

“Innovative building materials for sustainable construction in Africa”

Vincent Kitio
Chief, Urban Energy Unit
Urban Basic Service Branch
UN-Habitat



- The United Nations Human Settlement Programme is the UN agency mandated by the General assembly to promote adequate shelter for All and Sustainable urbanization.
- This mandate has been reviewed to the following:
 - **Leaving no one behind** and
 - **Promotion of sustainable urban and territorial development**

Rapid Urbanization: Housing shortage and inadequate housing

- Housing deficit is estimated globally at **one billion**.
- Globally , 1.6 billion people live in inadequate housing.
- There is a mismatch between the supply and the demand for housing:
- **Adequate housing are unaffordable!**

and
- **Affordable housing are inadequate**
- Hence one billion people living in informal settlements.



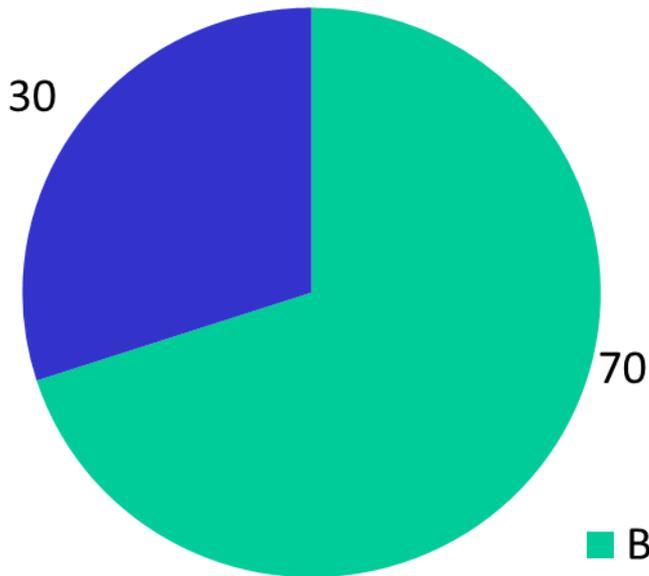
Rapid provision of housing on large scales that are not always environmental friendly.

- The response to housing shortage is the development of mass housing program.
- Project with poor environmental considerations:
- Poor design, no consideration for environmentally friendly building material;
- No green spaces and open.
- Emphasis are put on **quantity** and not **quality**.

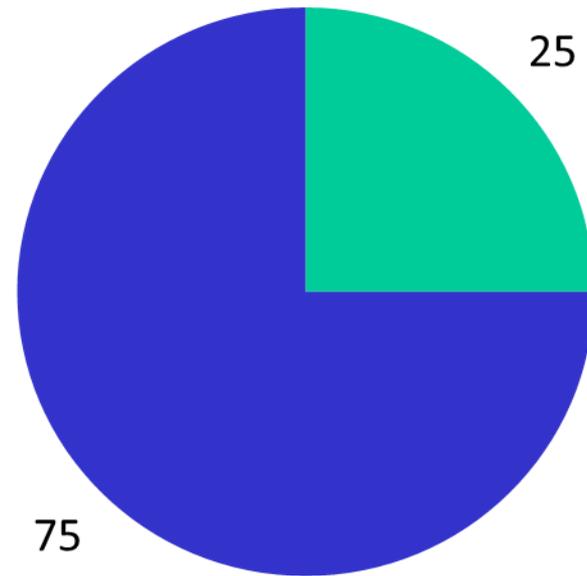


Global Building Stock Forecast

Europe



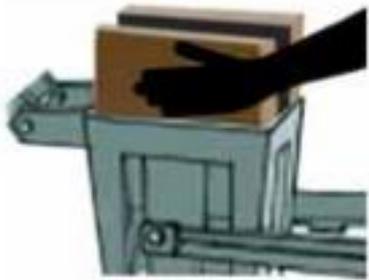
East Africa



- Built before 2010
- Built between 2010 and 2050

Innovative building materials for sustainable construction: Stabilized Soil Blocks

- The Stabilized Soil Blocks (SSB) has been around for some time now.
- The blocks are made of a mixture of
 - - soil, cement and sand and are compressed in a press machine.
- It is a labor intensive activities and the resulting products are aesthetic with better stability and good thermal comfort.



Innovative building materials for sustainable construction: Stabilized Soil Blocks

- Residential housing unit built with interlocking stabilized soil blocks, Cameroon. NOVATECH CONSTRUCTION SYSTEMS CAMEROON



Innovative building materials for sustainable construction: Stabilized Soil Blocks

- Residential housing unit built with interlocking stabilized soil blocks, Cameroon. NOVATECH CONSTRUCTION SYSTEMS CAMEROON





UN-HABITAT:

The mission of UN-HABITAT is to promote socially and environmentally sustainable human settlements and to work towards adequate shelter for all.

Project Abstract:

UN-HABITAT, with funding from UNICEF, implemented this project to facilitate the sustainable return and reintegration processes in Northern Uganda. Through the use of alternative environmentally-sensitive building technology, 64 teacher's housing units in 16 schools and three ISSB demo buildings were constructed in the area.

Structure:

- » 16 ISSB buildings each containing four unit housing blocks
- » 16 ISSB two unit VIP-Toilet blocks
- » 32 unit kitchens made by the benefiting community
- » 3 demo offices, one containing an ISSB water tank

Type of Block Used:

- » Single Interlock
- » Double Interlock
- » Grooved Double Interlock

Barriers:

Social acceptance

Product not always available when needed

Conducive regulatory framework

High cost of the press.

No financial incentives.

Innovative building materials for sustainable construction: Production of insulating material from grass Typha

The Typha project in Senegal focuses on using local raw material for producing innovative building material to reduce the energy consumption in buildings. The project is also developing a thermal regulation in Senegal and the production of thermal insulation materials based on Typha in order to reduce greenhouse gas emissions.



Innovative building materials for sustainable construction: Production of tiles using recycling plastic in Cameroon

BIOCAMER



Conclusion

- Need for a good regulatory framework.
- Need for a real market transformation
- More industrial development for mass production of sustainable houses
- Need for financial mechanism to stimulate local innovation in the sector.
- Responsive tax incentives
- Continuo Research and development (R&D) are critical to ensure quality and durability of building materials.

THANK YOU FOR YOUR ATTENTION

Vincent Kitio

*Chief, Urban Energy Unit
Urban Basic Service Branch
UN-Habitat
Vincent.kitio@unhabitat.org*



UN  **HABITAT**
FOR A BETTER URBAN FUTURE

