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Policy Brief

Upscaling Low-cost Housing Development in Nigeria



SPACES FOR CHANGE (S4C)



- Policing the Policy Series
- Volume Two

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INTRODUCTION

SPACES FOR CHANGE offers this policy brief to the Federal Ministry of Lands, Housing and Urban Development (FMLHUB), in solidarity with the Ministry's strategic objectives of upscaling government-assisted housing development. This brief advocates that the FMLHUB's target of delivering one million units of mass housing, annually, must not only respond to the growing demand for shelter but, also, that such an ambitious objective is realizable and deliverable, if the array of local resources and low-cost technologies within the country are maximally explored and utilized. We proceed upon the premise that the notion of supply actors need to be broadened to leverage individual and collective responsibility for meeting the housing demand and the need to mobilize and enable new actors to perform these roles.

The propositions contained in this brief were informed by a robust debate and discussions among a broad spectrum of young Nigerian professionals on the Spaces for Change's (S4C's) discussion forum on the social media. The debate drew contributions from a diverse group of Nigerians across four continents including North America, Asia, Africa and Europe. The communication proffers key recommendations and alternate options for meeting FMLHUB's one million housing units target, with the hope that it would propel the adoption and institutionalization of new technologies and homegrown building methods that increase housing availability and affordability, as well as facilitate job creation and economic growth.

Spaces for Youth Development and Social Change (SPACES FOR CHANGE)S4C) is a non-profit, human rights organization working to infuse human rights in social and economic decision-making processes and platforms in Nigeria. Using the human rights framework and youth-centered strategies, the organization promotes an understanding of the various ways in which governments and institutions can deliver on their social and economic development agenda, without undermining the realization of human rights. The organization's goal is to contribute to the building of a transparent and accountable society where human rights are respected, and sustainable social and economic opportunities for all citizens abound.

Policing the Policy Series is a publication of Spaces for Youth Development and Social Change [SPACES FOR CHANGE (S4C)].

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Context

With a housing deficit of about 17 million units which would require about ₦35 trillion (ca. \$27 billion) to fund, the World Bank estimates that 720,000 housing units are required to be built annually for the next 20 years in order for Nigeria to be able to close the housing gap in the country. The explosion of slum communities in urban centres is also a direct consequence of severe housing shortage. As a way forward, there is an urgent need to explore and consider new technologies and home-grown solutions that not only expand citizens' access to affordable housing, but also create wealth for all.

High cost of conventional building materials, especially cement, is one single most important factor responsible for soaring housing costs in Nigeria. The heavy dependence on cement and other imported building materials keep prices high and beyond the reach of both builders and housing consumers alike; especially the urban poor. Further aggravating this trend is that the restricted access to land in the face of great demand creates high property prices, which in turn push up the cost of access to housing. All of these combine to drive an increasing number of the urban poor into informal and slum settlements, which are prime targets for demolition and forced eviction campaigns by the state and property owners.

The good news is that plans are currently underway to close the housing gap, beginning with the Ms. Ama Pepple-led FMLHUB's target of delivering one million housing units, annually, to housing consumers. However, this target is only realizable, and impactful, if deliberate steps are taken to de-emphasize the reliance on cement-based, or other sophisticated building technology, but rather, to explore and adopt home-grown and affordable solutions to the construction and renovation of low-income housing.

Low-Cost Housing Technologies Abound

Nigeria is home to a variety of homespun, and inexpensive, building technologies that offer great potentials for significantly reducing the huge housing deficit and improving the quality of life and human habitation. S4C's preliminary engagement and consultations with experts, and stakeholders within the housing, building and urban development sectors disclosed that local mass housing technologies abound, and have enormous potentials to boost housing development in Nigeria. The chances of successfully using them to increase the housing stock are heightened by the availability of materials, techniques and the manpower to undertake both resource production and housing construction locally. As the costs of building a house continue to soar, the low cost, non-cement technologies offer veritable alternatives, in view of their unique feature of substantially reducing the cost of housing construction, while simultaneously improving the environment through the efficient and sustainable use, and reuse, of resources.

Notable examples of local building technologies include the following:

- a. Stone – crete blocks: These are derived from a mixture of brick, little cement and sand. It is ideal for areas where there is abundance of stones. The machine for producing stone-crete is available in Nigeria while the required stones are available in different colours in some states such as Kogi State (North-Central, Nigeria) and Ekiti State (South-West, Nigeria).



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b. Sand lime brick: This is made from a mixture of sand (sharp sand) and lime and most suitable in locations having an abundance of sand (sharp sand). Lime can currently be sourced from Ewekoro (Ogun State, South Western, Nigeria). This kind of technology can be used in parts of Lagos State (e.g. Eti-Osa LGA) where sand (sharp sand in particular) abounds.

c. Laterite brick: The brick is made from laterite stabilized with just 5% cement. There are different types of laterite bricks e.g. (i) Laterite brick (smaller): Cement-stabilized bricks and (ii) Cement-stabilized interlocking block. Laterites have successfully been combined with bamboo in a design that addressed cultural resistance to both materials, and achieved further cost reduction. Bamboo's structural characteristics make it perfect for construction and it is abundantly available locally. This technology reduces the use of laterite and cement, eliminates the use of timber thereby potentially reducing the cost of building by half. The design can be assembled anywhere in the country and that advantage of mobility promises to bring down the cost further.

(b) Fiber concrete roofing sheet (made from sand, cement and fiber);

(c) Clay roofing tiles (made from clay);

(d) Ceiling board; and

(e) The Bottle technology which was pioneered by a German, named Andreas Froese, who is also the founder of



Eco-Tec. This technology achieves successful housing construction by using earth-filled recycled plastic bottle bricks and mud. The emerging structure is so sturdy that it could stand for a thousand years¹².

This technology saves the environment by taking away dangerous plastic waste bottles that litter the streets and transforming it into a more useful material. In Nigeria, millions of plastic bottles are dumped into waterways and

¹ In Bolivia, in the little town of Santa Cruz de la Sierra, Ingrid Vaca Diez collects plastic bottles lying as waste on the streets and use them to build house bricks for construction of ecological houses for people who lives in extreme poverty — at www.iwillbegreen.com

² DARE Nigeria and Eco-tech pet bottle building pioneers build a water tank at Kaduna.



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landfill each year causing pollution, erosion, irrigation blockages, and health problems. The bottle building technology also has the advantage of being energy efficient. Compared to bricks and other construction materials, the bottle technique has lower cost, is non-brittle, absorbs abrupt shock loads, is bio-climatic, is re-usable, requires less construction material, is easy to build, and is green – sustainable, and with low carbon footprint.

Sequel to a bottle recycling programme launched in Nigeria, in December 2010, by Katrim Macmillan, used bottle containers and their lids are collected from selected locations such as hotels, restaurants, schools, hospitals, offices and homes and recycled for the bottle house builds. Efforts are ongoing to train local masons in the bottle building technique. Pet bottle technology has been confirmed to last at least 300 years longer than the cement used to bind the bottles together in the walls.

(f.) Nigerite's Dry Construction Method: An initiative of Nigerite Nig. Ltd, this method of construction uses composite panels or boards installed on metal or timber structure, to build exterior walls, interior walls, ceilings, and many other applications. It replaces the traditional "wet" method of construction using brick and concrete blocks³.

Among several advantages, the composite panels or boards are lighter in weight (25KG/m² vs 250KG/m²), and has cleaner disposition to technical installations. Less foundation is required and the cost of transporting building materials is significantly reduced. It is also faster to build (with up to 70% time savings with good planning). Its lower financing costs and faster business start-up in commercial and industrial projects are worthy of note. In terms of its structural sturdiness, Nigerite BSH has been proven to be earthquake resistant (does not collapse and kill like brick or block walls). Its acoustical and thermal comfort, and greater design flexibility makes it easy for housing consumers to replace and modify constituent parts according to owner's future needs.



Enormous benefits loom

The use of non-cement based building techniques stands out from other efforts at low cost housing provision by virtue of the enormous potential they hold for expanding income-generating capacities of the citizenry through training on technical crafts and other economically viable skills. Among other expected outcomes, housing cost reductions will be achieved by creating a pool of skilled and semi-skilled workers and entrepreneurs from among the

³ First picture shows the composite panels while the second picture shows the panels being used to construct a building.



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populations who will provide own labour, and services, and participate directly during the planning and construction phases of housing development. Other distinguishing short- and long-term goals are:

- Slum proliferation is reduced to the barest minimum, while housing citizenship is built, with beneficiaries being aware of their housing rights and responsibilities;
- Job creation, increased income, and employment potential for individuals and communities;
- Availability of highly trained workmen, and women, for the renovation and construction phases of building projects equipped with expanded knowledge-base and core competence;
- Expansion of productive capacities through investments, retraining, training of trainers and consolidation of individual and collective assets;
- Improved quality of life through awareness creation and consciousness-raising on the need to explore and harness their individual and collective potential to improve their housing, and regenerate the physical, social, economic and environmental conditions of their communities;
- Mobilization of local resources for integrated community development;
- New business generation, and various partnerships are created between the public and the private sector;
- Social capital is retained and expanded upon as the process builds on existing livelihood strategies and spins off a variety of associated poverty alleviation opportunities for the community;
- Transparency, accountability and local economic development are promoted as money spent is being kept in the community, increasing the local multiplier, or knock-on, effects;
- Stable communities with a direct stake in the future of their neighbourhoods are fostered as houses are built that are better suited to the needs of individual households;
- Women, and the youth, are more directly involved in the process, ensuring skills transfer;
- Human settlements are built that are more sustainable, because they are more inclusive and more responsive to the needs of the community and because communities have invested directly in the process.

Way Forward

To move forward from goal-setting and statements of principle to real practice, the fundamental issue that must be addressed is how to harness, aggregate and maximize these available, nay affordable, technologies in ways that significantly increase the housing stock, and build on existing livelihood strategies. As a critical step forward to the achievement of 1 million houses target, S4C presents the following recommendations to the FMWH:

1. To take urgent steps to standardize these alternative solutions to housing construction for inclusion in building codes. Arrangements must be made to see that they are tested with a resulting standard guide for using them in compliance with in force, and evolving, health and safety regulations.
2. To formulate policies for improving on these home-grown techniques and for taking active steps, in the right direction, to advocate acceptance of same through, for instance, using them in the construction of public schools, hospitals, etc.
3. To promote and advance technical education through the establishment, and strengthening, of training institutes for craftsmen; including the institution of structured internship program for youths in universities and polytechnics, and maybe monotechs, studying building-focused disciplines.



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4. To establish and support an affordable housing movement with components like:
 - Compilation and exhibition of the extensive research of innovative low-cost construction ideas some of which have already been explored, extensively and less so, in existing theses and prototypes.
 - Creation of new partnerships with professional bodies, institutes, schools, and innovators
 - A policy requirement for low-cost housing developers using homegrown technologies to provide not less than 10 year building insurance to housing consumers in order to ensure that sub standard materials are not used, and approved standards are maintained.
5. To create a national social housing programme designed and able to effectively address the housing needs of approximately 60 percent of Nigeria's population that lack access to adequate housing.

Conclusion

The revolutionary effect of these innovative housing solutions in Nigeria's political economy is indeed, enormous. In addition to being a pre-requisite for economic development, other perceived benefits include the stimulation of the housing market by allowing land to be used for its "highest and best use", increased tenure security and improved access to credit, thereby providing the incentive and ability for slum dwellers and low-income earners to invest in making improvements to the land. In effect, the vast majority of Nigerians who are limited by access to resources, and are further impoverished by the degrading quality of their housing and environmental conditions will begin to access the great opportunities for wealth creation and actively, nay conscientiously, use resources available to them to alleviate their poverty – and the squalidness associated with same.

