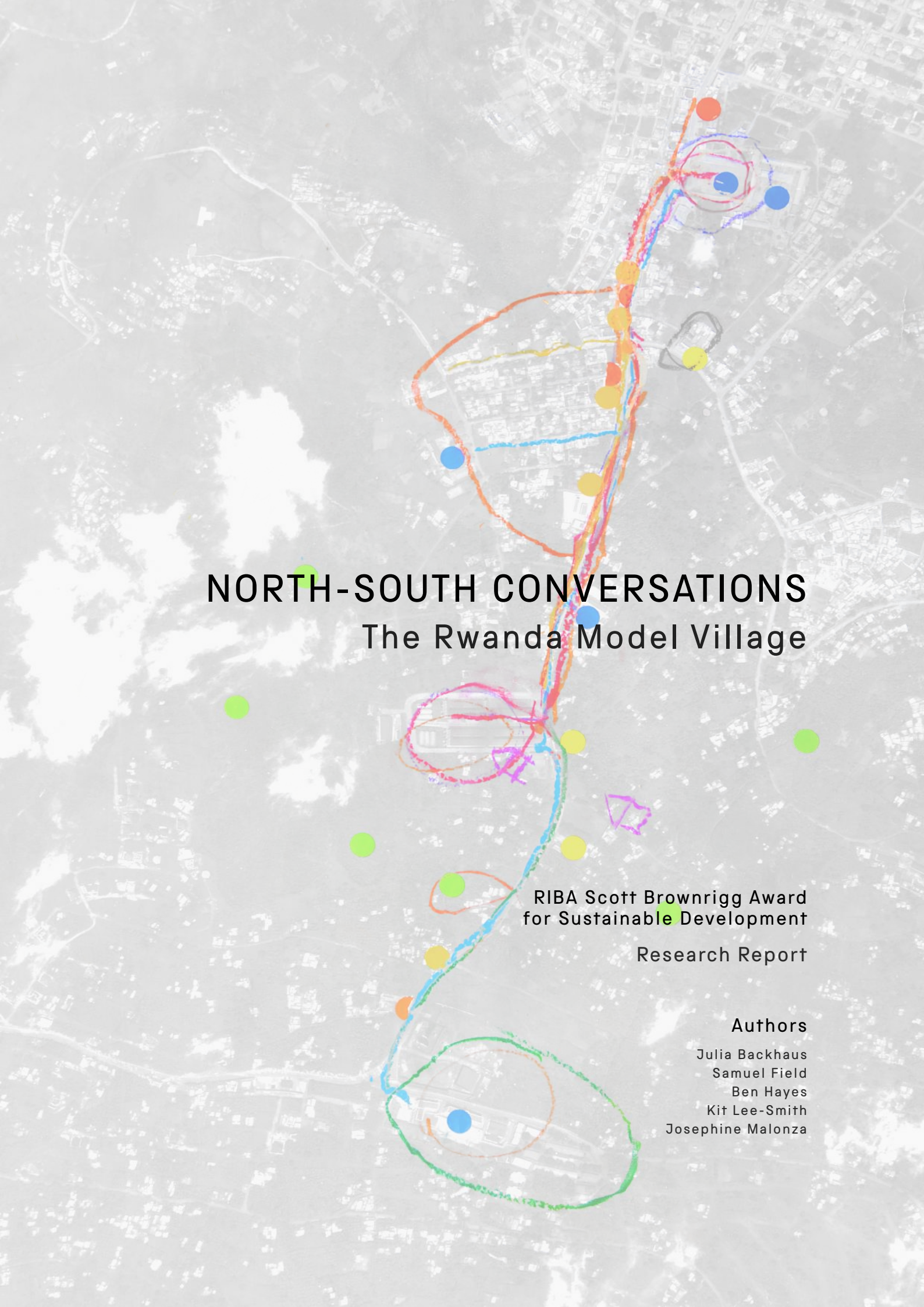

NORTH-SOUTH CONVERSATIONS

The Rwanda Model Village

RIBA Scott Brownrigg Award
for Sustainable Development

Research Report

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THANKS TO

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IMAGES & ILLUSTRATIONS

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NORTH-SOUTH CONVERSATIONS

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Furthermore, we express our gratitude to the following entities for their valuable insights and participation in post-workshop interviews: Skat Consulting, local Rwandan architects from EAACON, fellow researchers investigating Rwandan housing at the Massachusetts Institute of Technology (MIT), and environmental engineers from Max Fordham and ARUP. The information gleaned from these interactions significantly enriched the depth and breadth of our research findings.

The collaborative efforts and willingness to share expertise demonstrated by all involved parties have been instrumental in shaping the outcomes of this study. We are deeply thankful for their time, expertise, and commitment to advancing knowledge in the field of housing in Rwanda.

Part of the research conducted for this publication was made possible with funding from the RIBA Scott Brownrigg Award for Sustainable Development.

1.2 Summary of Findings

Our study of the IDP Model Villages in Rwanda has revealed varying degrees of success and substantial opportunities for refinement. These villages, part of the Vision 2020 Umurenge Programme (VUP), are designed as comprehensive development sites that integrate modern housing, infrastructure, and social facilities. Grounded in 11 carefully conceived pillars, they reflect the country's commitment to driving meaningful change. Their swift deployment, driven by a results-focused governmental agenda, demonstrates exceptional speed of execution. However, this rapid rollout may inadvertently limit opportunities for thorough design and development processes.

Karama IDP Village

Left: Aerial image of Karama IDP Village, located near to Kigali

Kinigi IDP Village

Left: Aerial image of Kinigi IDP Village, located in the northern province

Whilst the VUP and its foundational pillars are commendable, several aspects of the IDP Model Villages' design and implementation warrant closer examination and post-occupancy evaluation. Firstly, although the programme's intention to resettle communities in low-risk areas is admirable, there is a pressing need for greater stakeholder engagement during the early stages of village construction. Involving community leaders, residents, architects, and urban planners from the outset is critical to ensuring the solutions resonate with residents' genuine needs and aspirations.

Architectural involvement has been notably insufficient, underscoring the need for a more design-led approach to construction. Furthermore, whilst Rwanda's commitment to its green agenda is commendable, a stronger emphasis on sustainable building practices is essential. Concerns also arise regarding the introduction of high-rise housing structures, which may present adaptation challenges for residents historically accustomed to single-storey living. Moreover, the programme's centralised planning approach risks marginalising grassroots participation, potentially overlooking the cultural values and deep-seated preferences of the local population.

The cultural and societal implications of the IDP villages also require careful consideration. Rwanda's historical settlement patterns, characterised by dispersed homesteads, stand in stark contrast to the consolidated approach of the Imidugudu programme. Whilst the programme seeks to promote efficiency and development, it may inadvertently overlook entrenched cultural preferences for dispersed living. The large-scale implementation of standardised villages risks fostering homogenisation, potentially diluting the rich diversity of practices found in more isolated rural communities. Additionally, the coalescence of diverse groups within these villages could expose differences in traditions and beliefs, necessitating careful oversight to mitigate potential conflicts.

In conclusion, whilst the IDP Model Villages represent a significant step forward in Rwanda's developmental journey, there is a crucial need for ongoing research, particularly through post-occupancy evaluations. Such evaluations are vital for refining strategies and improving the effectiveness of existing projects. They provide opportunities to address key challenges and guide the planning, construction, and implementation of future initiatives in a manner that is more inclusive, sustainable, and culturally attuned.

1.0 EXECUTIVE SUMMARY

1.1 Introduction & Aims

Following the 1994 Genocide, Rwanda, a small landlocked country in East Africa, has made remarkable progress on its journey of recovery and development. While Kigali thrives as an ambitious and economically stable capital, poverty remains prevalent among the rural population. Given that approximately 70% of the population resides in rural areas, addressing this disparity is of critical importance.

In response to this, the Rwandan Housing Authority (RHA) introduced in 2008[1] the Rwanda Model Village program Imidugudu (singular: umudugudu) as a comprehensive strategy with the aim to resettle vulnerable households into collective housing typologies, maximising land use, access to infrastructure, health and education, improving hygiene and sanitation and to lift much of the rural population out of poverty.

According to the RHA, since 2010, around 253 IDP (Integrated Development Program) model villages have been built in the four provinces and Kigali, Rwanda's capital. They follow guidelines that were summarised into 11 strategic pillars by the RHA at the Akagera conference in 2007. Amongst others, they include co-operative development, land productivity, infrastructure development, and social protection.

These Model Villages have been a stable driving force for Rwanda's rural resettlement policy and the Economic Development Poverty Reduction Strategy (EDPRS). As to date, at least one IDP village has been funded in each of Rwanda's 30 country districts with a goal of reaching each of the 416 country sectors by 2024. Yet lack of sufficient financial resources, inadequate public infrastructure, weak community cohesion, poor housing stock and resident's compromised sense of ownership are critical challenges that need addressing.

Through the lens of inclusive sustainability—encompassing social justice and sustainable construction—this collaborative report aims to provide a post-occupancy review of the IDP villages. The report focuses on two case studies, Karama and Kinigi IDP villages, to examine the value of design and the ways urban planners, designers, and architects can positively influence village life through design and co-design with occupants and key stakeholders.

Below: Photographs of Rwanda from fieldtrip data collection, 2022

Right: Map of Sub-Saharan Africa, showing Rwanda's macro context

[1] Republic of Rwanda, Rwanda Housing Authority (2020). RURAL SETTLEMENT DIVISION. [online] Available at: http://197.243.22.137/rhanew/index.php?id=40)

Additionally, the report seeks to enhance the perception of the architect's role and the responsibility it carries to lead discussions on inclusive sustainability within the construction industry. This is particularly relevant in Sub-Saharan Africa, where the profession of architecture remains underrepresented.

2.0 RESEARCH OBJECTIVES

2.1 Methodology

Long and Short term Research objectives

- Explore how a Global North/South collaboration can foster sustainable and socially conscious architecture within the context of Rwandan villages and beyond.
- Examine the potential of co-design as a productive tool to enhance social cohesion and champion the use of locally available building materials, which are often associated with regression.
- Develop a comprehensive post-occupancy appraisal to identify constraints and opportunities in the development of Model Villages.
- Identify design opportunities to promote social integration and community cohesion, ensuring the long-term success of the IDP Model Villages.
- Investigate innovative applications of locally available building materials to deliver site-appropriate, comfortable, affordable, and sustainable design solutions in a tropical environment.
- Highlight the added value that architects can bring to the planning and construction process.
- Identify opportunities for future, in-depth research into existing Model Villages as well as the design, construction, and implementation of new villages.

Methodology

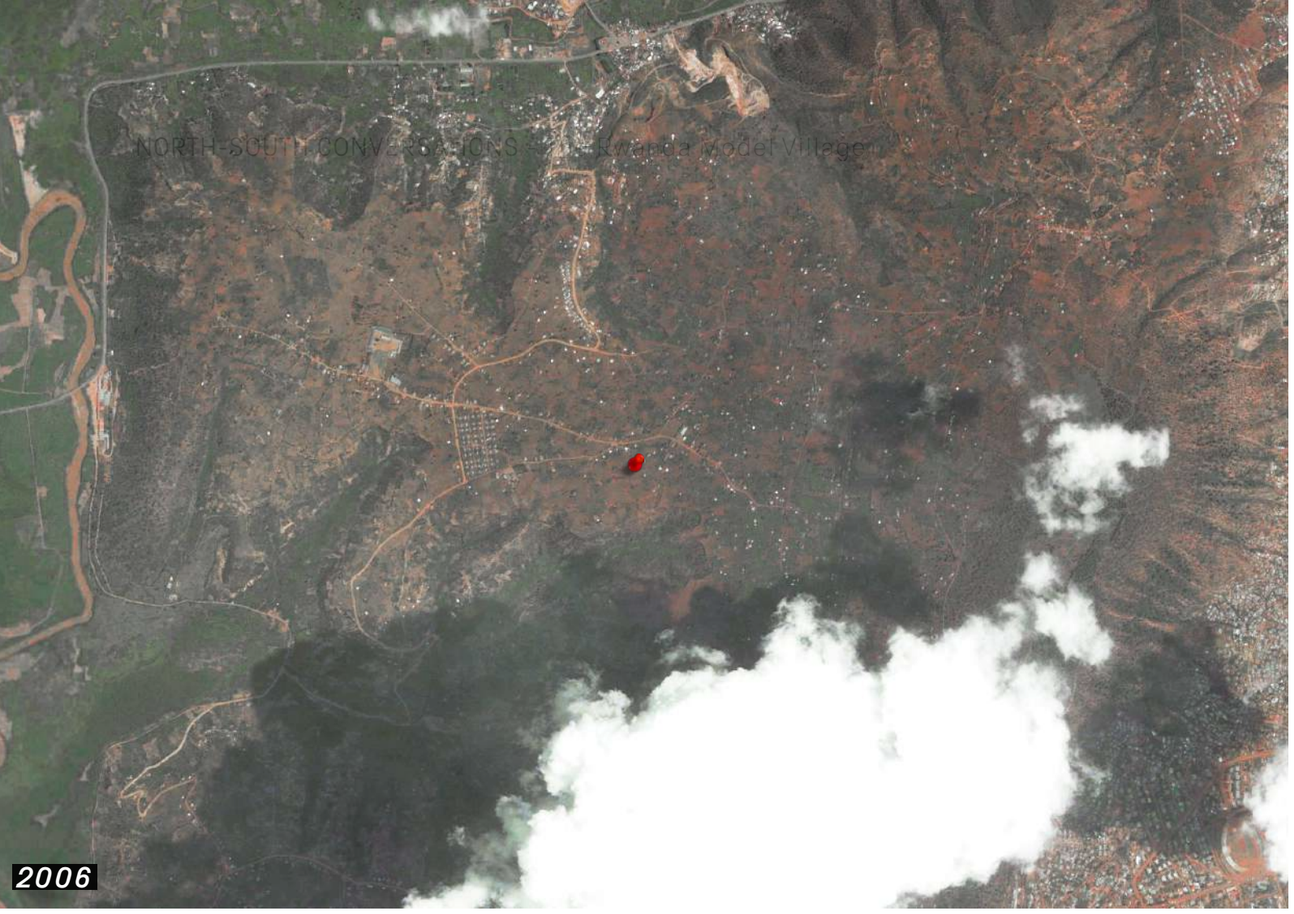
A post-occupancy appraisal was conducted in the IDP villages of Kinigi and Karama through direct occupant observation. In the summer of 2022, co-design workshops were held in both villages, supported by large-scale participatory mapping exercises and questionnaires. These included interviews with local residents, village leaders, and residents working on-site. All interviews and informal conversations were conducted in both English and, with the assistance of local architecture students, in the local language, Kinyarwanda. Interview questions included basic demographic information, histories of resettlement, details about current village amenities, challenges faced, the impact of living in the villages, and potential design-related improvements. Large-scale maps served as participatory tools to survey current conditions, gather information, and compile feedback.

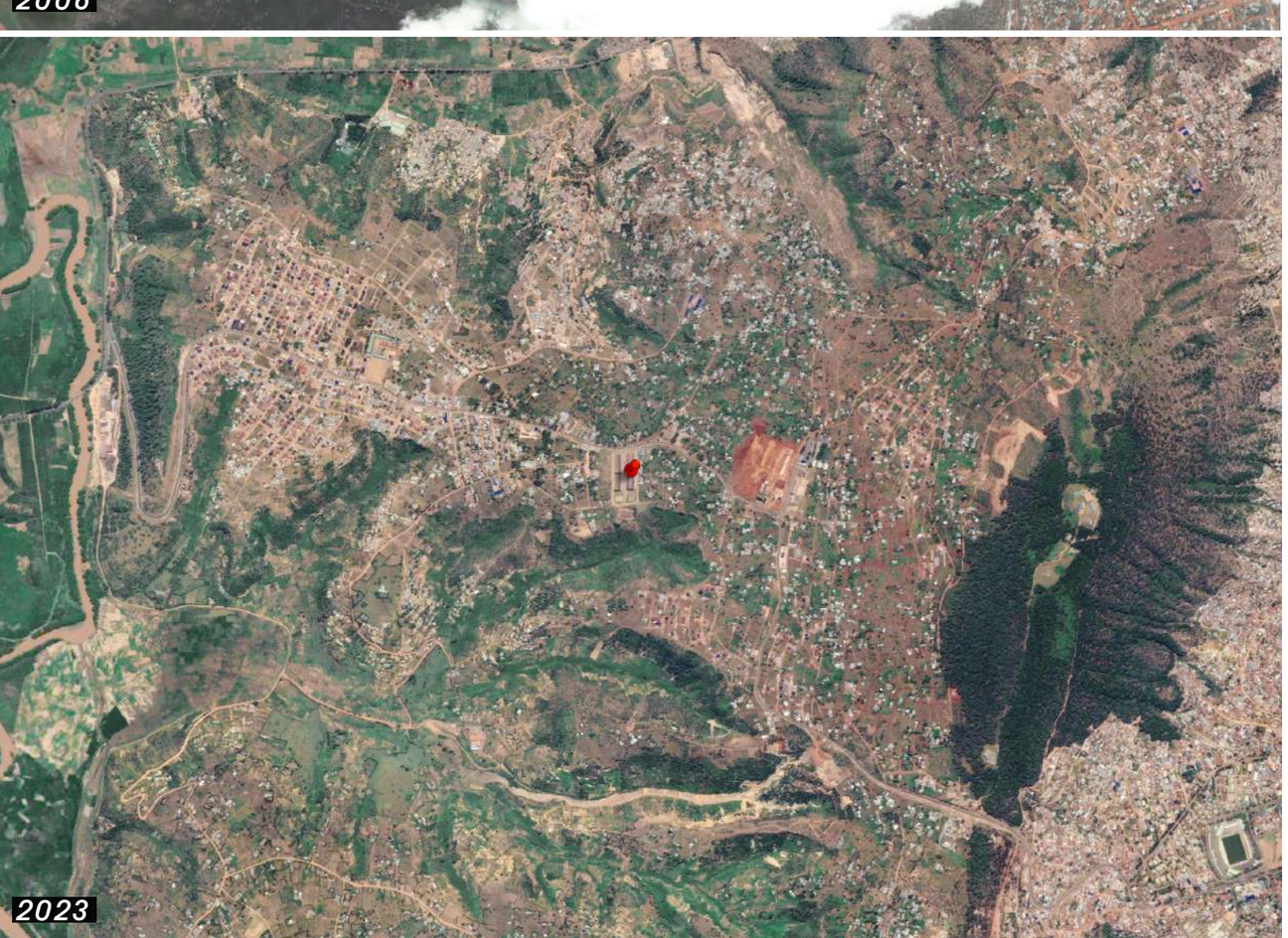
Below: large scale maps of the Village Models and their immediate surrounding context, aided in starting co-design conversations with the residents.

Above: The locals mapped their routes and annotated how the village could be improved; using drawing apparatus, markers and stickers, organised by colour.

Qualitative research methods were employed to gather the required data. The Government of Rwanda maintains a relatively robust online database for its agencies, with extensive and frequently updated organisational structures, policy documents, news articles, survey results, reports, and other data. Additional sources included assessments conducted by international and non-governmental organisations. Despite the accessibility of data, it is surprising that academic research on rural settlement in Rwanda remains scarce, making this report a valuable and unique contribution to the field. It also provides an opportunity to review and enhance aspects of the implementation of future communities.

Meetings with members of the Rwandan Housing Authority were arranged prior to the workshops as part of a transnational seminar involving students from the University of Rwanda (UR) and University College London (UCL). Post-workshop interviews were conducted with representatives from Skat Consulting, local Rwandan architects at EAACON, fellow researchers examining Rwandan housing at MIT, and environmental engineers from Max Fordham and ARUP.

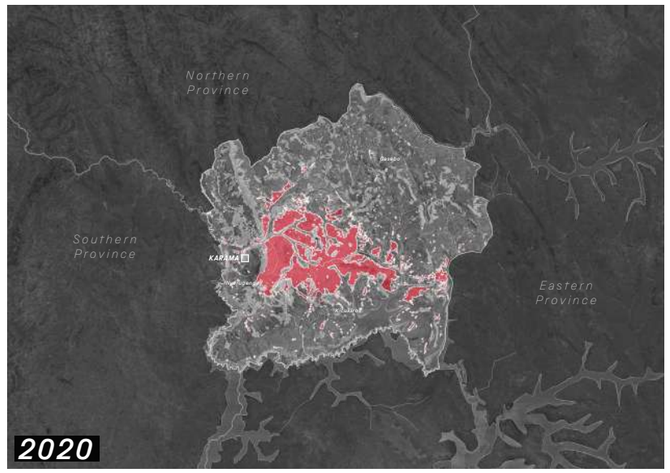


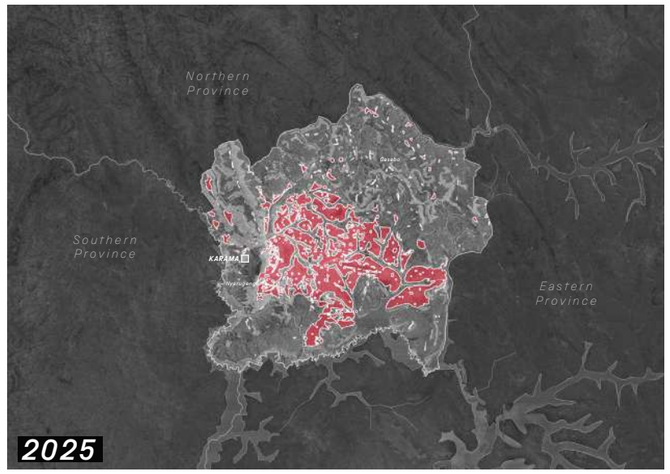


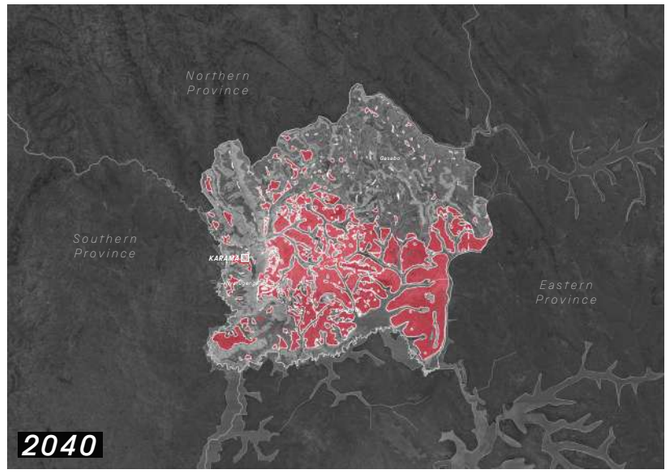
Left: Peri-urban area near the centre of Kigali

Right: Kigali's projected urban development towards 2050. The proposed land-use of Kigali.

Data from the City of Kigali 2050 Masterplan. Kigali City Master Plan, 2013.







RWANDA - IDP Village Locations

Rwanda IDP Model Village Locations, MININFRA, June 2017

By 2018, 45 IDP Villages were constructed

12 KINIGI *(Gurera)*
07 BUHIMBA *(Rubavu)*
08 GASHAKI *(Musanze)*
03 BUHIMBA *(Rubavu)*
13 MUDENDE IDP *(Rubavu)*
09 KITAZIGURWA *(Gasabo)*
02 GUSURA IYUBAKWA *(Muhanga)*

10 KABYAZA *(Nyabihu)*
04 BURERA 4in1 *(Musanze)*
05 RUGABANO IDP *(Gasabo)*
11 KARAMA IDP *(Gasabo)*
06 MUSHUBATI IDP *(Kamonyi)*
02 BUHIMBA IDP *(Kamonyi)*
01 GISAGARA IDP *(Nyanza)*
14 MUNINI IDP *(Nyaruguru)*

Uganda
Democratic Republic of Congo
Tanzania
Burundi
Lake Kivu
Western Province
Northern Province
Eastern Province
Kigali City
Southern Province
KINIGI
KARAMA

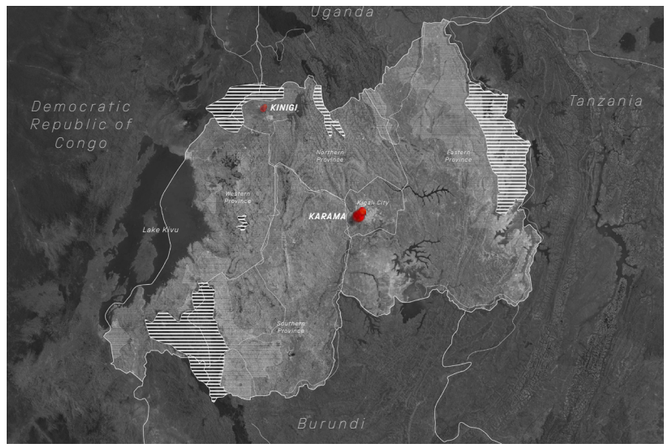
0 25km 50km

Left: Photographs of Karama IDP mapping workshops, from fieldtrip data collection, 2022

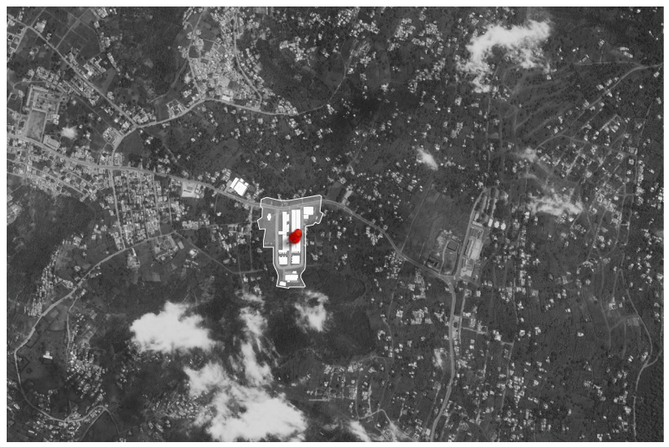
4.0 OBSERVATIONS

4.1 Case Study 01 - Karama IDP

Karama IDP Model Village is approximately 10 km from the heart of Kigali. The complex in Karama Village, Nyabugogo Cell, Kigali Sector is located in a peri-urban area several kilometres west of the Kigali central business district. The complex consists of several four-story residential blocks containing 120 one-and two-bedroom units, apartments within the village spread out over six multi-story linear structures. Inaugurated in 2019, it reportedly home to approximately 1,000 inhabitants, who were relocated from high-risk zones in the outskirts of Kigali city. These apartments come in variations of one and two bedrooms, with sizes ranging from 46 to 64 m2.



Left: Karama IDP is located 10km from the centre of Kigali



Left: Karama is located in a peri-urban area, close to numberous clusterred settlements and surrounding farms.

KARAMA - Mapping Outcomes

01 Mango Vendor

> *I am not making money now. It is hard to run my business in the modern village.*
>
> Mango Vendor

> *There's a lack of water and sanitation facilities nearby.*
>
> Mango Vendor

> *I have no privacy here, there is a lack of security and high level of crime.*
>
> Mango Vendor

> *We dont recieve any eggs from the Chicken Farm. They are sold outside of the village.*
>
> Mango Vendor

> *The market is too far away from mu home.*
>
> Mango Vendor

MANGO VENDOR
(Daily Route)
2000 RF/Day

Start

> *Karama has no sports facilities or areas for my kids to play in.*
>
> Mango Vendor

KARAMA

> *There needs to be a community centre close to the village.*
>
> Mango Vendor

> *My house in Karama leaks during heavy rain*
>
> Mango Vendor

> *Living in high-rise is safer, but is very noisy and exposed.*
>
> Mango Vendor

> *I don't want to move house! I want to stay and improve the village*
>
> Mango Vendor

Farm

- SHOPS *(Amaduka)*
- AGRICULTURE *(Ubuhinzi)*
- RELIGION *(Amadini)*
- HEALTH *(Amayuriro)*
- EDUCATION *(Amashuri)*
- PLAY
- OTHER

KARAMA - Social

GS Karama
0.7km

09 Kigali City Centre
10km

01 ECD Centre
0.15km

Secondary School
0.5km

Workshop Location

01 SECURITY

High level of crime and lack of security. No gates / fencing

02 OWNERSHIP

No sense of ownership over the village and their homes. Have to live there for five years before legal ownership.

03 SELF REPAIR & CUSTOMISATION

Optimism to stay in the village and improve their homes. To improve the economic development and sustainability of their community.

04 COMMUNITY INFRASTRUCTURE

There is no community centre or social infrastructure .

05 OLD PROPERTIES

Before resettling, the residents agree to selling and often destroying their original homes, in exchange for an apartment in Karama and a parcel of land.

06 SOCIAL COHESION

Corridors and key circultation routes are used for drying clothes.

07 COMMUNITY EMPOWERMENT

Co-design empowers the IDP community by giving them a voice in the decision-making process. (91.4%) claim that stakeholders were not involved in decision making when it comes to the Model Village project implementation

08 HIGH-RISE LIVING

High-rise housing presents challenges to villagers historically accustomed to single-story living.

09 PRIVACY

Lack of privacy between households as a result of the highrises. It's very noisy. There is no proper insulation between apartments and the partitions are very thin.

10 PLAY

There are no facilities for play. The children use spaces in between and around the housing.

11 JOBS & LIVELIHOODS

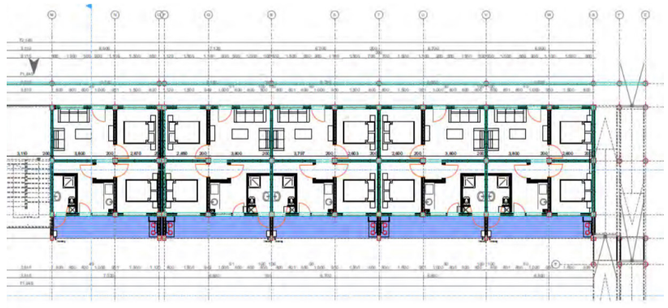
Loss of livelihoods as result of relocation from the city centre.

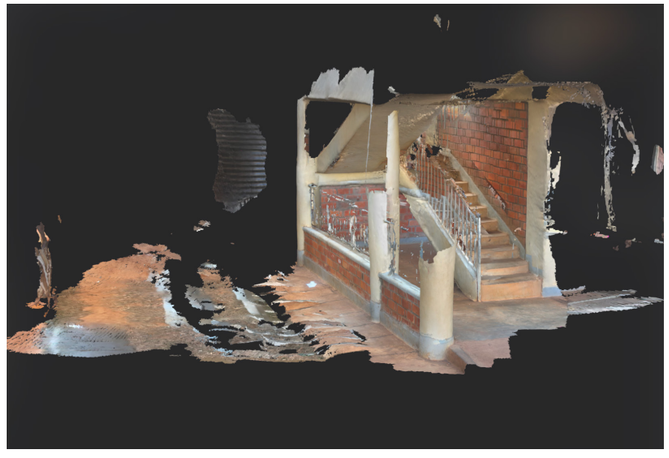
12 LOCATION

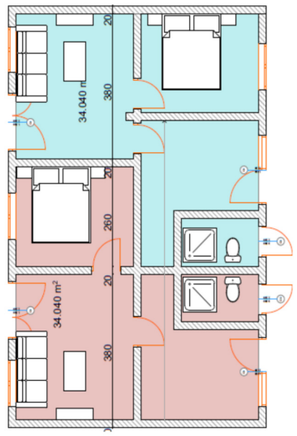
The village is far from the city centre and the local market. Karama IDP is far from farming plots.

The GoR laud the Model Village is complete with electricity, running water and toilet systems, and, eventually, internet connectivity[48]. It is fitted with numerous facilities, including greenhouses, a poultry farm, water and wastewater stations as well as being furnished with a new day-care centre, green houses, and market facilities nearby. The housing beneficiaries of the project are households removed from flood-and landslide-prone areas of Kigali. The Karama model village also hosts a secondary school with modern ICT facilities as well as laboratories for Mathematics, Chemistry and Biology to provide further education to children graduating from primary school. Sports facilities including a Basketball and volleyball courts.

	One-bedroom unit	Two-bedroom unit
Size (including balconies)	53.5 m^2	67.5 m^2
Unit construction cost	RwF 16,700,000 ($19,418.60)[19]	RwF 19,600,000 ($22,790.70)
Construction cost per m^2	RwF 312,149 ($362.96) /$m^2$	RwF 290,370 ($337.64)
Unit valuation[20]	RwF 19,000,000 ($22,093.02)	RwF 25,000,000 ($29,069,77)







Right: size, cost and valuation information for Karama IDP, RHA, 2019.

[48] The World Bank (2020). 'Housing Solutions for Low-Income Urban Communities in Rwanda'. Republic of Rwanda

Left and above: Plan Drawing of on of the Karama housing blocks

Left: 3D LIDAR scan of a public stairwell inside one of the apartment blocks

Below: 3D LIDAR scan of a living room inside a private household in Karama

Right: Urban development of Karama's surrounding context from 2006 - 2022.

2006

2016

2019

2022

4.2 Mapping Workshops - Karama

Interviews and workshops with local village residents were conducted using the guidance of questions provided by our UCL team in collaboration with the SABE.

Groups of adults and children from Karama IDP village were involved in the three mapping workshops, separated by demographic. We were able to collate data and engage the community in the planning process through a co-design workshop. In addition, interviews were undertaken in two private households, a garden and the chicken coop. With the help of SABE students recording data and translating, the workshops enabled the team to engage in a conversation with local residents.

The workshops identified the locations of key infrastructure and local amenities surrounding Karama. These Include:

1. Nearby schools located North and East of the village
2. Distant shops and a market, West of the village
3. Green spaces and areas for play
4. Places of worship; Churches and Mosques, West and East of Karama
5. A Poultry shed, South of the apartment blocks
6. A small health centre to the West
7. Surrounding farming plots, these tended to be their original households before relocation.
8. Greenhouses next to the apartment complexes
9. Primary and secondary schools

There are 5 schools close to the village of which the IDP developed two neighbouring schools. The IDP development included the construction of an ECD Centre north of the village. The development of 2 Blocks containing 6 Rooms, playgrounds and related facilities, provide up to 210 children with access to education. The extension of GS Karama, a secondary school for up to 840 students. The development included 24 Classrooms labs, one smart classroom; a library, an administration block, a dining hall, kitchen and recreation facilities.

Above: Photographs of Karama IDP mapping workshops, from fieldtrip data collection, 2022

Benefits

Despite a general sense of discontent towards the village, there were some shared benefits to living there. The IDP relocation provides access to some working sanitation facilities and nearby infrastructure. Families echoed the positives of being close to schools and good education facilities. Other noted positives were:

1. Access to electricity, it is known not always work
2. Access to some working sanitation facilities
3. Access to minimal amounts of clean water. It was noted that the residents would prioritise using clean water for drinking.
4. Provided one gas canister for cooking
5. Some families provided a cow through the 'girinka' programme
6. Given access to a private shared garden
7. Access to good schools nearby

Limitations

The workshops in the Karama locality revealed deficiencies in social spaces and infrastructure within the village. Many youth participants expressed the need for additional recreational areas, including parks, football fields, and safe communal spaces.

Participants voiced discontent about the resettlement process, citing challenges like the disruption of livelihoods. In interviews, a family discussed hardships associated with the compelled sale of their previous property upon relocation. They faced difficulties in pursuing employment opportunities due to the village's considerable distance from essential amenities. Another interviewee, a former veterinarian from the central region of Kigali, reported substantial losses in both professional engagements and clientele after relocating.

Contrary to the intended outcomes of the resettlement initiative, a segment of the relocated population experienced a downward shift in socio-economic status, evidenced by a decrease in their Ubudehe-assigned poverty ranking. This decline was attributed to limited employment prospects and income-generation avenues in the relocated setting.

Concerns also surfaced about the functional utility of Karama, including privacy issues, inefficient use of infrastructure, and instances of malfunction.

Left: Photographs of Kinigi IDP mapping workshops, from fieldtrip data collection, 2022

KINIGI - Functional Use & Infrastructure

01 SANITATION FACILITIES

The villge proivdes residents with access to water and sanitation facilities. A public shared laundry and water point is located here.

02 POWER SUPPLY PYLONS

Kinigi is provided with access to working electricity.

03 RUBBISH DUMP

04 NO COMMUNITY INFRASTRUCTURE

05 GARDENING PLOTS

Gardening plots have emerged around the village. Contrary to Karama IDP, the plots are used frequently and every resident has a piece of ground.

01 Kampagna
0.3km

02 ECD Centre
0.3km

06 Health Centre
0.3km

Workshop Location

Muzanze
12km

Ruhengeri
7.8km

06 RETAINING WALL

07 WATER CHANNEL

08 CLOTHES DRYING

Clothes drying takes place outside of the laundry/sanitation facility.

09 WATER STORAGE

10 WATER POINT

Multiple shared public waterpoints are located in Kinigi, providing access to clean drinking water.

11 WASTE WATER TREATMENT PLANT

12 LIVESTOCK

Cowsheds for 102 cows, Goat sheds for 54 goats, sheep pens for 90 sheep and Poultry cages for 8000 chicken

Left: Photographs of Kinigi IDP mapping workshops, from fieldtrip data collection, 2022