

# KIGALI UNPLANNED SETTLEMENTS INCLUSIVE URBAN TRANSFORMATION

## THE ROLE OF PROECCO IN PILOTING THE SCALE-UP



2013-2015

### PHASE I – RESEARCH STAGE

A country-wide research and mapping of relevant natural resources was conducted at the beginning of the project to evaluate opportunities for supporting the supply of urban housing.

The nearly inexhaustible deposits of high-quality clay oriented the project towards the support to the production of modern clay bricks as the most sustainable construction material.

**PROECCO** introduced and demonstrated environmentally friendly brickmaking technologies and modern brick walling systems for urban buildings such as the **Rowlock Bond**.

First housing designs for storied buildings in small towns and peri-urban neighborhoods have been demonstrated in Rusizi.

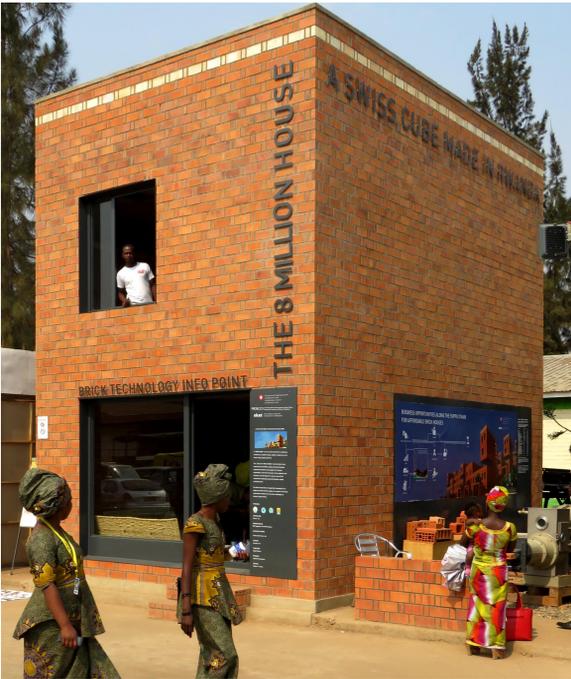
### PROECCO

**PRO**moting **E**mployment through **C**limate-responsive **CO**nstruction

A project financed by the **Swiss Agency for Development and Cooperation (SDC)** in partnership with **MININFRA** and implemented by **Skat Consulting**

# 2 INNOVATIVE VALUE CHAIN APPROACH

2016 - 2017



## PHASE 2 – PROOF OF CONCEPT

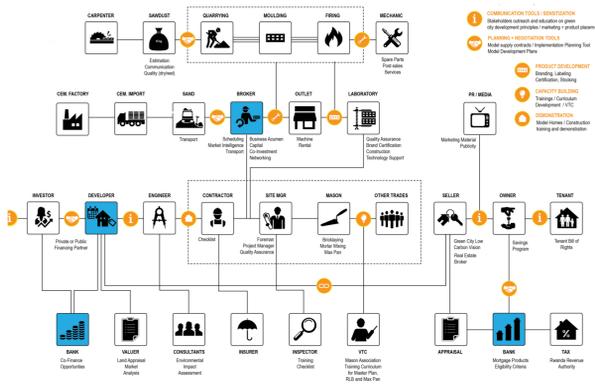
A green and modular housing system, affordable and easy-to-build by small local construction firms was developed by PROECCO in 2016.

PROECCO was invited to extend its services to the urban areas of Rwanda. Following a participatory optimisation process of the initial designs, jointly with a group of dwellers from informal settlements, PROECCO displayed the “**8 Million House**” at the Kigali International Trade Fair.

The **modular building** meets para-seismic structural requirements. Its flexible floor plan further allows to accommodate an unlimited variety of uses and for incremental construction, upgrade and transformation throughout its lifecycle. These design characteristics, combined with a strong local supply chain, would allow to build dense and affordable urban neighbourhoods at mass scale, by a large variety of small and large investor and construction firms.



2018

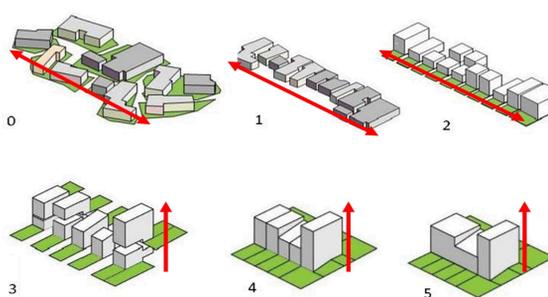


PROECCO operates in one of the **fastest urbanising regions in the world**. It is estimated that approximately 15,000 new Dwelling Units are needed every year in Rwanda alone.

To address the affordable housing shortage PROECCO facilitates improvements across the housing supply value chain favouring the production of sustainable construction material and the construction of improved medium-density and affordable housing solutions.



During the 2018 Kigali Master Plan Update PROECCO-designed housing was identified as a relevant tool for achieving the **medium-density, medium-rise** zoning objectives and highly suitable to meet the affordability criteria for current and future population in Kigali. This contributed to the new City's medium and long term strategies that were elaborated with a stronger focus on **social and economic aspects**.



# 3 PROOF OF CONCEPT

2018 -2019



The Project's first full-scale Urban model house was built in partnership with the City of Kigali and the target-neighbourhood's home-owners

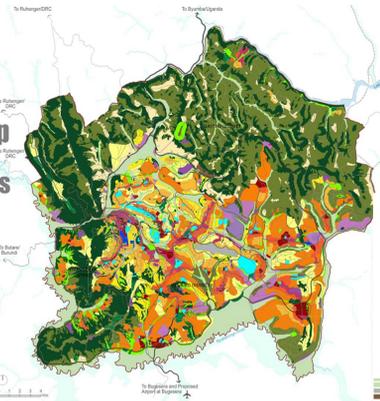
After the base-unit of the modular housing system triggered significant interest at the Kigali International Trade Fair, PROECCO promoted the design and construction of full-scale urban housing block, demonstrating 10 different housing typologies for a variety of income groups. The building's purpose was to showcase how **voluntary engagement** of landowners in the redevelopment of their parcels, could create safe, attractive, and affordable urban neighbourhoods with access to basic services.

2020

2050

3.8ML Pop  
1.76ML Jobs

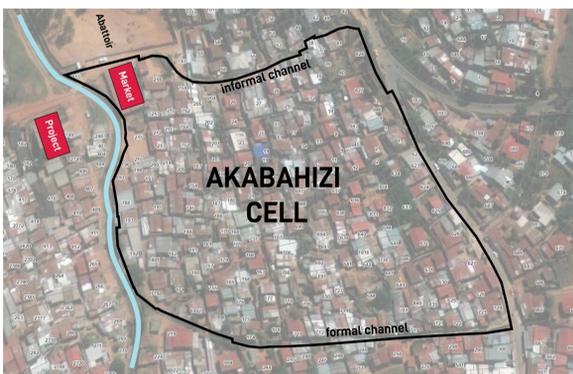
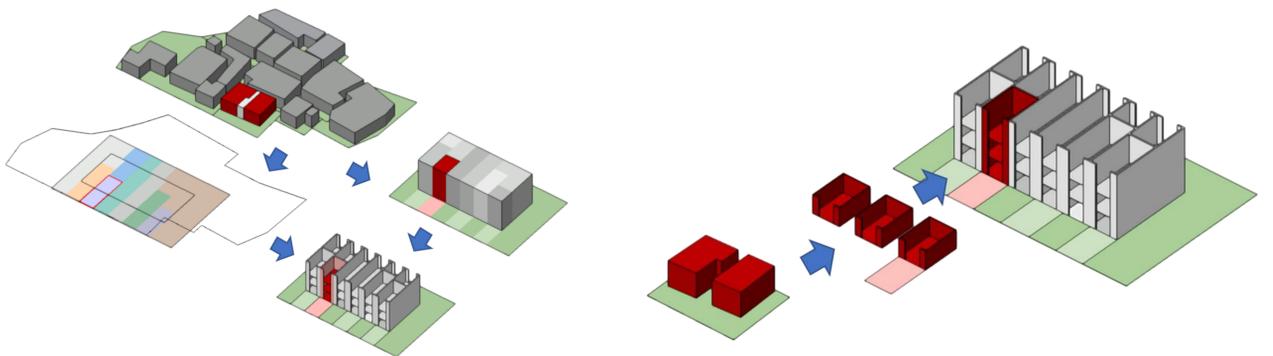
Protected and Agriculture 55%  
Urban Area 45%  
Gross Density - 5.243 PPSQKM  
Net Density - 11.401 PPSQKM



After Kigali Master Plan's completion, the City of Kigali partnered with PROECCO to extend the model at the neighborhood scale.

The City of Kigali approved the updated **Kigali Master Plan**, which represents a major shift in the strategies put in place to enable a more inclusive urban transformation, focused on more flexible regulations and stronger attention to urban poor.

PROECCO's urban housing model was identified as the suitable tool for a city-wide **urban transformation** of unplanned neighbourhoods, using an incremental and widely owner-driven approach, where land values would be leveraged to trigger inclusive processes, preventing or limiting the need for displacements.



The City of Kigali partnered with PROECCO to pilot the scaling-up of the approach to a larger part of the city. The 4-ha pilot neighbourhood in the **Mpazi** catchment area was selected for its strategic position, the willingness of local communities and the possibility to integrate the project with other ongoing programs.

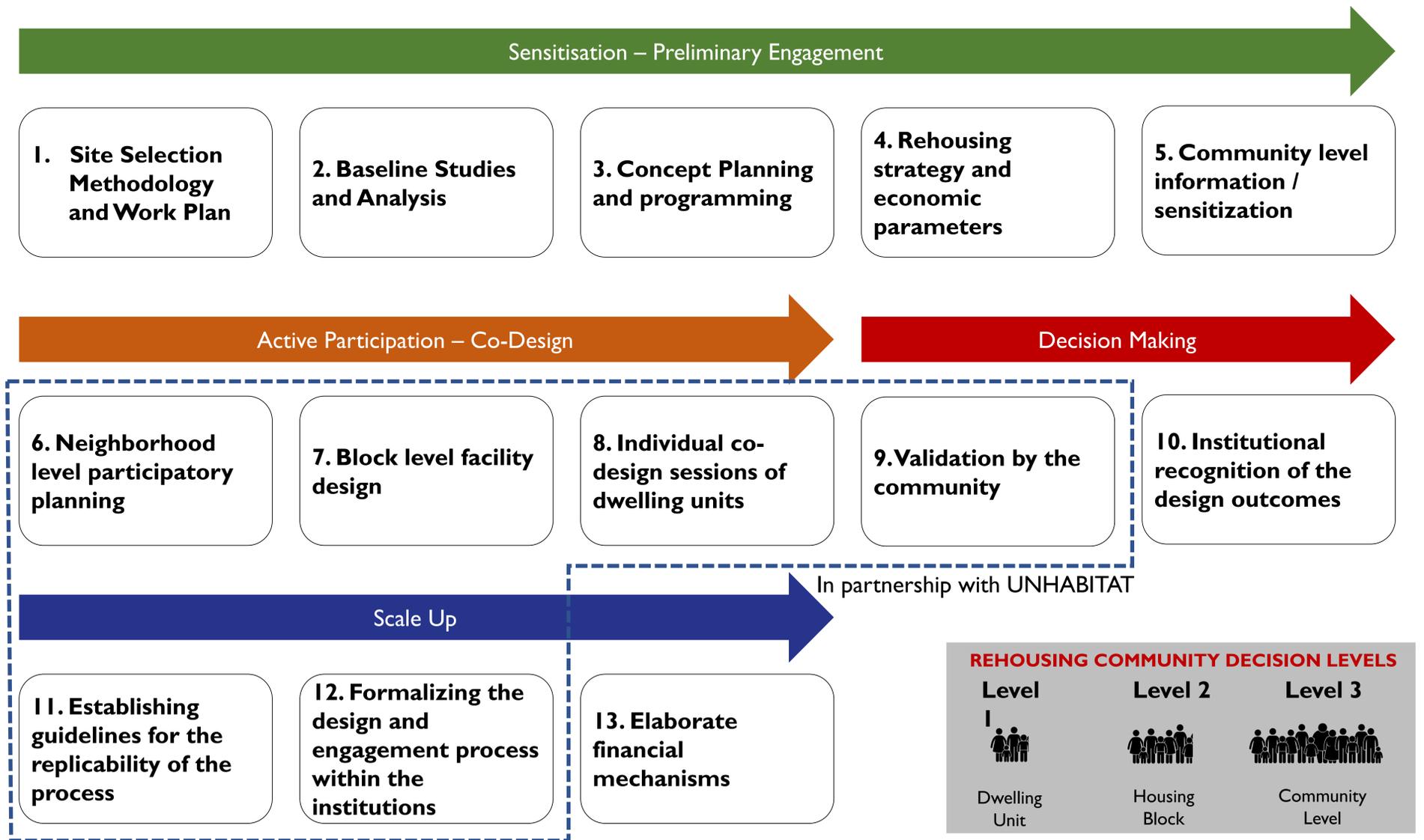
The area is densely populated with approximately 2.500 residents, 70% of which are tenants

# 4 PILOTING THE TRANSFORMATION

2020 - 2024

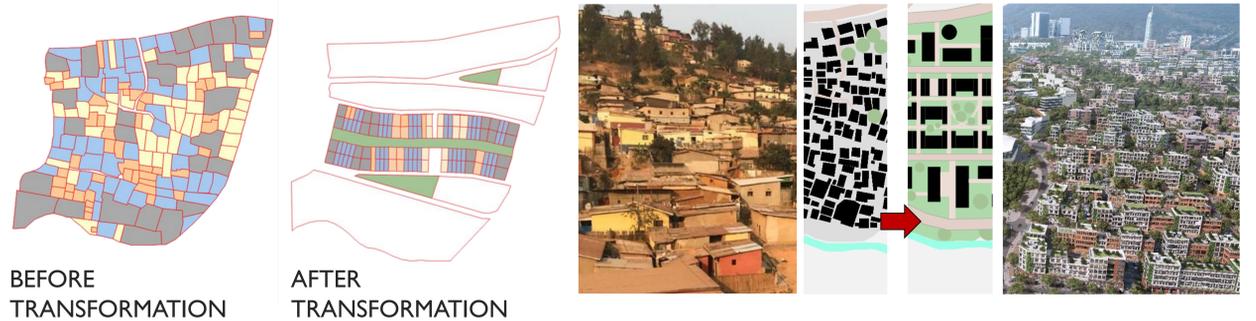
## PHASE 3 – SCALING UP

PROECCO is technically supporting the transformation of an unplanned neighbourhood as a pilot for large scale urban renewal process.



The process is designed to achieve an inclusive urban transformation by involving **residents as key actors** in the project life cycle.

The project allows to **increase** the **density** and the **quality** of the neighborhood by providing high-quality housing, improved mobility network, public facilities and open green spaces in a logic of **cross-financing** by leveraging the increase in land values.



At the neighbourhood level, the participatory re-parcellation allows for a more compact development with improved living conditions for both owners and tenants. The long-term financial sustainability is achieved by **unlocking land potential** capable of attracting private investment.

# PARTICIPATORY NEIGHBORHOOD DESIGN



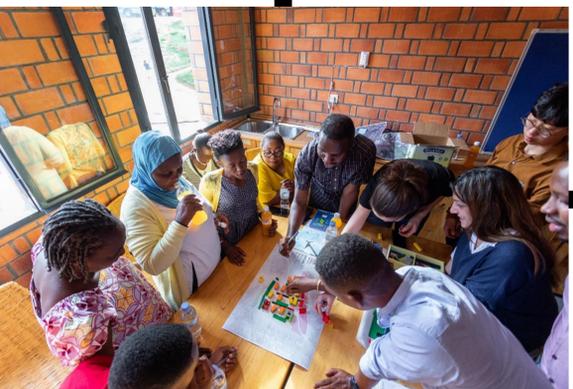
**CWG 1 - CWG ESTABLISHMENT**



**PUBLIC INFORMATION EVENT**



**CWG 2 - ASSESSMENT: TRANSECT WALK AND PARTICIPATORY MAPPING**



**CWG 3 - PLANNING**

The City of Kigali requested **UN-HABITAT – Participatory Upgrading Programme (PSUP)** to support PROECCO in implementing an effective and inclusive **neighborhood-level planning** with the objective of mobilizing the community in the re-design of the neighborhood.

A **Community Working Group (CWG)** was established to enhance the community's ownership, organization and participation in the settlement upgrading and planning..

## PREPARATORY ACTIVITIES

- Gap Analysis
- Action Plan
- Coordination meetings

## COMMUNITY ORGANIZATION

- Profiling
- Selection Criteria
- CWGI

## PARTICIPATORY PLANNING

- Public Information Event
- CWG 2 – Assessment
- CWG 3 – Planning
- Women Focus Group
- Thematic Workshops

## TECHNICAL DEVELOPMENT

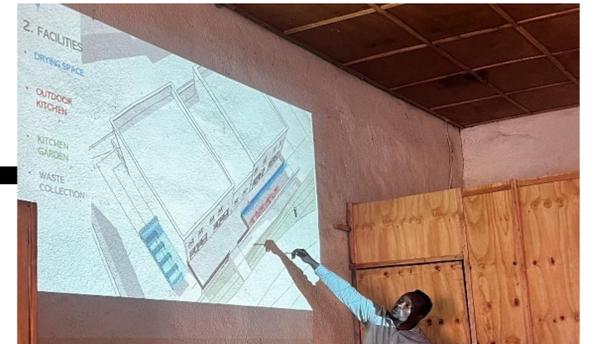
- Mapping
- Design & Planning

## VALIDATION & HANDOVER

- CW4 – Validation and training
- Institutionalization by COK



**CO-PLANNING SESSION**



**THEMATIC WORKSHOP – COMMUNITY MANAGEMENT**



**WOMEN FOCUS GROUP DISCUSSION**



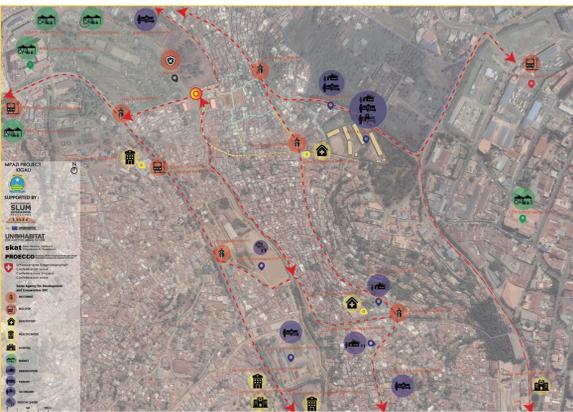
**THEMATIC WORKSHOP – TENANTS**



## Technical development

- ANALYSIS MAPS
- CONSOLIDATION OF COMMENTS
- COLLABORATIVE REVIEW OF OUTCOMES
- PLANNING STRATEGIES

# PARTICIPATORY NEIGHBORHOOD DESIGN



## TECHNICAL INPUTS



## COMMUNITY WORKING GROUP - TRAINING

## MAIN OUTCOMES

### Neighbourhood Level

- Improve **accessibility and connectivity** of the neighbourhood, especially for **pedestrian movements and persons with disabilities**, and consider bicycle lanes, where feasible
- Improve **safety of the movements**, especially for **women and children**, providing proper street network and **lighting**
- Improvement of the **drainage system**
- Lack of **public facilities**, such as nurseries, health post, community and training center, local market and public toilets
- Lack of **green public spaces** and small parks with **playgrounds** for kids to play
- Lack of **safe and dedicated spaces for women** to gather, meet and conduct their meetings

### Community Management and facilities

- **Ownership** and management of the new shared spaces of the blocks
- Existing **Committee of Owners** and organization
- New **block's facilities design solutions** and preferences

### Block's level facilities

- **Outdoor kitchen corner** and storage
- **Drying clothes space**
- Need of **public toilet** in the neighbourhood
- **Waste collection points**, as in Model House
- **Kitchen gardens**, between blocks or in the neighbourhood

### Tenants

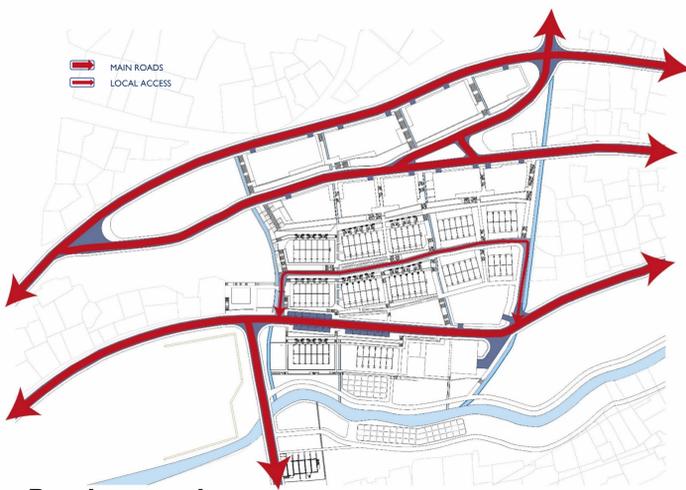
- **Affordability** after transformation
- Tenants and owners **rental agreement**
- **Tenants** living in the area for **25 years** are established residents and are **committed to participating in the transformation process**
- **City of Kigali and Government** called to play a role in addressing the issue
- To explore innovative mechanisms for **renting schemes**
- To provide **affordable rental units** in the new blocks



### Members of the CWG

- |   |  |
|---|--|
| 1 Community/Opinion Leader Umucyo Village     | 8 Community health worker  |
| 2 Community/Opinion Leader Ubwiyunge Village  | 9 Local business and/or cooperative representative                           |
| 3 Community/Opinion Leader Izuba Village      | 10 Representative from the Committee of Owners already established (block A) |
| 4 Youth representative. (18-30, can be women) | 11 Representative of local group organization                                |
| 5 Persons with disability                     | 12 Religious representative  |
| 6 Women representative                        | 13 Tenant  |
| 7 Community mediator (ABUNZI)                 |  |

## CWG 4 - VALIDATION SESSION



Road network

- Improved main road network establishing a hierarchy of access at the neighborhood level
- Complemented by local access roads for emergency use, person with disabilities and goods transport
- Provision of shared car parking
- Integrated with VB RUDP II Project
- Street lighting is provided



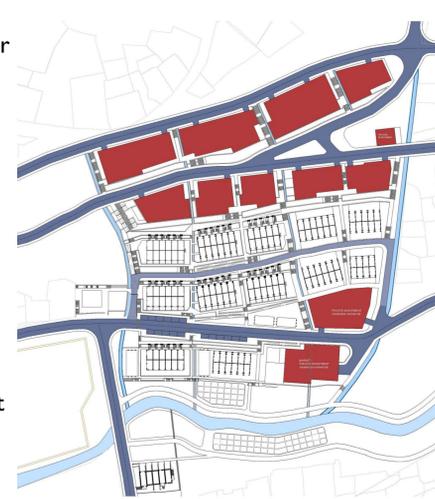
Pedestrian network

- An improved pedestrian and bicycle network has been designed following the most relevant paths highlighted by the community
- Safe movements are ensured across the area and link to major road network, public transport and public facilities
- Universal access for Person with Disabilities is ensured by ramps wherever possible, linking the network to the residential units
- In several areas the pedestrian network is completely segregated from vehicular circulation, maximizing the safety of pedestrian and cyclist
- Lighting is planned in all areas



Rehousing area

- The rehousing units will be mostly located in the central part of the hill, near main access roads, public services and communal facilities
- The design remains flexible to accommodate housing blocks depending on the need or economic parameters
- The design of each unit is co-designed with the respective owner
- Several rental units are designed to ensure income generation for the owners and ensure affordable housing rental stock
- Small business activities can be located at the ground floor



Area for private investment

- The area dedicated to private investment is identified to generate the maximum attractiveness for private investors
- The objective is to generate cross-financing opportunities to support the re-housing exercise
- Public market and other commercially-oriented activities can be located in this areas
- Apartments and other uses (public facilities) would be allowed in a logic of mixed-use



Proposed public facilities

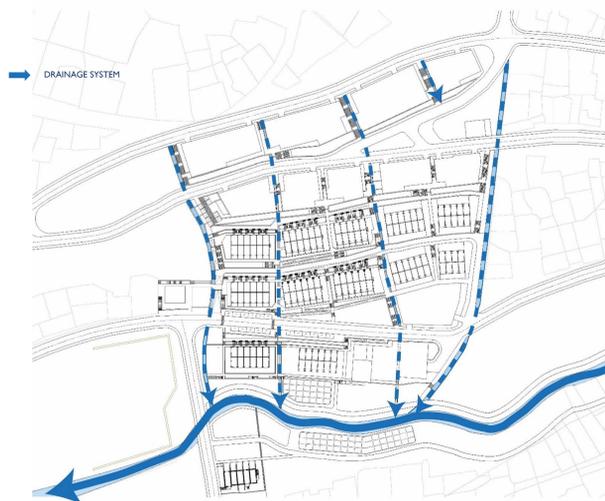
Public facilities have been distributed according needs highlighted by the CWG and are located at convenient distance from the residential units

- 1. Nursery:** 4 nurseries are embedded within the blocks
- 2. Community/Training Space:** meeting space for the community, social gatherings, training and other dedicated activities for Women
- 3. Health post:** located within the neighborhood and easily accessible
- 4. Public toilet:** to serve visitors to the area and residents



Green and Open space

- Approximately 20% of the total area is dedicated to open green and recreational areas
- Green spaces are organized in public, private, recreational and urban farming areas
- Green Public Open spaces serve as green connectors and landscaped areas along the slopes and in between blocks and provide high permeability to the site
- Private green space has been proposed at the ground floor for each unit and can be used for outdoor activities such as cooking, drying clothes
- Recreational areas have been proposed as an important community facility for children, women and for sport activities
- Urban farming is proposed along the channel buffer and is also allowed in dedicated areas across the development



Drainage system

- The drainage system has been designed to prevent natural hazards currently caused by uncontrolled and informal water channeling
- Rainwater is channeled into a new or upgraded channel system that guides water to the Mpazi river.
- The channels have been redesigned to an increased capacity to accommodate heavy rain
- Natural Based Solutions may be considered during the implementation of the RUDP II project



Water supply and sanitation

#### Water Supply

- A new improved water supply system is proposed in the neighborhood with an increased capacity to prevent water shortage or interruption of service
- Pipes are realigned to ensure a more efficient water distribution and optimize the flow

#### Sanitation

- The sanitation system is based on a septic tank system shared by multiple blocks.
- On average a septic tank serve 3 blocks
- The slab of the septic tank can be used as an open public space by the community



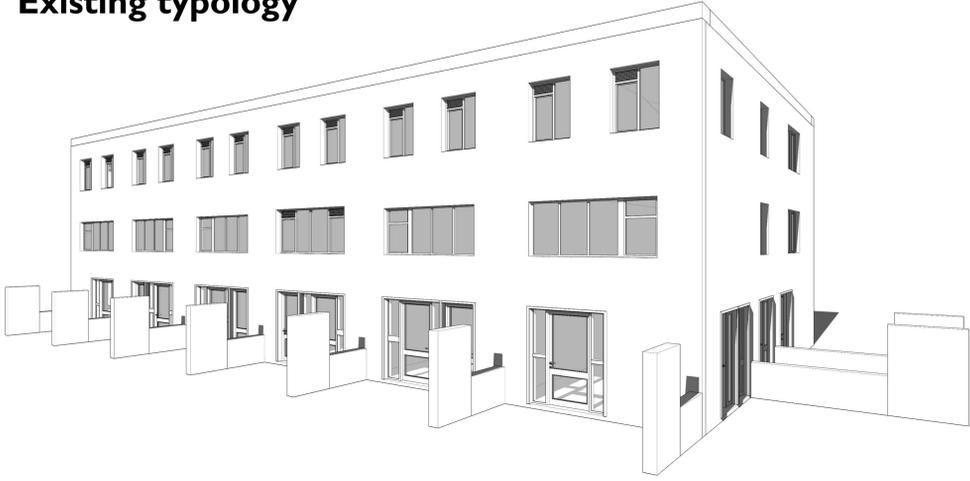
## PHASING

- Dark Green: COMPLETED
- Light Green: ONGOING
- Yellow: PIPELINE
- Orange: NEXT PHASE - TBC



# 9 BLOCK LEVEL IMPROVEMENTS

## Existing typology



## Simplified design

- Optimised design to reduce cost and maximise indoor usable space
- Simplified layout to reduce construction time
- Missing common block-level facilities
- Reduced usability of outdoor areas

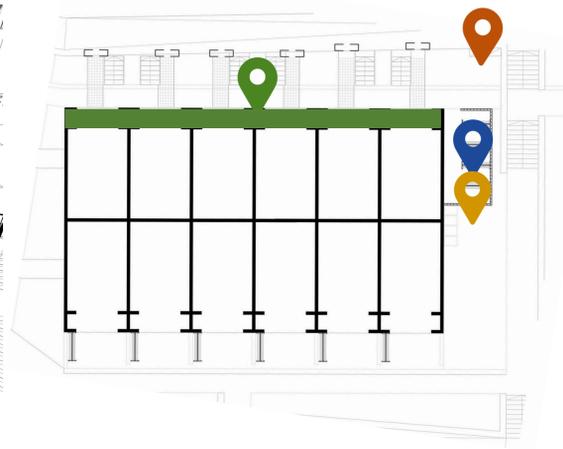
## New typology



## Double skin façade with perforated wall

- Creating a private space for cooking
- Providing drying space for all floor level
- Increased privacy
- Shading for the façade
- Increasing the ventilation and thermal comfort

## Improved block-level solutions

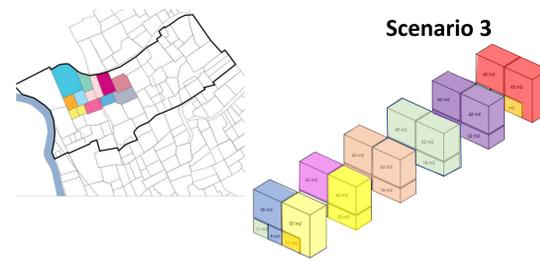
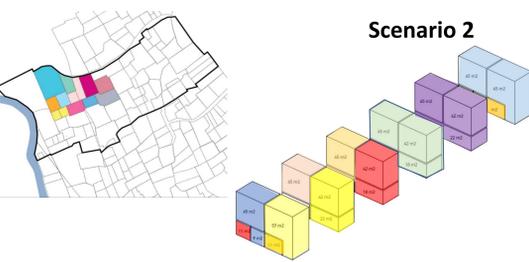
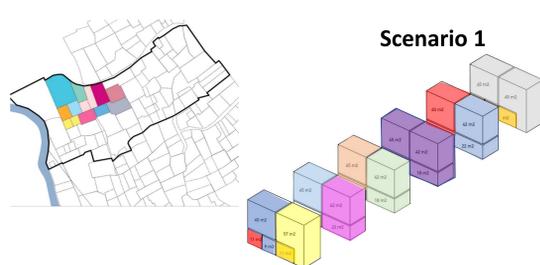
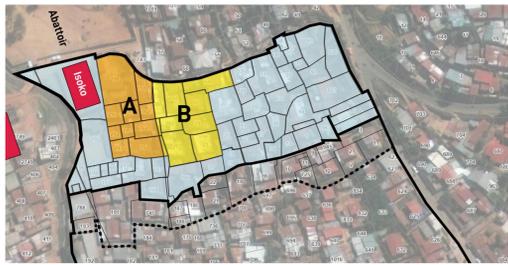
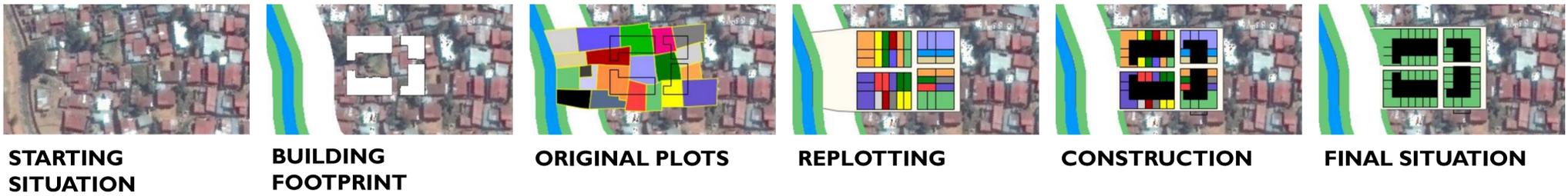


-  Drying space
-  Waste collection
-  Outdoor kitchen
-  Rainwater harvesting



# 10 CUSTOMISED DWELLING UNITS

## UNITS ASSIGNMENT PROCESS



### Flexible and Equitable units' allocation

The property of each owner is officially valued and agreed between the City of Kigali and the owners.

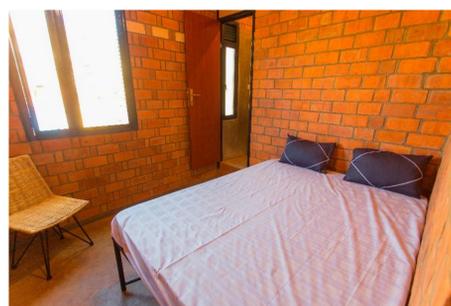
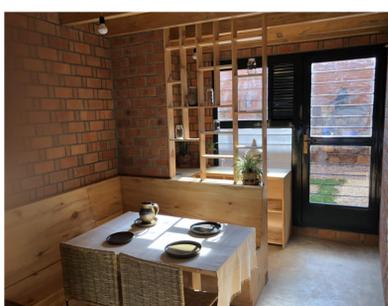
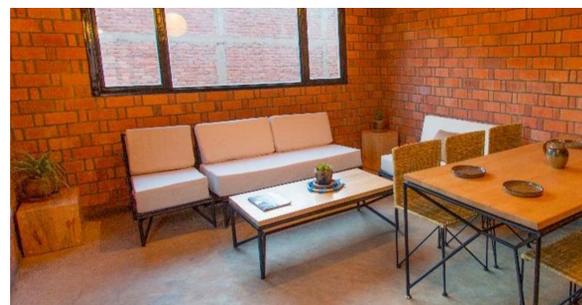
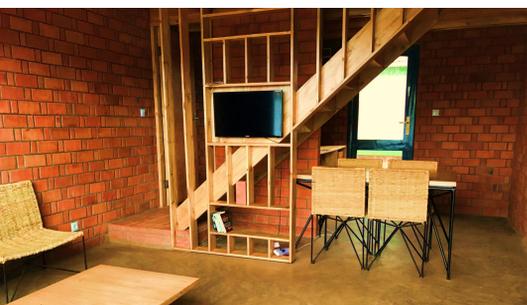
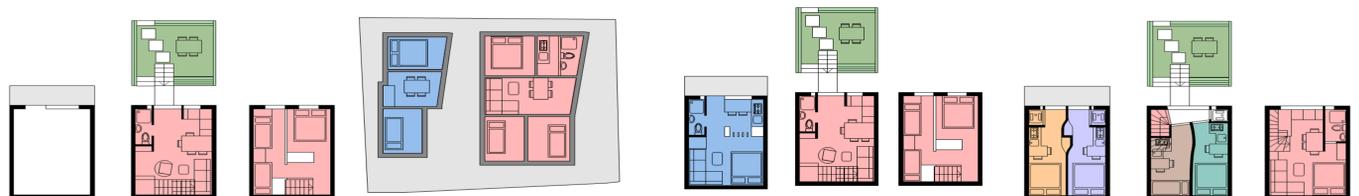
Based on the official valuation, each owner will have the right to a specific amount of both outdoor and indoor space in the new building

Thanks to the increase in density, surplus units will be available for rent or to accommodate residents from other parts of the neighbourhood.

The process is fully voluntary and each owner attends several sessions to receive enough information on the process, on her/his rights and on the opportunities offered and life-style changes brought by the new dwelling units.



These sessions are also designed to receive inputs and requests from the owners and design the new units together with the PROECCO technical team



# II FINAL DESIGN



# 12 CONSOLIDATING THE CHANGE

## NEXT

Various interesting insights emerged from the experience gained during the implementation of the first phase of the project. Addressing these challenges is critical to ensure its replicability, scalability and long-term sustainability :

- Engaging private investment requires the elaboration of more complex **financial and institutional mechanisms** than the ones currently available.
- Improving the **affordability** of the new housing solutions for all, low-income owners and the tenants. The potential risk of **tenants leaving the site** due to rent increase needs to be addressed also at policy and regulatory level
- A number of concurrently ongoing projects on the site need **stronger integration** to maximise public and private investment
- **New typologies**, able to achieve higher densities with a marginal increase in construction costs could be researched
- The existing **community organization** should be strengthened to become an active implementer of the project, through community-driven projects, community managed funds and supporting the management and maintenance of the neighborhood and block's level infrastructure and facilities.





# 13 FUTURE MPAZI



Schweizerische Eidgenossenschaft  
Confédération suisse  
Confederazione Svizzera  
Confederaziun svizra  
Direction du développement  
et de la coopération DDC



Swiss Resource Centre and  
Consultancies for Development