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Low-cost housing developments in South Africa miss the opportunities for household level urban greening

C.M. Shackleton[a,*], P. Hebinck[b], H. Kaoma[a], M. Chishaleshale[a], A. Chinyimba[a], S.E. Shackleton[a], J. Gambiza[a], D. Gumbo[c]

[a] Department of Environmental Science, Rhodes University, Grahamstown 6140, South Africa
[b] Department of Rural Development Sociology, Wageningen University, The Netherlands
[c] CIFOR, Southern Africa Regional Office, Zambia

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ABSTRACT

Most developing countries of the world are experiencing large-scale migration from rural to urban areas. Many new migrants end up in low-cost or informal areas and slums with attendant environmental concerns. One dimension of improved urban sustainability is the provision of green spaces and trees. Whilst many countries have urban greening programmes for public spaces and streets, few have considered the status and potential contribution of trees from resident's own gardens. This paper reports firstly on the policy environment for urban forestry and greening in South Africa and secondly on the maintenance, use and appreciation of trees on private homesteads of residents of new and older low-income suburbs as well as informal housing areas from three small towns in South Africa. In particular we examine if the most recent centrally planned and built low-income housing schemes (called RDP suburbs in South Africa) have considered and incorporated plans or spaces for urban greenery in peoples' homesteads. We found that broad environmental and sustainability concerns and statements are common in urban development and housing policies, but specific guidelines for implementation are generally absent. More specifically, urban forestry and tree planting are rarely mentioned in the broader land use and environmental policies other than the national forest act and subsequent regulations, but even there it is relatively superficial. In the study towns the prevalence, density and number of species of trees was lowest in the new RDP suburbs relative to the township and informal areas. Consequently, the contribution of tree products to local livelihoods was also lower in the RDP areas. Yet there were no differences in the level of appreciation of the value and intangible benefits of trees between residents from the three different suburbs. This shows that the failure to plan for and accommodate trees in new low-cost housing developments is missing an opportunity to improve overall urban sustainability and liveability and constraining the potential flows of tangible and intangible benefits to urban residents. Making opportunities for such in older suburbs is challenging because of space limitations and cost implications of retrospective provisions, but incorporation into plans for new low-cost housing development should be possible.

Introduction

More people now reside in urban areas than rural ones, and the difference will continue to grow (UN Habitat 2006). It is estimated that by 2050 more than 70% of the world's population will be urban (Montgomery, 2008). The numerical, economic and political dominance by urban populations has already been a feature of the developed world for several decades. The greatest changes are now being experienced in developing countries (Montgomery, 2008; Angel et al., 2011). Whilst many developing countries still have a preponderance of rural citizens, this will change within the next generation or two. Consequently, there is a growing need for understanding land use and sustainability issues in urban settings in developing countries.

Urban sustainability considers many dimensions of how people live, work and relax in towns and cities. Aspects receiving the most attention include energy efficiency in buildings and of transportation, waste disposal and sanitation, air quality, urban liveability and quality of life. In terms of the last, access to and use of public and private green spaces are deemed a crucial strategy (Sundaram, 2011). For example, the European Environment Agency (EEA), as cited in Barbosa et al. (2007), recommends that people should have access to public green space within a 15 min walking distance of their homes, a standard which many European cities meet. Similarly, English Nature (EN), a UK government agency, recommends that urban residents should have an accessible public green space less

* Corresponding author. Tel.: +27 46 603 7001.
E-mail address: c.shackleton@ru.ac.za (C.M. Shackleton).

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than 300 m from their home (Barbosa et al., 2007). In Israel, an area of 20 m^2 of public green space per person is prescribed at a city scale (Omer and Or, 2005). Areas of public green space and urban forests are often considerably less in poorer towns and cities of the developing world (e.g. McConnachie et al., 2008; Thaiutsa et al., 2008) and there are few guidelines within developing countries. Yet, the direct transfer of first world models and guidelines would be inadequate because of the different rates of urbanisation processes and planning in most developing countries, and the competition for financial and planning resources with other services which are frequently deemed more important (Shackleton, 2012; Wendel et al., 2012).

Although the benefits of green spaces and trees in urban settings are widely recognised, access to and use of green spaces are not uniformly distributed throughout towns and cities, with some suburbs having greater endowments of public and private greenery than others. For example, Tratalos et al. (2007) showed many differences in the distribution of green space across five large cities in the United Kingdom. They found that housing density was negatively associated with the extent of greenery, but that housing type also had a marked influence. Heynen et al. (2006) revealed significantly lower levels of tree cover in areas occupied by poor households and racial minorities in Milwaukee (USA). McConnachie and Shackleton (2010) also found poorer communities had lower areas of public green space relative to more affluent areas in several small towns in South Africa, and that the spaces had fewer trees and tree species. The historical and planning reasons for such disparities have rarely been studied (McConnachie and Shackleton, 2010). Revealing and communicating such inequities can prompt better planning processes and environmental justice. This is necessary because planning officials may not have the same perspectives on the abundance, distribution and quality of public green space or trees abundance as do residents of the same urban area (Broussard et al., 2008).

The majority of case studies on the distribution of green spaces and trees within cities are from developed societies (Shackleton, 2012; Wendel et al., 2012), most of which are highly urbanised and with relatively low population growth rates. In contrast, developing societies are experiencing high rates of urbanisation and population growth, such that urban planning agencies frequently struggle to keep up (UN Habitat 2006; Angel et al., 2011). This dynamic requires that urban housing policies and programmes be spatially and temporally flexible because the local context can change very rapidly. On the other hand, it also affords opportunities to learn from best practices internationally regarding urban land use planning, new housing and infrastructure developments. This could include the growing international emphasis on sustainability and liveability.

South Africa is such a developing society faced with massive backlogs in urban infrastructure and housing development. At the same time it has modern and sound national environmental policies and frameworks. This unique planning context of stark development discrepancy is particularly intriguing because of the lasting ill-effects of the previous racially defined apartheid regime (1940s–1993), and the post-1994 democratic government's effort to redress these. Under the apartheid regimen, land ownership and residency were racially segregated. Most black South Africans were expected to live in and become nominal 'citizens' of ethically defined, geographically separate homelands. Considerable financial and human resources were dedicated by the apartheid government to forcing black South Africans to move to these homelands, which suppressed national urbanisation rates for some period. Those who were permitted to work and reside in urban areas outside of the homelands required a permit to do so. Each urban area was zoned into racially segregated suburbs. Black South Africans were required to live in separate areas, locally termed 'townships' (Wilkinson, 1998). These were relatively high density suburbs, poorly serviced, with limited commercial activities and widespread poverty. In contrast, white South Africans (people of colonial European descent) resided in suburbs typical of any city in the first world; well laid out and maintained leafy suburbs with low housing densities and adequate infrastructure. These differences continue to persist, with the leafy suburbs being home to the more affluent South Africans (mostly of European descent, but with increasing numbers of professional and higher income earning black South Africans) and the denser townships being occupied by poorer working class black South African households.

With the demise of the apartheid government in the early 1990s two changes rapidly took place that altered the face of most South African urban landscapes. The first was a national programme by the newly elected government to address the racially defined and experienced backlogs of service provision and housing created during apartheid (Wilkinson, 1998; Hunter and Posel, 2012). The new government initiated a vigorous housing programme, although significant shortfalls remain because of the high rates of influx of new migrants to urban areas (Gilbert, 2004; Goebel, 2007). The emphasis was on delivery of large numbers of houses for the poor and previously homeless at a cost as low as possible (Gilbert, 2004). Most houses are single storey, on a 40 m^2 foundation. This was part of the post-apartheid Reconstruction and Development Programme (RDP), and hence these spatially separate and uniform housing developments are locally termed 'RDP houses' and 'RDP suburbs'. Occupancy of RDP housing is reserved for the indigent, with lists of eligible households maintained by local municipalities. The centrally planned nature of the RDP housing programme offered government an opportunity to adopt best international practice in low cost housing provision, including environmental sustainability and liveability.

The second change was the repeal of laws that restricted where Black South Africans could live and work. Thus, there was an enormous surge of people moving to urban areas for employment and perceptions of better living conditions and services (although many retain links with their rural homestead and kin (Krüger, 1998; Bank, 2001; Tacoli, 2006; Hebinck and Lent, 2007)). For many, this move resulted in transitional, or even long-term, stays in informal settlements or slums, characterised by high density living, low service provision and houses or shelters built of scavenged or cheap materials (Hunter and Posel, 2012). Thus, to many previously apartheid towns composed largely of townships and affluent suburbs, were added RDP suburbs and informal settlements (Steyn, 2012).

Despite the robust and progressive national environmental policy milieu, previous work in South Africa has shown marked disparities between and within towns with respect to the provision, and selected ecological attributes, of public green space and urban trees (McConnachie et al., 2008; McConnachie and Shackleton, 2010; Kuruneri-Chitepo and Shackleton, 2011). Several commentators have concluded that more attention needs to be given to the distribution of public green space and trees by planners, municipal officials and researchers as an important strategy in promoting urban sustainability and quality of life in the poorer township and RDP suburbs and burgeoning informal settlements. However, these analyses overlook that many of the benefits that trees and green spaces offer urban residents are not restricted to public spaces, and that much greenery and trees, and the benefits there from, are found in private spaces. For example, Iverson and Cook (2000) found in metropolitan Chicago (USA) that approximately 71% of green areas were located on private land. The corresponding figure for León in Nicaragua was 86% (Gonzáles-Garcia and Gómez Sal, 2008). These are gardens around peoples' houses, and to a lesser extent around corporate and private businesses, factories and office buildings. Gonzáles-Garcia and Gómez Sal (2008) illustrated how patterns of biodiversity and benefits on private gardens varied throughout León, with colonial history and age of suburbs