Housing is Dynamic, Not Static

Shifting the Development of Affordable Housing with Circular Materials and Building Methods in Kenya

Natalia Téllez Angel
Student number: 5308348

Mentors: Hans Wamelink & Ellen Geurts
Graduation Organisation: Habitat for Humanity

P5 Presentation
01.07.22

House

85%

Global population is of low-income

Great majority is from the Global South

2030

Up to 2 billion people will be living in substandard housing conditions

Government struggles to provide good housing conditions

Dependency on private sector participation

Government

Private companies

NGO's

Self Building practices

Housing Market

Supply

⇓

Effective
Demand

⇓

Based on financial
capabilities and not urgent
needs

Market

⬇

Focused on who
is willing to pay

For whom is it affordable?

Supply $\neq$ Demand

Urban Global South is growing exponentially

100

YEARS AGO

African population: 130 million

7% of world's population

The world was 20% urban

2022

TODAY

African population: 1.4 billion

18% of world's population

The world is 55% urban

2050

PROJECTING OURSELVES

African population: 2.5 billion

25% of world's population

The world will be 70% urban

70%

OF WHAT HAS TO BE BUILT IN AFRICA BY 2050

Hasn't been built

Built Environment

Environmental Implications
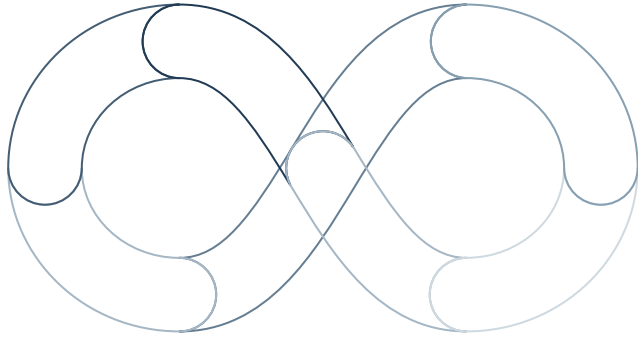
50%

MATERIALS CONSUMED GLOBALLY

Depletion of natural resources

Mid-term future we will have scarcity of natural resources
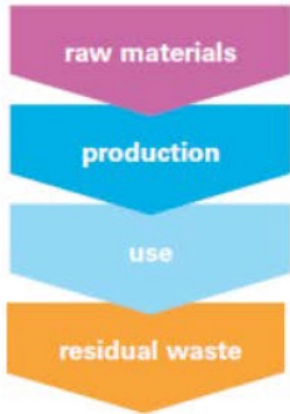
37%

CO$_2$ EMISSIONS

Climate change

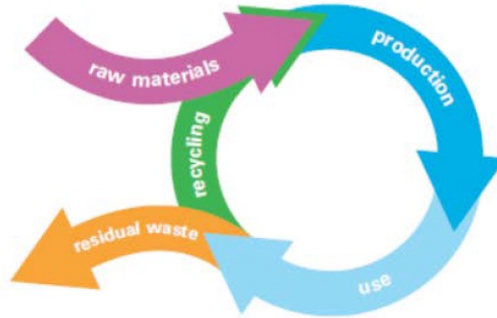*"Every problem is an opportunity in disguise."*

—John Adams

Circularity

LINEAR ECONOMY

raw materials

production

use

residual waste

ECONOMY WITH FEEDBACK LOOPS

raw materials

production

recycling

residual waste

use

CIRCULAR ECONOMY

sustainable production

recycling

sustainable use

Constraints

THE WORLD IS AROUND

9%

CIRCULAR

Businesses loose interest due to difficulty of implementation

Lack of information for developing countries

How can this be implemented?

Kenya

BY 2050

48%

OF POPULATION WILL LIVE IN URBAN AREAS

Third fastest growing country in Sub-Saharan Africa

80%

DEFICIT IN DEMAND

Housing Shortage of 2 million units

Problem in the Market

80%

OF NEW HOUSES ARE MADE
FOR HIGHER INCOME
PEOPLE

Private development portfolio
contains less than 30% of low-
income, affordable housing
units

83% demand is low and lower-
middle income

Constraints for Innovation

Policies are inefficient and unhelpful

Barriers to market entry:
1. Value based
2. Socio-economic
3. Institutional

Habitat for
Humanity

How can NGOs support local stakeholders in Kenya to shift the development of affordable housing by the use of circular materials and methods?

Sub-questions

1. How can a process of support for circular materials and methods be created to implement affordable and simple to build houses, while being both efficient and effective?

2. How can NGOs evoke change through strategies to create acceptance and adaptation of circular materials in the supply local market?

3. How supporting local stakeholders in the use of circular materials and methods create economic and social value, preventing precarization of affordable housing?
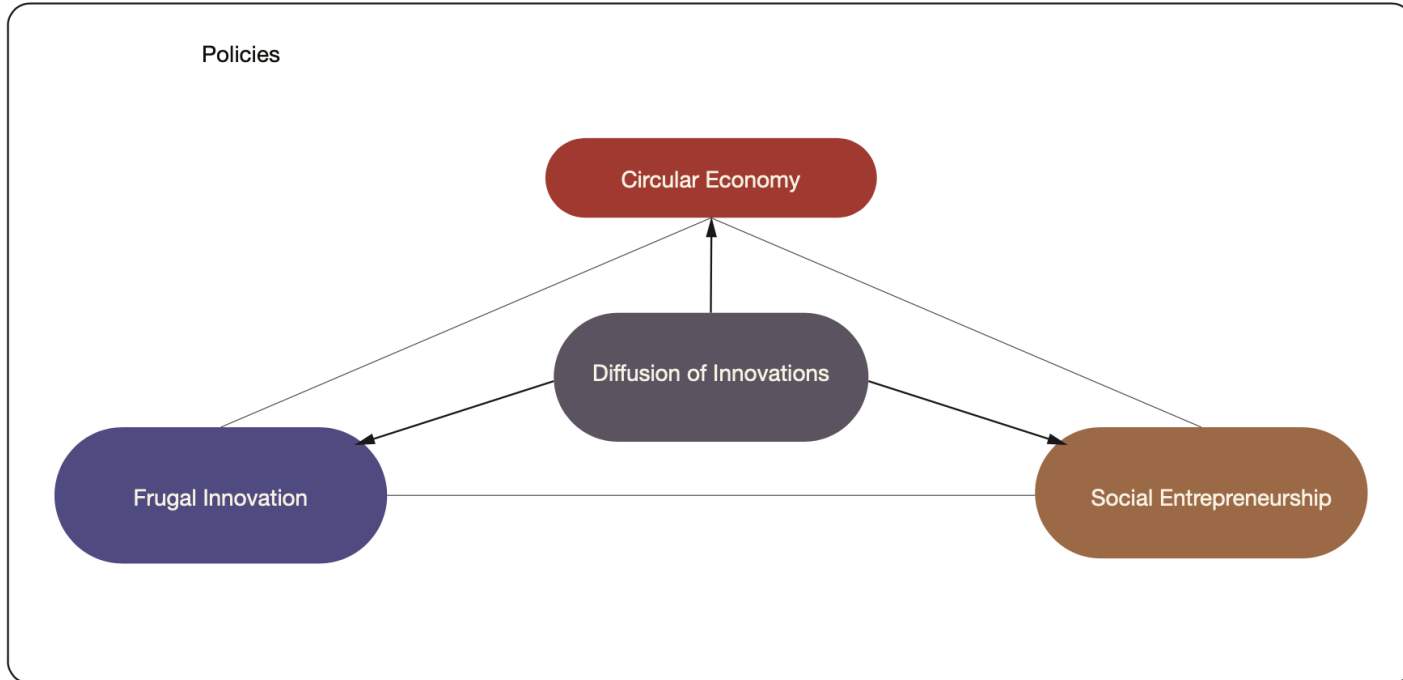
State of Art

Concepts

1. Policies in the Urban Market	2. Frugal innovation, Sustainability and Business Models
3. Social Entrepreneurship	4. Diffusion of Innovation Theory

Relationship Between Concepts

Actor Network

1. Government Institutions

2. Educational Institutions

3. Technical Upskilling Institutions

4. Suppliers of Circular Products

5. Organisations Advocating Circularity

6. Architectural Firms & Building Contractors

7. End Users

Research Design

Data Collection

1. Interviews

2. Questionnaires

3. Papers

4. Publications

5. Trip to Kenya

Present Situation

43

Key Findings

1. Comfort Zone with Materials

2. Cultural Perception & Social Norms

3. Strategies to Create Acceptance & Adaptation

4. Advocacy for Circularity & Sustainability

Challenges

1. Lack of Regulations and Building Code

2. Cultural Perception & Social Norms

3. Economic Challenges

4. Lack of Awareness

5. Lack of Professional Know-how

6. Accessibility / Availability in the Market

7. Corruption

Key Findings

Opportunities

Key Findings

1. New Building Regulations

2. Monetary Funding

3. Network and Partnerships

4. Creation of Awareness & Change of Behaviour

5. Community Inclusion & Participation

6. Education

How can NGOs support local stakeholders in Kenya to shift the development of affordable housing by the use of circular materials and methods?

Guideline for NGOs to Help Local Stakeholders Shift to Circularity

Create an Ecosystem Development (Demand)

- Create Community Awareness
- Develop Building Regulations
- Provide Education

Support Social Enterprises Focused on Circularity and SMEs / Large Corporations Transition to Circularity (Supply)

- Provide Funding
- Incentivize Community Projects
- Strengthen Network Partnerships
- Create Community Awareness
- Provide Education
- Develop Gov. Regulations

Create Sense of Purpose in the Community

Make Circularity a Cultural Norm