

Upgrading dense informal settlements by building upwards: Lessons from an informal settlement in Durban, South Africa

Summary

- There are at least 1.2 million households living in informal settlements in South Africa and 287 000 in the metro of eThekweni, that includes the city of Durban, in Kwa-Zulu Natal, South Africa.
- Many dense informal settlements are well located and help connect the urban poor to jobs, schools, healthcare and other public facilities in the surrounding area.
- Layouts need to be reconfigured in order to liberate space for essential services (i.e. footpaths, running water, sewers and electricity) and public space (e.g. child care facilities and recreational space).
- It is neither socially nor financially viable to relocate people in order to de-densify. There are too many settlements, too many people and not enough well-located land. Relocations have generally proved harmful due to a loss of social cohesion and often mean moving communities out to marginal locations.
- Building upwards could effectively double (or even treble) the available floor space for housing and free up open space.
- Conventional multi-storey walk-ups (i.e. a block of flats) are not practicable because of their high unit costs and the steep terrain of some settlements.
- A workable approach needs to be incremental and driven by the needs, knowledge and practical experience of people themselves.
- There are alternative housing models which people could build for themselves, are low cost, and are structurally sound on steep slopes. There are also precedents elsewhere to learn from, e.g. Mshini Wam in Cape Town.
- A double story, 35 m² lightweight wood frame structure with deep pile foundations, metal cladding and appropriate insulation meets these criteria and can be built for approximately R46 000 (excl. labour).
- This needs to be tested via a pilot project with a view to possible replication and upscaling.

Figure 1: Locational advantages of Parkington Informal Settlement



Source: Authors' own

Introduction

Approximately 287 000 households live in 581 informal settlements across eThekweni Municipality and the numbers are growing. This translates into roughly one shack for every ten formal brick or block houses. The pressures on housing in South African cities are sizeable, despite 25 years of a national house-building programme with a budget of almost R20 billion each year.¹ The situation is much worse elsewhere on the continent. More than three-quarters of residential areas developed between 1990 and 2014 in sub-Saharan Africa were informal and unplanned.²

A realistic solution to the housing backlog arguably requires a shift in

mindset from mass provision of free-standing houses that create sprawling settlements. It would take more than 20 years of building houses at the current pace (using all of the provincial housing budget) just to accommodate those currently living in shacks in Durban. The Government seems to recognise the predicament. The recent Budget announced major cutbacks in the housing programme and a shift in resources towards upgrading informal settlements.

So what needs to be done to transform informal settlements from overcrowded and often squalid environments into more functional and liveable neighbourhoods?

Observations towards a more sustainable approach

Dense informal settlements represent some of the most challenging places for public investment and management because of the intense competition for space. Recently, the COVID-19 pandemic has brought to light the

challenges of dealing with contagion in overcrowded informal settlements where basic hygiene is compromised by inferior services and where other measures involving 'social distancing' are often impractical. Neither is it socially nor financially feasible to relocate households in order to de-densify. There are simply too many settlements, too many people and not enough well-located land. Relocations have a poor track record due to the loss of social cohesion and often involve moving communities away to marginal locations.

Our research into Parkington Informal Settlement in eThekweni offers some important insights in the search for a more constructive and sustainable approach to dealing with density in informal settlements.

Many dense informal settlements in eThekweni are well located

Human settlements are about much more than housing. Many densely populated informal settlements in Durban are well located in relation to

1. National Treasury (2020) Budget Review 2020. ISBN: 978-0-621-48101-3, RP: 19/2020, National Treasury, Pretoria
2. Angel S, Blei A, Parent J, Civco D, Lamson-Hall P and Sánchez N (2016) *Atlas of Urban Expansion Vol 1: Areas and Densities*. Cambridge, MA: Lincoln Institute of Land Policy

jobs, schools, healthcare and other public facilities. This means that these settlements perform well according to some measures of density and functionality used by city planners, especially at the scale of the wider neighbourhood or precinct.

Parkington Informal Settlement is situated less than 3 kms from the two large industrial nodes of Riverhorse Valley and Springfield Park and less than 8 kms from the city centre (see figure 1). The settlement also has many primary and secondary schools within walking distance. The implied savings on transport from living close to work and public amenities is significant. For instance, the average effective cost for commuters using minibus taxis in South Africa is nearly 30% of income.³ Informal settlements like Parkington are well positioned to act as springboards that lift people out of poverty if they are upgraded in situ and linkages with surrounding areas are strengthened.

In-situ upgrading is limited by a congested and haphazard built form

The everyday challenges facing residents of such areas are usually very localised, i.e. at the neighbourhood level. Their locational advantages and attractions invariably lead to intense competition for space, resulting in overcrowding, contagion, pollution and congestion.

The haphazard form of such settlements constrains their upgrading and redevelopment. There is little room for circulation by public walkways, the reticulation of services and access for emergency vehicles. Informal settlements also do not protect the public spaces necessary for

social services such as ECD centres, recreational spaces such as courtyards or commercial spaces such as taxi ranks or markets.

eThekweni Municipality has done much to extend access to basic services for shack-dwellers with good coverage in terms of electrification (individual meters), access to water (communal taps) and sanitation (communal ablution blocks). This is critical to improve living conditions and help meet the basic needs of vulnerable groups. However, more needs to be done to get informal settlements onto a resilient and sustainable trajectory. Moreover, investment in public infrastructure and facilities is usually situated on the periphery of these settlements (see figure 2). The spatial arrangement needs to be improved by creating room for a 'services grid' with lanes for footpaths and the reticulation of water, sewers and electricity. This enables the installation of communal services such as wash facilities, toilets, solid waste bins and fire hose points inside the settlement and individual electrical connections. The potential is also created for future individual water and sewer connections

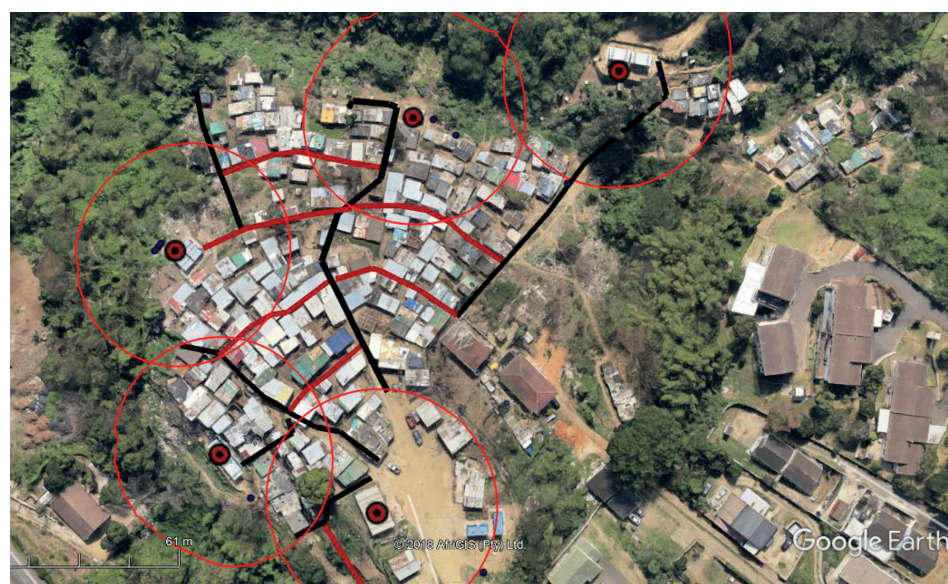
as housing is improved. Space could also be earmarked for public facilities such as recreational spaces, ECD centres and even trading places.

Multi-storey top-structures could free up space for development

Building upwards is the most obvious solution to the land constraint. Building upwards could effectively double or treble the available floor space for housing and free up open space. Constructing conventional multi-storey walk-ups (i.e. apartment block) is prohibitively expensive. A workable approach needs to be incremental and driven by the needs, knowledge and practical experience of people themselves. This means exploring alternative forms of construction which are cheap, easy to build and can still go upwards.

Figure 3 is a prototype design for a low-cost, lightweight, double-storey wood-frame structure with deep pile foundations, metal cladding and appropriate insulation (developed by architects from DesigncoLab). Design criteria include cost, structural integrity on steep slopes, the use of

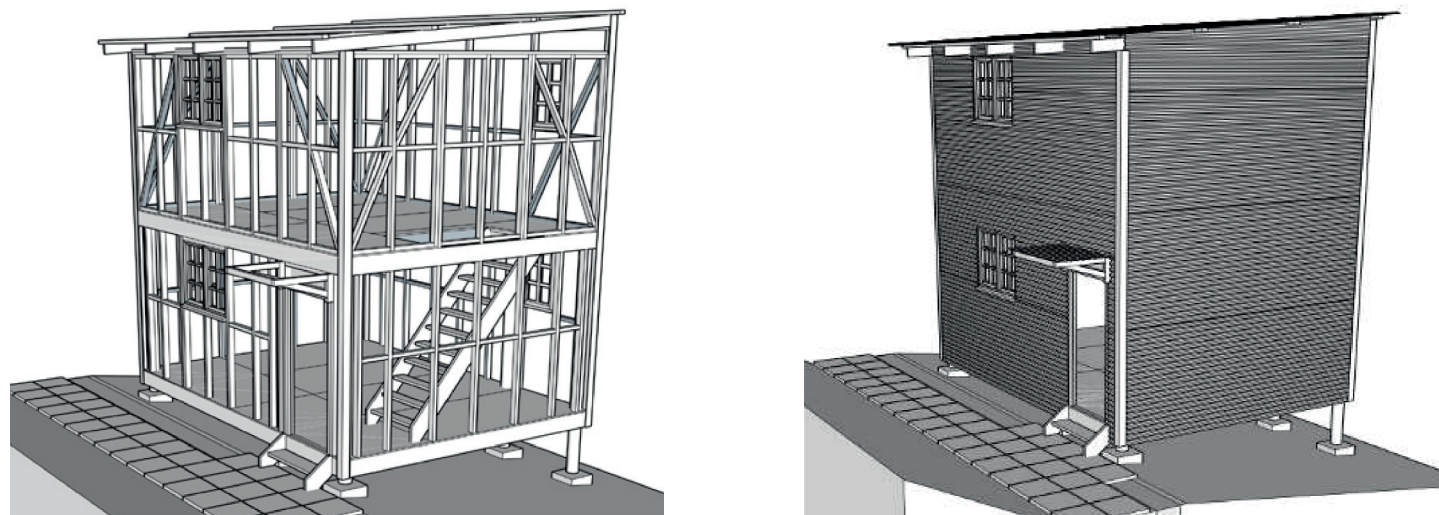
Figure 2: In-situ public service provision limited to the periphery



Source: Project Preparation Trust

3. Kerr A (2017) Tax(i)ing the Poor? Commuting Costs in South African Cities. *South African Journal of Economics* 85(3): 321–340. <http://doi.org/10.1111/saje.12161>

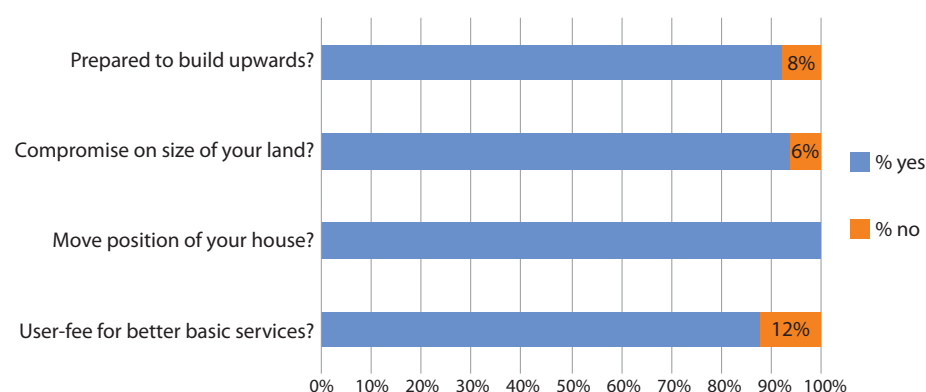
Figure 3: Alternative modular multi-storey housing



Link to Youtube clip: <https://www.youtube.com/watch?v=XPXX2TmP7TI&feature=youtu.be>

Source: DesignCoLab

Figure 4: Community support for incremental vertical upgrading



Source: Parkington Informal Settlement Survey, Density Module, 2019

materials familiar to local builders, materials availability from local suppliers, and adequate fire and thermal performance. We estimate that the cost of materials for a medium-sized unit (total floor space of 34.4 m²) would be approximately R46 000 (USD 2 500) per unit compared with approximately R380 000 (USD 20 600) for a unit in a conventional concrete apartment block.

We are not advocating a specific type of housing structure or technology.

The point is to demonstrate that innovative methods exist which could be used to unlock vertical expansion, if supported by an enabling policy environment. The costs involved are not completely out of reach for better-off members of the community, but they would need to be supported with technical know-how and collective planning. Mobilisation of community savings or government subsidies on materials would assist in moving to scale.

Incremental consolidation needs a supportive regulatory environment

Reshaping the built environment of informal settlements is extremely difficult without a supportive regulatory framework. Incremental upgrading cannot get going if onerous formal building, services and town-planning standards are applied. Due consideration should be given to balancing costs with appropriate standards to ensure public safety. Special zones might be one way of relaxing national building regulations whilst encouraging housing investments that follow a rational design. The current baseline of total non-compliance needs to be borne in mind in enabling 'better' practice.

Research in Parkington suggests that there is strong support from the community for trying new approaches to settlement upgrading (see figure 4). In our survey of more than 50 local households, participants acknowledge the need to reconfigure their settlement spatially and are even willing to sacrifice some land in the process. The survey also shows that communities are willing to contribute financially to the installation and upkeep of improved local services. Local government could

Figure 5: A vision of incremental vertical upgrading in Parkington Informal Settlement



Source: Project Preparation Trust

leverage offers to improve tenure and upgrade infrastructure in exchange for local compliance with shared norms and standards, respect for public property including responsible use of municipal services and desisting from illegal connections.

A bottom-up process of spatial reconfiguration and upwards expansion is unprecedented in South Africa. There are lessons to be learnt from similar initiatives such as 'reblocking' by Shack Dwellers International and affiliates which follow a similar logic.⁴

The global COVID-19 pandemic has created greater awareness of the need for improved hygiene, health care and living conditions for people living in dense informal settlements. The challenge is for stakeholders to come together and to start thinking

more creatively about what is possible beyond conventional housing policies and practices (see figure 5). This requires greater flexibility in the regulatory environment and a much more participatory approach which would allow for experimentation and local adaptation. The timing couldn't be more opportune in South Africa as the government seeks to shift resources from the national housing programme towards incremental, in-situ upgrading of informal settlements.

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4. Hendler Y and Fieuw W (2018) Exploring Partnerships with Local Government: A People's Led Approach to Informal Settlement Upgrading. Cape Town: CORC. Accessed on 14 August 2019 at https://www.sasdialliance.org.za/wp-content/uploads/2018/11/Upgrading_Publication_CORC_Nov_2018.pdf