses exclusively

on the scientific and technical challenges concepts such as "ecological integrity", "equity", "participation" and "futuraity", pose those responsible for evaluating the sustainability of urban development. Thirdly, being systematic, this challenge is also assumed to be generic and of equal significance to all the professional experts within the built environment. Fourthly, dealing with this challenge i.e. of being both systematic and generic, means adopting an interdisciplinary approach to assessment and drawing on the critical insights this offers to uncover the means by which to transcend the institutional rivalries associated with various stakeholder interests. Fifthly, the search for such a transformation of assessment methodology is embarked upon in the scientific and technical interest of seeing such evaluations as key junctures in a co-evolutionary process.

Kohler (2002) reviews the theoretical status of this assessment methodology and does much to highlight the value of what it contributes to the "state-of-the-art". Others: for example; Jorge et al. (2009) and Murakami et al. (2011), have instead adopted the BEQUEST framework, protocols and directory of assessment methodologies, as a basis to develop them as practical applications. In particular, develop them as use cases on how to evaluate the sustainability of urban development.

2. Sustainable urban development

Bentivegna et al. (2002) began to outline the principles, underlying concepts, model, vision and methodology of an integrated sustainable urban development (SUD). This drew attention to the framework BEQUEST has developed for such an understanding of

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SUD and went on to set out the protocol the network argues should be followed when carrying out an environmental assessment. In this regard it was argued:

- SUD's goal is to improve the quality of life for an increasingly urban population;
- actions aiming to improve the quality of life need a simple, clear framework for analysing the sustainability of urban development;
- this framework for analysis requires to provide a vision and methodology capable of bringing such concerns into the scope of actions targeting improvements in the quality of life;
- within this vision and methodology, protocols provide a middle ground between the environmental assessment methods available to evaluate SUD and bring about improvements in the quality of life;
- such evaluations of SUD must transcend purely environmental factors and embed themselves securely in more integrated environmental, economic and social assessments;
- a community of academic and professional advisers is emerging, willing and able to use new information technology as a means of supporting multi-scalar assessments and making the evaluations they produce available to local, regional, national and international agencies.

3. The protocol(s)

Having set out the BEQUEST framework, [Deakin, Huovila, Rao, Sunikka, and Vreker \(2002\)](#) went on to develop the protocols of environmental assessment. These were then presented as a set of guidelines to follow in assessing the environmental impact of urban development and set out as procedures for:

- “screening” urban development activities;
- “scoping” key sustainable development issues;
- “clarifying” what activities, environmental, economic and social issues need to be addressed;
- carrying out the required “consultations” with affected parties.
- “procuring” environmental assessments of urban development plans, programmes and projects;
- “assessing” whether the said urban development plans, programmes and projects, build the capacity which cities need to carry their cultural heritage and produce forms of human settlement that are sustainable;
- “reporting” on the ecological integrity and equity of the resulting resource distribution and ability of the public to participate in decisions taken about the future of the city, its cultural heritage and forms of human settlement.
- “monitoring” the sustainability of urban development.

The said protocol has its origins in the [European Commission's \(1997 and 2001\)](#) Directives on Environmental Impact Assessment (EIA) and Strategic Environmental Assessment (SEA) and points at the procedures to follow. Although, as [Deakin et al. \(2002\)](#) went some length to point out, while such a protocol is valuable for the description of the environmental assessment process that it captures, the procedures which it sets out are currently insufficiently detailed to overcome the risk and uncertainty stakeholders face in trying to use them as methods for evaluating the sustainability of urban development. As this examination made clear, this is because the legal instruments surrounding environmental assessment are themselves insufficiently developed, too generic and not specific enough for stakeholders as diverse as planners, property developers, designers and construction

contractors to follow in evaluating the sustainability of urban development.

The need to clarify the relationship between the protocol and legal instruments of environmental assessment was also picked up and highlighted in [Kohler's \(2002\)](#) review of the BEQUEST network and this organisation's contribution to SUD. In response to this, [Curwell, Deakin, and Symes \(2005\)](#) went on to set out five (planning, property development, design, construction, operation and use) protocols developed as the 'hard' and 'soft' gates of environmental assessment.

Adopting this line of reasoning, [Symes, Deakin, and Curwell \(2005\)](#), [Deakin and Lombardi \(2005a and 2005b\)](#) then went on to develop a directory of environmental assessment methods for evaluating SUD and reported on how they are currently being used as gateways for evaluating the sustainability of urban development. Having done this, [Deakin and Lombardi \(2005a, 2005b\)](#) subsequently turned attention to outlining the directory of environmental assessment methods for evaluating SUD and reported on how the said assessment methods are currently being used to evaluate the sustainability of urban development.

What this outline and report did not do is provide a detailed examination of the environmental assessment methods themselves, or how they are being used by the diverse range of stakeholders referred to. While this drew attention to the legal instruments of environmental assessment and tense relationship emerging between the 'hard' certainties of the bio-physical sciences and the more uncertain and risky sphere of 'softer' economic and social relations, it did not provide either, a detailed account of the environmental assessment methods, or examination of how those listed in the directory are currently being used to evaluate the sustainability of urban development.

4. The environmental assessment methods

This paper takes the five protocols referred to in the previous sub-heading as its point of departure. It serves to up-date [Deakin et al. \(2002\)](#), and [Deakin and Lombardi's \(2005a, 2005b\)](#) previous survey of the environmental assessment methods currently available to evaluate SUD and provide a state-of-the-art report on what has been recently been done by the BEQUEST network to meet the methodological challenge this poses.

The paper will show how the methodology developed by members of the BEQUEST network meets this challenge by adopting a “co-evolutionary approach” to environmental assessment and in turning attention towards those methods able to evaluate the ecology of resource consumption ([Deakin, Mitchell, Vreker, & Nijkamp, 2007](#)). The value of this approach – it shall be argued – lies with the opportunity that assessments of this kind provide to develop methods which apply the so-called 'hard' certainties of bio-physical science to the more uncertain, risky social relations of SUD – the relations that are 'softer' and which are by nature more difficult to work with.

As shall be seen, this much needed methodological development is achieved by emphasising the co-evolutionary nature of the bio-physical and social in a set of post-Brundtland environmental methods that are cross-cutting and which in turn provide the integrative and multi-scalar assessments required to evaluate the sustainability of urban development.

5. The post-Brundtland directory of environmental assessment methods

The objectives of this directory are fourfold. Firstly, to direct decision makers towards the master list of environmental assessment methods that are currently available and which it is

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