Certification systems for sustainable neighbourhoods: What do they really certify?

Josefin Wangel [a,*,1], Marita Wallhagen [a,b,1], Tove Malmqvist [a], Göran Finnveden [a]

[a] Division of Environmental Strategies Analysis (fms), KTH Royal Institute of Technology, SE-100 44 Stockholm, Sweden
[b] Department of Building, Energy and Environmental Engineering, University of Gävle, SE-801 76 Gävle, Sweden

ABSTRACT

Certification systems for sustainable neighbourhoods started to emerge around a decade ago. This study analysed the content, structure, weighting and indicators of two established certification systems for sustainable urban development – BREEAM Communities and LEED for Neighborhood Development. Several limitations of these systems were identified: both have a bias for procedure and feature indicators over indicators that assess actual performance; performance demands are set according to a relative understanding of sustainable development; the focus is on internal sustainability, while upstream and downstream impacts of construction are disregarded; the number and distribution of mandatory issues do not cover essential sustainability aspects; and the disproportionately large number of non-mandatory issues makes benchmarking difficult and signals that sustainability aspects are exchangeable. Altogether, this means that an area can be certified without being sustainable. Moreover, the lack of continuous development of certification requirements in the systems means that they risk exerting a conservative effect on urban development, rather than pushing it forward.

© 2015 Elsevier Inc. All rights reserved.

1. Introduction

Ongoing urbanisation and the relatively larger environmental footprint of urban inhabitants have resulted in recognition of cities as being of fundamental importance for ambitions to achieve overall sustainable development (Girardet, 2009/1999). Besides numerous initiatives in policy and planning, sustainable urban development has also become a growing market for urban planning and development consultancies, green-tech companies and city branding (Delegationen för hållbara städer, 2012). To support sustainable urban development, numerous sets of principles have been developed and proposed, for example by policy-makers and practitioners, such as the Aalborg charter,[2] and by researchers (e.g. Robinson and Cole, 2015; Luederitz et al., 2013; Carmona, 2009). Such principles form an important starting point when deciding which sustainability aspects to target and at what levels. However, despite integration of some of these principles, they are rarely translated into firm demands, meaning that clear sustainability targets are still often absent from planning processes. Even when such targets are present, for example in development projects or cities with ambitions to be leading examples as regards urban sustainability, their more exact meaning often remain elusive (Kramers et al., 2013) and systems for ex-post evaluation are often lacking (see e.g. Pandis Iveroth and Brandt, 2011).

Through the establishment of specific processes, criteria and indicators, certification systems for sustainable neighbourhoods promise to provide guidance for urban development projects on how to work with sustainability issues in planning and development activities. In addition, certification systems create voluntary market drivers, with the possibility to benchmark and market development projects as 'sustainable'. By contrast to principles, certification systems address the sustainability of an area using a predefined set of criteria and assessable indicators. In doing so, they also provide quite a precise definition of sustainable development. The criteria, or the credits gained for the criteria, are then aggregated, sometimes involving a weighting, in order to provide a communicable certificate, label and/or grade (e.g. 'gold' or 'excellent') for the project. The certificate, label and/or grade work as a means for benchmarking and marketing how sustainable a specific urban development is. However, the aggregation, weighting and complexity of the tools make it difficult to understand what the outcome (grade or label) actually means in terms of what has been assessed. Moreover, it can obscure the extent and ways in which urban development contributes to sustainability.

Previous studies (e.g. Haapio, 2012; Sharifi and Murayama, 2013) have reported a number of shortcomings with certification systems for sustainable neighbourhoods. However, these studies have mainly focused on the content of the system and have analysed this down to the

---

level of issues. With the aim of extending the analysis to also include the structure and type of indicators, we carried out more in-depth analysis on two of these systems: BREEAM Communities (BREEAM-C) and LEED for Neighborhood Development (LEED-ND). This study differs from previous work in that it also analyses and discusses the systems in relation to how sustainable development is defined. The following research questions were studied:

- What limitations and biases can be identified regarding the sustainability issues included in the BREEAM-C and LEED-ND certification systems?
- Do these certification systems focus on the procedures of the development process, on certain features or on the actual performance of urban development projects?
- Based on the design of these systems, to what extent can the certification process be expected to lead to more sustainable outcomes?

The paper is structured as follows: Section 2 introduces certification systems for sustainable neighbourhoods and provides a definition of sustainable development. The BREEAM-C and LEED-ND certification systems are introduced in Section 3, while in Section 4 the methodology used in this study is described and the analytical framework is presented. Section 5 contains the results from the analysis, Section 6 discusses the findings and Section 7 presents the conclusions reached in the study.

2. Background

2.1. Certification systems for sustainable neighbourhoods

Certification systems for sustainable neighbourhoods started to emerge around a decade ago, in the wake of Agenda 21 and as a continuation of certification systems for buildings. One of the forerunners in the development of certification systems for sustainable city districts was the European system HQE2R, developed between 2001 and 2004, and EarthCraft Communities (ECC), developed by actors in Atlanta, USA, and launched in 2003. In 2006–2009, the Japanese systems CASBEE Urban Area + Building and Urban Development (CASBEE-UD), the U.S. Star Community Rating System (STAR-CRS), LEED Neighborhood Development (LEED-ND), and the UK BREEAM Communities (BREEAM-C) were launched. Two of the most recent additions are the German system DGNB New Urban Districts, launched in 2011, and the Australian system Green Star Communities, for which a first pilot version was launched in 2012. Of these systems, all but ECC and the HQE2R were developed on the initiative of, or with heavy involvement by, national Green Building Councils.

These certification systems serve several functions. At their core is a third-party evaluation against a number of pre-defined sustainability criteria, providing credibility for the planning project. The certification systems are also designed to nudge the planning organisation to define and use sustainability targets early in the process, providing better possibilities to achieve sustainable outcomes. Moreover, the systems can highlight environmental and other sustainability issues that would otherwise risk being overlooked. Property owners, landlords, architects and municipalities can use the certificate for marketing and for procurement. The certification systems also provide a platform and a common language for communication and collaboration between stakeholder groups and promote a joint understanding of the project and its intended outcomes.

However, there is a room for improvement. A young but growing body of research is studying the construction and implementation of certification systems for sustainable urban development (Haapio 2012; Kyrkou and Karthaus 2011; Nguyen and Altan, 2011; Sharifi and Murayama 2013, 2014, 2015; Zeinal Hamedani and Huber, 2012; Zhou et al., 2011). For example, a few studies have identified a recurring

bias in favour of issues related to ecological sustainability and urban design, with relatively fewer criteria related to social and economic sustainability (Sharifi and Murayama 2013; Berardi, 2013). Moreover, according to Zhou et al. (2011) many systems show a strong bias on sustainability in the community itself, while the relationship between the community and its global hinterland is often is disregarded.

Criticisms of these systems also include the way in which aggregation and weighting is incorporated, which risks resulting in lack of transparency. In addition, the certification process is typically very time and resource consuming. Moreover, lack of information regarding the basis on which sustainability issues are included (or not), defined and assigned credits and weights risks giving an arbitrary impression (Tanguay et al., 2009; Haapio 2012). Furthermore, the high proportion of non-mandatory issues in the systems creates a situation where it is up to the specific project to choose which issues to work on and which to neglect, which in turn permits so called 'credit hunting' (Haapio, 2012). This may also mean that significant sustainability aspects are left unaddressed and legitimate benchmarking is obstructed (Todd et al., 2013). However, at the same time non-mandatory issues make the certification systems more flexible and adjustable to local conditions (Sharifi and Murayama 2014; Garde 2009; Kyrkou and Karthaus 2011).

To avoid some of these problems, Tanguay et al. (2009) propose three key conditions for designing Sustainable Development Indicators (SDI) for urban areas. First, any SDI framework needs to rest on core principles for sustainable development (as discussed in detail in Section 2.2). Second, the SDI should be designed to capture the specifics of each location, while at the same time being general enough to allow for comparison across cities/neighbourhoods. Third, the design of SDI must take into account the target audience and situations of use. This agrees well with Malmqvist and Glaumann (2006), who suggested theoretical (validity, repeatability, accuracy) and practical (influence, cost, intelligibility) considerations of importance when designing indicators in a systematic way for similar systems.

2.2. Defining sustainable development

Even though the development and use of certification systems for sustainable neighbourhoods is a rather new phenomenon, its history includes a long, and still ongoing, debate on sustainable development and sustainable urban development. How sustainable urban development and sustainable neighbourhoods are defined has direct consequences for the design of certification systems. Conversely, through their criteria, indicators, parameters and benchmarks, certification systems for sustainable neighbourhoods function as definitions of sustainable urban development and sustainable neighbourhoods in practice. This section describes the concept of sustainable development applied in the present study, which served as the basis for the subsequent analysis and discussion on to what extent the two certification systems for sustainable neighbourhoods analysed can be said to contribute to sustainability.

2.2.1. Sustainable development is about achieving human wellbeing and social justice within ecological limitations

Once emerging from a discourse of deep-green growth-criticism, sustainable development has become an ambiguous, contested (Carruthers, 2001) and "dangerously vague" concept (Daly 1996), judging from how it is being used in practice (Connelly, 2007). However, being a normative concept devised for a specific purpose, sustainable development should not be defined inductively. Drawing on the Brundtland report, in this study we viewed sustainable development as a societal process for securing human wellbeing and social justice now and in the future which, in order to be achieved, must prioritise the basic needs of the world's poor while at the same time recognising ecological limitations (WCED, 1987).