ABSTRACT

Social sustainability is an integral aspect of urban design, yet underappreciated, and non-well understood. In this essay, we underline the importance of integrating the principles of social sustainability into urban designs and maximising the integration of local communities according to their status quo. We achieve this approach by refining the parameters required to make communities more sustainable, clarifying the definitions of social sustainability in relation to design and presenting case studies where the principles of commitment to social sustainability have failed, and we examine the lessons learned from those cases. We conclude by encouraging a new paradigm shift towards the maximisation of socially sustainable urban design through the integration of the community. In this context, the urgent need for tangible and user-friendly approaches, and the realistic participation of the community presents an opportunity to increase long-term sustainable development.

Keywords: community integration, social sustainability, urban design.

RESUMEN

La sostenibilidad social es un aspecto integral del diseño urbano, aunque poco apreciado y no bien entendido. En este ensayo, subrayamos la importancia de integrar los principios de sostenibilidad social en los diseños urbanos y maximizar la integración de las comunidades locales de acuerdo con su status quo. Logramos este enfoque refinando los parámetros necesarios para hacer que las comunidades sean más sostenibles, aclarando las definiciones de sostenibilidad social en relación con el diseño y presentando casos de estudio donde los

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principios de compromiso con la sostenibilidad social han fallado, y examinamos las lecciones aprendidas de esos casos. Concluimos alentando un nuevo cambio de paradigma hacia la maximización del diseño urbano socialmente sostenible a través de la integración de la comunidad. En este contexto, la necesidad urgente de enfoques tangibles y fáciles de usar, y la participación realista de la comunidad presenta una oportunidad para aumentar el desarrollo sostenible a largo plazo.

**Palabras claves:** diseño urbano, integración de comunidades, sostenibilidad social.

**INTRODUCTION**

The ever-growing awareness of environmental crises, be it climate change, biodiversity loss, or pollution, has swiftly shifted popular focus towards sustainable practices in land use (Vitousek et al. 1997), including urban design, infrastructure and development. Though certainly not new, practical improvements may present themselves in the form of trans-disciplinary integration among urban design, economically sustainable development, and the socio-cultural needs of local communities. Indeed, urban design can have huge impacts on resident’s health and well-being (Jackson 2003), suggesting community participation in creating living milieus may synergistically increase sustainability outcomes. Once seen as a perfunctory part of urban planning, community involvement is now a driver in shaping cities across the globe. Still, architects, urban developers, and environmentalists may need to further promote community engagement more holistically into sustainable development plans to maximise desired outcomes now and in perpetuity.

Exhaustible discussed since its introduction into mainstream philosophical theory in the 1980’s, communitarianism or the perspective of the ‘common good’ for social cohesion rather than individual autonomy, has had immeasurable impacts on various disciplines such as politics, humanities and social sciences, architecture, design, and environmental science (Avineri & de-Shalit 1992). Just as communities must be compelled to look beyond their individualistic needs to anticipate and accommodate more regional (or global) necessities for current and future prosperity (Berke and Conroy 2007), sustainable development must also link global environmental concerns to those at the local, community scale.

Though myriad strategies to create a bridge between communities and environmental sustainability are presented in the literature, bringing human dimensions into development and urban design to maximise environmental missions, has only recently been proposed (Dias et al. 2014). Most notably, community engagement is considered a vehicle for citizens to communicate their views and expectations of their own living environment, capitalising on citizenship cultivation in a ‘bottom-up’ approach, with the anticipation to transform sustainable actions and behaviours (Dias et al. 2014). Still, queries abound. How should urban designers integrate community priorities to reach social sustainability principles into urban designs? Specifically, what are the best methods to engage local communities in the design process and how can social sustainability be coupled with design and development over time? In this paper we examine the relationship between social sustainability, identifying key parameters where urban developers and designers can encourage the participation of community members to guaranty the perpetuity of social
sustainability. We accomplish this by 1) refining the parameters needed for communities to become more sustainable, 2) clarifying the definition of “social sustainability” regarding spatiality and sustainable design, and 3) present lessons learned from three case-studies wherein community engagement were disregarded, and ultimately development attempts failed. We conclude by encouraging a new paradigm shift towards sustainable design maximisation via community integration taking into account their status quo.

DEVELOPMENT

Paths for communities becoming more sustainable

The term ‘community’ within a philosophical context emerged in the 1980’s by political philosophers called Communitarians (Fallis 2013). Their manifesto expressed the uniqueness of each community as a complex set of relationships and experiences (Fallis 2013), ultimately suggesting that humans are born and constructed into a network of interactions within society (Tsivacou 2005). Implied within this concept is the necessity to underpin a wide-range of communal organisations, including charitable organisations, religious groups, Indigenous and other minority groups, among others (Fallis 2013). It may be apparent then why community integration into design projects have appeared to be untenable; the management of each specific community sub-group can be complex and often divisive and conflictive. Moreover, while the community remains the basic unit of urban development (Xia et al. 2014), they are dynamic, transforming themselves spatially and temporally, ultimately making their needs, values, and priorities difficult to understand and anticipate within a sustainability context.

Certainly, the geographic distribution and physical design of communities can influence social behaviours, personal perceptions, and identity. Similarly, understanding temporal aspects of communities, such as current necessities, community aspirations, traditions, and heritage remains a central pillar for a sustainable community. To date, three primary definitions have been proposed within the literature to outline what sustainable communities should encompass. The first definition offered via the UK Government (2003) details sustainable communities as “places where people want to live and work, now and in the future… 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” (Xia et al. 2014). In comparison, the U.S. Department of Agriculture considers sustainable communities to encompass three distinct elements: 1) Be environmentally-sound with decision-making focused on reducing the impacts of population growth and development on natural resources and the environment. 2) Economically productive, where community members make local capital investments that will sustain local human and natural resources and yield adequate financial returns to those investments. And 3) Socially-just, where equitable access to resources and decision-making processes foster the distribution of foods and benefits across all sectors of the community (Swisher, Rezola, and Sterns 2012). Finally, UNESCO considers that sustainable communities thrive from generation to generation because it is a healthy and diverse ecological system that is founded on social aspects with a diverse economy (UNESCO 2016). Taken together, we formulated a list of shared indicators for sustainable communities and paths communities can take to enhance their sustainable goals. Among the shared principal indicators
recommended for sustainable communities, we found well-design communities that incorporate social, economic, and environmental development (all within a regional context), that in due-course provides happiness (whatever that may be given obvious global/cultural differences) (Table 1).

<table>
<thead>
<tr>
<th>Institution</th>
<th>Sustainable community definitions</th>
<th>Parameters / sustainable paths</th>
<th>Shared parameters</th>
<th>Suggested parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. Department of Agriculture and Florida University</td>
<td>Environmental friendly with decision-making focus on reduction of population growth and development on natural resources/environment. Economically productive where communities make capital investments sustaining local human/ natural resources and yield to financial returns; socially just equitable access to resources and decision-making processes foster the distribution of food/benefits across all sectors of the community.</td>
<td>1. Stakeholder agreements 2. Community assessments 3. Common visions 4. Develop sustainability indicators -measure progress 5. Identify sources of support 6. Outline, monitor, evaluate, adjust</td>
<td></td>
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<tr>
<td>UNESCO. Teaching and learning for a sustainable future program</td>
<td>Healthy and diverse ecological system performs life sustaining functions and providing resources for humans/other species. They contain social foundations that provide health, respect cultural diversity, equity, and considers needs of future generations. They have a healthy and diverse economy that adapts to change, provides long-term security to residents recognizing social and ecological limits.</td>
<td>1. Background data 2. Environmental management 3. Socioeconomic development 4. Local government 5. Infrastructure 6. Housing 7. Transport</td>
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Table 1: Summary of concepts and indicators of sustainable communities. Sustainable community shared parameters represent overlapping priorities outlined by each institution. We present suggested sustainable parameters to bolster the success of sustainable communities across different institutions.
Interestingly, we noted only two of the three primary definitions used for sustainable communities highlight a status quo factor, an aspect we propose should be made central to all sustainable practices. Approaches to improve the sustainability of communities and urban development have traditionally taken on a ‘top-down’ approach in which planners and designers assimilate and then investigate problems associated with the urban space. Subsequently, development and then communication to the affected community is broached (Moughtin 2003). Meanwhile, novel approaches inducing a ‘bottom-up’ approach that involves stakeholder input via community engagement are revolutionary and propose a more likely scenario for the endurance of urban designs (e.g. Walton et al. 2007). Still, ensuring on-going operation, management and maintenance still often is placed at the disposal of the professionals rather than the communities. We propose community engagement both at the urban planning level as an essential element to maintain perpetual sustainable designs.

Social sustainability and urban design connection

Once rarely discussed in public or policy-making dialogue, the concept of social sustainability is now increasingly used by governments, public agencies, policymakers, NGOs and corporations to frame decisions about urban development, developmental regeneration, and housing, with aims to shape the sustainability and resilience of cities (Woodcraft 2012). Still, it remains a burgeoning field of urban policy, planning, and practice in the developed and developing world (Woodcraft 2012).

Definitions proposing to link social sustainability and urban design are numerous, though our review of the literature has guided us to the compilation of two primaries, though distinct, concepts. Couch et al. (2003) posits that social sustainability embraces individuals, communities, and societies. All of them subsist with each other, within their physical boundaries (infrastructure), and with the planet as a whole. Meanwhile, Woodcraft (2012) proposes a more holistic concept which focuses on the enhancement of people’s quality of life, now and in the future, leading towards social sustainability. With this concept, the combination of physical design and how people who live-in/use the space relate to each other (and function as a community) is grounded in enrichment (Figure 1). Considering the foundation of sustainability is to diminish, and in some cases recover current deteriorating environs, we find Woodcrafts definition more useful in moving forward, particularly as it goes beyond mere survival and highlights the improvement in, and with, the environment. Woodcraft (2012) further purposes a sustainable social framework with three dimensions:

- Infrastructure and space – past and present designs that provide community services.
- Social and cultural life – focusing on how residents experience their development.
- Voice and influence - capturing impacts and exploring the changes in the neighbourhood over time.

Although social factors have often been ignored compared to the other disciplines of sustainability (economic and environmental), we are currently observing an expanding movement of academics and practitioners recognising
the fundamental yet entangled relationship when dealing in and with sustainable development (Figure 1).

![Sustainable System Diagram](image)

**Figure 1:** A Woodcraft (2012) and Couch et al. (2003) integrative diagram of the sustainable framework, wherein sustainable communities remain at the core of the system. We highlight that all sustainable foci (economic, environmental, social) subsist with each other, within their physical boundaries (infrastructure) and with the planet as a whole. Figure modified with permission from Woodcraft, 2012.

Still, in most cases community integration and the social sustainability principles therein, often get ignored past the development phase of a project. Indeed, a noticeable disconnect is prevalent in how designers incorporate community ideologies and behaviours, and how few neither reinvestigate nor reinforce sustainability objectives after development has been completed. However, attitudes towards the environment have been argued to be potentially more important than urban design itself (Lund, 2013). Assessments and intermittent monitoring of sustainable projects may highlight target behavioural areas that unintentionally hinder sustainability goals (e.g. Yigitcanlar et al. 2015).

**Lessons from failed sustainable urban designs**

Unsurprisingly, some of the attempts for creating sustainable communities have become failures, often due to their lack of user-friendly approaches, far-reaching economical ambitions, community misconceptions of design ideas, and isolated designs to the community as a whole. Thus, there remains an urgent need for tangible and realistic community integrated into the urban design, especially to maximise sustainability in perpetuity.

An often overlooked aspect of sustainable communities is the longevity of designs. Mining areas, for example, represent urban and suburban sites containing a high level of environmental damage that concomitantly have been shown to trigger social issues over short and long-term time-scales. As mining reserves become depleted, serious challenges arise from instability, quality of life, and communities displacement (Veiga et al. 2001). For example, the mechanisation and automatization on mining processes are frequently causing
unemployment, poverty, poor quality of life, and susceptibility to sicknesses for inhabitants of the community (Veiga et al. 2001).

Community-inclusive approaches, recognising the complex nature of social systems in which the mining sectors exist, have been attempted in various instances. Disconcertingly, often what is found via social, economic and land analysis, is that community needs, assets and potential socioeconomic and environmental impacts over its entire life-cycle are ignored. Although enabling community participation during the development process has been utilised in some cases (Erzurumlu & Erzurumlu 2014), integration and responsibility for the principles of sustainable practices fall-short post-mining closures (Veiga et al. 2001). The legacy left from mining after closure is emerging as a significant aspect of design and development (Veiga et al. 2001), ultimately demonstrating mining plans as examples of short-sighted exploitative, rather than temporally sustainable, design models.

Urban development can also see a temporal divorce between construction and community use before habitation. For instance, China has been characterised as having rapid urban sprawl regarding various development zones and largescale reproduction of urban spaces (Wang 2016). Recently, national urban plans for 2020 aim to geographically balance the proportion of inhabitants in urban centres across China. These new policies utilise human-centred designs and more ecological projects (He, Mol, and Lu 2015), targeting links between designer plans and the communities expectations to would-be future residents (Kuijer and Jong 2009). While ecological infrastructures can help mitigate the impacts of natural disasters and improve the health of the environment and lives in vulnerable communities (Steiner et al. 2013), infrastructure often far outpaces the urbanisation of its people (Sorace and Hurst 2015). A consensus within China’s academic community heralds a disconnect between the urbanisation of land and the urbanisation of communities, creating what is colloquially termed “Ghost towns”, cities that remain largely or completely uninhabited after construction, sometimes for decades (Sorace & Hurst 2015; He et al. 2015). Making matters worse, ghost towns frequently experience hierarchical administrative system turnover, a lack of decentralised urban policies, ignorance of the history or identity of the local geography and community customs, absence of job opportunities, and the obliviousness of long-term environmental quality and sustainability goals (He, Mol, and Lu 2015).

Chenggong, a town in Yunnan province of China for example, to date remains isolated and empty. Chenggong has approximately 100,000 new apartments, brand new local government buildings, new university campuses and a new light rail system; but remains at a 10% occupancy rate even after several years since its construction (Woodcraft et al. 2012). Although the expectation was that entire community would uproot themselves from their social, historical and cultural context rapidly, this remains an unrealistic probability (Woodcraft et al. 2012). Indeed, evidence suggests it may take up to 15 years before a city, or town’s local social networks develop fully (Woodcraft et al. 2012). Unfortunately, successful and thriving cities do not simply obey to the existence of established and good infrastructure; well-developed cities need to first have a well-developed economy with industries, services, history, identity, and job opportunities (He, Mol, and Lu 2015). The enhancement of community identity and sense of ‘belonging’ for new urban centres is likely essential for success, and strengthening societies may
enhance trust towards public authorities (Couch, Fraser, and Percy 2003) while maximizing the likelihood of the geographical shift for communities.

Design augmentations may also find themselves failing due to a lack of community integration and knowledge of social sustainability principles. More than 160 cities worldwide have initiated and implemented bicycle-usage and bicycle-sharing programs (Antunes and Batista 2010). In Brazil, only a few initiatives of bicycle-sharing called “Use Bike” or “Samba” in São Paulo, Rio de Janeiro, and Blumenau, currently exist (Antunes and Batista 2010). These programs remain relatively small in comparison with the extension of cities and their populations (Antunes and Batista 2010). At the same time, small cities such as Guaratinguetá located between São Paulo and Rio de Janeiro are contemplating the integration of bicycle infrastructure into the transportation system. Authorities aim to increase the use of bicycles because of sustainability and accessibility opportunities that this implementation may offer (Antunes and Batista 2010). Despite political motivations, several social issues have arisen with such a paradigm change for these communities.

For many decades, transportation investments were focused solely on motorised traffic, facilitating a reinforcement of public perception for bicycle-use remaining a vehicle for low social classes. The traffic director of Guaratinguetá highlights the importance of changing this mentality in Brazil to boost environmental sustainability and more efficient urban designs. Still, complaints persist when the municipality initiated the installation of bus stops or bicycle parking racks near houses and shops (Antunes and Batista 2010). Citizens found obstacles instead of supporting public actions. Misconceptions about these initiatives endure, and social sensitivities need to be taken into consideration simultaneously with construction objectives. If bicycle use were to be strengthened through policies that benefit the community, such as the implementation of attractive bicycle-friendly paths, and raising the community’s awareness of health and well-being through physical activity, these initiatives might find more success over time.

**Suggested practices of social sustainability for communities**

Community engagement with developers is considered an vehicle for citizens to communicate their views and expectations of their own living environment. Even though this practice can be challenging, it remains a positive tool to create communities that work socially, economically and environmentally. According to the president of the United Neighborhood Centers of America, Ian Bautista, “If the residents and institutions in a community aren’t actively part of the process and don’t own it, then no matter how many resources or fancy their process is, it won’t be sustainable” (Van Bardeleben 2011). Highlighting the importance of community engagement in sustainable designs, we propose a more detailed list of principles to maximise the sustainability of urban centres in perpetuity.

Community engagement is understood as a cooperative procedure of working with factions of people (be they connected by geographic location, special interest, or affiliation) to address their wellbeing, crossing disciplinary boundaries and using myriad knowledge from inside and outside the community (Smith et al. 2014). Through public participatory design, merging alternative avenues of socially sustainable practices into urban development will establish the integration of both innovation and local priorities. Listening to marginalised voices may also help to maximise sustainable design processes (Sinan Erzurumlu and
Erzurumlu 2014). Conversely, without engagement, voluntary community participation may be scarce, initialising a lack of human interactions and bonds between community neighbours, ultimately perpetuating independence, isolation, and possibly socioeconomic disparities (Smith et al. 2014). Long-term engagement, trans-disciplinary collaborations, and rapid prototyping and infrastructure design, are all benefits of cooperating with the community (Sinan Erzurumlu and Erzurumlu 2014). Engaging residents can guarantee longer-term interest in the common good with broader community impacts (Van Bardeleben 2011). Some engagement may focus on addressing specific community issues, while others tactics may facilitate the integration of entire community values into the overall decision-making process. We suggest six principles (Smith et al. 2014) leading towards community integration:

1. Capability: community members are capable of dialogue.
2. Commitment: community members work beyond self-interest and over long time-periods.
3. Contribution: community members volunteer in different activities, take risks, and spur mutual encouragement.
4. Continuity: community members share, rotate roles, make changes if necessary and remain dynamic.
5. Collaboration: reliable interdependence, where a clear vision of trust is maintained among community members.
6. Consciousness: ethics, values of service, trust, and respect are all expressed through the actions of the community.

Community organisations interested in implementing community engagement for their developmental initiatives should enact these principles, from informal family or kinship networks to more formal incorporated associations, political decision-making structures, economic enterprises, or professional associations on a local, national or international level (Smith et al. 2014). Communities have enormous potential to move beyond personal interests and work towards the ‘common good’ (Van Bardeleben 2011). Urban designs that incorporate strong nodes to builds relationships across economic, racial, cultural, professional, intellectual, and social classes are often observed to enhance the use of a variety of resources that, collectively, can sustain and embed change in the community (Van Bardeleben 2011).

**CONCLUSIONS**

In this paper, we present and outlined how community engagement would likely impact sustainable practices in the design of communities. However, when applying social sustainability principles to urban design practices, we found its implementation may need to be tailored to suit each specific neighbourhood and community as they are likely to behave idiosyncratically. We also highlight the need to take into consideration the temporal aspect of sustainable designs. We hope further research exploring the construction and measurement of successful social sustainability and environmentally responsible designs become more readily available. Though many studies currently exist outlining sustainable design failures, critical evaluations usually revolve around the perspective of the designers or policymakers. A more in-depth understanding of these failures would become evident through the perspective of local community experiences living within these environments, particularly after development completion. We
anticipate the inclusion of human dimensions and temporal aspects in the sustainable design process will dramatically maximise sustainability goals.

REFERENCES


