Housing Market Demand, Housing Finance and Housing Preferences for the City of Kigali

EuropeAid / 127054 / SER/multi
Ars Progetti
The Kigali Housing Market  
A Rising Star in Africa

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2. Demand and Supply
3. Architectural Typology
4. World Examples
5. Housing Finance
6. Impact & Potential Bottlenecks
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1. Scope
1. Scope

• Study scoped by the City of Kigali and funded by the EU.

• 3 Components:
  Housing Market Demand and Supply in Kigali (10 years)
  Housing Finance
  Housing Typology

• Global Objective:
  To increase the production of housing, especially affordable housing, in the City of Kigali.

• Team:
  Marco Cuevas / TL – Housing Market Analysis
  Dominique Brouwers – Housing Finance
  Costantino Costantini – Housing Typology
1. Scope

• Relation to other studies:

- Kigali Conceptual Master Plan (2009)

- World Bank Qualitative Assessment of the Housing Sector in Rwanda (2011)

- Detailed Physical Plans for Kicukiro and Gasabo (ongoing)
1. Scope

- **Relevance of Housing:**
  - Basic human need
  - Engine of economic development
  - Tool for poverty reduction
  - Favors sustainable urbanization
  - An essential component of the Kigali master planning process.
2. Demand and Supply
2. Demand and Supply

3 step methodology:

1. **An estimation of total housing requirements** in Kigali in 2012-2022 using a mathematical model based on 3 key variables:
   - Population Growth
   - Household Size
   - Household Income

2. **An estimation of supply of housing** based on:
   - Analysis of existing housing stock using statistical data (EICV2 and EICV3)
   - Estimation of supply of housing projects in the pipeline.

3. **Estimation of demand for new housing** (mathematical model)
The Kigali Housing Market: A Rising Star in Africa

2. Demand and Supply

Step 1. Estimating Total Housing Requirements

Kigali Population and Projected Households 2012-22

Baseline Population: 1,059,000 @ 2011 (EICV3); 5.7% annual growth (inter census)
Household size: 4.80 @ 2011 (EICV3); 4.27 @ 2022

Total housing needs in 2022: 458,265 DU
2. Demand and Supply

Step 2. Estimating Housing Supply:

Analysis of Existing Housing Stock:

- Assumed existing housing stock: 223,000 DU
- Estimated In good condition: 42,710 DU (19.15%)
- Estimated Upgradeable: 71,487 DU (32.06%)
- Estimated to be replaced: 108,803 DU (48.79%)

Estimated Projects in Pipeline: 37,686 DU (based on field research and RHA survey).
## 2. Demand and Supply

### Total Housing Requirements in 2022:

- 458,265 DU

### (-) Minus Existing Housing Stock:

- 42,710 Upgradeable
- 71,487 In Good Condition

### (=) Equals

- 114,197 DU

### (=) Equals:

- 344,068 New DU
2. Demand and Supply

Step 3. Estimating Breakdown of Demand for New Housing

- Estimation based on assumed income segmentation of households in Kigali
- Income growth: 7% annually (based on IMF figures)

- 78% of demand is for households with monthly income of RWF 300,000/month and less.

Breakdown of Demand for New Housing (2012 - 2022)

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<td>179</td>
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<td>218</td>
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</tbody>
</table>

TOTAL DQ: 24,982

The Kigali Housing Market A Rising Star in Africa
2. Demand and Supply


4 categories for policy implementation:

- **Premium Housing** – 1,601 DU
  - HH income above RWF 2,500,001.
  - already access mortgage financing.

- **Mid-range Housing** – 112,867 DU
  - HH income RWF 200,001 to RWF 2,500,000.
  - Housing for middle income households with potential access to mortgage financing.

- **Affordable Housing** – 186,163 DU
  - HH income: RWF 33,501 to 200,000.
  - Needs some support but could be off-loaded (i.e. rent-to-own mechanism)

- **Social Housing** – 43,436 DU
  - HH income below RWF 33,500 month.
  - Needs full subsidy.

*Percentage of new demand*
## 2. Demand and Supply

### Kigali Housing Requirements 2011-2022 in DU

<table>
<thead>
<tr>
<th></th>
<th>Assessment of Existing Housing Stock (2011)</th>
<th>DU</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>Good Condition</td>
<td>42,710</td>
<td>19.15%</td>
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<tr>
<td>1.2</td>
<td>To be Upgraded</td>
<td>71,487</td>
<td>32.06%</td>
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<tr>
<td>Subtotal A</td>
<td>(1.1+1.2)</td>
<td>114,197</td>
<td></td>
</tr>
<tr>
<td>1.3</td>
<td>To be Replaced</td>
<td>108,803</td>
<td>48.79%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>223,000</td>
<td>100.00%</td>
</tr>
</tbody>
</table>

### New Dwellings (including backlog) to be built 2012-22

<table>
<thead>
<tr>
<th></th>
<th>New Dwellings (including backlog) to be built 2012-22</th>
<th>DU</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1</td>
<td>Social Housing</td>
<td>43,436</td>
<td>12.62%</td>
</tr>
<tr>
<td>2.2</td>
<td>Affordable Housing</td>
<td>186,163</td>
<td>54.11%</td>
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<tr>
<td>2.3</td>
<td>Mid-range Housing</td>
<td>112,867</td>
<td>32.80%</td>
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<tr>
<td>2.4</td>
<td>Premium Housing</td>
<td>1,601</td>
<td>0.47%</td>
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<tr>
<td>Subtotal B</td>
<td>(2.1+2.2+2.3+2.4)</td>
<td>344,068</td>
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</table>

### Meeting Housing Needs in Kigali 2012-22

<table>
<thead>
<tr>
<th></th>
<th>Meeting Housing Needs in Kigali 2012-22</th>
<th>DU</th>
<th>%</th>
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<tr>
<td>Subtotal A</td>
<td>Existing Housing Stock</td>
<td>114,197</td>
<td>24.92%</td>
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<tr>
<td>Subtotal B</td>
<td>New Dwellings</td>
<td>344,068</td>
<td>75.08%</td>
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<tr>
<td>Total</td>
<td></td>
<td>458,265</td>
<td>100.00%</td>
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</tbody>
</table>

Housing demand in Kigali will be met by:

- Using existing stock in good condition
- Upgrading existing stock
- Building new housing
3. Architectural Typology
3. Architectural Typology

Envisaged Housing Typology

Typology A
Low Rise Row-houses - 79 DU/Ha (Net)

Typology B
Low Rise and Mid Rise Row-houses - 159 DU/Ha (Net)

Typology C
Apartments - 317 DU/Ha (Net)

N.B: Illustrates program models for development NOT recommended site planning, which should be clustered and include community facilities, open space/ landscaping and transport.

Proposed Architectural Typology for Kigali is based on:

- Preferences study (consultation with citizens)
- Cultural traditions
- Density needs
- Household income
- Topographic conditions
Note on typology:

• Typology is not site planning.

• Actual planning may depart from the illustrative models, develop clusters and include open spaces and community facilities to give origin to neighborhoods.
3. Architectural Typology

Typology A (Q1/Q2)

Rows or clustered parcels with basic utility services, a basic roof built with temporary technology (auto-construction by the future occupant (A1) or by contractor (A2). should be designed to respond to household changes.

THE STANFORD HOUSING INITIATIVE: Overberg, South Africa

ARCHITECT Frederik Groos
3. Architectural Typology

**Typology B (Q3/Q4)**

Contiguous dwellings aligned into rows or clusters.

Built with hybrid technology and developed incrementally, residents start with a small unit and expand it horizontally or vertically.

**VSDsD SOCIAL HOUSES**

Chile 2004

**ARCHITECT** Elemental-Alejandro Aravena
3. Architectural Typology

Typology C (Q4/Q5)

Multi Story Apartments and Condominiums.

four-story structures, with each building including multiple dwellings in horizontal or vertical property.

built with reinforced concrete Frame or reinforced walls with hybrid technology,

common amenities

48 UNITS SOCIAL HOUSING  
Italy 2003 / 08

ARCHITECT  Giorgio Macola, Adolfo Zanetti
Architectural housing typology will evolve over time to adapt to:
- Increased income
- Cultural changes
- Density requirements

It is proposed that Typology A should be dominant until 2022.

Typologies B and C will gradually acquire importance and dominance.

It is expected that by city build-up in 2040, the three categories would be present in a balanced and harmonious way.
4. World Examples
4. World Examples

- 20 world examples which reflect the as benchmarking.
- Truly Unique Rwandan Design should emerge.

9 Criteria:

1. Topography
2. Climate
3. Moderate size of the dwellings
4. Potentiality for gradual development
5. Local materials
6. Affordable cost
7. Replicability
8. Originality
9. Cultural setting
## 4. World Examples

<table>
<thead>
<tr>
<th>Name</th>
<th>Location</th>
<th>Architect</th>
<th>DU Size in m²</th>
<th>Income Quintile</th>
<th>Sustainability</th>
<th>Climate Conditions</th>
<th>Potential for Retrofit</th>
<th>Affordability</th>
<th>Local Materials</th>
<th>Social Inclusion</th>
<th>Technology</th>
<th>Cost USD/m²</th>
<th>From</th>
<th>To</th>
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<td>Frederik Groos</td>
<td>45-70</td>
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<td>$20,160</td>
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<td>Spain</td>
<td>Gabriel Verd &amp; Simone Solinas</td>
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<td>Hybrid</td>
<td>$289</td>
<td>$25,920</td>
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<td>16. Siedungen Halen</td>
<td>Switzerland</td>
<td>Atelier 8</td>
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<td>$40,900</td>
<td>$51,940</td>
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<td>Rogers Stirk Harbour + Partners</td>
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<td>1</td>
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<td>1</td>
<td>Hybrid</td>
<td>$289</td>
<td>$17,292</td>
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<tr>
<td>18. Social Housing</td>
<td>Italy</td>
<td>Giorgio Maccio &amp; Ascoff Zenetti</td>
<td>45</td>
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<td>$289</td>
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<td>$26,320</td>
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<tr>
<td>19. Rokko Housing</td>
<td>Japan</td>
<td>Tadao Ando</td>
<td>70</td>
<td>4</td>
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<td>1</td>
<td>RCF</td>
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<td>$66,460</td>
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<tr>
<td>20. MD Houses</td>
<td>Denmark</td>
<td>Barkke Ingels</td>
<td>60</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>RCF</td>
<td>$289</td>
<td>$76,500</td>
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</tr>
<tr>
<td>21. MD Houses</td>
<td>Spain</td>
<td>Foreign Office Architects</td>
<td>44</td>
<td>5</td>
<td>1</td>
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<td>1</td>
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<td>1</td>
<td>RCF</td>
<td>$289</td>
<td>$37,400</td>
<td>$44,192</td>
</tr>
</tbody>
</table>
4. World Examples

SUBSIDISED HOUSING in
Soweto. South Africa 2009 – ongoing


ARCHITECT 26’10 South Architects, Peter rich Architects
CLIENT City of Johannesburg Gauteng department of housing
DWELLING N° 25000
DWELLING SIZE
Type SH1 43.5 sqm
Type SR2 38.0 sqm
Type SH2 42.5 sqm
Type SR3 36.0 sqm
N° FLOORS 1
PELIP HOUSING  
South Africa 1999 (built)


ARCHITECT  Noero Wolff Architects
CLIENT  Swedish International Development Agency
ADDRESS  New Brighton Port Elizabeth
DWELLING N° 400
DWELLING SIZE  sqm 40sq - 80sq
N° FLOORS  2
incremental housing New Bombay 1983 / 86

Criteria: 5. Moderate size 6. Potentiality

Architect  Charles Correa
Address  Belapur, New Bombay
Date Built  1983 / 86
 Dwelling/N° 6 Houses
 Dwelling Size  45 sqm/70 sqm
 Housing Density  900/ha
 N° Floors  1
HOUSE DJENAN el HASSAN
Alger 1958 / 60

Criteria: 1. Originality 2. Cultural Setting
3. Topography 9. Replicability

ARCHITECT Roland Simounet
ADDRESS Djenan el-Hassan
DWELLING N°207 Houses
HOUSING DENSITY 900/ha
N°FLOORS 1
OXLEY WOODS
England 2005

Criteria: 1. Originality 5. Moderate size

ARCHITECT Rogers Stirk Harbour + Partners
ADDRESS English Partnerships
       Oxley Park, England
GFA 3ha
BUILDING TYPE Row house
       Terrace
DWELLINGS N° 145
DWELLINGS SIZE 60smq
N° FLOORS 3
CONSTRUCTION COST from £60,000 per unit
5. Housing Finance
5. Housing Finance

Housing finance is one of the key components for successful supply of housing.

In 2012, 96.2% of HH with income less than RWF 900,000 had no access to housing finance;

but there has been a clear increase in the provision of mortgage finance in Rwanda since 2004.
5. Housing Finance

The Rent-to-Own Model for Lower Income Households (Q1)

1. Rental Contract
   - Pay rent for X years
   - Build credit record
2. Transfer of Property to HH
   - Exclusive right to purchase DU
   - Accumulated rents (or part of it) used as down payment
   - Mortgage loan to pay for Y years

- An alternative to housing finance of 54.11% of housing demand.
- Similar schemes are used in Singapore, Australia and Nicaragua.
5. Housing Finance

Estimated Volume of Finance 2012-2022: 2.6 USD billion

**Mortgage Finance:** RWF 996 billion (about USD1.6 billion) or an average of RWF 91 billion per year (about US$149 million per year).

---

**Non Mortgage Finance:** RWF 623 billion (USD1 billion). This amount can then be divided into two categories:

**Affordable Housing** (ie. Rent to Own scheme and other approaches) where the cost should eventually be recovered through rents and transfer of property/mortgage lending: RWF 505 billion (approximately US$ 830 million); or an average RWF 75 billion per year.

**Subsidized Housing** for the poorest which cost would not be recovered: RWF 118 billion (approximately US$ 193 million) or an average RWF 11 billion per year.
## 5. Housing Finance

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>DESCRIPTION</th>
<th>Financing</th>
<th>Quintile (Q)</th>
<th>Monthly Gross Income Range in Rwf</th>
<th>Typology</th>
<th>DU</th>
<th>%DU *</th>
<th>Cost per DU</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Dwellings</td>
<td></td>
<td></td>
<td></td>
<td>From</td>
<td>To</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social</td>
<td>Low-rise row housing (possibly in autoconstruction)</td>
<td>Full subsidy, some rent, contribution with labor during construction period</td>
<td>Q1/S1/BPL</td>
<td>&gt;</td>
<td>33.500</td>
<td>A1</td>
<td>43.436</td>
<td>9,48%</td>
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<tr>
<td>Affordable</td>
<td>Low-rise row housing</td>
<td>For instance, rent to-own</td>
<td>Q1/S1/APL</td>
<td>33.501</td>
<td>200.000</td>
<td>A2</td>
<td>186.180</td>
<td>40,62%</td>
</tr>
<tr>
<td>Premium</td>
<td>Low rise and Mid-rise row housing and multi storey apartments</td>
<td>Mortgage loans</td>
<td>Q3/Q5</td>
<td>200.001</td>
<td>2.500.000</td>
<td>B1-B4, C1-C3</td>
<td>112.817</td>
<td>24,63%</td>
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<tr>
<td>Existing Stock</td>
<td>Various existing typologies, mostly low rise but also apartments</td>
<td>Mostly mortgage loans or self financing</td>
<td>Mostly in Q4 and Q5</td>
<td>Above 2.000.000</td>
<td>Various existing.</td>
<td>42.710</td>
<td>9,32%</td>
<td>n.a.</td>
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<tr>
<td>Affordable</td>
<td>Various existing typologies, mostly low rise</td>
<td>Micro-loans (micro-finance and mortgages) and other programs</td>
<td>Q1/S1/APL</td>
<td>33.501</td>
<td>200.000</td>
<td>Upgraded existing DU</td>
<td>71.487</td>
<td>15,60%</td>
</tr>
</tbody>
</table>

* Percentage of total requirements

The Kigali Housing Market - A Rising Star in Africa

458.265 | 100,00%
### The Kigali Housing Market

#### A Rising Star in Africa

### Monthly HH Income RwF

<table>
<thead>
<tr>
<th>Segment</th>
<th>From</th>
<th>To</th>
<th>Number of Units</th>
<th>Totals</th>
<th>Percent</th>
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<tbody>
<tr>
<td>Social</td>
<td>Q1</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>1</td>
<td>&lt; 8.500</td>
<td>971 DU</td>
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<td>X</td>
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<tr>
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<td>2</td>
<td>8.501</td>
<td>16.500</td>
<td>7.522</td>
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<td>16.501</td>
<td>33.500</td>
<td>34.943</td>
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<td>200.000</td>
<td>81.838</td>
<td>54.11%</td>
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<tr>
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<td>9</td>
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<td>300.000</td>
<td>39.266</td>
<td>11.41%</td>
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<td>46.239</td>
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<td>900.000</td>
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<td>15.809</td>
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<td>21</td>
<td>1.601</td>
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<td>1.601</td>
<td>0.47%</td>
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| Total   | 344.068 | 100,00% | 268.865 | 75.203 |
|         |         |         | 78.14%  | 21.86% |

### Poverty Line

### Affordable

### Mid-range

### Premium

### Sector Participation

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<th>Private</th>
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<td></td>
</tr>
</tbody>
</table>
6. Impact and Potential Bottlenecks
6. Impact and Potential Bottlenecks

• **Impact:**
  
  Employment, tax revenue and Engine of Economic Growth for the city, through multiplier effect: estimated 60,000 employment posts.

• **Potential Bottlenecks:**
  
  • Land requirements: 2,562 Ha of residential land
  • Long-term funds: 2.5 billion USD
  • Building materials (200,000 tons of cement; 13,000 tons of steel; 1.7 million m² of roofing material)
  • Infrastructure (daily needs: 29,598 m³/day of water; 123 Mwh of power; 22,199 m³ of liquid waste; 67 tons/day of solid waste; 1,480 M²/day of streets; 177,588 trips/day transport)
  • Construction industry’s delivery capacity: 17 million m²/year; 50,000 workers.
7. Recommendations
The housing sector is a system that includes 5 key components:

- Housing Finance
- Construction Industry
- Housing
- Infrastructure
- Land

7. Recommendations
7. Recommendations

Build up the housing sector in Kigali alongside the 5 key components of housing delivery. Three main actions are required:

1. **Institutional Development**
   Coordination of existing institutions in Kigali, Private Sector and Community

2. **Policies & Regulations**
   Expedite 5 key components:
   - Land
   - Infrastructure
   - Housing Finance
   - Construction Industry
   - Building Materials and Technology

3. **Plans and Projects**
   - Housing plan per type (social, affordable, etc)
   - Infrastructure plan (water/waste, power, streets/transport)
   - Specific project profiles.
The Kigali Housing Market  A Rising Star in Africa

MURAKOZE

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