

## **INTRODUCTION TO THE WORKSHOP THEME**

The workshop which was held on 4<sup>th</sup> and 5<sup>th</sup> September 2019 at the University of Nairobi's Department of Architecture and Building Science brought together professionals and students engaged in disciplines related to the Built Environment. The main theme was further unpacked into nine subthemes around which the papers were clustered. The key points from the discussions are summarized in the subsequent section.

## **ISSUES DISCUSSED UNDER KEY THEMATIC AREAS**

### **A. Urban Development and Housing Policy Context**

The Kenya Government's Vision 2030 policy document stipulates that Kenya aims at becoming a middle-income country by year 2030. In addition to this, Kenya adopted the new 2010 Constitution which has a two-tier governance system involving National and County level governments. Within this context, *urban development issues have been devolved to the County level governments*. Of particular concern is *how urbanization issues will be addressed by the county governments* given that *urban development is a key factor* in Kenya's transitioning to become a middle-income country by 2030. The devolved government structure offers an opportunity for addressing the challenges of rapid urbanization. Capacity building within the County governments is therefore crucial in enabling them to plan ahead for urban growth. It was also noted that it is the responsibility of the County governments to provide basic services in the informal settlements.

Additional international policies that are relevant to urban development in the region include: *Sustainable Development Goals (SDG's)* which highlight issues dealing with sustainable urban development; *United Nations Framework for Climate Change* which highlights issues dealing with climate responsive construction and buildings as well as the *New Urban Agenda* which is anchored in participatory urban policies to make cities inclusive, safe, resilient and sustainable. Amidst the provisions of these policies, the main question that was raised is: how effective has Kenya and other countries in Eastern Africa, been in their implementation?

With regards to *management of urban issues*, built environment professionals need to be key players in the municipal, towns and cities' boards and committees. Furthermore, one of the main ways through which the counties could be managed is through the development of *city regions* in which employment is created by promoting local industries and entrepreneurship. Additionally, county residents would also need to tap into citizens living outside the counties to develop them. Furthermore, it was noted that cities are failing to function in terms of development because private interests have superseded public interests.

## **B. Big Four Agenda: Affordable Housing Programme**

In seeking to address the concern about *policy implementation*; the national government through the State's Department for Housing and Urban Development highlighted two areas of programme implementation. Firstly, the Affordable Housing Programme (AHP) which aims to deliver 500,000 affordable houses to Kenyans by 2022 and secondly, the Slum Upgrading Programme which supports social housing development. From the ensuing discussions, what remained unclear was the level of inclusion of the urban poor in the ongoing AHP and whether they have already been included amongst the ongoing contributors. This raised the question of whether the criteria for the government's collaborators/partners or the Programme's end users was inclusive of even the urban poor groups as it was noted that the Programme is falling short of the involvement and meaningful collaboration of the end users.

Another issue that was highlighted by the State Department for Housing is its use of industrial building systems to deliver the AHP. This, it stated, is a bid to encourage research and innovation in building materials and technology. This is the role meant for the universities and research centres which are key players in generating new knowledge that is relevant towards industrialization of the housing delivery process. As such students work needs to contribute towards addressing the affordable housing challenge as well as further research on local materials and housing, such as, what used to be done at the University of Nairobi through HABRI. As a result, there is a need to revive the Housing Research and Development Unit (HRDU) at the University of Nairobi's Department of Architecture to promote research on housing issues and the State Department expressed willingness to support these efforts. Furthermore, the State Department for Housing stated that it is working with the Jua Kali sector and T-VET institutions to further affordable building materials and technologies. However, it was noted that there is an urgent need for research funding and support towards research on alternative building technologies for affordable mass housing.

*Economic:* High urban poverty levels have been noted to be at a rate of 45% due to high unemployment in addition to poor health. Moreover, policy implementation has failed to incorporate the element of livelihoods including access to serviced land, easy mobility, access to amenities, social security and networks which are critical to housing. To ensure adequate housing for all Kenyans, key issues such as building technology, building materials and cost would have to be addressed by the government.

*Stakeholder Engagement:* Implementation of the AHP in Shauri Moyo, Starehe and Pangani, raised concerns as to whether consideration for the residents' associations e.g. Kaloleni's, had been factored into the process. Considering that these estates have vibrant residents' associations, these needed to have been included through stakeholder engagement which seemed to have been lacking.

In addition, the highly dense, high rise proposed multi-dwelling AHP developments for low income groups poses several challenges including: high structural costs, technical maintenance challenges, insecurity, health and safety risks and a degrading social and cultural fabric.

*Affordable land and housing:* Adequate shelter and housing was considered as not necessarily affordable. Consequently, unlocking land delivery and resolving land tenure was considered as the key to successful delivery of housing. Therefore, there is need for a policy that moves land from speculators to the government in order to reduce cost of land by at least 20%.

Furthermore, infrastructure provision, rather than housing construction, should be the key focus given that there is need to service land, then avail it so as to bring down the cost for private developers to be able to supply housing.

### **C. Big Four Agenda: Manufacturing for Construction**

In addition to the national government's AHP initiative the government, through its agencies and in an effort to achieve the Big Four Agenda, needs to consider the immense opportunities presented by technology through innovation and automation.

Currently, there is insufficient automation in the construction industry in Kenya which poses as a challenge to the integration of technology particularly Building Information Modelling (BIM) whose benefits are well known. There is also a glaring lack of a conceptual framework that addresses government policies, human resource dynamics, cost of technology, cultural perceptions and the clients' demands which are necessary in order to promote the uptake of automation in the construction industry.

The national government has a role to play in the setting of standards for automation, standardization of housing components, pushing for the integration of BIM for manufacturing of materials through Prefabricated Automated Construction (PAC) which will in turn help to overhaul the traditional Design, Bid and Build methodology of construction delivery for affordable housing as well as other infrastructure provision. Furthermore, there is a need to tweak procurement requirements for bidding contractors engaged in the Big Four Agenda towards housing and manufacturing for construction so as to employ a large component of PAC technology in their delivery as a requirement. As such, policies that will spur uptake of PAC such as tax rebates to PAC manufacturers for a stipulated period of time need to be considered.

Ultimately, integration of technology from early learning to tertiary institutions through training such as robotics will in turn create a critical mass of skilled laborers thereby increasing national capacity for automated construction techniques.

#### **D. Economic Aspects of Affordable Housing Programme**

There are three key players to be considered when looking at the economic aspects affecting the affordability of housing in the Big Four Agenda, namely: the government, the developer and the end user. Each of these players is directly affected by the high cost of providing and accessing housing. An analysis of the AHP reveals two critical issues, namely: that the government's funding model in the AHP is not accommodative of the large private developer yet the private developer has been a key player in providing housing over the last decade. Secondly, the high cost of providing housing incurred by the developer is eventually transferred to the end user making access to affordable housing a challenge.

The government would better facilitate the achievement of the AHP by increasing its current funding models to include higher 'large private developer' participation. The funding model to be included would be a separate Financing Facility that can act as an intermediary lender between the government and large developers. Such a facility is successfully assisting several African governments with achieving their affordable housing programs.

Additionally, there is an urgent need to reduce the cost for both developers and end users and this can be achieved through the following means: First of all, the government can pay developers as they achieve different stages of the building process to aid cash flow in a way similar to how commercial banks pay. Secondly, the government in its commitment to achieving 500,000 houses should find a way to provide zero rated VAT. This will eventually result in an affordable house for the end user and eventually increase the government's earning through the National Housing Fund repayment when the owners pay the government for the house. Thirdly, the government should increase the current off take price for developers as it is currently not sustainable for large local developers. Lastly, the government should improve the construction finance rates. Despite alternative building technologies, the government needs to improve the rate of accessing building materials currently in use.

#### **E. Social-cultural Aspects in Architecture and City Planning**

On a more broader scale and in relation to African material culture, its marginalization in scholarly works has resulted in a eurocentric and exclusive approach towards architecture both in training institutions and in city planning practice. The key strategies of colonial administration which included stereotyping, tribalism, domination, segregation and stratification, resulted in the erosion of traditional culture, rural-urban migration and the creation of peasant communities among the African people. Using a case study of the Luo community, the discussion revealed that authoritarian city planning solutions have a high probability of being rejected and that a culturally-aware approach in the design and planning of cities is important.

A socio-cultural approach to architecture and the city is one that recognizes the existence of architecture without architects. Even in the phase of a rapidly urbanizing Africa and increasing demand for housing, architects and planning authorities should recognize that standardized design has its limitations within dynamic cultural settings. Hence, the need to offer variety and sensitivity to diverse cultural groups.

Further to this, religious principles and philosophical concepts such as those inherent in Islam can be applied for the common good of the public. The moral requirement surrounding the religion as captured in the [Al-Quran 2:177], challenges architects to design the best solution, as part of "contract fulfillment" for their clients and occupants. A unique characteristic of Islam religion is that it adapts to the local context. This is evident in the material culture, a case in point is when comparisons are drawn between Swahili architecture of East Africa and West Africa architecture.

In relation to neighborhood planning, the principle of 'rights to yourself and your neighbour' can be applied to community planning. In Islam, for instance, the extent of the neighbourhood is the 40<sup>th</sup> unit, and one should respect those who came first.

In conclusion, community participation and meaningful collaboration is therefore a more practical approach to housing developments and urban policy.

## **F. Building Technological Aspects and Architectural Education**

The future of the built environment lies in bracing for the technological revolution. There are two ways put forward to ensuring the country is ready for this revolution and also to stay ahead of the curve:

Firstly, there is need to revise the building technology curriculum in all schools of architecture in line with the advancing global technologies and alignment with market demands. For this to happen, students and lecturers need to change their mindsets on what to expect from the job market.

Secondly, there is need for integration of the E-permitting system and Building Information Modelling (BIM). With the nationwide rolling out of the e-permit building and construction approval system in Kenya, it is time for this development in technology to be coupled with the world-wide revolution of BIM. This will increase accuracy, create standardization, avoid resource wasting through multiplicity of documents and increase efficiency. Most importantly, integrating the E-permit system and BIM will also be a great step in curbing corruption which is rampant in the building industry where getting development approval is highly politicized and takes a lot of time and resources. With the rising cases of collapsing buildings and poor living conditions of the urban dwellers, BIM integration will further enhance wellbeing and structural security of construction by having detailed and accurate information about a building in one place. This can all be achieved

through capacity building, digitization of architectural and development records and integration of the building code across all agencies.

*Contextualization of Architectural Education and Research:* The training of building professionals needs to adopt a practical approach and deviate from eurocentric architectural concepts that are unrealistic and exclusive.

*Architectural Practice:* The built environment plays a big role in enabling the shift towards a 24-hour economy within urban areas. Built environment professionals need to make conscious efforts in design to support the constantly changing work environment to adopt buildings and the urban environments from 8am-5pm work days to buildings that can be used for twenty-four hours.

### **G. Environmental Design/Climate Responsive Aspects**

The government needs to make its position on Green Architecture much more visible. It was reported that Green Building measures are being put in place by the national government. This includes the harmonization of the Building Code Regulations spearheaded by the State Department for Housing.

An academic study on the indoor overheating risks for office buildings in Nairobi, highlighted three main demand functions of decision-relevant information necessary for managing this risk; these include the following: firstly, is the capacity to anticipate possible overheating due to factors of heterogeneity and uncertainty as they relate to building uses. These contribute the most to indoor overheating risks therefore, there is need for optimum combination of building design and functionality using attributes that ensure zero overheating. Secondly, is the capacity to respond to the measured reduction in indoor overheating offered by each building's design strategy and function without over-providing or under-providing for thermal comfort to mitigate heat increase. And thirdly, the capacity to recover and change as required to manage thermal performance expectation gaps from the measured reality and ensuring that these strategies stand the test of time, especially in light of a future where the climate, boundary conditions around the building, modification of the space and its use are not likely to remain stationary.

Concerning Kenya's legal and regulatory framework, there is need to fast track the Building Code's revision which considers amongst other climate responsive aspects, the schedule of accommodation that encourages zero Indoor Overheating Rate (IOR).

### **H. Cultural Heritage and Architectural Conservation**

In light of globalization and rapid urbanization, heritage conservation is an area that requires collaboration to find a middle ground between the static views of heritage conservation versus the exclusive modernist designs and their influence on the built environment.

With Lamu town as a case study, the role of the LAPSSSET project is considered as a catalyst for dynamic urbanism through which there has been a shift in architectural significance, growth of the town and change of the use of the buildings within the conservation area in order to survive in the current technological world.

Regrettably, Swahili landscapes have been appreciated more for their aesthetic qualities and as a result issues such as urban planning and the urban development of the town have been marginalized. The high cost of architectural conservation is also prohibitive to the local residents thus limiting conservation efforts.

Sensitization of the community as well as inclusion and collaboration between various stakeholders is therefore the solution towards meaningful conservation today. It is not about purely realizing an architectural solution, instead the values and benefits of the intangible cultural heritage should be infused in a place to give it meaning. Additionally, over and above the existing worldwide and countrywide policies on conservation of heritage sites, there is a need for specific conservation guidelines that are tailored to the varying unique cultures and influences within a conservation area.

## **I. Informal settlements**

Informal settlements have been in existence in Kenya for over a hundred years. Thus, there is a need to review the law and opinions that consider these settlements as illegitimate given their continued existence.

The lack of services and infrastructure in Kenya's urban informal settlements was highlighted as a major issue. Additionally, the lack of basic infrastructure such as water and sanitation pose a health risk to the general urban population. A proposal for consideration to tackle lack of infrastructure is the creation of a micro-grid city within the informal settlements. These 'cities' consist of self-sustaining grids within each settlement that produce all energy and dispose of waste within their own grid thus creating self-sustaining grids.

A further environmental concern relating to the informal settlements in Nairobi is Nairobi River's condition and its need for rehabilitation. Ultimately, a clear indication of how to incorporate the culture that has made informal settlements thrive over the years and an analysis of the key areas of conflict within the relationship between the informal settlement dwellers and their environment can be used to instruct not only immediate initiatives but also to guide long term upgrading initiatives such as the government's social housing development and corresponding Affordable Housing Programme.

## CONCLUSION

This policy statement calls for action from all members of the public with the following key stakeholders at the steering wheel; the national and county governments, training institutions and the private sector.

The national government needs to become engaged in the following ways: build the capacities of county governments, increase funding models that boost large private developer participation in the delivery of housing, resolve land tenure, increase accessibility to serviced land, ensure meaningful collaboration in housing policy, provide cultural heritage conservation guidelines, provide housing components' automation standards, integrate BIM in the counties as well as in the manufacturing of construction materials and fast tracking of the building code's revision.

The training institutions need to become engaged in the following ways: to promote African culturally responsive architectural and urban planning approaches, revise their building technology curricula to embrace practicality, market demands and housing research.

The private sector stakeholders in the built environment need to become more engaged in the urban management boards in the counties as well as in collaborating more with county governments in infrastructure and services provision especially within informal settlements. Additionally, they need to apply building science concepts as well as promote African culturally responsive practical solutions in construction and spearhead the development of a 24-hour economy through the built environment solutions.

The resolutions outlined in this policy can only be actualized through collaborative efforts from all stakeholders to achieve sustainable development for Kenya and the region.

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