

## Towards Climate Resilience in Africa's Water Cities

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**A**frica, the most vulnerable continent to experience the devastating consequences of climate change, has undergone rapid urban development during the last decades.<sup>1</sup> While several nodal cities, such as Lagos, Nigeria, have experienced rapid urban growth, the quality of life for most of its challenged informal settlements have not seen significant improvements. Due to the impact of climate change; rising sea levels, increased rainfall and flooding are becoming day-to-day reality, while modern infrastructure seems unavailable when it comes to informal settlements, such as Makoko, in Lagos. Makoko is a fishing community that rapidly developed on water rather than land. The local residents have adapted their lifestyle, to build and live on water, forming an aquatic city - a civilization on water - with almost no paved roads, no land and no modern infrastructure. It is a nevertheless a highly organized community with rich social and cultural systems. The essence of Makoko offers challenges yet solutions to the problems of overpriced land, housing shortage and flooding. At the same time, it requires improvements and developments<sup>2</sup>. NLE has committed to enrich this collective and spontaneous effort with expertise in the field of innovative and adaptable architectural and urban solutions. The pilot project of 'Makoko Floating School' was launched in 2010 and has stimulated the local community and Lagos state to engage in a long-term participatory design process for a school project and new ways of building and living on water. However, NLE's interest has not been limited to Makoko. An ambitious research project, called 'The African Water Cities Project' has also been set in place with the aim of combining international expertise on water management with local & indigenous techniques, to create innovative, sustainable, urban solutions for adaptation and resilience to climate change, in Africa and beyond. Starting in Makoko with the support of hbs, UNDP/Federal Ministry of the Environment & AAP, NLE has taken action and completed a prototype, the Makoko Floating School, in March 2013. A period of testing and evaluation followed its construction, from April to September 2013, while its official operation as an education venue is expected before the end of this year. While the first step towards rapid change has been thus completed, the 'African Water Cities Project', is currently seeking funding and strategic partnerships to further its research and findings in the other parts of Nigeria and across Africa, where hundreds of other waterfront communities and major coastal cities remain vulnerable.

Since its completion, the performance of Makoko Floating School has been celebrated as an example of a progressive approach to climate resilience and adaptation for waterfront cities and communities in Africa and beyond. It has been acknowledged as a contemporary example of sustainable urban development and building design, receiving overwhelming support from international and national academics, policy makers, journalists and cultural commentators. NLE's research has particularly had light shed onto, by its founder's, Kunlé Adeyemi, invitation to present at "Bearing the Brunt of Environmental Change: Understanding Climate Adaptation and Transformation Challenges in African Cities". It was where many academics and policy makers spoke in support of new approaches to climate change resilience in the face of urbanization and underdeveloped, poorly resourced adaptation policies and planning frameworks across

Africa.

Furthermore, Makoko Floating School has employed locally sourced and adaptive technologies to create sustainable and empowering design solutions. Its design and production methodology have been acknowledged in reputable media and magazines, such as the Architectural Review, Abitare, Harvard Gazette, New York Times, CNN Inside Africa and The UK Guardian, to mention a few. Nonetheless, the most striking of all has been the School's outstanding socio-economic impact. NLÉ has provided the Makoko community with a safe and enjoyable structure to serve as a community meeting point and a cultural platform, while placing education in the social focus. Its iconic and functional design has made it a recognizable landmark in Lagos state and a growing identity and voice for the community, while stressing the importance of climate resilience solutions. It has acted as a live demonstration of NLÉ's view that community empowerment is key factor in sustainable urbanization towards poverty eradication. As the United Nations Human Settlements Programme, UN-HABITAT, emphasizes "Sustainable Urban Development cannot be achieved without the active involvement, participation and empowerment of citizens and communities."<sup>3</sup>

NLÉ's efforts have been endorsed by the UN Habitat through its invitation to participate at the international Tripartite conference on "sustainable Urbanization as Response to Urban Poverty Eradication", which highlighted the importance of climate resilience towards a robust, strategic and truly sustainable development approach for any African city. Particularly, individuals such as Paul Okunlola, architect and Programme Officer of the UN Habitat Nigeria, and Ade Mamonyane Lekoetje, Nigeria's director of the UN Development Programme, expressed their personal support to NLÉ, with their presence at the School's pre-launch event. In her words, the project "serves a model to transform other coastal communities in the West African region". Makoko Floating School's replicability and scalability has also been acknowledged through country and continent wide interest in developing iterative solutions that are indigenous, adaptable and mobile for other waterfront communities, such as at the Delta State. This first indigenous iteration is an ongoing participatory design process of an 'amphibious building' - a community radio station - for a waterfront community in Port Harcourt, Rivers state. This new building will host a cultural, educational and community media platform, called Chicoco Radio.

Moreover, the challenges that Makoko Floating School Project has responded to and faced has been even more variant than the ones mentioned. Developing climate resilient strategies for waterfront communities requires considerable innovation and expertise on a state level as well. "A legislative framework that "emphasises good governance, responsibility, leadership and practical initiatives for local governments, communities and citizens" must be employed to reach such a goal.<sup>4</sup> The project has therefore depicted the complexity of the policy landscape in Nigeria, since it required the state government to be convinced to offer support and be engaged in a meaningful manner in the process. As Lagos State Government designated the area of its waterfront as imperative of development, the informal settlement of Makoko recently faced short notice eviction. The design, participatory process and research initiated by NLÉ has challenged the standards of what sustainable development, climate change resilience and adaptation solutions mean for Lagos state. Overall, Makoko Floating School has also suggested a new development strategy that responds to the increasing problem

of land reclamation due to climate change and has proposed an innovative approach to spatial planning on water, while setting the base for creative engagement of the government authorities in such sustainable efforts.

However, Makoko Floating School was not only destined as an innovation for addressing challenges of urbanization and climate change problems but more importantly as a means to stress the need for a rounded and interdisciplinary approach and thinking to urban planning and policy making. It encourages the integration of a variety of fields' expertise, such as in transportation, energy, sanitation and water management policies. In the words of Lagos State Governor, Babatunde Fashola, at the 5<sup>th</sup> Lagos Climate Change Summit, "it is a war we need to fight together and I am sure that if we fight together, the human civilization will win, climate change is not new, what is new is our knowledge about it and what we do about it". Makoko Floating School has therefore achieved to stress the necessity the State Government has to provide the private sector an enabling environment to aggressively pursue mitigation and adaptation initiatives in the interest of green development<sup>5</sup>. As it has later been stated at the 5<sup>th</sup> Lagos State Climate Change Summit "To properly mainstream climate change into infrastructural development there is need for infrastructural policy development, legislation, planning and plan implementation with effective private sector participation" (13-15<sup>th</sup> March, 2013).

As far as the impact of the research project of 'African Water Cities' is concerned, NLÉ has received worldwide academic and individual interest. NLÉ's invited participation at the MoMA biannual exhibition and workshop, as part of one of the research teams, has been a highlight and opportunity. The workshop and exhibition titled "*Uneven Growth*" seeks to challenge current assumptions about the relationships between formal and informal, bottom-up and top-down urban development"<sup>6</sup> where the possibilities of progressive and sustainable urban planning in partnership with international urban planners are discussed and investigated. Currently the body and interest of the research continues and grows to include more cities and communities, such as Luanda, Angola; Ganvié, Benin; Capetown, South Africa; as well as Nzulenzu, Ghana; attracting partnerships with parties sharing similar interest in progressive responses to climate change resilience in African cities.

The primary focus of NLÉ's research and Floating School project has been to contribute to climate change resilient strategies. To start with, this has been achieved by the project's inherent community empowerment and capacity building practice. Makoko Floating School aimed not only to empower the community with skills, but also allowed locals to directly engage with other project partners and stakeholders e.g. UNDP, Heinrich Boll Foundation, Lagos State Government representatives. That way the local culture of living and working on water was introduced to an extensive interaction with an empowering platform of stakeholders and partners who can further enable plans for future community development. More importantly, however, the participatory design process involved the understanding and integration of local expertise. The floating school was built with locally available materials, labour and vernacular building techniques that were combined with existing relevant global technologies. This integrative approach resulted in the creation of a building fully responsive to the needs of an aquatic environment. Furthermore, local knowledge of environmental and climatic patterns, such as tidal variations and rainfall patterns, as well as economic and industrial potential of local aqua cultures, such as fish farming, provided the necessary insights into the project's context. As described by the UN definition, 'sustainability implies responsibility for the social, environmental and economic needs of the present without compromising opportunities for future generations'.<sup>7</sup> The community's involvement not only in the conceptual development but also construction and on-going maintenance of the building therefore represented the essence

of sustainable urban development, enabling the local community to replicate and further adapt the design of the building to meet their present and future needs.

#### **Makoko Floating School as a space for the community**

NLÉ's vision for Makoko and all waterfront communities around Africa and beyond remains optimistic and challenging. This vision is tied to our hopes for deepening our 'African Water Cities' Project research body, in view of upscaling current findings and achievements beyond the fishing community of

Makoko. Interdisciplinary approach, design innovation, bridging intellect as well as indigenous knowledge stand in the heart of NLÉ's core ideologies. In the words of NLÉ founder, Kunlé Adeyemi, "the overarching aim of the practice is to bridge critical gaps in infrastructure and urban development by creating coherent networks and global exchanges that work for people ... whether a chair for charity in South Africa, a revolutionary rotating art space for Prada in Seoul or a visionary plan [with OMA] to eliminate traffic paralysis in Lagos, in each project the essential needs of performance, value or identity – critical for success - are fundamentally the same for me." In order for NLÉ's visions to generate real life changes for Makoko and Lagos, state level resourcing and imminent announcement about plans for Makoko must take place. Once these measures occur the conversation about sustainable development and climate resilience planning for waterfront communities in Lagos will then be able to move forward.

## **END NOTES**

1. Steer, Andrew, 'World Bank Special Envoy for Climate Change', <<http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/AFRICAEXT/0,,contentMDK:22905780~menuPK:2246551~pagePK:2865106~piPK:2865128~theSitePK:258644,00.html>> [accessed 15 November 2011]
2. NLÉ Shaping the Architecture of the Developing Cities, 'Makoko Floating School Project Report', available for download <<https://www.dropbox.com/sh/xps3t2gln49wpdz/IIIcPAqMFS>> (April 2010)
3. Community Development Unit (CDU) (UN-Habitat For a Better Urban Future Website), <<http://www.unhabitat.org/categories.asp?catid=829>> [accessed 12 December 2013]
4. Cities and Climate Change: The Issue, (The UN-Habitat For a Better Urban Future Website), <<http://www.unhabitat.org/content.asp?cid=10192&catid=550&typeid=24&subMenuId=0>> [accessed 12 December 2013]
5. 'Recommendations', 5<sup>th</sup> Lagos State Climate Change Summit Communique (Summit theme of 'Vulnerability and adaptability to climate change in Nigeria: Lagos State transportation, housing and infrastructural sectors in focus'), p.6
6. *Uneven Growth: Tactical Urbanisms for Expanding Megacities* is organized by The Museum of Modern Art, New York, in collaboration with the Museum of Applied Arts (MAK), Vienna.
7. Kunlé Adeyemi and Ore Disu, "Floating City Solutions for Africa's Vulnerable Coastal Communities: The Case of Makoko", *Perspectives Political analysis and commentary from Africa*, 3.12 (2012), p. 18-23