Guest editorial

A smart future for a rapidly urbanising Africa: sustainable integrated approaches for the built environment

Africa has a landmass of around 30 million km^2 and arguably the world's poorest and most underdeveloped continent is experiencing some of the fastest urbanisation rates in the world. These range from around 2.5 per cent in Northern and Southern Africa to around 4 per cent in West, Central, and East Africa. Currently, about 40 per cent of the continent's one billion people live in urban areas, and this is anticipated to exceed 1.2 billion by 2050. However, the diverse cultural and socio-economic characteristics of African nations represent a challenging proposition for cross-national collaborative efforts as a means to overcome the scarcity of resources; and thus, adapt to environmental changes. Moreover, should the global economy continue to contract, it is anticipated that Africa will no longer be able to rely on external assistance. Therefore, there is a pressing need for sufficient collective knowledge and adequate "home-grown" measures to reduce poverty, manage the activities that contribute to climate change; and furthermore, adapt to the changes that have been already set in motion. The key for a smart future in Africa lies in turning the challenges of anticipated crises into opportunities for developing African cities that can thrive, be productive, and provide a decent quality of life to their citizens. This may require Africa to develop bespoke models of urbanisation which draw on both twenty-first century technology and its rich cultural strengths – resilience, ingenuity, collective effort, humility, and compassion.

This special issue invited papers that purposefully addressed the clear current and future challenges pertinent to Africa's context drivers, and which also contributed to knowledge enrichment, thereby having the potential to define Africa's own sustainable development models. Six papers that address various yet important challenges in Africa's sustainable development are presented in this special issue. The diversity of this issue lies not in the topics of the papers presented *per se*; but that the authors come from diverse geographic locations such as Nigeria, South Africa, Egypt, New Zealand, and France. The papers either address strategic African concerns on a macro scale, or are more specific to particular African countries such as Nigeria, Morocco, and Egypt.

Ghaffarian Hoseini, Tookey, Ghaffarian Hoseini, Naismith and Rotimi build on energy and water as a major enabler for sustainable development; noting the scarcity in Africa which require careful evaluation with regards to the systems and technologies available that are suitable for the African context (and the corresponding challenges that need to be overcome). The paper introduces the current practice of water and energy consumption, including the negative impact on economic growth and sustainable development. They stress the importance of investing in renewable energy sources; especially as their cost is expected to decrease significantly by 2050. They conclude by recommending a future provision of solutions for energy and water needs.

According to UNDP (2002), most of human activities that impact the environment have either backwards or forward linkages to the construction industry.

Their impact can arguably be mitigated if changes in practices take place. The question is however, how can the different challenges be governed to achieve sustainable development? Ene, Goulding and John call for sustainable human capacity development with the specific aim of achieving a conjoined knowledge society. This need was largely prompted by the shortages in skills and the high unemployment rates in the African built environment. They highlighted that one of the major problems centred on the basic entry skills of the construction workforce, with little or no attention being placed on workplace learning, life-long learning, and/or self-directed learning. Hence, they suggested the need for a capability "optimising" framework to support sustained effective learning.

Sustainable building arguably improves occupant health, and consequently impinges on performance. Thus, buildings that are energy efficient tend to support a healthy ecosystem (Jailani and James, 2015). In this context, the paper by Komolafe, Oyewole and Kolawole investigated a specific aspect of sustainable development to achieve green office buildings in Nigeria using two case studies. The paper revealed the low implementation of "green features" in office buildings; suggesting education and owner awareness need more attention to ensure greater successful incorporation of green features in office buildings.

Every dimension of sustainable development arguably has to be based on the implementation of the principles of good governance. Therefore, emphasis is needed on the interrelationship between sustainable development and strategic management (Brown, 2005, 2016; Tamosiunas and Butkaliuk, 2013). While it is important to achieve sustainable building, the real question is precisely "how" to achieve this. Rwelamila and Purushottam point out the importance of colleges and universities in maintaining and promoting green initiatives. The paper posits that the main barriers to sustainable development are to a large extent non-financial, suggesting a shift towards strategic project management as a potential framework for sustaining a green campus culture.

From an urban development perspective, SDSN (2013) warned against the inability to manage urban growth, as these are hard to "undo", particularly infrastructure investments and urban land-use systems. Barthel introduces the eco-urbanism concept in an attempt to build a critical and operational research on emerging practices in Africa. This uses Morocco as a case study, highlighting the need for robust environmental regulations at the national level rather than using international standards that may be considered as inhibitors rather than enablers of eco-urbanism.

Housing is one of the specific challenges of urban development that needs to be carefully addressed. Nadim highlighted the lessons learnt from informal developments taking place in Egypt. This paper called for a mixed use housing typology for future housing projects. This was proffered to not only ensure inclusivity, but also allow job creation and widen the scope of more adaptable solutions to accommodate the changing socio-economic needs of the Egyptian society.

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