Chapter 8
The Undervaluation, but Extreme Importance, of Social Sustainability in South Africa

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8.1 The Doctrine of Sustainability and Spatial Planning

Sustainable development is contextualised as the trade-off among social, economic and ecological objectives of conservation and changes (Goel and Sivam 2014:61). Sustainability as a universal ambition recently became a land use issue, encapsulated in the United Nations Sustainable Development Goals number 11, calling for inclusive, safe, resilient and sustainable cities and human settlements (United Nations 2017). This is no easy task at hand, in light of increasing urbanisation and development pressure, poverty and the growing importance of the green hype. Land use planning is therefore set as an arena in which conceptions of sustainable development are contested (Godschalk 2004:6), considering systems thinking (Richmond 1993) and ever seeking to balance the three interrelated dimensions of environmental sustainability, economic sustainability and social sustainability.

The doctrine of sustainable development derived from the economic discipline, captured in research of political economist Thomas Malthus in the early 1800s (Basiago 1999:145). Economists focused on the efficiency of resource usage and ignored the dilemma of resources depletion, until 1972 when the first influential work was published that questioned the sustainability of the paradigm of world economic development (Basiago 1999:146). The apprehension that industrial production is eroding natural resources upon which economic development depend led to the UN Conference on Human Environment in Stockholm in 1972, bringing representatives of developed and developing countries together for the first time in history, to debate humanity's right to a healthy and productive environment (Basiago 1999:146). The term 'sustainable development' was coined in the World Conservation Strategy drafted by the United Nations Environment Programme

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M. Dastbaz et al. (eds.), *Smart Futures, Challenges of Urbanisation, and Social Sustainability*, https://doi.org/10.1007/978-3-319-74549-7_8

(UNEP) and the International Union for the Conservation of Nature (IUCN) in 1980, set to be advanced through conservation.

It was in 1987 that the United Nations World Commission on Environment and Development, chaired by Gro Harlem Brundtland of Norway, recalled the concept of sustainable development and defined it as 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs' (WCED 1987). Thereafter, various worldwide events enforced the principles of sustainable development, leading to the most recent Sustainable Development Goals. The advent of sustainability in science has since led planners to apply evolving notions of sustainability to the debate on successful city planning (Basiago 1999:148).

As such, concepts of environmental sustainability and social sustainability are now considered equally important to the original economic sustainability objective raised by the Political Economics in the 1800s. Environmental sustainability is enforced by environmental considerations which have become an integral part of developmental thinking and decision-making based on the expanded scientific understanding that environmental and related ecological systems are crucial to achieve urban sustainability (Thomas and Littlewood 2010:212; Wright 2011:1008). As such, ecological principles became a sine qua non for effective designs and solutions for cities (Forman 2013), providing forward-thinking solutions to spatial planning (Landscape Institute 2013:1). Social sustainability, on the other hand, remains an elusive concept, often encapsulated in the concepts of social cohesion and social capital (Dixon and Woodcraft 2013), as two interrelated ideas (Carrasco and Bilal 2016:127). However, urban theory provides no consensus as to which human settlements embody 'sustainability' (Basiago 1999:148) and possibly the reason why social sustainability is renowned in literature as the least understood of the three dimensions of sustainability.

8.2 A Spatial Perspective on Social Sustainability

'Development, conservation and planning all exist in combination as part of a public corporatist agenda for pre-figuring the general good of communities within society, and for the benefit of individuals' (Riddel 2004:49). Planning interventions that enforce 'natural' change patterns are justified on the presumption that such intervention will make a useful difference to people. The core business of the profession of planning is engraved in social sustainability. However, planning traditionally focused on economic growth and more recently on environmental conservation, and the notion of social sustainability was included as a mere spin-off. This is evident from the classification of sustainability in terms of ecology, equity and economy (refer to Fig. 8.1) where identified tensions (development conflict, resource conflict and property conflict) primarily related to the conflict between pro-developmental approaches versus pro-environmental approaches as explained by Cilliers (2009).

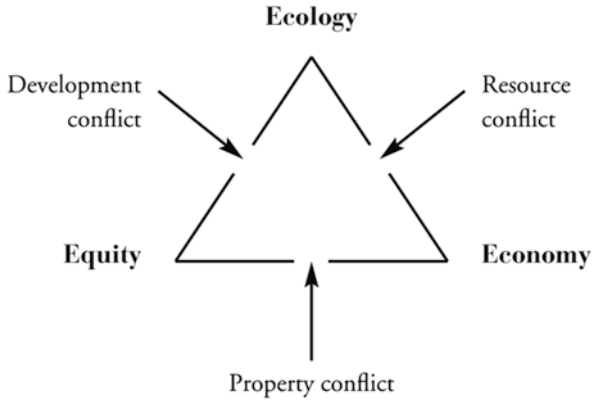

Fig. 8.1 Conflicts among sustainable development values (Source: Godschalk (2004:6))

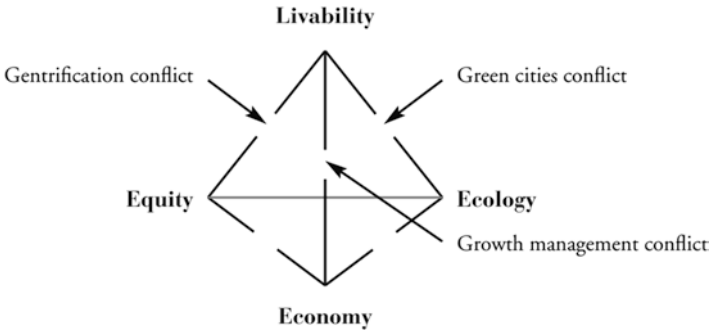

Fig. 8.2 The sustainability-liveability prism and conflicts (Source: Godschalk (2004:9))

The social dimension is underplayed in this regard. Research conducted by Godschalk (2004:8) called for the inclusion of 'liveability' as part of this sustainability representation, creating a three-dimensional figure including the four values of ecology, equity, economy and liveability (refer to Fig. 8.2). Research acknowledged that such social perspective will initiate new conflicts in terms of growth management, green cities and gentrification but would reclaim the social sustainability focus.

From a spatial planning perspective, the connections between social sustainability and the opportunities provided by the physical environment are becoming more apparent as land use management are set to guide urban growth to provide high-quality living environments. However for such to realise, planners ought to comprehend the fine balance needed between natural and built environments and employ context-based planning, founded on community needs. This chapter argues that context-based planning forms the core point of departure for realising sustainable development, as context-based planning responds to social sustainability objectives, taking needs of specific communities and cultures into account and tailoring the planning of their environment, to reflect such.

Context-based planning within the broader social sustainability umbrella is an especially pertinent field of research in post-apartheid South Africa in recognition of the challenges and inequalities faced by South African society, aptly exhibited in urban landscapes where millions reside in shantytowns and informal backyard rental accommodation (Lategan 2016). Ironically, social aspects are not given the same importance as environmental and economic aspects (Goel and Sivam 2014:1). Accordingly this chapter considered sustainability from a South African perspective.

8.3 Sustainability from a South African Perspective

The South African perspective on sustainability was drawn from a qualitative enquiry into a literature review, followed by a reflection on six individual studies that were conducted in South Africa between 2014 and 2017 on diverse planning-related themes. The literature review scrutinised the diverse benefits of green spaces in cities, relating to the three dimensions of sustainable development. It was illustrated that although internationally accepted, many of these studies have not been conducted within a South African context, and the validity thereof was questioned. In other cases contradictions with theory were eminent, and such was elaborated on in Sect. 3.2 as empirical investigation into the specific case studies. The reflection of the six individual cases provided insight into the unique social context and the impact that such have on planning studies. None of these cases aimed to investigate social issues, but findings illustrated deviations from theory, initiated by the unique social context.

8.3.1 Literature Review Concerning three Dimensions of Sustainability

A literature review conducted for a research project funded by the South African Cities Network in 2016 (Cilliers and Cilliers 2016) employed theory-based sampling as part of qualitative enquiring into the quantification of green space values. It identified various studies that captured the value of green spaces in terms of social benefits, environmental benefits and economic benefits and classified such for both household- and neighbourhood scales. The investigation identified that most of these studies were conducted internationally, confirming the limited data available to quantify the green values within local South African context. Table 8.1 captures the individual studies that were evaluated as part of the literature review in terms of the three dimensions of sustainability, where local South African studies are illustrated in bold text.

Table 8.1 Literature review of research conducted on the valuation of green spaces.

Benefits		Household level	Neighbourhood level
Direct economic benefits	Financial	Higher property prices internationally (Perman et al. 2003; Luttik 2000)	Enhanced competitiveness of places (Stigsdotter 2008)
		Raised property prices locally (Schäffler et al. 2013:126, Irwin 2002)	Market values (Van Leeuwen et al. 2009)
		Higher neighbourhood values locally (Cilliers et al. 2013)	Lower storm water costs (Stiles 2006)
		Positive impact on production (Cilliers et al. 2012)	Lower emissions (Bolund and Hunhammar 1999).
		Increase in economic well-being (Beck 2009:240; Chen and Jim 2010)	Higher marketability of areas (Woolley et al. 2003)
		Lower maintenance costs (Stiles 2006)	Increased tourism spending (Swanwick et al. 2003)
		Contribute to house-buyers preferences (Bolitzer and Netusil 2000).	Reduction in costs of pollution control (Sutton 2006)
		Higher property values (Crompton 2001; Fausold and Lilieholm 1999)	More inward investment (CABE Space 2005)
		Valuation of grasslands (De Wit and Blignaut 2006)	Favourable image of the place (Woolley et al. 2003)
			Boost retail sales (Woolley et al. 2003)
			Improving the legibility of the city or neighbourhood (Stiles 2006)
			Multidimensional & policy value (Van Leeuwen et al. 2009)
			Open space values (Turpie and Joubert 2001; Roberts et al. 2005)
			Lower costs of artificial wetlands (Hardin 2001)
Indirect economic benefits	Social	Enhance community cohesion (Ulrich and Addoms 1991)	Enhance urban renewal (Sutton 2006)
		Better quality living space (Cilliers et al. 2010)	More social capital (Cilliers et al. 2010)
		Aesthetic enjoyment (Kong et al. 2007)	Aesthetic values, visual amenities (Natural Economy NW 2007)
		Recreation opportunities (Tyrvainen 1997)	Cultural values, cultural amenities (Natural Economy NW 2007)
		Leisure possibilities (Ulrich and Addoms 1991)	Identity of space (Luttik 2000)

(continued)

Table 8.1 (continued)

Benefits		Household level	Neighbourhood level
		Health benefits (Luttik 2000, Van den Berg et al. 2007)	Better neighbourhood relationships (Roger 2003)
		Contribute to well-being (Cities Alliance 2007; Luttik 2000)	Greater substitution value (Van Leeuwen et al. 2009)
		Positive perception (Kazmierczak and James 2008)	Enhance urban liveability (Caspersen et al. 2006)
		Psychological restoration (Kuo 2003, Van den Berg et al. 2007;)	Crucial to children's social & cognitive development (Sutton 2006)
		Stress relief (Hansmann et al. 2007; Herzele and Wiedemann 2002).	Establishing a sense of place (Stiles 2006)
		Positive social impact on children (Taylor et al. 2002)	
		Facilitation social contact and communication (Stiles 2006)	
		Positive assimilation of values and moral attitudes (Sutton 2006)	
		Access to experience (Kazmierczak and James 2008)	
		Recreational value (Turpie and Joubert 2001)	
	Environmental	Access to clean air and (Kong et al. 2007)	Higher biodiversity (Cilliers et al. 2013)
		Noise reduction (Bolund and Hunhammar 1999, Stiles 2006)	Ecological functions and ecosystem services (Stiles 2006)
		Enhance natural settings for play (child-friendly spaces)	Sustainable environments (Bedimo-Rung et al. 2005;)
		Increase intrinsic natural value (Van Leeuwen et al. 2009)	Habitat protection and provision (Cilliers et al. 2012, Stiles 2006)
		Life-support value (Van Leeuwen et al. 2009)	Lower air pollution levels (Natural Economy North West 2007)
		Air and water purification (Sutton 2006)	Water management (Natural Economy North West 2007)
		Quiet environments (Tyrvainen 1997)	Storm water management (Stiles 2006)
		Clean water and air (European Union 2013:6)	Improved land quality (European Union 2013:6)
		Rainwater retention (European Union 2013:6)	Lower carbon dioxide (McPherson et al. 2002)
			Climatic amelioration (Stiles 2006:11)
			Sustainability (Hodgkison and Hero 2002)
			Carbon sequestration (Schäffler and Swilling 2013)

In terms of environmental sustainability, several of these international research and theories could be translated to a local South African context, as proven to be true, despite South Africa being a developing country. Such include the enhanced biodiversity provided by green spaces in cities (Cilliers et al. 2013), the myriad of ecosystem services that these spaces offer to human societies (Stiles 2006:30), the provision of habitats for wild plants and animals (Stiles 2006:31) and increased intrinsic natural values (Van Leeuwen et al. 2009). There were, however, various research and theories identified that could not be verified for the South African context such as enhanced water management approaches provided by green spaces (Sutton 2006), a concept that has not received much attention in South Africa, as well as the calculation of street tree costs (tree planting, irrigation and other maintenance) versus calculated benefits (energy savings, reduced atmospheric carbon dioxide, improved air quality and reduced storm water runoff), to estimate net benefits of green spaces (McPherson et al. 2002). Such studies have not been conducted comprehensively in the African context, and the validity thereof could thus not be confirmed.

A similar trend was evident in terms of economic sustainability. The economic benefits of green spaces often refers to market values (Van Leeuwen et al. 2009) determined through hedonic pricing methods that place the attention on the impact of land use on surrounding properties (Irwin 2002) and the valuation of property prices linked to attractive environmental spaces, in comparison to properties in less favourably located areas (Luttik 2000:1). Research that could be related to the South African context included evidence on enhanced tourism activities (Swanwick et al. 2003) and increased inward investment in the area (CABE Space 2005), especially in tourist destinations. No local studies have been conducted to validate international findings relating to lower traditional infrastructure costs as a result of green space provision (Stiles 2006), lower emissions (Bolund and Hunhammar 1999) and increased economic well-being (Beck 2009:240). The most evident contradiction to international acclaimed theory was that of increased property values, due to proximity to green spaces (Cilliers et al. 2012; Woolley et al. 2003; Van Leeuwen et al. 2009). This case was further explored as part of the empirical investigation in Sect. 3.2.

In terms of social sustainability, an even greater disparity was evident between the international and South African context. Although access to and experience of nature are accepted as issues influencing human physical and psychological health and well-being (Stiles 2006:32), comprehensive studies have not been conducted in a South African context, especially considering the unique characteristics of urban and rural areas. The positive perception of urban green space values (Kazmierczak and James 2008; Kuo 2003; Chiesura 2004) are well described in international literature, linked to positive assimilation of values and moral attitudes (Sutton 2006) and enhanced urban liveability (Caspersen et al. 2006). However, the issues of safety and social status seemed to place an entirely different dimension to the South African perspective on social sustainability, not acknowledge in the international planning arena. Such is elaborated accordingly in Sect. 3.2.

8.3.2 *Reflection on South African Case Studies and Unique Social Considerations*

The reflection of the six individual cases conducted between 2014 and 2017 on diverse planning-related themes in South Africa provided insight into the unique social context and the impact that such have on planning studies. None of these cases aimed to investigate social issues, but findings illustrated deviations from theory, initiated by the unique social context. It confirmed that urban planning is unavoidably context defined, and planning ideas cannot be based on general applicability. The reflection on these case studies were thematically classified, relating to (3.2.1) the adequate knowledge and contextualisation of concepts (3.2.2), contradicting results of the proximity principle in urban areas of South Africa (3.2.3), contradicting results of compensation hypothesis in rural areas of South Africa and (3.2.4) other social issues that impart sustainability.

8.3.2.1 Knowledge and Contextualisation of Concepts

Misunderstanding and *misinterpretation* of concepts are often reasons for exclusion in practice. The concept of green spaces could serve as a worthy example to illustrate this challenge in terms of the South African context. The concept of 'green spaces' is well defined in the international literature as a qualitative open space with specific functions connected thereto (McConnachie and Shackleton 2010). However, in South African planning literature, official policies and databases, the concept of 'green spaces' is often referred to as 'open space' by including definitions of 'developed and undeveloped green space' (Schäffler et al. 2013:3). Open space could range from a vacant site to neglected natural area to sports field.

A quantitative community survey conducted in 2015 (Veiga 2015) in the local Fleurhof area, situated south west of Johannesburg in South Africa, confirmed such statement; 322 questionnaires were completed by residents (3.19% sample size) of the said area to capture their knowledge and perspective regarding green spaces in the area. Data of the convenience sample were statistically interpreted and p-values reported for completeness sake. Chi-square tests and symmetric measures illustrated statistical significant association between different questions, where $p < 0.005$. Findings revealed that 93% of participants considered environmental issues to be important, but only 39% of participants showed a good understanding and knowledge of the concept of green spaces. Statistical analysis identified that younger generations were more informed about green spaces with an effect size of 0.248.

Another qualitative study conducted in 2016 (Huston 2016) investigated the understanding of professional planners relating to green spaces and green infrastructure. Based on the same statistical method as the 2015 study, 13 questionnaires were completed by purposefully selected participants. 69% of participants illustrated knowledge relating to the concept of green spaces, but upon qualitative investigation, only 23% proofed to substantiate such understanding of the concept. Of the respondents working in the private sector, 40% claimed to never have included

green infrastructure as part of spatial planning projects. The research illustrated the misunderstanding and misconception of the definition of green spaces and green infrastructure among professional planners, and the unevenly distributed use of green infrastructure in practice. An evident correlation could be drawn between lack of knowledge and realisation of the concept of green spaces (and green infrastructure) in practice.

8.3.2.2 Contradicting Results of Proximity Principle in Urban Areas

As proximity to green space was proven to be a key factor in international residential value (Konijnendijk et al. 2013:21), *a pilot study was conducted in 2016 in Potchefstroom* (Cilliers and Cilliers 2016), situated in the North-West Province of South Africa, to test applicability of the proximity principle in local context. The proximity principle states that open spaces, in general, raise the value of nearby properties (Brander and Koetse 2011; Konijnendijk et al. 2013:21). Five residential areas, inclusive of 188 properties, were purposefully selected based on their proximity to green space and was a refinement of previous research conducted by Cilliers (2010) and Cilliers et al. (2013), as illustrated in Fig. 8.3.

Research sites were not limited to a specific green space but ranged from recreational green spaces to aesthetic green spaces. Only residential properties (zoned residential 1) in the more affluent areas of Potchefstroom were selected as previous studies indicated that the demand and supply for ecosystem services differ between the residential areas along a socio-economic gradient (Cilliers et al. 2013). The function and accessibility to these spaces were considered in terms of safety concerns as a factor impacting on value. Three zones within each of these areas were selected and sampled according to location and distance from the green space. Figure 8.4 illustrates an example of the zones selected in each of the areas.

The residential property prices were based on the municipal property valuations (Tlokwe City Council Valuation Roll) for the period 2009/2013, as provided by the local municipality (Tlokwe City Council 2010). The price per square meter of each property was determined and compared, and a mean value was determined for each zone. Data were analysed in terms of (1) ANOVA effect sizes, (2) ANOVA p-values, (3) ANOVA between means p-value and (4) Kruskal-Wallis p-value. The null hypothesis assumed that all areas should have the same property value irrespective of their distances from the green space. Significant differences would reject the hypothesis, and in such cases, Unequal N Honestly Significant Difference (HSD) test was used to compare the sample means pair wise with that of every other sample. Comparisons between Zone 1 and Zone 2, as well as between Zone 1 and Zone 3, in terms of the ANOVA effect sizes illustrated a large practical significant difference ($\approx$0.8) between the mean, as well as the effect size within four of the five areas. Three of the five areas indicated that there is a statistically significant difference between the means ($p < 0.05$ ANOVA analysis) and between the groups ($p < 0.05$ Krusal-Wallis analysis). In all five areas, Zone 1 had a lower price per square meter than in comparison to both Zone 2 and Zone 3 (Cilliers and Cilliers 2016).

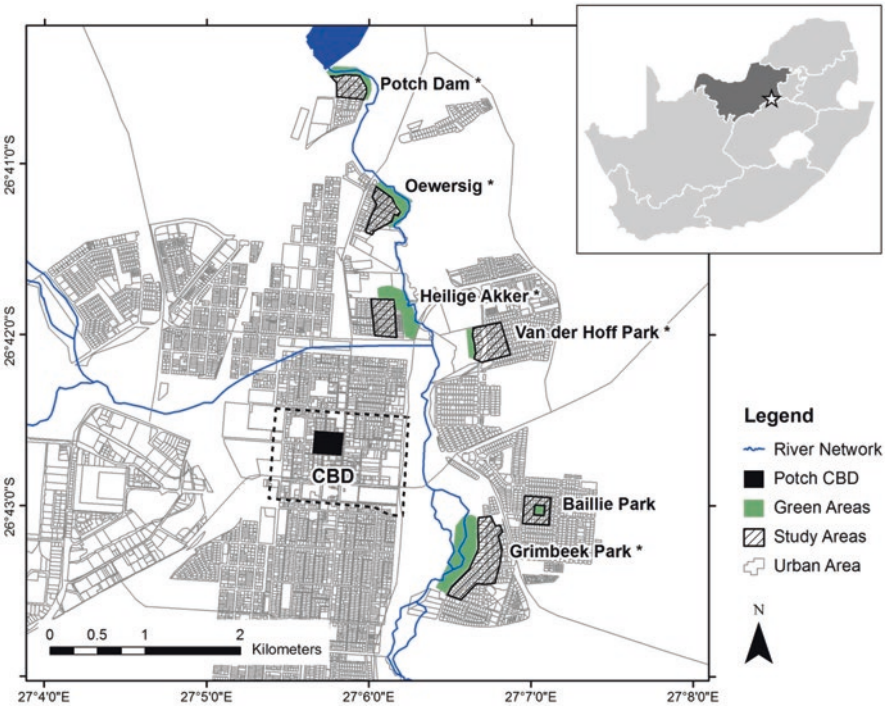

Fig. 8.3 Greater Potchefstroom and location of study area and associated green areas (Source: Cilliers and Cilliers (2016))

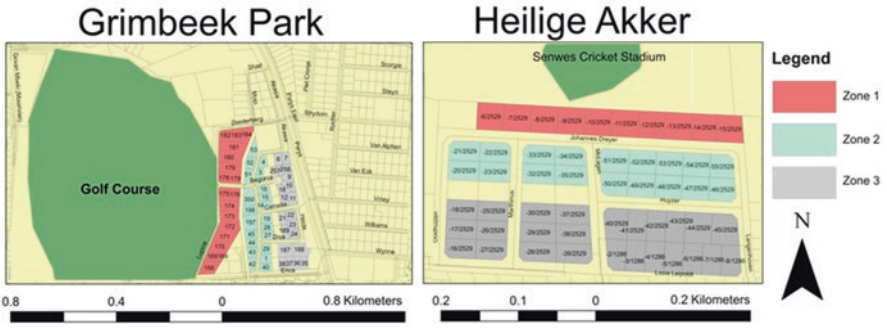

Fig. 8.4 Example of selection of zones within each area (Source: Cilliers and Cilliers (2016))

The proximity principle was rejected in this case study, as it found that residential properties located adjacent to green spaces had a lower price per square meter than properties located further away. Possible reasons for such contradictions to international findings might be related to ecosystem disservices, crime rates and noise (Konijnendijk et al. 2013:22; Perry et al. 2010). Given the unique challenges and characteristics of South African neighbourhoods, this researched called for

social issues (especially *safety* considerations) and ecosystem disservices to be addressed in integrative spatial planning approaches (Cilliers 2009; Cilliers and Cilliers 2016).

8.3.2.3 Contradicting Results of Compensation Hypothesis in Rural Areas

Research conducted by Lategan and Cilliers (2017) reflected on the planning of green space and the related impact of informal backyard rental densification in South Africa, based on the compensation hypothesis. Data were retrieved from a quantitative research survey based on convenience sampling, distributed in Bridgton and Bongolethu townships, located on the outskirts of Oudtshoorn in South Africa in 2013, where 101 questionnaires were completed by residents of properties included in the demarcated area. Surveys were conducted with the assistance of chaperones, supporting the researchers in terms of points of entry to the community. Survey questions focused on respondents' access to and use of public green space, domestic green space (gardening) trends and informal backyard rental particulars, where applicable. As a convenience and not a random sample was used, p-values were reported for the sake of completeness. Findings in the Bridgton/Bongolethu case study disproved the compensation hypothesis as an assumed increase in the use of public green space in compensation for private green space lost (Lategan 2016). Over 80% of the respondents claimed to make use of proximate public green spaces, but the majority did so infrequently, not as part of their daily or even weekly routines. Statistical analysis revealed that only an insubstantial number of respondents regarded public green spaces as their children's primary play locales, with the majority still playing in domestic green spaces (private gardens), in both front and backyard spaces. The research illustrated the dissimilar functions of public and private green spaces and that such could not be provided as a substitute for the other (Haaland and Van den Bosch 2015).

8.3.2.4 Social Issues Imparting on Sustainability

As part of a qualitative inquiry into the planning of child-friendly spaces, *structured interviews were conducted in 2014* with five purposefully selected experts actively working in the Vaalharts area, a typical rural area with high vulnerability, inadequate infrastructure and basic services, located across the Northern Cape and North West Provinces of South Africa. Data of the interviews were coded and thematically analysed to provide qualitative insight on specific issues identified as problematical within this rural area. Safety issues were revealed as most crucial consideration in this context. However, in terms of the urban context, broad reference to safety issues usually implies access to and from a space, referring to restriction and division of vehicles and pedestrian spaces, and in some cases, also crime considerations addressed in terms of lighting provision or visibility measures. In rural context, it

became evident that safety issues imply perceptions of crime, but more importantly it refers to restraint access to natural elements such as open water cannels where, in the Vaalharts case, it was linked to numerous drownings of children per year in the said cannels (Pienaar 2014; Kriel 2014; De Jong 2013). The research illustrated that social considerations were core in guiding spatial patterns and future development proposals.

Research of Cilliers and Rohr (forthcoming) stated how water provision and water management is considered more of a social concern than an environmental or economic concern in South Africa. This is due to the government's promise to provide free basic services for the poor (Fisher-Jeffes et al. 2012), conflating water provision with broader social equity challenges, entailing being fair and specific, providing people with what is contextually needed in order to grant equal opportunities. In this sense the community needs are related to status and access to water services, thus not planned from a sustainability perspective, but solely from a social perspective. Again, social considerations are the main driver of spatial planning in this context.

8.4 Conclusion: The Undervaluation, but Extreme Importance, of Social Sustainability

Sustainability thinking requires transdisciplinary research approaches. This is a daunting objective for cities, but even more so for cities in developing countries, still struggling with issues of illiteracy, basic service provision and increasing poverty, exacerbated by increasing urbanisation pressures and budget constraints (Cilliers and Cilliers 2015; Kuruneri-Chitepo and Shackleton 2011). This research argues that the core constraint of realising sustainability in developing countries often relates to social issues, which is ironically the least understood of the three dimensions of sustainability.

However, from a spatial planning perspective, it is evident that social issues will from now on play the leading role when considering sustainability. The balance between the natural and built environments will be negotiated in terms of liveability considerations, enforced by solid context-based planning approaches. The research emphasised the importance of context-based planning within broader social sustainability thinking, providing evidence of the unique social context in South Africa and the impact that such have on planning studies.

It was concluded that the literature-base supporting sustainable development objectives and practices in South Africa is limited, often relying on international accepted theories. Some research has recently illustrated the disparities between the international context and South African context, questioning the validity of translating international theories to local context, with specific contradictions to the proximity principle in one case study and disproval of the compensation hypothesis in another.

Adequate knowledge and contextualisation of concepts should be emphasised within a social sustainability approach. This has nothing to do with education levels or scope of training provided in developing countries but concerns the interpretation

of concepts. Misunderstanding and misinterpretation of concepts used in different context, or interchangeably in various disciplines, (Escobedo et al. 2011) lead to a value gap (Cilliers 2009), where different stakeholders value a concept different, as a result of the interpretation thereof. The concept of 'green spaces' illustrated such challenge where the international accepted definition could not be applied in local context. There is no typology for open spaces that is suitable for the South African context, and as such, if communities are probed to value these open spaces, it is often perceived as having no (social, economic or environmental) value, being an abandoned open area, a crime hotspot or area demarcated for future development. The lack of definition and contextualisation is visible in practice where qualitative green spaces are perceived as a scarce commodity. The social constraint (knowledge and interpretation of the concept) are reflected in the spatial reality (lack of physical spaces).

The lack of adequate context-based research further constraints this problem. The actual value and benefits that green spaces might provide to South African communities, both urban and rural, should be explored and translated to a monetary value, to substantiate the motivation thereof and build a case in favour of sustainability planning. Methods, theories and equations of urban economics and green economics should be translated into urban planning approaches to inform decision-making (Bertaud 2010:1; Luttik 2000:161, 162). It is within this structure that location-specific issues should be included, such as cultural preferences related to status (enclosed versus open spaces; access to services), and safety issues (actual safety versus perceived safety, for different stakeholders and communities).

Finally the issue of scale cannot be ignored when considering context-based planning. The majority of sustainable thinking and related theories refer to broader environmental processes at a regional scale that have not been translated more practically to a local government level tasked with implementation (Cilliers and Cilliers 2016). This holds a great challenge for South African cities which are often defined by smaller administrative boundaries. Sustainability thinking should thus go beyond discussions on intergovernmental cooperation to enforce ground level implementation, engraved in social considerations.

Acknowledgements The financial assistance of the National Research Foundation (NRF) towards this research is hereby acknowledged. Opinions expressed and conclusions arrived at are those of the authors and are not necessarily to be attributed to the NRF.

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