Analysing sustainability certification systems in the German housing sector from a theory of social institutions

Wolfgang Rid\textsuperscript{a,b,*}, Jörg Lammers\textsuperscript{c}, Simona Zimmermann\textsuperscript{d}

\textsuperscript{a} University of Stuttgart, Institute of Urban Planning and Design, Head of Research Group City-Mobility-Energy, Keplerstraße 11, 70174 Stuttgart, Germany
\textsuperscript{b} Erfurt University of Applied Sciences, Professor for Urban- and Regional Economics, Faculty of Architecture and Urban Planning, Schillerstraße 1, D-99089 Erfurt, Germany
\textsuperscript{c} Federal Institute for Research on Building, Urban Affairs and Spatial Development within the Federal Office for Building and Regional Planning, Division II 7 - Energy-Optimized Building, Straße des 17. Juni 112, D-10623 Berlin, Germany
\textsuperscript{d} University of Stuttgart, Institute of Urban Planning and Design, research associate, Keplerstraße 11, 70174 Stuttgart, Germany

\textbf{A R T I C L E  I N F O}

Article history:
Received 16 March 2016
Received in revised form 8 December 2016
Accepted 10 December 2016

Keywords:
Sustainable housing
Sustainability indicators
Certification systems
Institutions of sustainability
Housing survey

\textbf{A B S T R A C T}

Sustainable residential buildings and a sustainable housing development (‘sustainable housing’) are key factors in the sustainability strategy of the German government. Certification systems have been developed to assess sustainable housing and to better inform stakeholders and hence improve sustainability in the housing sector. Currently, however, a variety of different certification systems exists to assess sustainable housing using different sets of indicators. The supply of different certification systems to measure the same (‘sustainability’) raises questions of validity of the assessment instruments. Also, different stakeholders hold different interests with regard to sustainability certification systems, which leads to investigate the legitimacy of certification systems. In this study, we applied the theory of social institutions to investigate legitimacy of sustainability certification in the housing sector. To find out about the validity of sustainability measurement, this article presents a survey where real estate stakeholders were asked to evaluate indicators applied by different sustainability certification systems. Results showed high heterogeneity of tastes towards indicators of sustainable housing. Results also identified potential ‘areas of conflicts’ where stakeholders differed most widely in the evaluation of indicators.

© 2016 Published by Elsevier Ltd.

1. Sustainability certification in the housing sector and social institutions

Reducing energy consumption for the operation and maintenance of residential buildings is considered one of the key factors in reaching climate protection goals in Germany (Energy concept for environmentally protective, reliable and affordable energy supply, \textit{Die Bundesregierung (German Federal Government) 2010}) and Europe (cf. Directive 2010/31/EU, European Parliament and Council 2010). To this effect, residential buildings are required to be built for high levels of energy efficiency by European and German legislation (for example: European Energy Performance of Buildings Directive EPBD, European Parliament and Council 2010; German regulation for energy saving in buildings and building systems (EnEV), \textit{Die Bundesregierung, 2007, 2013}). The concept of sustainability in the housing sector, however, extends beyond the sole consideration of energy consumption of residential buildings. Sustainability literature points out, that a holistic and multidimensional approach is required to take into account social, economic, and institutional aspects in the evaluation of sustainability, and sustainability must not be reduced to consumption of resources only (cf. Bundesanzeigerverlag (Ed.), 2013; Jörisen et al., 1999; Edwards 2000; Winston and Eastaway 2008; Wolpensinger and Rid 2010; Rid and Profeta 2011; Berardi 2013). Likewise, in recent years, the spatial scale of sustainability certification systems in the housing sector has changed: Groos and Messer (2014) emphasize that in planning practice as well as in spatial sciences a greater emphasis is given to the ‘neighbourhood’ as an intermediary spatial scale, which is somehow a specific scale between ‘building’ and ‘administrative’ urban districts’. While early certification systems exclusively focused on energy consumption on the scale of (residential) buildings, the more recent sustainability certification systems take into account a range of indicators that pertain to the neighborhood.
scale, such as distances to transport infrastructure, social infra-structure or quality of urban green spaces in the neighborhood. Consequently, today, certification systems are available that either (1) assess sustainability for residential buildings and among others including neighborhood indicators in the assessment of individual buildings or (2) assess sustainability of neighborhoods on a neighborhood scale and among others including indicators of individual buildings (e.g. energy efficiency of buildings, see for example the DGNB certification system in Germany) (German Sustainable Building Council, 2015).

To sum it up, both scope and scale of certification systems in the housing sector have changed in that a more holistic approach is chosen what regards the variety of indicators and in that the spatial scale has been widened up to include indicators that pertain to the neighborhood scale of housing. Consequently, in this research, we analyzed indicators that take into account social, economic, ecologic and institutional aspects. Also, we include indicators that pertain to residential buildings and to the neighborhood scale of sustainability assessment in the analysis.

Therefore, in this paper, we use the term ‘sustainable housing’ to cover both sustainability on the building and the neighborhood scale, as in both cases sustainability is assessed using indicators that pertain to the building scale and to the neighborhood scale.

To evaluate buildings on the basis of a multidimensional understanding of sustainability, various sustainability certificates have been developed for the real estate market that are not subject to government regulations (cf. Ebert et al., 2010: 23 ff; Yu and Kim, 2011: 51 ff). These multidimensional sustainability certificates were developed on behalf of private economic or institutional organizations, and were originally conceived as evaluation and marketing instruments for office and administration buildings. Increasingly, certification systems are also applied to the evaluation of residential buildings (cf. Gerij and Rast 2008: 221) and housing developments (e.g. 2016 urban districts scheme of the German Sustainable Building Council, DGNB). Thus, there is a plurality of certificates for sustainable housing available for the housing industry.

This context raises the question of what “sustainable housing” actually means as well as the question of legitimization of sustainability certification. The problem of legitimation of certification systems is an important issue, as no understanding of what sustainability in the housing sector actually is and how it can be measured has been agreed upon so far. As a result, there are a variety of different certification systems available, all of which claim to measure “sustainability” of residential buildings or housing developments and all of which use different indicator systems. Without a common understanding of all stakeholders of sustainable housing development, however, sustainability can hardly be measured, tested, or certified. Consequently, certificates can become meaningless.

1.1. Certificates for sustainability as institution: social or political?

Certificates for sustainable housing can be considered an “institution of sustainability” according to Hagedorn (2004) and contribute significantly to sustainable development of modern societies (cf. Ostrom et al., 1993; Becker and Ostrom 1995; Anderies et al., 2004a; 2004b). In this article, by institutions is meant agreements and understandings that regulate and affect human social interaction in that they make behaviour predictable and thus reduce complexity (Lipp, 2006). Ostrom (2009) focused particularly on self-organizing institutions and their contributions to sustainable development of social-ecological systems (SESS). Hagedorn (2004) uses a model of institutions for sustainability that views the social and the ecological subsystems to be in a permanent, interdependent process of adaptation to one another. This process is organized through institutions (or rules or forms of regulations) of sustainability that arise through transactions between actors in the social system (Hagedorn 2004). Since housing sustainability certificates are developed and awarded by actors of the civil society such as associations (e.g. German Sustainable Building Council (DGNB) or Association for the Promotion of Sustainable Housing (NaWoh, 2012)), they can be viewed as an institution of sustainability.

Political institutions represent a special case of social institutions, because they create and enforce formalized and mandatory regulations in order to ensure social existence (cf. Jörissen et al., 1999: 150ff). Political institutions can thus be seen as especially complexity reducing: the regulations are clearly presented, as are the consequences of violations, so that the members of society are able to well consider and calculate their own behavior.

Sustainability certificates to evaluate sustainable housing, presently, are not generally binding, being awarded by various committees upon request. Therefore, it is not possible to consider them political institutions, but part of social institutions (cf. Hagedorn, 2004).

In this study, we aim to elicit preferences of real-estate stakeholders on indicators of sustainable housing to find out about diversity in tastes in what stakeholders consider sustainability in the housing sector: We argue that if there is consensus about what sustainability in the housing sector is, the government could transform sustainable certificates to a political institution and thus reduce complexity. If there is conflict or a plurality of interests in what sustainability in the housing sector is, a plurality of certificates could be build up forming different social institutions to cover the different understanding of sustainability and indicate this in a transparent manner for the consumer.

This paper examines preferences for indicators of sustainable housing among different stakeholders of the real-estate market. To this end, a survey was conducted among 150 stakeholders in housing development. Chapter 2 describes the survey method and Chapter 3 presents the results of a variance analysis of preferences for sustainability indicators. The results’ implications are discussed with regard to evaluate the legitimation of certification systems from the perspective of social institutions in Chapter 4.

1.2. Multidimensional concepts of sustainability in the housing sector

The issues of deriving an operational definition from the term sustainability are well documented in literature, both in a general sense (Jörissen et al., 1999; Phillips and Andriantiasaholimiaina, 2001; Littig and Grießler, 2005; White, 2013) and with respect to the construction sector (Berardi, 2013; Rid and Profeta, 2011). Consequently, in this piece of research, at first an operational definition of the sustainability concept was needed to be able to systematic analyse sustainability criteria in an empirical study.

Basically, the established sustainability concepts comprise a normative principle and an operationalization of this principle (cf. Jörissen et al., 1999; Spangenberg, 2005). For example, The Helmholtz Association of German Research Centers has developed an ‘integrative concept of sustainable development’ that focus on an operational definition of sustainability in general and on the application of this approach to specific societal topics (e.g. Kopfmüller et al., 2001; Grunwald et al., 2001; Grunwald, 2002; Brand, 2002; Kopfmüller, 2003). Previously, The Enquete Commission of the Federal Government of Germany (1998) developed a more restrictive perspective on sustainability as opposed to the one from the Helmholtz Association. The Commission’s approach deduces the rules for the conservation of the three societal subsystems ‘ecology’, ‘economy’ and ‘society’ from an ‘inner perspective’ of these systems and rules are derived from the ‘stress limits’ of the systems. The Helmholtz Association approach differs from the approach of
دریافت فوری متن کامل مقاله

امکان دانلود نسخه تمام متن مقالات انگلیسی
امکان دانلود نسخه ترجمه شده مقالات
پذیرش سفارش ترجمه تخصصی
امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
امکان دانلود رایگان ۲ صفحه اول هر مقاله
امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
دانلود فوری مقاله پس از پرداخت آنلاین
پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات