

## **Resilience thinking for the next generation of designers**

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(SLIDE 2)

It is particularly special that I am invited to an event linking South Africa and the Netherlands. My country of origin is the Sudan, I studied housing in the Netherlands and have been living in South Africa for more than 20 years, with a brief one-year stint in Lesotho.

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I graduated from the Architecture Department at the University of Khartoum in 1988. My father had graduated from the same department in 1966. I immediately started teaching part-time and working at my father's practice. My father's practice was involved in a range of large and small projects over the years. The production from the office, especially with regards to private housing developments, was prolific.

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In 1992, at the age of 24, I travelled to the Netherlands, having recently graduated from Architecture at the University of Khartoum, to study housing at the Institute for Housing Studies (IHS) Rotterdam. In preparation for this talk, I dug out my old documents from the IHS just to remind myself of the extent of the influence of 6 months in Rotterdam had on my life and my career. I produced a 128-page research document in Rotterdam. My main instructor was a Raul di Lullo from Latin America and I was apparently part of batch number 59 in the International Course for Housing. One of the things that still fascinates me, is that I wrote the whole document by hand, not knowing how to type and, at the time, and not having ever used a computer.

If I remember correctly, I was the youngest and least experienced participant in that batch – I studied with a mixed group of people coming from all over the world and in very diverse disciplines. I researched the relocation of a large settlement in Khartoum from a central location to the southern peripheries of Khartoum – a highly controversial project at the time. The investigation led me into many interesting explorations including the issue of rights to housing, rights to access of space in the city, appropriate technologies and basic service provision. It also led me to explore participation in a deeper way by looking at how our design and technical decision-making process could be intrinsically participative through the focus on process rather than product.

I concluded my study with a “generative graph”, 218 ways to “grow” a house unit from a starter unit or wet core. There were many paths to get to the final house configuration. The idea was that the house would be a functional design at every stage of its incremental development. This was the very last paragraph in my study: “The advantage of the Generative Graph is that it is a ‘process-oriented’ design approach and not a ‘product-oriented’ design approach. It avoids providing a single line of development since this is rarely followed. There is still some control of development: instead of providing one plan, the architect provides 200-300 plans! This is ‘positive control’ since it is extremely flexible... the core unit, or the “seed” of the design, will unobtrusively influence all the coming stages.”

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I was introduced to John Habraken's writings at IHS Rotterdam. Habraken's seminal work “Supports” first published in English in 1972, I was later to discover, was the foundation for everything that Raul Di Lullo had taught me in Rotterdam in 1992. The idea of “supports” then permeated all of my work; supports as government-subsidised infrastructure – exploring the blurring of strict boundaries between architecture and planning. Habraken and other Open Building thinkers helped me understand how individual and

collective needs and aspirations are mediated by the built environment – represented in Habraken's iconic drawing that has come to define this movement. These ideas, that I learnt in Rotterdam, have influenced my thinking, practice and teaching ever since. This led to 27 years of experimentation in an approach to design that demands consideration of multiple design decision makers, the interface between people and the built environment and the technical implications thereof.

Stephen Kendall is one of the people that have kept Habraken's theories alive. I met him in Montreal in 2003 and he has also played a very big role, through his mentorship and writing, in the direction that my work has taken. The design approach I adopted allows for the acknowledgement of the needs of all stakeholders and shifts the focus from the designer to the users. This approach acknowledges distributed control among different agents and the idea that the interface between technical systems allows the replacement of one system with another performing the same function. These principles can be identified by many names, including "Open Building" and "System Separation." The development of new financial and legal tools to achieve spatial equity and access to opportunity can be ensured by this approach – themes that resonate strongly with South African concerns in the built environment. They also helped me understand how the built environment can be understood in terms of levels and different actors that intervene and have control across these levels. They also helped me understand the impact buildings have beyond the boundaries of a site.

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These ideas have led me to believe, with regards to housing and human settlements in South Africa, that we need to develop systems where the government is facilitator and separating the levels of the built environment so that different people make decisions at different levels without disrupting the overall functioning and coherence of a neighbourhood, a city block or a precinct.

(SLIDE 14)

In designing for an unknown future, we need to distribute control in the built environment (who makes which decisions, when), understanding cities, infrastructure and the built environment in terms of levels, systems and connections (the idea of disentanglement – making changes to one system of a city without disrupting others) and mediating between individuals and the collective in the built environment (balancing individual and collective aspirations). This way of thinking has heavily influenced my practice.

(SLIDE 15)

In a hostel upgrade proposal, the intention was to develop a module and a system whereby great variation could be achieved in both the new buildings as well as in the existing building stock. This variation was both functional variation (with regards to the spatial and functional aspects of the design) as well as cosmetic or façade variation to accommodate for personal preferences. The section of the existing building was re-shaped in order to achieve a different relationship and interface with public roads on the one side and communal space on the other – thus also addressing the different scale of each of these. Simple methods of communicating this to the community were devised through models and drawings.

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The introduction of housing on top of three existing church halls offered an opportunity to creatively increase densities and inject housing into the existing inner city fabric. The project was also initially conceptualised to accommodate for permanence and change/adaptability.

(SLIDE 17)

Another residential development in the city offered the opportunity to retain an existing courtyard and chapel as part of the support structure or based development, with new development happening around it. The basic unit was designed for maximum space efficiency with the intention that it could be adapted throughout its lifetime to cater for changing demand/need.

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These explorations have meant that my career has focused on three core explorations:

1. Open building as thinking and application
2. Reconsidering funding and delivery methods in housing  
and
3. The teaching of design through a process that acknowledges local ways of doing and the city as laboratory

(SLIDES 19-20)

With my students, we have explored these concepts at various locations, and with various communities. We always aimed to find local collaborators and tap into existing talent. In the learning process, we also aimed to leave something behind, however small. These projects ranged from business cards for a dress maker to a mural, a vegetable garden, a classroom and a built intervention at a local arts centre.

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We also aimed to get our materials and skills from as close as possible to the sites where we operated.

(SLIDE 22)

When possible, we immersed ourselves in the contexts where we worked, spending many hours on site, and on the one occasion actual camping in a building in the inner city.

(SLIDE 23)

In order to devise systems that increase resilience in real life, it is important to support and invest in innovation. In order to ensure that students have the appropriate knowledge and skills to operate in real life, we teach them to devise systems that self-regulate as government does not have the capacity to regulate! We also teach them to devise systems that reduce control at some levels – allowing for emergence and informality at other levels of the built environment. Resilience is understood as being able to address vulnerability by devising strategies to help communities cope with:

- socio-economic change
- natural disasters
- climate change
- life changes – at individual, family level
- change at neighbourhood, city, national and global levels

It is argued that resilience and equality should be seen as synonymous and must go hand in hand. Functioning societies are those that work for the rich and the poor.

(SLIDE 24)

Resilience has been demonstrated by communities that have gone through extreme turmoil and crises.

(SLIDE 25)

Yet, it is also believed that societies with great inequality are less resilient and that successful environments are those that work for the rich and the poor.

(SLIDE 26)

How can African cities accommodate for the small informal trader on the street as they envision a future of development?

(SLIDE 27)

Future visions of African cities tend to resemble visions of Wakanda: markets interspersed with African inspired, high-rise glass and steel structures and materials, colours, textures; Wakanda partially realized or mere plans, is the aspiration of many cities in emerging African economies.

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Indeed, Khartoum's Sunut development has been called "Dubai on the Nile" or "Sudan's Manhattan". An urban forest, of sunut trees, was destroyed in its development.

(SLIDE 29)

"They have removed all the trees, built the neighbourhoods, and called them after the trees" as my mother has said.

(SLIDES 30-32)

While we need to re-imagine a future for African cities, these have often had a very specific image to them. The imagery that is used implies a scale and interface with the public realm that is highly exclusive and exclusionary. It does not relate to the finer grain of existing urban fabric, and it does not imply a relationship with the streets that encourages different levels of commercial activity (entry level opportunities being balanced with larger commercial enterprises and anchor developments). The imagery in terms of architectural character, infrastructure, massing and implied materiality is highly problematic and lacks sensitivity to climate and context. It demonstrates a lack of creativity and imagination. Smaller and more subtle interventions and successes are not as visible or compelling as the imagery linked with future visions of cities. These small actions may have immense catalytic and transformational potential. Yet, they are less captivating, sometimes invisible. However, they are vital for the survival of many.

(SLIDES 33-41)

It is believed that nothing presented today has captured people's imagination in a way that has given momentum to the achievement of change. It is also believed that the power of space and spatial transformation has not been fully grasped. This has led to great anger and protest – not just in South Africa but globally.

(SLIDES 42-46)

To facilitate inclusive transformation, it is believed that it is important to promote policy, legal, finance and design models that achieve quality and participative form-giving and space-making and that allows for access to opportunity, equity and diversity. This would be a system that is inherently PARTICIPATIVE. These new systems must allow for replication at scale to achieve maximum impact. By better understanding the concept of PARTICIPATION, we are better able to serve communities and their needs as well as better able to educate future designers to be more effective. Participation has design, spatial, technical, management, procurement and financial implications. Professionals operating at the PROJECT LEVEL need to understand that they can influence strategic decisions through the management of project funds differently to help DISTRIBUTE DECISION-MAKING among stakeholders in efficient ways – ensuring the long term viability of interventions on cities and the built environment.

(SLIDES 47-49)

In 2010, we developed a ten-point vision for sustainable human(e) settlements. I mention here only two of the ten points. Point number three called for "Just Add Housing" envisioned as an integral part of all existing and new developments. Point number six asked for "Street edge activation as a condition for development approvals" and the implementation of a "Wall Tax" in order to activate street edges. The SMART African city is envisioned to have developed advanced tools and mechanisms to manage stability and change, the formal and the informal; it is an inclusive city and it embraces complexity, the unexpected and the unknown.

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In this presentation, the The African City is re-imagined as a Livable and Lovable City, equitable, beautiful, functional, resonating with many people, over many years – accommodating and embracing diversity, choice, change and embedded in context.

(SLIDE 51)

I conclude with three things:

Firstly, by inviting you to join us to:

- explore the concepts of participation in a deeper way.
- explore how we can understand resilience in terms of design and how we bring more voices into the design process.
- explore how we can build buildings that have inherent, built-in capacity for change – buildings that are lovable and resonate with many people over time.
- explore how we can extend professional services to all.

Secondly, I must mention the young people my home country of the Sudan, many of them linked to one or other professional association, engineers, architects, doctors, teachers, who have taken to the streets in order to change the government and their future. Please remember them and follow their news. By shedding light on their cause, we can help reduce the brutality and the killing.

And finally, an anecdote: In the brief sent to me to prepare for this talk, I was asked to be “fun”. I was reminded of an incident at UIA 2014 Durban when an audience of about 3000 were waiting and the opening was delayed by the late arrival of government officials. My colleague asked me to go tell a joke to calm people down. I replied, with absolute certainty, “I don't do jokes”. I have often referred to myself as a boring academic. So Rasheeq, I hope I have not let you down by my presentation and I hope the audience is not too bored!

Thank you!