Chapter 84
Social Sustainability and Inclusive Environments in Neighbourhood Sustainability Assessment Tools

Rosaria Revellini

Abstract Neighbourhood Sustainability Assessment (NSA) tools are voluntary rating systems for certifying sustainable neighbourhoods in case of new constructions or urban renewals. They consist of categories and indicators to value specific performances. Their purpose is to objectify planned interventions assigning a final score which identifies the overall performance of the district in terms of sustainability. However, is it possible to affirm that these systems actually contribute to the improvement of inclusiveness and healthy living in the neighbourhoods? This question arises as a reflection on the two main issues that contemporary cities have to face urgently which are urbanization and ageing population, focusing attention on developed countries. In this regard, "new" urban spaces are called to achieve inclusion and healthy living for all the people and the neighbourhood represents the right scale for reasoning about. The present study investigates some of the most commonly used neighbourhood scale tools (BREEAM Communities, GBC Italia, DGNB Districts, Living Community Challenge, EcoDistricts) looking at how these systems can help to create more inclusive districts. In particular, the analysis aims to understand how much the social pillar of sustainability affects on urban wellbeing. In fact, there is the evidence that in most NSA tools environmental dimension shall prevails on the others. Through a review of each protocol's "social" categories and of the recent literature on these topics, the study wants to underline criticalities and potentialities of NSA systems and tries to understand in which way a new protocol should act in order to help municipalities, planners and stakeholders in designing inclusive and accessible environments for all.

Keywords Neighbourhood sustainability assessment · Urban wellbeing · Social sustainability

R. Revellini (✉)
IUAV University of Venice, Venice, Italy
e-mail: rosaria.revellini@iuav.it

84.1 Introduction

According to United Nations (2019a), currently there are four demographic mega-trends: population growth, international migration, population ageing and urbanization. These trends follow differing geographies with disparities between developed countries and developing ones. Furthermore, they all affect the sustainable development of nations.

With a focus on developed countries, it is possible to see that the number of over 65 persons is growing exponentially. For the first time in the history, in 2018, the elderly cohort has exceeded the one of under 5 children. This trend is expected to go faster during the next years—despite the Sars-CoV-2 pandemic—and over 65 will exceed the 15–24 group too by 2050 (UN 2019a).

Meanwhile, it is estimated that about 68% of the world's population will live in urban contexts by the same date (UN 2019b). Therefore, it is crucial to understand the future aspects related to urbanization to ensure a sustainable development of cities and implement the goals of the *2030 Agenda for Sustainable Development* (UN 2015). Specifically, the goal n. 11 *Make cities and human settlements inclusive, safe, resilient and sustainable* is closely related to the development of cities that recognize the centrality of people in transformation processes by providing equal opportunities for all. In this way, the *New Urban Agenda* (UN-Habitat 2017; UN-Habitat 2020) acts as an accelerator to achieve this goal.

In this scenario, population ageing together with migratory pressure influence changes in the urban environment. Specifically, population ageing can be considered as an opportunity to rethink cities as physically and socially inclusive environments, which means suitable places for all people and all ages.

This paper recognises social sustainability as the key to a broader understanding of the concept of inclusivity. Through the literature review on the topic, it aims to understand how this issue is addressed within the most known Neighbourhood Sustainability Assessment tools, with a view to the drafting of a new protocol for the evaluation of social sustainability at neighbourhood scale.[1]

84.2 The Social Dimension of Sustainability

Sustainability is a very complex concept in which different "dimensions" are intersected: environmental, political, regulatory, economic, social, cultural one. In 1994, Elkington coined the term *triple bottom line* by which sustainability has to be considered through the 3 "P": people, planet and profit. It implies an approach that promotes economic growth while minimizing environmental impacts and ensuring social inclusion.

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[1] It is the protocol developed within the Ph.D. research carried out by the author at Università Iuav di Venezia. In particular, it refers to the assessment of age-friendly neighborhoods.

Sustainability is achieved when there is a balance between its three dimensions, which are dependent on one another (Colantonio 2009). Nonetheless, unlike the economic and environmental dimensions, the social one has always disregarded in policies and practices, probably because of its "immaterial" nature.

It is not easy to find a unique definition of social sustainability (SS) because this concept includes multiple facets. The definition by Polese and Stern (2000: 15–16) seems to be one of the most interesting, by which SS is the «development (and/or growth) that is compatible with harmonious evolution of civil society, fostering an environment conducive to the compatible cohabitation of culturally and socially diverse groups, while at the same time encouraging social integration, with improvements in the quality of life for all segments of the population».

Starting from this statement, the main aspects of SS are: social equity, social cohesion and participation, social exclusion, environmental justice, security, urban livability, quality of life (Colantonio 2009; Shirazi and Keivani 2019). As Colantonio (2009) says, it is possible to distinguish "soft" components (intangible, as social cohesion) from "hard" ones (tangible, as facilities presence).

The urban environment is the "cradle" of SS. The physical characteristics of the city have considerable influence on the components of the SS and vice versa (Bramley et al. 2006). For this reason, it seems necessary to measure "sociality" in urban context, in order to improve both spatiality and policies when necessary. However, its "intangible" nature and the lack of a unique definition make the evaluation difficult to achieve (Colantonio 2009), as it is possible to see below.

84.3 Neighbourhood Sustainability Assessment Tools

Sustainability assessment tools are voluntary systems edited by no-profit organization to certify specific performances of the "object" to be assessed. The first examples were born in the 90s with the aim of controlling and limiting buildings energy consumption. In these cases, the number of environmental and economic criteria predominates over the social ones. This trend is still present in the most recent tools, confirming «the fundamental misunderstanding according to which sustainability is mainly intended in environmental terms, despite its strongly anthropocentric nature» (Acierno and Attaianese 2018: 267).

Neighbourhood Sustainability Assessment (NSA) tools were born in the early 2000s. During these years, in fact, cities, neighbourhoods and public spaces have been subjects of interest of sustainable studies since they can play a key role in sustainable development processes (Sharifi et al. 2021).

NSA tools are used both in the case of new constructions and urban renewals. They consist of categories, indicators and benchmarks to evaluate specific performances. Their purpose is to objectify planned interventions assigning a final score which identifies the overall performance of the district in terms of sustainability (Boyle et al. 2018). The assessment process is led by independent third parties and it has a

cost. These characteristics are seen as the main critical aspects in fact they constitute a limit in the dissemination of these systems above all in developing countries.[2]

The most used NSA tools worldwide are: BREEAM Communities (UK), LEED Neighbourhood Development (USA) and GBC Quartieri (Italy), ITACA Scala Urbana (Italy), DGNB Districts (Germany), Living Community Challenge (USA), CASBEE for Urban Development (Japan), Green Star Communities (Australia), EcoDistricts (USA), HQE2R (France).[3]

They can be divided in "spin-off"—the most of them—which are the ones derived from building-scale systems, and "others"—as EcoDisctricts and HQE2R—which instead have been specifically created for urban-scale interventions (Sharifi and Murayama 2012).

This study aims to investigate the social dimension in five of these tools,[4] in order to understand which are the actual limitations regarding SS and how these systems can help municipalities and planners to create more inclusive districts.

84.4 BREEAM Communities

The *Building Research Establishment Environmental Assessment Method* (BREEAM) was born in UK in 1990 and it is the first sustainable assessment tool at building-scale worldwide. In 2008 the urban-scale version was published with the name of *BREEAM Communities.*

This tool is organized in three steps (establishing the principles; determining the layout; designing the details) and six categories (*Governance*; *Social and economic wellbeing*; *Resources and energy*; *Land use and ecology*; *Transport and movement*; *Innovation*). The 2012 version—the most update one—consists of a total of 40 individual assessment issues. The certification is obtained when at least 30% score is reached.

The subcategory *Social wellbeing*[5] is the 17.1% of the total and it aims «to ensure a socially cohesive community» (BRE 2017: 15). Here the social theme is expressly stated thanks to its 9 criteria, which are listed in Table 84.1.

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[2] Especially in Italy, the district-scale tools are rarely used because they should be provided by public administrations (as promoters).

[3] These tools are globally widespread, but they are built based on priorities and regulations of the countries in which they are developed.

[4] Protocols have been selected based on opensource availability and international scientific relevance.

[5] The main category is *Social and economic wellbeing.*

Table 84.1 Social wellbeing criteria in BREEAM communities

ID	Criterion	Aim in brief	Weighting (%)
SE02	Demographic needs and priorities	To ensure that design is based upon the local demographic trends and priorities	2.7
SE05	Housing provision	To ensure appropriate housing provision for all within the development	2.7
SE06	Delivery of services, facilities and amenities	To ensure essential facilities are provided and that they are located within a reasonable and safe walking distance	2.7
SE07	Public realm	To encourage social interaction by creating comfortable and vibrant spaces in the public realm	2.7
SE09	Utilities	To provide easy access to site service and communications infrastructure	0.9
SE11	Green infrastructure	To ensure access to high-quality space in the natural environment or urban green infrastructure for all	1.8
SE12	Local parking	To ensure parking is appropriate for the expected users and well-integrated into the development	0.9
SE14	Local vernacular	To ensure that the development relates to the local character whilst reinforcing its own identity	0.9
SE15	Inclusive design	To create an inclusive community by enhancing accessibility for as many current and future residents as possible	1.8

84.4.1 EcoDistricts

EcoDistricts was born in Portland, Oregon (USA) in the first decade of the 2000s to promote health and justice in the cities. Its tool—named *EcoDistricts* too—is designed exclusively for neighbourhood scale. The protocol is «a rigorous, sustainable urban development framework for achieving people-centred, economically vibrant neighbourhood and district-scale sustainability» (EcoDistricts 2018: 7).

EcoDistricts has three key-elements: three *Imperatives* (*Equity*; *Resilience*; *Protection*), six *Priorities* (*Place*; *Prosperity*; *Health and Wellbeing*; *Connectivity*; *Living infrastructure*; *Resource regeneration*) and three implementation phases. If all the requirements are achieved, it is possible to have the final certification.

Table 84.2 Most relevant social indicators in EcoDistricts

Priority	Objective categories	Aim in brief
Place (*create inclusive and vibrant communities*)	Engagement and inclusion	Civic engagement is strong and processes are inclusive and representative. Sharing programmes are robust
	Culture and identity	Historic and culturally significant places are preserved and celebrated. Participation in cultural events is high
	Public spaces	Public spaces are accessible to all. They are high quality, engaging and active
Health and wellbeing (*nurture people's health and happiness*)	Active living	Access to recreation facilities and services is improved. Walkability is enhanced
	Health	Health outcomes and life expectancy are more equitable. Affordable, high-quality health care is accessible. Toxic environments are remediated and regenerated
	Safety	Public safety is enhanced. The built environment is designed for public safety
	Food systems	Healthy and affordable fresh food is accessible. Food production in the district is encouraged

Among the six *Priorities*, only *Resource regeneration* concerns strictly the environmental field, in fact social aspects are more integrated than in other tools. Some of the most relevant social indicators, according to the author, are listed in Table 84.2.

84.4.2 DGNB Districts

The *German Sustainable Building Council* (DGNB) was born in 2007 in Germany to promote sustainability in the building sector. After its version at building-scale, in 2012 the NSA tool was published with the name *DGNB Districts*.

In the last version (ed. 2020), there are 5 thematic areas (*Environmental quality*; *Economic quality*; *Sociocultural and functional quality*; *Technical quality*; *Process quality*), all of them with the same weighting (20%), and 31 criteria. It is possible to achieve the certification with a minimum of 50% score.

Table 84.3 Main social criteria in DGNB Districts

ID	Criterion	Aim in brief	Weighting (%)
SOC1.6	Open space	To satisfy the need for recreation and interaction by providing high-quality open spaces within walking distance	3.5
SOC2.1	Barrier-free design	To make the entire environment accessible to everyone and without restrictions on its use	2.6
SOC3.1	Urban design	The objective is to contribute cultural identity by establishing and maintaining consistent urban structure as part of the city as a whole	2.6
SOC3.2	Social and functional mix	To make the district adaptable to social change and ensure a socio-functional mix	3.5
SOC3.3	Social and commercial infrastructure	To ensure close, easily accessible and commercial infrastructure, creating social acceptance of the district	2.6
PRO1.7	Participation	To involve all those affected by the planning at an early stage	3.3

In this protocol, «people's health and happiness should be a focal point when making design and construction decisions» (DGNB 2020: 7). The main social criteria are listed in Table 84.3.

84.4.3 Living Community Challenge

In 2014, the *International Living Future Institute* of Seattle (USA) created *Living Community Challenge* (LCC), a district-scale assessment tool, after the building-scale version.

It has a different structure from the other tools because it is not prescriptive, but it allows the analysis of urban areas to understand the potential of the place in improving citizens experience. For this reason, there are no benchmarks, and this represents its most important limit in application.

It has 7 categories (called *Petals*: *Place*; *Water*; *Energy*; *Health and happiness*; *Materials*; *Equity*; *Beauty*) and a total of 20 imperatives (ILFI 2017). The certification is possible only if all the imperatives are checked. The main social imperatives are listed in Table 84.4.

Table 84.4 Main social imperatives in LCC (ed. 2019)

ID	Criterion	Aim in brief
04	Human-powered living	To create walkable, pedestrian-oriented communities
08	Healthy neighbourhood design	To promote and optimize the health and wellbeing of its residents
14	Human scale and human places	To create human-scaled rather than automobile-scaled places
15	Universal access to nature and place	All primary transportation, roads and non-building infrastructure must be equally accessible to all people
16	Universal access to community services	To have basic community services and amenities that support the health, dignity and rights of all people
19	Beauty and spirit	To have public art and design features in urban spaces intended solely for human delight
20	Inspiration and education	To ensure participation through education of the community

84.4.4 GBC Italia Quartieri

The last analysed tool is *GBC Italia Quartieri*, made by *Green Building Council Italia* in 2015. It is the Italian version of the *LEED Neighbourhood Development* (USA).

It has three main assessment categories (*Site Location and Connections*; *Neighbourhood Planning and Organization*; *Sustainable Infrastructure and Buildings*) and two optional ones (*Design Innovation*; *Regional Priority*). There are 42 credits and 12 required prerequisites. The certification is available only with the minimum score of 40 points (GBC Italia 2015).

Compared to the other tools, *GBC Italia Quartieri* does not contribute much to social sustainability aspects. According to the author, the main social credits are related to "spatial quality" as showed in Table 84.5.

84.5 Discussion and Conclusions

The carried-out analysis shows that the environmental aspects are the most considered, followed by the economic ones and finally by the social ones. In particular, regarding SS, the most common criteria refer to its "hard" part rather than the "soft" one. In fact, there are no methods to evaluate it objectively considering its partly intangible nature.

Table 84.5 Main social credits in GBC Italia Quartieri

ID	Credit	Aim in brief	Max pt (out of 100)
OPQ1	Streets friability for pedestrians	To promote efficient transport and walking	9
OPQ3	Mixed use neighbourhoods	To group and make accessible different uses in central areas of the neighbourhood	4
OPQ6	Connected and open communities	To promote projects that have high levels of internal connection and are well connected to the city	2
OPQ9	Access to public spaces	To improve citizens social life by offering them a variety of open spaces	1
OPQ10	Access to recreational activities	To improve citizens social life by offering them a variety of recreational activities	1
OPQ11	Universal accessibility	To allow all citizens to participate more easily in community life	1
OPQ12	Involvement and openness to the community	To promote awareness of community needs by activating participation	2

Looking at the various criteria in the previous tables, it is possible to affirm that: (1) the different tools are not comparable with each other because they differ from the criteria and weights assigned[6]; (2) the "spatial" criteria (e.g. public spaces, accessibility, mixitè) are much greater in numbers than those concerning social activities and sense of community (such as participation, involvement, equity). EcoDistricts and LCC are the only tools that work more in this direction, even if their weakness, as mentioned, consists in the fact that they do not provide for an objective measurement through benchmarks.

However, trying to evaluate the SS as a whole could be helpful in order to achieve inclusivity for all people in urban areas. This is one of the most important issues of the *New Urban Agenda*, which in fact promotes actions for inclusive cities and human settlements right through participation, civic engagement, sense of belonging, social and intergenerational interaction (UN-Habitat 2020).

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[6] For example, in the case of "public space" criterion (BREEAM—S07 Public realm; EcoDistricts—Public spaces; DGNB Districts—SOC 1.6 Open space; LCC—10 Human scale and human places; GBC Italia Quartieri—OPQ9 Access to public spaces) the aims are similar but the weighting differs from a tool to the other.

Fig. 84.1 Monday farmer market in the Santa Marta neighbourhood in Venice stimulates social interaction in an area with high number of elderly residents. Rosaria Revellini (2021)

In the ongoing Ph.D. research, the author is elaborating a protocol focusing both on tangible and intangible aspects of the SS. Starting from the carried-out analysis on the existing NSA tools (briefly reported in this paper), the new tool aims to reconsider the social dimension of sustainability as the key element for urban regeneration processes in developed areas. In fact, it seems necessary considering the two trends of urbanization and population ageing.

Specifically, the new criteria will all have the same weighting for two reasons: each aspect of SS is equally important and avoiding subjectiveness of the assessment process. The purpose is to have a tool that can be easily used by municipalities, planners and stakeholders in designing inclusive and accessible environments for all (Figs. 84.1 and 84.2).

Fig. 84.2 "Afternoon" bench where elderly people in Santa Marta neighbourhood in Venice are usually seated, favoured by the tree shade. Rosaria Revellini (2019)

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