By Peter Makachia

Participative Design for Urban Housing

In African cities, people are peripheral to architectural processes despite the fact that those processes produce buildings— houses—that they use and interact with every day.
Laypeople's disengagement often produces socially dysfunctional neighbourhoods whose residents lack both a strong sense of community and environmental awareness.

Residents ought to be engaged in the planning, design, and construction of houses, as well as in the management of the neighbourhoods those structures constitute. This policy note considers ways to engage residents and ways that housing delivery can be improved in order to merge good intentions and the expectations of the beneficiaries through participative housing design.

Major deviation

Participation in housing-delivery strategies is a major deviation from the cornerstone of modernist theories and practices in architecture. In Kenya, modern development models adopted in housing delivery have proved inadequate to meeting the demand for urban housing. This shortfall has been reflected both in the quality and in the number of available houses. It has led to the proliferation of informal settlements on land occupied by squatters.

Additional problems are dweller-initiated transformations (DITs) and the physical and social deterioration of the few existing public-housing estates. The policy direction offered here is applicable in four possible housing scenarios in African cities. These entail the following: (1) new schemes for virgin land, (2) informal settlements as upgrading projects, (3) increasing housing density in underdeveloped neighbourhoods (densification), and (4) the repair and rebuilding (gentrification) of existing run-down public housing.

A people-centred approach to public housing engages users at the various phases of housing—namely, (1) feasibility and planning studies, (2) design and conceptualization, (3) building and project management, and (4) inhabitation and maintenance.

The strategy is to engage the public in stakeholder meetings at each of these stages, during which ideas are shared with the target groups, the public, and other interested parties, such as developers of utilities, services, and other elements of infrastructure, as well as financial institutions, social organizations, and non-governmental organizations. The government— central, county, and local—is also expected to participate in these sessions, and depending on the scale of the project this involvement can be broadened.

Needs of the residents

During the initial feasibility and planning stages, the future residents must make project developers aware of their priorities and needs. They can accomplish this by presenting examples of various functions that need to be accommodated in the new houses and neighbourhoods and by expressing preferences about them.

The architects' role would be to initiate and facilitate discussions through proposals using a medium that is well understood by the future residents (who are laypeople, not architectural specialists). The means of communication can include scaled dummy models constructed from basic solid materials, such as paper and clay. Full-scale models from timber and cardboard/paper are also possible.

For this process to succeed future residents and project developers must meet and converse regularly. Social media and other ICT (information-communication technology) channels, now increasingly understood and more widely owned, can be used for this end.

Mapping strenghts and weaknesses

During the feasibility and planning stages, the future residents should engage the project developers, making them aware of the amount

The view from a rooftop in Mathare in Nairobi. Mathare is home to half a million people.
Photographer: Petrut Calinescu, Panos

A man stands outside a house in Kibera, Nairobi. Photo: Hossein Fatemi, Panos.

of space (and other resources like building materials) needed for the various activities that will take place in the envisioned houses and neighbourhoods. Not only the physical forms but also the costs must be considered.

The role of the architect, and in communication with other consultants, is to isolate through this process the internal strengths and weaknesses of the given situation, as well as external opportunities and threats that the project would face. Internal strengths of an existing slum settlement, for instance, may be the residents' acquaintance with one another, any building that is already present, and the skills (including building, management and social skills) some residents possess.

One internal weakness might be a lack of social cohesion. An external opportunity would constitute the architects and other professionals now at hand to take part in the proposed development; these external actors would then serve as catalysts to address the internal weaknesses and build on the identified strengths. Another opportunity might involve finance for development. Finally, the threats to housing development

in an African city always include external cultural spatial forms (like privacy, gender and relationships) reflected in the design standards that affect the use of domestic space. The suggested approach to development entails interactive sessions that should also make use of all the available and appropriate media.

Sharing with stakeholders
Finalizing the design is the next stage, and this step is guided by directions and positions expressed at the earlier stakeholders' sessions and spelt out in the initial feasibility and planning stages. The designers produce proposals using, for instance, drawings, paper models, and computer animation.

Further, the designers should also construct simulations of expenses and possible environmental impacts and share them with the stakeholders in a public-engagement session. The people's participation at this stage aims to match their visions with the economic and environmental reality in which sustainable development takes place.

The seismic shift in this approach is not to supplant the professionals and elevate the lay users (i.e., residents)

to a decision-making role but, rather, to allow users' input to inform the decisions taken in the early stages of the project. In effect, this approach questions the professionals about the suitability of the solutions they offer. The technical professionals should assume a listening but guiding role, given their training in the arts and sciences of the built environment.

At least two kinds of professionals are involved here. First, those representing the urban government authorities are responsible for ensuring adherence to development-control guidelines for urban settlements.

Second, the other professional class like architects and planners represents the eventual users; their interests include social cohesion and easy access to urban services of the city. The former group, whose objective is to enforce development control codes and regulations, is tasked with being more reflexive, responsive, and flexible with respect to reasonable suggestions emanating from this participative process. The latter, whose objective is to advise the client end-user, should adhere to professional ethics that do not harm the public and contribute to common good.

Self-help strategies
The design phase has always been the most disengaged stage in conventional modernist architecture, but equally crucial is the construction stage, in which houses are actually built. Since the 1970s, self-help strategies have been commonly used in many housing projects in African cities—yielding less than spectacular results.

These approaches aimed to engage residents in building their own dwellings on surveyed land on which the lots were supplied with basic services in order to save costs. In reality, the plot owners sold the land to middle-income speculators who developed multi-storeyed rental spaces, often single rooms with common ablution areas and minimally equipped with kitchens and other common domestic features (e.g., dining rooms,

bedrooms, living space). Instead, the single rooms became multiple-use spaces in which almost every household activity took place. The outcome in most cases has been a new category of environmentally unsuitable tenements that are hardly an improvement over the slum conditions they were intended to replace.
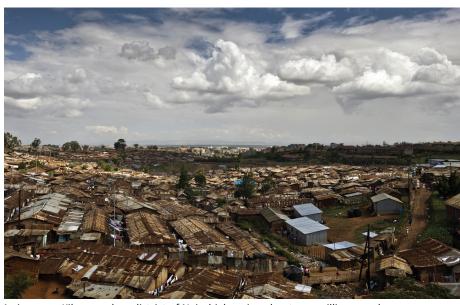
In these earlier approaches, there was no coordinated approach to the self-help processes, thus leading to the failed outcomes. The participative strategy presented here invokes the principles of self-help strategies that have proved useful, but these have been revised in order to avoid the obstacles encountered earlier. The absence of organized neighbourhood communities that led to speculator tendencies—individually initiated and profit driven, often at cross-purposes with community objectives ,was the main obstacle in self-help.

In the earlier models, the self-help processes included the building, material procurement and processing, and programming of the various construction stages for the individual units; they excluded community organization.

Organized self-help housing

This policy note stresses the need for organized self-help housing (OSHH) communities as part of the strategic approach to urban housing in Africa. Such organizations involve the populations that will inhabit the neighbourhood created through the participative design process presented in this paper.

This is necessary particularly at the construction stage because it is then that environmentally unsuitable options are selected by some individuals, the trend that bedevilled past self-help initiatives. OSHH groups act as the social conscience of the community and through consensus redirect individual tendencies found to be detrimental to the common good and to the environment. Through membership contributions, the groups can initiate and implement common areas

A view over Kibera, a slum district of Nairobi, housing about one million people.
Photographer: Sven Torfin, Panos

and services, such as neighbourhood infrastructure and open spaces. The professionals will provide technical advice on best practices when and as required.

Replacing natural resources

In addition to their immediate environmental impact during construction stage, building activities deplete the environment through the extraction of raw materials during construction. This is especially true if the materials are locally sourced, as advocated in sustainable development initiatives. It is therefore imperative that a strategy of replacing used natural resources be put in place as part of the broader housing initiative for sustainability and participative design.

OSHH groups should act as liaisons with similar outfits in the county, region, or nation to establish environmentally sustainable programmes,for example, tree-planting initiatives and anti–soil erosion measures. Further, even after construction has been completed, people-centred strategies remain valuable in the management and administration of the neighbourhoods.

Residents' associations (RAs) already exist in Nairobi estates and control neighbourhood security and garbage collection arrangements. However, RAs are mostly informal and have limited roles in neighbourhood

management and administration. These valuable responsibilities can be extended to include others mentioned in the OSHH standards, including neighbourhood design and environmental control.

OSHH as social authority

Formal housing, especially which developed as public housing, is usually subject to dweller-initiated transformations (DITs), personal initiatives in which individuals adjust or add space to the housing contrary to the provided design.

This phenomenon, if unchecked, often harms the aesthetic and physical environment. Local and central governments have mostly been unable to prevent DITs, leaving the public exposed and vulnerable to individual modifications.

This proposal suggests that the OSHH community act as a social authority guiding its membership vis-à-vis the consensus for adding space in developed neighbourhoods. This control would help limit strains on infrastructural services like water and sewage that are caused by unanticipated additions and extra population.

Policy recommendations

This policy note suggests a participative approach to housing design and delivery as a strategy for generating adequate housing. It further contends that this approach would help create convivial urban neighbourhoods in African cities by empowering grassroots networks to participate in the decisions of urban design and housing management. A collateral effect of the participative approach is the control of housing costs. Given the shared and devolved input into the design, construction, and management of neighbourhoods, a cost-savings dividend is possible and inevitable; this would also guarantee that the housing is economically sustainable.

Curricula and teaching guidelines

Moreover, the participative approach has the added advantage of building the capacity of communities in African cities. Indeed, African cities are composed predominantly of youth with limited education and life skills. Communication amongst schools, educational institutions in building, and architecture and professional bodies would allow the participatory development approach to inform curricula and teaching guidelines. For the country and the community, this is a win–win situation that has the potential to positively influence national development. The following checklist summarizes our policy recommendations.

	CRITERIA	Yes	No	Comment(s)
PEOPLE	*Is the community involved in project?*			
	Planning?			
	Design?			
	Construction?			
	Maintenance?			
RESOURCES	*Are project materials and components…*			
	Local?			
	Renewable?			
	Replaceable?			
	Recycled?			
ECONOMY	*Does the project possess a built-in, long-term economic-sustainability programme for its:*			
	Maintenance budget?			
	Expansion plan?			
	Renewal?			

About the researcher:

Peter Makachia; B.Arch.(UoN, Kenya), M.Arch.(KUL, Belgium), PhD (UoN, Kenya), MAAK(A); is a practicing Architect, Senior Lecturer and Head of Department of Architecture and Environmental Design of the Technical University of Kenya. He has researched and published in housing delivery strategies in African cities and he was an African Guest Researcher at NAI from October to December 2013.
pamakachia@gmail.com and pmakachia@tukenya.ac.ke

Suggested reading:

Makachia, P. A. (2005). A manual for organized self-help housing densification in Eastlands, Nairobi. Organised Self-Help Housing Planning and Management-Costa Rica 2005. CD-ROM. Lund, Sweden: HDM, Lund University (CD).
Makachia, P. A. (2013). Design strategy and informal transformations in urban housing. Journal of Housing and the Built Environment, 27.
Makachia, P. A. (2012). Transformation of housing in Nairobi. LAP Lambert Academic Publishing.
Rodriguez, M., & Astrand, J. (1996). Organised small-scale self-help housing. Building Issues, 8 (4).

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