

THE RAPID PLANNING ENTRY PROJECT IN KIGALI/RWANDA: UPGRADING OF INFORMAL SETTLEMENTS AND DEVELOPING NEW SETTLEMENTS THROUGH TRANS-SECTORAL PLANNING

Rapid Planning method and the entry project

Rapid Planning promotes the use of synergies created through trans-sectoral planning, integrating the supply and disposal infrastructures of the four sectors water/waste water, waste, energy and food/urban agriculture.

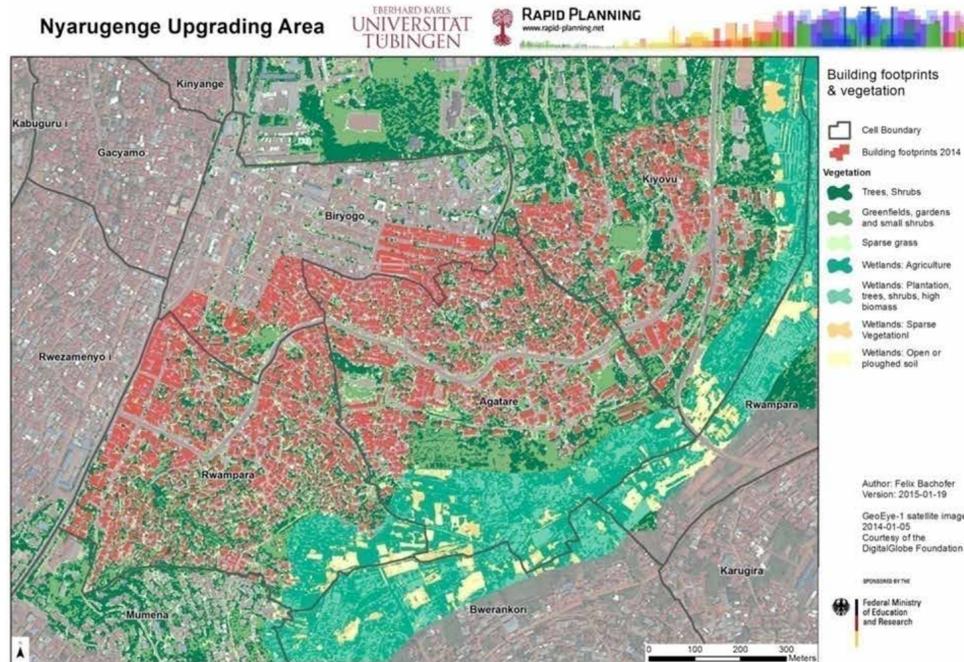
The entry projects in the Rapid Planning partner cities serve as visible and touchable showcases for a small to medium scale trans-sectoral planning. The sustainable use of resources can be shown by trans-sectoral solutions in various contexts: in existing informal settlements, in developing new settlements, in neighbourhoods and in single households or companies.

According to Rwanda Housing Authority, 78% of Kigali settlements are informal. In the course of the Informal Settlement Upgrading Program funded by the World Bank, the City of Kigali (CoK) upgrades informal settlements rather than demolishing whole neighbourhoods. The upgrading activities address the "Nyarugenge upgrading area", which involves the city cells Rwampara, Agatare, Biryogo and Kiyovu partly within the Nyarugenge sector.

Nyarugenge project area

Location	Southwest Kigali, close to the central business district
Population	19,000 in 4,000 households, 10 % located on slopes with >30% gradient
Area	86 ha (population density: 22,000 per km ²), with steep slopes
Access	70% of houses with no vehicular access, many footpaths are dilapidated
Buildings	walls: 70% earth/wood, 25% bricks; floors: 90% cement; 6% mud, 4% tiles
Water	77% connected to pipes, 16% water kiosks, 6% water vendors
Sanitation	90% pit latrines, 10% flush toilets
Drainage	greywater mainly into stormwater drainages or on land
Energy	electrification rate >90%, charcoal use for cooking: 96%

Nyarugenge upgrading area

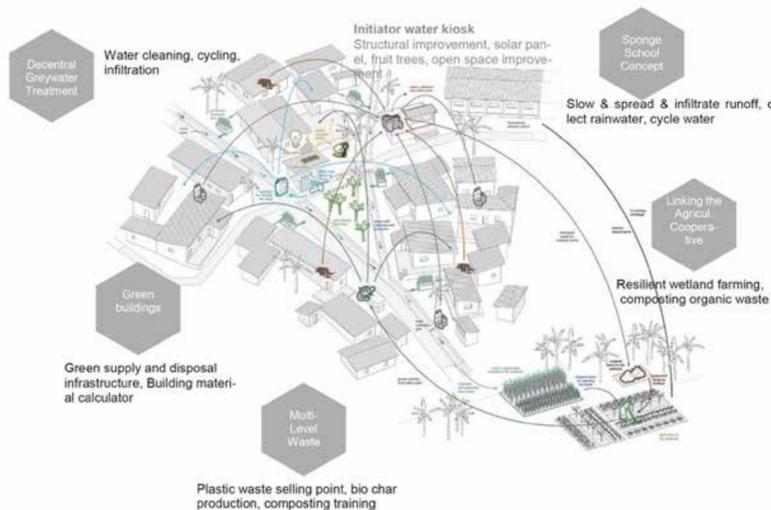


Project design

The RP team collaborated with the City of Kigali and the Nyarugenge district in the 2015 study for upgrading of settlements in the Nyarugenge Sector (GISTECH consultants). The community-based participatory planning ranked the following problem areas (1) drainage, (2) footpath, (3) road, (4) sanitation, (5) water, (6) street lighting, (7) public facility and (8) urban agriculture.

A seven-day **summer school creative lab on "Interactive infrastructures in Kigali"** at the University of Rwanda were a start of interaction and cooperation with the local community, resulting in concepts and recommendations related to food production, solid waste management, energy supply and decentral greywater reuse. These were further refined in sector workshops with local partners: the Biryogo Primary School, Agricultural Cooperative Abishyize Hamwe Rwampara, solid waste management company COPED and RECOR (a local NGO), CoK and community representatives.

The five elements of the Rapid Planning entry project in Nyarugenge



Decentral greywater treatment system

Greywater discharge points were mapped and a decentral treatment pilot system was tested. The resulting water quality meets or exceeds standards. A concept to install 3 treatment units for 20.000 m³/a of greywater was developed. It would benefit the wetlands and groundwater basins.



Mapping and testing greywater



Decentral greywater treatment system

Sponge school

Inadequate storm water management at Biryogo Primary School (BPS) causes erosion and flooding. A sponge school concept using Vetiver plants and other control measures was implemented.



Erosion problems...



...alleviated with Vetiver

Linking the agricultural cooperative

The agricultural cooperative in the wetlands is affected by waste and waste water, flooding, limited resources for productive farming and insufficient access to markets. All these issues were addressed in the entry project with the goal of a resilient wetland farming concept providing well-paying jobs.



Damage from flooding in the wetlands



Developing a resilient wetland farming concept

Multi-level waste flow

Concepts for improved waste management were developed, ranging from sale points for recyclables, providing compost from residences to agricultural cooperative to biochar production from biowaste.



Waste affecting the wetlands



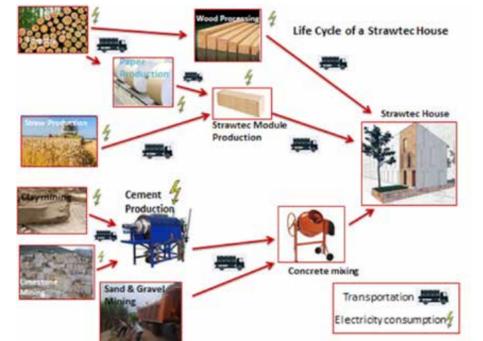
Compost training provided by COPED

Green buildings

Rwanda's National Housing Policy calls for local, low-carbon and affordable building materials. Life cycle assessment was implemented with a Rwanda-specific building material calculator. Results were used to support the Rwanda Green Building Council.



Traditional brick burning with fuel wood



Life cycle assessment of a building

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