



Comparison of sustainable community rating tools in Australia



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ABSTRACT

The community is the basic unit of urban development, and appropriate assessment tools are needed for communities to evaluate and facilitate decision making concerning sustainable community development and reduce the detrimental effects of urban community actions on the environment. Existing research into sustainable community rating tools focuses primarily on those that are internationally recognized to describe their advantages and future challenges. However, the differences between rating tools due to different regional conditions, situations and characteristics have yet to be addressed. In doing this, this paper examines three sustainable community rating tools in Australia, namely Green Star-Communities PILOT, EnviroDevelopment and VicUrban Sustainability Charter (Master Planned Community Assessment Tool). In order to identify their similarities, differences and advantages these are compared in terms of sustainability coverage, prerequisites, adaptation to locality, scoring and weighting, participation, presentation of results, and application process. These results provide the stakeholders of sustainable community development projects with a better understanding of the available rating tools in Australia and assist with evaluation and decision making.

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1. Introduction

Sustainability aims to meet the needs of the world's current population without compromising the needs of future generations (WCED, 1987) and has gained momentum since the World Commission on Environment and Development (WCED) in 1987. Since the Rio Earth Summit of 1992, the concept of sustainability has been very much concerned with the public agenda in pursuing less pollution, resource efficiency, a more inclusive society, increased prosperity and better share of the economy (London Department of the Environment, 2000).

Many practical actions concerning sustainability occur at the community level, with overarching elements of economic, social and environmental considerations (Newman and Dale, 2005; Hang et al., 2014). The community is the basic unit of urban development as well as the unit of sustainability measurement. Sustainability development needs to be undertaken at the community level where the needs, understanding, awareness and aspirations of the local people and authorities in relation to sustainable development

have to be considered and implemented (Yuan et al., 2003). In addition to the improvement of physical hardware in community construction, sustainable community development should also revitalize communities because of cultural, geographical and local product issues. A sustainable community also coordinates the economic factors and other elements of the natural environment and humanity issues such as housing, education, health, accessibility and arts (Hsueh and Yan, 2011).

Similar to the popular sustainable building rating tools, appropriate assessment tools are also needed for communities to evaluate sustainability, facilitate decision making concerning community development, and reduce the detrimental effects of urban communities on the environment (Jaeger et al., 2010). There is a diverse range of tools to assess building sustainability, including rating systems, LCA based tools, technical guidelines, assessment frameworks, checklists and certificates (Haapio, 2008; Khasreen et al., 2009; Haapio, 2012). But for sustainable community assessment, the current focus is only on developing assessment frameworks and tools (Haapio, 2010). These evaluate and rate the sustainability of a community against a set of themes, indicators and criteria, in order to identify the status of the community in approaching sustainability goals.

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Some research has reviewed and compared internationally recognized sustainable community rating tools to clarify their advantages and future challenges. [Haapio \(2012\)](#), for example, compares BREEAM Communities, CASBEE for Urban Development and LEED for Neighbourhood Development. [Sharifi and Murayama \(2013\)](#) target including LEED-ND, EarthCraft Communities (ECC), BREEAM Communities, CASBEE-UD, HQE²R, Ecocity and SCR. It has been discovered that assessment tools with a broader planning perspective generally are better than others. This is because plan-embedded tools are more advantageous when focussing on specific objectives of assessment and coordinating the linkages between the assessment system and various geographical contexts ([Sharifi and Murayama, 2013](#)). However, existing research primarily focuses on the comparison of assessment tools of different countries. Rating tools at local levels have not been studied by previous researchers. As significant differences exist between regions in terms of urban conditions, quality of life, traditions, cultural heritage, attitudes, standards, and regulations, etc. ([Diamantini and Zanon, 2000](#); [Zhu and Lin, 2004](#)), adaptation to the locality is also important for existing sustainable community rating tools to suit different local settings ([Haapio, 2012](#); [Sharifi and Murayama, 2013](#)). Therefore, the examination of local sustainable community assessment tools in a particular country or region, especially like Australia with regionally diversified climatic, economic and social settings, better supports stakeholders in decision-making and promotes sustainable development.

Therefore, this paper aims to review and compare the sustainable community rating tools used in Australia. In this study, the community, interchangeable with neighbourhood, is the basic unit of urban development as well as a “fundamental building block of a city” ([Sharifi and Murayama, 2013](#)). After an extensive review of existing research relating to sustainable communities, it introduces a framework of analysis for comparing different rating tools. An outline of three Australian sustainable community-rating tools is then presented, followed by the results of the analysis and subsequent discussion. The paper concludes with its key findings and contribution to knowledge and practice.

2. Literature review

Sustainable community development aims to coordinate and integrate the economic, environmental, social and humanity elements of a community ([Rogers and Ryan, 2001](#); [Hamstead and Quinn, 2005](#); [Hsueh and Yan, 2011](#)). While different definitions of sustainable communities are available in government documents and academic research, the definition in the Communities Plan by the UK Government in 2003 is mostly quoted by researchers and practitioners. The Plan named *Sustainable Communities: Building for the future* defined sustainable communities as “places where people want to live and work, now and in the future. They meet the diverse needs of existing and future residents, are sensitive to their environment, and contribute to a high quality of life. They are safe and inclusive, well planned, built and run and offer equality of opportunity and good services for all” ([ODPM, 2003](#)). It indicates that sustainable community development is a participatory, holistic and inclusive process which considers economic vitality, ecological integrity, social equity and civic democracy ([Rogers and Ryan, 2001](#); [Hamstead and Quinn, 2005](#); [Hsueh and Yan, 2011](#); [Kline, 1995](#); [Hempel, 1999](#); [Agyeman, 2005](#)).

Existing studies of sustainable communities mainly focus on the outcomes of planning, design and construction. Energy efficiency is one of the most discussed topics, such as the design of energy programs for the academic and local community ([Clark and Eisenberg, 2008](#)); development of autonomous energy ([Rae and Bradley, 2012](#)); evaluation of low-carbon sustainable

communities ([Hsueh and Yan, 2011](#); [Zhang et al., 2013](#)); public–private partnerships for clean and renewable energy system development ([Clark and Woodrow, 2007](#)); and technological applications for sustainable energy development ([Mala et al., 2008](#); [Schut et al., 2011](#)). In addition to local housing communities, there are also studies of the development of sustainable campuses by modifying and adapting existing sustainable community indicators ([Saadatian et al., 2013](#)).

Technological solutions have been to facilitate the physical processes of sustainable community development ([Churchill and Baetz, 1999](#)). However, it has been argued that these are dependent on the psychological response of the end-users ([Schweizer-Ries, 2008](#)). A participatory approach therefore has been carried out for sustainable community regeneration and development ([Greig et al., 2004](#); [Valencia-Sandoval et al., 2010](#); [Deakin, 2012](#)). The social context, which is equally challenging in sustainable community development, is believed to play a critical role in resident interactions and mutual support ([Cheung and Leung, 2011](#)), but this has been largely overlooked to date and more research is needed in this respect ([Newton et al., 2012](#); [Zuo et al., 2012](#)).

Existing research in sustainable communities has been mostly driven by government policies, with the decision-making process of the government for community sustainability being studied in terms of police-making ([Ko et al., 2012](#)), land purchase ([Pillai, 2010](#)), historic housing neighbourhood development ([Akkar Ercan, 2011](#)), sustainable low-income and less-developed communities ([Rogers and Ryan, 2001](#); [Ha, 2007, 2008](#)).

Sustainable community development is also driven and assessed by various rating tools in different countries and regions around the world. These include BREEAM and CEEQUAL in the UK, LEED in the USA, India, Chile and Emirates, and GBI in Malaysia ([Sinclair Knight Merz, 2011](#)). These are well-known rating tools for sustainable communities around the world. They may also be developed locally to suit specific situations in certain countries or regions. A number of previous studies (e.g. [Haapio, 2012](#); [Sharifi and Murayama, 2013](#)) have been conducted to compare these different rating tools, which are designed based on different priorities and conditions (e.g. climatic, social, and economic) of their countries.

Although these comparison studies help understand different rating tools of different countries or regions, little research investigating and comparing sustainable community rating tools within individual countries or regions. Some countries such as Australia, USA, and China, they have significantly different climatic, social and economic settings and have different internal sustainable community rating tools. Take Australia for example, as the sixth largest country in the world, Australia has various climatic conditions. Most inner part of Australia is desert or semi-arid. The other climate conditions vary from subtropical one in the south-east, Mediterranean one in the south-west, temperate climate in the south and a tropical climate in the north part of Australia. It is largely very dry and has very seasonal rainfall patterns. In addition, different states and territories not only have different climatic conditions but also economic and social variations as each state has different resources and cultures. By December 2014, the population of Australia is 23.6 million. It is expected that its population will rise by 60% by 2050, reaching around 36 million, and 85% of which will live in cities ([GBCA, 2015](#)). It will have significant pressure on ecological balance and natural resource supply, and lead to an increasing demand for employment and access to affordable, liveable and enjoyable places.

To achieve a sustainable Australia that is “a nation of sustainable communities which have the services, job and education opportunities, affordable housing, amenity and natural environment that make them places where people want to work, live and build a

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