



Knowledge, evidence
and learning for
development

Climate compatible development and rapid urbanisation in Rwanda

*Roz Price
Institute of Development Studies
9 September 2019*

Question

Provide an overview of what's currently being done in Rwanda to deal with climate change and disaster management issues arising from rapid urbanisation? What are the evidence gaps?

Contents

1. Summary
2. Key issues
3. Government plans
4. Donor programmes
5. Challenges and evidence gaps
6. References

The K4D helpdesk service provides brief summaries of current research, evidence, and lessons learned. Helpdesk reports are not rigorous or systematic reviews; they are intended to provide an introduction to the most important evidence related to a research question. They draw on a rapid desk-based review of published literature and consultation with subject specialists.

Helpdesk reports are commissioned by the UK Department for International Development and other Government departments, but the views and opinions expressed do not necessarily reflect those of DFID, the UK Government, K4D or any other contributing organisation. For further information, please contact helpdesk@k4d.info.

1. Summary

Climate change is expected to result in increased temperatures, intensified rainfall, and prolonged dry seasons in Rwanda, which are likely to exacerbate consequences of rapid urbanisation. For example, there is increasing concern about water shortages during longer dry spells and the impact of flooding and landslides on expanding urban regions and informal settlements in risk-prone areas (USAID, 2019). In response to this there is a plethora of policies and principles approved in Rwanda. Rwanda is an early adopter of low-carbon resilient development, and climate resilient development has been mainstreamed into three key dimensions of Rwanda's planning system – policy frameworks, financial mechanisms and institutional arrangements. The centrepieces of Rwanda's low-carbon resilient development agenda in urban areas are its National Strategy for Climate Change and Low Carbon Development (NSCCLCD) and its National Roadmap for Green Secondary City Development. Attention has been paid to the sequencing of plans and strategies in Rwanda, which have been successfully aligned, however, there are still some structural limitations and insufficient financial sources to scale up the planned for interventions remains a key limitation. Little detail could be found during this review of how these green growth strategies are being delivered or their effectiveness. There is much donor interest (especially in Rwanda's green growth roadmap and through its partnership with the Global Green Growth Institute (GGGI)) and some innovative internal funding for green growth and climate compatible development, but it is critical that strategies are translated into clearly costed action plans (Caldwell, Dyszynski and Roland, 2015).

This rapid review uses information from mixture of academic, policy and governmental literature. There is a large literature base on green growth in Rwanda, although evidence on the effectiveness of its interventions or evidence gaps is limited. This review firstly provides a brief outline of the issues related to climate change and urbanisation in Rwanda. An overview of Rwanda's planning system (policy frameworks, financial mechanisms and institutional arrangements) in relation to green growth and urbanisation is then provided. The policy landscape in Rwanda is a complex one; this review provides a brief overview of the most pertinent national policies and frameworks of relevance to green growth, urbanisation and climate resilient development, although other policies not cited also relate to these issues. The review then presents a snapshot of current donor programmes in Rwanda that relate to urbanisation and green growth, although this list is not exhaustive. Lastly, a section on challenges and evidence gaps follows, although there was a lack of information on explicit evidence gaps. Issues around inclusiveness of urban development planning has been one of the main criticisms of Rwanda's green growth agenda, particularly in relation to marginalised and poor people's voices (including women and people with disabilities). Although, recent processes such as reviews of city masterplans have tried to be more participatory. Largely, however, this review is gender blind and does not consider people with disabilities.

2. Key issues

Climate change and Rwanda

Rwanda is very vulnerable to climate change. Rwanda ranks 114 out of 181 countries in the ND-GAIN index (2017) overall. It ranks 153 out of 181 countries in vulnerability and is the 94th least

ready country – meaning that it is highly vulnerable to climate change effects, yet its readiness to combat these effects is moderate.¹

High interannual and interdecadal climate variability and a lack of historical records make climate trends difficult to discern in Rwanda (USAID, 2019). Limited analysis of rainfall trends suggests an increasing occurrence of extremes over time and in various regions of the country. Rainy seasons are becoming shorter and more intense, especially in the northern and western provinces, which increases erosion risks in these mountainous parts of the country. At the same time, there has been a trend over the past decades towards a higher temperature (Ministry of Foreign Affairs, 2018, p. 3).

Overall, climate change is expected to result in increased temperatures, intensified rainfall, and prolonged dry seasons. This presents different challenges for different regions: the mountainous west of the country will be subject to erosion, parts of the central north and south will likely experience severe floods, and the east and southeast will suffer from droughts and desertification. Some climate change effects, such as the lowering level of lakes and water flows and forest degradation, are expected to occur throughout the country (Ministry of Foreign Affairs, 2018, p. 3). USAID's climate change risk profile for Rwanda (USAID, 2019), summarises that "On the steep slopes that dominate much of the country, floods, landslides, and soil erosion already impact agriculture, infrastructure, and services... In rapidly growing urban areas, there is increasing concern about water shortages during longer dry spells and the impact of flooding and landslides on expanding informal settlements in risk-prone areas like steep slopes and flood plains" (USAID, 2019, p. 1).

The risk of increased drought and flooding due to climate change are of key concern to Rwanda. These will impact food security and water availability. Rwanda's energy security may be at risk due to climate change, as hydropower contributes 50% of electricity, making it vulnerable to variation in rainfall and evaporation (Ministry of Foreign Affairs, 2018, p. 5). These climate stressors are in addition to other pressures on water resources, such as increasing demand from a growing population, agricultural and industrial pollution, and years of persistent environmental degradation (USAID, 2019).

Flooding and urbanisation

Flood incidence is a multifaceted and site-dependent event; environmental and anthropogenic factors can influence this. Human activities such as unplanned development, uncontrolled construction of buildings and major land use changes influence where and how often flooding may occur. Environmental factors that contribute to floods range from topographic, geomorphologic, drainage, structures, to climatic factors such as rainfall frequency, intensity and duration. Rwanda's geographical features and climatic profile have made it prone to various hazards especially localised floods and landslides (Mind'je et al., 2019). In particular, the hilly topography of Rwanda presents challenges to managing urban growth and expansion of urban areas on sloping lands, which can exacerbate flooding and landslide risks if not taken sufficiently

¹ See ND-GAIN 2017 rankings <https://gain.nd.edu/our-work/country-index/rankings/> [accessed 06/09/2019]. The ND-GAIN framework 'breaks the measure of vulnerability into exposure, sensitivity and adaptive capacity, and the measure of readiness into economic, governance and social components.' For more information and data also see <https://gain.nd.edu/our-work/country-index/>

into account. Poor planning of urban expansion, intensification and infrastructure services can increase the vulnerability of populations and businesses to these impacts.

Mind'je et al. (2019) undertook flood susceptibility prediction for Rwanda to define flood-prone areas and assess mitigation measures. The research applied a logistic regression model using a flood inventory and ten predicting factors to study and map flood susceptibility. The relationships between the occurrence of flooding and the variables were evaluated, and the outcomes showed the Normalised Difference Vegetation Index (NDVI) and rainfall to have a significant relationship with floods in Rwanda. This matches with findings from other previous studies, confirming rainfall as a major trigger of flood events. Thus, it implied that less vegetated with higher rainfall areas are supposed to have greater susceptibility to floods (Mind'je, 2019, pp. 10-11). Asumadu-Sarkodie et al. (2015) modelled different future scenarios for flooding and concluded that the socio-economic changes (such as population growth, economic growth, education, urbanisation and the rate of technological development) will be the main driver of increased flood damage in Rwanda by 2030, whereas climate change plays a less major role.

Urbanisation not only acts as a driver of urban exposure to climate change impacts, but can also shape other vulnerability factors, most notably sensitivity, response capacity, and actual response actions in both negative and positive ways. Hence, urbanisation has the potential to both increase and reduce risk in different circumstances and for different groups (Garschagen & Romero-Lankao, 2015).

Urban climate change resilience

Gouldson et al. (2018, p. 48) argue that realising urban climate action is “fundamentally a multi-level, multi-actor, and cross-sectoral governance challenge.” The Asian Development Bank (2016) in an extensive literature review on urban climate change resilience (UCCR), emphasises the need to engage with the city as a complex system. They found seven entry points for action that, in contextually specific combinations, can strengthen UCCR (Bahadur, Tanner & Pichon, 2016, pp. vii-viii):

- i. *Data, Information, and Knowledge on Urban Growth and Climate Change:* Generating, sharing, and regularly updating data, information, and knowledge on how urban growth interacts or will interact with potential impacts of climate change is a first step for enhancing a city's ability to strengthen UCCR.
- ii. *Tools and Approaches Used for Urban Planning:* Forward-looking urban planning tools, such as land use planning and development planning that allow adopting integrated, inclusive, and reflective approaches, provide a comprehensive and sustainable route to enhancing UCCR. Actions would include adopting climate risk-sensitive spatial growth policies for the city, limiting development in high-risk areas using development control instruments, and reducing physical vulnerability of assets by strict enforcement of building control.
- iii. *Development Processes Associated with Urban Infrastructure and Services:* Development processes associated with urban infrastructure and services, including water and sanitation, energy, transport and telecommunications, ecosystems, built environment, and health and social services, can strengthen UCCR by instituting new processes to ensure their organisational systems support resilience and recognise the interconnections among sectors.

- iv. *Institutional Capacity for Urban Development*: Individuals and institutions within city governments often know the city intimately, and building their capacity is critical for bringing UCCR to life.
- v. *Community Development Processes in Urban Areas*: Community development processes that allow capturing diverse perspectives of communities, especially the perspectives of the most vulnerable, are essential for enhancing UCCR.
- vi. *Tapping the Private Sector in Urban Areas*: There are huge needs for and potential gains from involving the private sector in enhancing UCCR. While governments can influence private investment decisions through planning, incentives, regulation, sharing, and partnerships, the private sector can implement actions to ensure business continuity and protect supply chains from climate-related shocks and stresses.
- vii. *Catalysing finances*: Catalysing finance is key to the success of UCCR and includes finances available from different sources: microfinance and local development funds; taxes, levies, and fines at the city level; earmarked and non-earmarked funding from provincial and national governments; and multilateral, bilateral, and philanthropic funding.

3. Government plans

Rwanda is an early adopter of low-carbon resilient development, which aims to integrate climate change mitigation and adaptation agendas into national development planning. Rwanda's approach is a "development-first" approach² to mainstreaming low-carbon resilient development. Nash and Ngabitsinze (2014) provide an overview of the three key dimensions of Rwanda's planning system – policy frameworks, financial mechanisms and institutional arrangements – and explain how low carbon resilient development is being integrated into each. They conclude that it appears there has been attention to sequencing in the recent development of policies, strategies and plans in Rwanda, leading to what would seem to be their successful alignment. However, this review was unable to identify to what degree these policy frameworks, financial mechanisms and institutional arrangements have been successfully implemented in Rwanda, or their effectiveness. The green growth landscape in Rwanda complicated, with much donor interest.

Policy context and frameworks

National policy frameworks

Rwanda has a forward-looking climate policy framework in place to guide climate change response; it is complex with varying plans and policies (USAID, 2019). The following have been identified in the literature as being related to Rwanda's pursuit of climate resilient development:

- **Rwanda Vision 2020 (2000)**: Rwanda Vision 2020 articulates the high-level, longer-term development goals which will shape and guide Rwanda's development over the period of 2000–2020. Vision 2020's key aspiration and target is to significantly reduce poverty by

² Pervin et al. (2013, p. 10) explain that a development-first approach "has climate resilience as an integral part of the development planning process from the start. Policymakers focus on making development planning processes resilient to climate change, so they can deliver climate-resilient developmental outcomes. The entry point for integration is often a national, local or sectoral development planning framework."

2020 (World Bank, 2018); aiming to achieve this through a fundamental transformation of the Rwandan economy to a knowledge-based service-orientated economy. The protection of the environment and sustainable natural resource management is highlighted as a crosscutting theme (Nash & Ngabitsinze, 2014, p. 12).

- **Green Growth and Climate Resilience: National Strategy for Climate Change and Low Carbon Development (NSCCLCD) (2011):** (See Government of Rwanda, 2011; *please note some people refer to this as Rwanda's Green Growth and Climate Resilience Strategy*). The centrepiece of Rwanda's low-carbon resilient development agenda, it articulates climate mitigation and adaptation as integral aspects of, and key influences on, Rwanda's national and sectoral socioeconomic development objectives. The integrated strategy highlights the significant level of political will that exists within Rwanda to mainstream climate change mitigation and adaptation into development planning processes and the Government of Rwanda's ongoing commitment to green growth (Ministry of Foreign Affairs, 2018). The purpose of Rwanda's NSCCLCD is to: 1. Guide national policy and planning in an integrated way; 2. Mainstream climate change into all sectors of the economy; and 3. Position Rwanda to access international funding to achieve low-carbon climate resilient development (Nash & Ngabitsinze, 2014, p. 13). The vision outlined in the NSCCLCD looks beyond 'Rwanda Vision 2020' to 2050. To realise the vision and its objectives, 14 programmes of action that cut across multiple sectors are detailed. Three strategic objectives are outlined under the vision:
 1. To achieve energy security and a low-carbon energy supply that supports the development of green industry and services and avoids deforestation;
 2. To achieve sustainable land use and water resource management that results in food security, appropriate urban development and preservation of biodiversity and ecosystem services; and
 3. To ensure social protection, improved health and disaster risk reduction that reduces vulnerability to climate change impacts.
- **Law Governing Urban Planning and Building in Rwanda (2012):** After the adoption of the Land Policy in 2004, a significant decision was to regularise land ownership in Rwanda and integrate it under one land management system through the Land Tenure Regularisation Programme. The main legislation regulating urbanisation in Rwanda is the Law Governing Urban Planning and Building in Rwanda, 2012 and its implementing orders of 2015 (Ministry of Infrastructure, 2019). Recognising that unplanned rapid urbanisation has environmental consequences, Vision 2020 requires that each town prepare and implement an updated urban master plan (Rwanda Environment Management Authority, 2017). City Master Plans are guided by the National Land Use and Development Master Plan of 2010 which provides the general directives and principles for land use development including densification, mixed land use, mixed housing, green design, and participation (Gubic & Baloi, 2019. P. 226). Other key national policies and action plans guide overall urban planning (Rwanda Environment Management Authority, 2017).
- **The second Economic Development and Poverty Reduction Strategy (EDPRS2) (2013–2018):** (see Ministry of Finance and Economic Planning, 2013). The longer-term aspirations of Vision 2020 were implemented through medium-term national-scale strategic plans, considered Rwanda's key national development strategy. The overarching goal of the EDPRS2 was: "Accelerating progress to middle income status

and better quality of life for all Rwandans through sustained growth of 11.5% and accelerated reduction of poverty to less than 30% of the population”. The EDPRS2 built on effective policies within the EDPRS1. It also introduced the promotion of six secondary cities as poles of economic growth. “Environment and Climate Change” and “Disaster Management” featured as two of the seven crosscutting issues. However, links between disaster risk reduction and disaster management and climate change adaptation were not explicitly made (Nash & Ngabitsinze, 2014, p. 12).

- **National Roadmap for Green Secondary City Development (NRGSCD) (2015):** (see Government of Rwanda & GGGI, 2015). The Government of Rwanda collaborated with the GGGI to develop this roadmap, which will complement city master plans in ensuring urban development is environmentally sustainable (Rwanda Environment Management Authority, 2017, p. v). The Government of Rwanda deems that planning for the growth of those cities in a sustainable framework will increase benefits and avoid negative consequences such as urban sprawl, traffic congestion, the growth of informal settlements, and inadequate public services (Gubic & Baloi, 2019. P. 227).
- **Vision 2050 blueprint (under preparation):** This aspires to take Rwanda to upper-middle-income-country status by 2035 and high-income status by 2050 (World Bank, 2018). It places emphasis on developing basic infrastructure in urban centres to enable the decongestion of agricultural zones, investment in job creation, and service provision to ensure a good quality of life; aiming for green/eco-friendly cities and neighbourhoods. It also anticipates that the proportion of Rwandans living in cities and towns will increase to 35% by 2024 and has as its main goal the transformation of Rwanda’s agriculture-based economy to industry and services (Gubic & Baloi, 2019. P. 225).
- **The First National Strategy for Transformation 2017–2024 (NST 1):** (See Ministry of Finance and Economic Planning, 2018). Following the **EDPRS2**, Rwanda initiated the NST 1 as a first step to achieve its objective of becoming a low middle-income country by 2024, middle-income country by 2035, and high-income country by 2050. Urbanisation is identified as one of the main ways to achieve this transformation in Rwanda. To implement the urban component of NST 1, the Government of Rwanda, through the Ministry of Infrastructure, has elaborated the **Urbanisation and Rural Settlement Sector Strategic Plan 2018–2024**.
 - **Sector Strategic Plans and Sub-Sector Strategic Plans:** These plans translate and operationalise the high-level priorities and objectives of the current national development strategy (e.g. NST 1) within different sectors at national, regional and local scales. Priority actions from other strategies (e.g. NAPA) are also mainstreamed through Sector Strategic Plans (Nash & Ngabitsinze, 2014, p. 13).
 - **District Development Plans and District Development Strategies:** These translate and operationalise the high-level priorities and objectives of Sector Strategic Plans, Vision 2020 and Vision 2050 blueprint within geographic areas (Nash & Ngabitsinze, 2014, p. 13). **District Development Strategies (DDSs) 2017–2024** emphasise strategic interventions to implement the current NST 1. DDSs were the result of a year-long consultation process reviewing what remained from the 2013–2018 District Development Plan and developing new strategic interventions. While for 24 Rwandan districts the Ministry of Local Government (MINALOC) hired consultants to facilitate discussions and draft

strategies, in Rwanda's six secondary cities, GGGI seconded its technical district assistants to facilitate discussions (Gubic & Baloi, 2019. P. 227).

- **Urbanisation and Rural Settlement Sector Strategic Plan 2018-2024:** (a public link to this strategy could not be found). This plan was elaborated by the ministry of infrastructure to implement the urban component of NST 1. The plan includes seven priorities in accordance with key national policies and strategies related to urbanisation and urban development. The Strategic Plan echoes the National Urban Policy (see New Urban Agenda below) recommendations and focuses on specific themes such as: integrated human settlement planning and coordination; City of Kigali, secondary cities and other potential towns developed to spur socio-economic growth; and informal settlement upgrading (Ministry of Infrastructure, 2019, p. 14).

New Urban Agenda

In 2016, Rwanda adopted the **New Urban Agenda** from the UN Conference on Housing and Sustainable Urban Development (Habitat III). After its adoption, the Government of Rwanda undertook a review of its existing laws and policies against the New Urban Agenda as part of the Rwanda State of the Environment and Outlook report, prepared by the Rwanda Environment Management Authority (REMA) with support from the Ministry of Infrastructure and other stakeholders.³ The Government of Rwanda also adopted the **National Urbanisation Policy (NUP)** in December 2015: this emphasises urbanisation as an engine of economic development and sustainable growth (Gubic & Baloi, 2019. P. 225). National Urban Policies (NUPs) emerged from Habitat III as the policy instrument through which national governments can engage and shape an urbanising world (Ministry of Infrastructure, 2019). Cartwright et al. (2018) highlight that "The effectiveness of NUPs hinge on their capacity to reflect the lived realities of African urban growth, including political tensions, informal settlements and economies, and acute shortages of public funds." Their analysis of Rwanda is that the political commitment is there, but resources need to be scaled up (Cartwright et al., 2018, p. 30).

The Ministry of Infrastructure has also established the National Urban Forum (NUF), a multi-stakeholder platform to support sustainable urban development by promoting awareness raising, participation, coordination and discussion in this area (Gubic & Baloi, 2019, p. 224). The First and Second Sessions of the NUF took place in 2008 and 2011 respectively. The Third NUF took place in 2019, the aim was to assess the progress made and reflect on the continuing implementation of the New Urban Agenda in Rwanda (Ministry of Infrastructure, 2019).

Kigali City Master Plan

The most important city planning guide is the 2013 Kigali City Master Plan⁴ and its associated District master plans oriented to creating an environmentally sustainable city (Rwanda Environment Management Authority, 2017, p. xiv). It restricts development to only 35% of Kigali's

³ Since 2009, REMA has produced a State of the Environment and Outlook Report (SEOR) for Rwanda every two years. The most recent was the Fifth SEOR in 2017, which had a special focus on achieving sustainable urbanisation in Rwanda. It explored the role that unplanned urbanisation can have on the environment as well as long-term sustained economic growth (Rwanda Environment Management Authority, 2017, p. vii).

⁴ See <http://www.masterplan2013.kigalicity.gov.rw/Downloads/> [accessed 04/09/2019]

land and aims to remove all informal settlements by 2040. The Master Plan was conceived in the context of the radical modernisation policies that the Rwandan government is implementing in order to transform and develop Rwanda and its capital city (Manirakiza, 2014, p.162).

However, Manirakiza (2014, p.162) highlights that a growing body of evidence suggests that uncontrolled urban growth, land use and housing availability as well as affordability remain topical issues impinging on Kigali's sustainable development. High demand and urban land use regulations affect the market for plots of land and housing, making them increasingly speculative and unaffordable for most urban dwellers. The article argues that low-income households face challenges in accessing land and housing. As a result, they live in informal slums and/or risk being excluded from the modern city. There is "a need to promote pro-poor approaches by making available affordable houses to buy or to rent, by regulating the land market, upgrading informal settlements and implementing urban planning in a conducive way" (Manirakiza, 2014, p.177). The Master Plan is currently being reviewed.

Secondary cities

To steer migration away from Kigali (which has almost half of Rwanda's urban population), develop the natural and human resource opportunities in Rwanda's other budding cities, encourage more even economic development throughout the country and boost urbanisation rates, the Government of Rwanda announced through its EDPRS2 the creation of six secondary cities in order to provide a more balanced urban system (Rwanda Environment Management Authority, 2017, p. v). The goal of this strategic priority is to ensure more balanced urban growth for the country by encouraging the emergence of secondary economic poles of urban growth, while keeping the leading role of Kigali (Government of Rwanda & GGGI, 2015).

Gubic and Baloi (2019) explore the implementation of the New Urban Agenda in Rwanda, which includes significant investments in infrastructure and construction in Rwanda's capital Kigali and six secondary cities and aims to achieve a 35% urbanisation rate by 2024. Kigali and Rwanda's secondary cities (Huye, Muhanga, Musanze, Nyagatare, Rubavu, and Rusizi) are currently revising their master plans in response to the pressure of rapid urban growth in infrastructure and services, and to address the lack of public spaces in its cities (Gubic & Baloi, 2019, p. 224).

According to a recent news article, Nyagatare will be the first of the six secondary cities to be developed under the "Readiness and preparatory support to implement Green City Development Projects in Rwanda's Secondary Cities," which operationalises the national roadmap, being implemented by REMA in partnership with GGGI (Hitimana, 2019). Rwanda was awarded US\$600,000 by the Green Climate Fund (GCF) for the project, which will not only protect the environment but will consolidate the land use in the six districts. All six districts have been strategically chosen because of their population size, geographic location and contribution to the country's economy. Aside from engaging the private sector, GGGI have also been focusing on integrating the community to help them understand the shared vision (Hitimana, 2019).

International conventions

Rwanda has ratified the UN Convention on Biological Diversity (CBD), the Convention to Combat Desertification (CCD), the Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol (Ministry of Foreign Affairs, 2018, p. 6). Rwanda was one of the first countries in Africa

to submit a National Adaptation Program of Action (NAPA) (2006). Rwanda has made a request to the National Support Plan Global Support Programme (NAP-GSP) for support for the development of its National Adaptation Plan (Ministry of Foreign Affairs, 2018, p. 6).

- **Nationally Determined Contribution (NDC):** Rwanda has signed and ratified the Paris Agreement. Rwanda submitted its INDC to the UNFCCC in 2015 and its First NDC (the INDC) in October 2016. Rwanda's NDC is built upon its NSCCLCD. Adaptation is the priority. Although Rwanda has one of the lowest greenhouse gas emissions in the world, Rwanda has established mitigation targets. The priority actions in its NDC are those identified in its NSCCLCD with many of the actions having both adaptation and mitigation benefits. They include actions on disaster management, integrated approach to sustainable land use planning and management and implementation of low carbon urban systems (Ministry of Foreign Affairs, 2018, p. 7). The estimated costs of implementing the NSCCLCD was estimated at US\$ 24.15 billion in the sectors of water resource management, agriculture and energy up to 2030. Full implementation of the NDC will require predictable sustainable and reliable support in the form of finance, capacity building and technology transfer (Ministry of Foreign Affairs, 2018).

Financial needs, sources and mechanisms

Economic and financial instruments provide incentives for investment in climate resilience and green economy (Kaur et al., 2014). The private-sector is key to Rwanda being able to successfully implement a low-carbon resilient development agenda. Rwanda has been pioneering in its pursuit of this goal through the National Environment and Climate Change Fund (FONERWA), Rwanda's innovative basket fund for financing low-carbon resilient development, and the way in which it has built strategic public-private relationships for financing initiatives and building capacity (Nash & Ngabitsinze, 2014, p. 2). Rwanda has also used budget and planning systems to leverage greater synergy between investments (Kaur et al., 2014).

FONERWA

In Rwanda, climate change funds have been established in law (Kaur et al., 2014). FONERWA is an innovative cross-sectoral financing mechanism that was established in 2012 as a fund dedicated to achieving the government's low-carbon resilient development objectives. As a basket fund, a diverse range of domestic and external resources are streamlined and rationalised into FONERWA for programming, disbursement and monitoring (Nash & Ngabitsinze, 2014, p. 21). The fund has been designed to evolve as different sources of finance and new investment areas become viable. FONERWA is a demand-based fund meaning that it is driven by proposals from project promoters that align with broad priority areas related to environment, climate change and development (Ministry of Foreign Affairs, 2019). Rwanda has developed an operational manual to guide how the fund is managed, and both a management committee and technical committee have been established, along with cross-governmental coordination (Kaur et al., 2014). FONERWA has provided funding to over 30 projects (Ministry of Foreign Affairs, 2019).

Climate Finance

Rwanda is one of a few African countries with a National Implementing Entity (NIE) for the UNFCCC's Adaptation Fund – Ministry of Environment (formally the Ministry of Natural

Resources (MINIRENA)). The Ministry of Environment has also been accredited as the designated authority to receive funding from the Green Climate Fund (USAID, 2019).

Institutional arrangements

Countries rely on institutional arrangements to support better synergy between different sources of finance and different investment portfolios (Kaur et al., 2014). Recognising that the implementation of environment and climate change strategic plans requires broader partnership and institutional responsibility (especially between donors and the Government), Rwanda adopted several innovative institutional arrangements to improve the coordination of environment and climate priorities as cross-cutting development issues (Caldwell, Dyszynski and Roland, 2015). These include the Urbanization Sector Wide Approach (U-SWAP) Secretariat in the Ministry of Infrastructure. Coordination was further improved by creating Single Project Implementation Units to coordinate projects across government ministries and institutions (Caldwell, Dyszynski and Roland, 2015). The Ministry of Environment is responsible for designing and monitoring national climate policies. REMA is under this ministry and is responsible for climate policy implementation through its Department of Climate Change and International Obligations (USAID, 2019).

Another coordination mechanism is the government-led Sector Working Groups, which aim to improve the harmonisation of programme development and delivery across multiple government institutions and organisations. The Sector Working Group on urbanisation and rural settlements is led by the urbanisation division of the Ministry of Infrastructure and World Bank (Ministry of Infrastructure, 2019). Within this working group there are several thematic sub-sector working groups, for example on urbanisation and public space (Gubic & Baloi, 2019).

A working paper by Caldwell, Dyszynski and Roland (2015) documents lessons related to national-level climate change planning in Rwanda, captured as part of CDKN's "Lesson Learning from National Climate Compatible Development (CCD) Planning" study undertaken from July 2013 to February 2014. One key learning was around the strong alliances between the Ministry of Natural Resources (now the Ministry of Environment) – through REMA – and the Ministry of Finance and Economic Planning, which have enabled many of the achievements in mainstreaming climate compatible development in Rwanda. Other key lessons include the value of legal backing for climate compatible development policies, and the need for strategies to be translated into clearly costed action plans.

Other government initiatives on urbanisation

Several initiatives related to urbanisation are being implemented by the Government of Rwanda, these include (Ministry of Infrastructure, 2019, p. 16):

- Review of City of Kigali and Secondary Cities Master Plans and elaboration of local urban development plans for emerging urban centres;
- Development of district industrial parks in secondary cities and other districts;
- Improvement and increase of basic infrastructural services in urban areas;
- Conducting master plan implementation audits in different districts;
- Capacity development at all government levels to improve the elaboration and implementation of urban development related policies and strategies;

- Improvement of service delivery through e-services;
- Improvement in delivery of affordable and social housing, including upgrading of informal settlement;
- Implementation of green and smart cities concepts.

4. Donor programmes

Some of the key initiatives supported by multilateral development partners are:⁵

- The Rwanda Urban Development Project, financed through a **World Bank** loan, to enhance urban management and provide access to basic infrastructure in different urban centres. The programme, which will soon enter in its second phase, concentrates mainly on Kigali, six secondary cities and satellite cities (Ministry of Infrastructure, 2019, p. 16).⁶
- The Spatial Development Framework of Rwanda, supported by **UN-Habitat**, is the first spatial strategic plan of the country and is meant to support the implementation of the NUP. It will help decision-makers to visualise the distribution of functions in the national territory, mainly concentrated in cities, and to identify development corridors, nodal towns and priority areas to better distribute investments (Ministry of Infrastructure, 2019, p. 16).
- Rwanda is a member of the **Global Green Growth Institute (GGGI)**⁷ and is receiving assistance on the implementation of its green growth strategy, primarily on green growth of secondary cities (Ministry of Foreign Affairs, 2018, p. 7). GGGI in collaboration with the Ministry of Infrastructure developed the National Roadmap for Green Secondary City Development, which is the third component of the Government of Rwanda and GGGI project entitled “Developing Rwandan Secondary Cities as Model Green Cities with Green Economic Opportunities”, and aims to support economic transformation of Rwanda through green urbanisation and green growth, focusing on the development of secondary cities (Ministry of Infrastructure, 2019, p. 17). GGGI also provides direct support to FONERWA to accelerate public and private investment in green growth projects.⁸ GGGI is implementing the Rwanda Climate Resilient Green Cities⁹ project (~US\$ 3m) which will develop District Development Plans and project preparation (including financing proposals) for priority projects in secondary cities. GGGI is also implementing a project on the rehabilitation of degraded urban wetlands in Kigali City.¹⁰

⁵ There are several project proposals currently awaiting funding approval related to climate resilience in Kigali and Rwanda’s six secondary cities. For example, the Nordic Development Fund in partnership with the World Bank and REMA have submitted a final proposal to the GEF on Kigali Flood Control and Integrated Urban Catchment Management (see <https://www.ndf.fi/project/kigali-flood-control-and-integrated-urban-catchment-management-ndf-c118c119>).

⁶ See “Rwanda Urban Development Project II”: <http://projects.worldbank.org/P165017?lang=en>

⁷ GGGI is an inter-governmental organisation focused on providing technical advisory support to its member countries.

⁸ Information taken from <https://ggi.org/project/rwanda-fonerwa/> [accessed 09/09/2019]

⁹ Information taken from <http://ggi.org/project/rwanda-climate-resilient-green-cities/> [accessed 09/09/2019]

¹⁰ Information taken from <https://ggi.org/project/sustainable-urban-wetlands-development-within-kigali-city/> [accessed 09/09/2019]

- The **International Growth Centre (IGC)** is undertaking several economic studies related to urbanisation, for example on urban economic growth and its spatial organisation (Ministry of Infrastructure, 2019, p. 17).
- **Belgium** through ENABEL is willing to support the Government of Rwanda with a focus on inclusive and sustainable economic development. A programme on urban development in Rwanda is being finalised and under negotiation with the Government of Rwanda. The project will mainly focus on enhancing socio-economic development, supporting urban management throughout provision of socio-economic infrastructure and spatial planning tools at districts level (Ministry of Infrastructure, 2019, p. 17).
- The project “Inclusive Decisions at Local Level-IDEAL” (2017-2021) is financed by the **Netherlands** Ministry of Foreign Affairs through the Cooperation agency of the Netherlands association of Municipalities – Vereniging van Nederlandse (VNG International). The project is implemented in 7 Countries: Burundi, Mali, Uganda, Somaliland, Palestine, South Sudan and Rwanda. In the context of Rwanda, the IDEAL-Rwanda project objective is to strengthen the capacity of local Governments focusing on six secondary cities to achieve a broad-based legitimacy and social cohesion in their urbanisation processes (Ministry of Infrastructure, 2019, p. 18).
- The **German** government-owned development bank (KfW) is supporting Rwanda in its vision of a Green City. A 620 ha Green City Pilot programme in Kigali will focus on policy reform, financial modelling, design and feasibility studies (Ministry of Infrastructure, 2019, p. 18). KfW is also active in secondary city decentralisation and local level infrastructure provision. The programme has two phases.
- Kigali is also part of the **Cities4Forests** initiative, which helps cities from around the world connect with and invest in inner forests (such as city trees and urban parks), nearby forests (such as green corridors and watersheds) and faraway forests (such as tropical and boreal forests). Providing technical assistance to align local policy, shared knowledge, peer-to-peer learning and communication activities in order to help cities take climate action together. Kigali’s Master Plan recognises the threats to Kigali’s forests and clearly outlines policies to promote urban forestry.¹¹

5. Challenges and evidence gaps

Despite the progress made by Rwanda in its pursuit of green urban development, the literature highlights a number of issues (although there is little information on clear evidence gaps):

- Caldwell, Dyszynski and Roland (2015) highlight that there was generally a lack of ownership and coordination of environment- and climate-related activities across sectors with the institutional arrangements of Rwanda. This stems from low institutional capacity, coupled with financial constraints.
- Gubic and Baloi (2019, P. 227) highlight that the absence of a clear definition of “public spaces” in the Rwandan context, different terms with different meanings are used interchangeably in different governmental publications. This results in an uneven interpretation of what constitutes public space across government departments and

¹¹ Information taken from <https://cities4forests.com/cities/kigali/> [accessed 04/09/2019]

impedes the delivery of such services. The Ministry of Infrastructure, the Rwanda Housing Authority, GGGI, and the University of Rwanda are working on a review of existing laws and policies to support the development of a common and localised understanding of public space.

- Manirakiza (2014) explores the urbanisation challenges facing Kigali and the current strategies for its modernisation and argues the need for inclusive urban planning, in order for marginalised and poor people to be included and represented in urban development plans. When it was issued in 2013, the Kigali City Master Plan was based on a vision for a formally organised city. A central part of the plan was to remove informal housing and those persons living there, instead replace those areas with units that meet the organised vision for the city. The current review of the Master Plan is to re-consider this top-down approach. One of the criticisms of this approach is that community members' desires of where they want to live were not considered. It is important for the master plan review to consider vulnerable and marginalised groups including persons with disabilities. A further important part of this is considering how city design can support greater access to economic opportunity and safe participation in municipal life.
- Some parts of Kigali already experience annual flooding due to developments in natural floodplains, inadequate drainage systems, and the city's hilly topography. In face of the projected rapid population growth in Kigali, there is a need for the integration of flood risk reduction in development planning processes (Kind, Hess & Tsinda, 2016).
- In a research project investigating the impacts of flooding on businesses in Kigali, funded by the Climate & Development Knowledge Network (CDKN) and led by adelphi and the Institute for Policy Analysis and Research (IPAR-Rwanda), key findings included the need to update the Kigali Master Plan with a zoning plan that displays flood risk and structural requirements for flood protection of new buildings (Kind, Hess & Tsinda, 2016). The Kigali Master Plan is currently under review, but it is not clear when this will be finished and what follow up actions will take place.

6. References

- Asian Development Bank. (2016). *Enhancing urban climate change resilience: Seven entry points for action*. Sustainable Development Working Paper Series No.47. Mandaluyong City, Philippines: Asian Development Bank.
<https://www.adb.org/sites/default/files/publication/213291/sdwp-047.pdf>
- Asumadu-Sarkodie, S., Rufangura, P., Jayaweera, H. & Owusu, P.A. (2015). Situational Analysis of Flood and Drought in Rwanda. *International Journal of Scientific and Engineering Research*, 6 (8); 960-970. https://www.researchgate.net/profile/Samuel_Asumadu-Sarkodie/publication/281581934_Situational_Analysis_of_Flood_and_Drought_in_Rwanda/links/55ee8fa608aef559dc43c37a.pdf
- Caldwell, D., Dyszynski, J. & Roland, R. (2015). *Climate compatible development in the 'Land of a Thousand Hills': Lessons from Rwanda*. Climate and Development Knowledge Network.
https://cdkn.org/wp-content/uploads/2015/07/CDKN_Rwanda_Working_Paper_final_web.pdf
- Cartwright, A., Palmer, I., Taylor, A., Pieterse, E., Parnell, S. & Colenbrander, S. (2018). *Developing Prosperous and Inclusive Cities in Africa - National Urban Policies to the Rescue?* Coalition for Urban Transitions. London and Washington, DC.
<http://newclimateeconomy.net/content/cities-working-papers>
- Garschagen, M., & Romero-Lankao, P. (2015). Exploring the relationships between urbanization trends and climate change vulnerability. *Climatic Change*, 133(1), 37-52.
<https://link.springer.com/article/10.1007/s10584-013-0812-6>
- Gouldson, A., Sudmant, A., Khreis, H., Papargyropoulou, E. 2018. *The Economic and Social Benefits of Low-Carbon Cities: A Systematic Review of the Evidence*. Coalition for Urban Transitions. London and Washington, DC.: New Climate Economy.
<http://newclimateeconomy.net/content/cities-working-papers>
- Government of Rwanda. (2011). *Green growth and climate resilience: National strategy for climate change and low carbon development*. Kigali: Government of Rwanda.
<https://cdkn.org/wp-content/uploads/2010/12/Rwanda-Green-Growth-Strategy-FINAL1.pdf>
- Gubic, I., & Baloi, O. (2019). Implementing the new urban agenda in Rwanda: Nation-wide public space initiatives. *Urban Planning*, 4(2), 223-236.
<https://ideas.repec.org/a/cog/urbpla/v4y2019i2p223-236.html>
- Hitimana, E. (2019, 15 July). *Rwanda Prepares the Foundations for Climate-Resilient Cities*. Inter Press Service. [News Article]. http://www.ipsnews.net/2019/07/rwanda-prepares-foundations-climate-resilient-cities/?utm_source=rss&utm_medium=rss&utm_campaign=rwanda-prepares-foundations-climate-resilient-cities
- Kaur, N., Rwirahira, J., Fikreyesus, D., Rai, N. & Fisher, S. (2014). *Financing a transition to climate-resilient green economies*, IIED Briefing. London IIED. <http://pubs.iied.org/17228IIED>
- Kind, C., Hess J. & Tsinda, A. (2016). *Improving Flood-Resilience of Small Businesses in Kigali: Findings and recommendations from a research project funded by Climate Development Knowledge Network (CDKN)*. Policy Brief. Adelphi & IPAR – Rwanda.

http://click.rw/ipar3/IMG/pdf/adelphi_ipar_2016_policy_brief_on_flood_protection_and_businesses_in_kigali_v16.pdf

Manirakiza, V. (2014). Promoting inclusive approaches to address urbanisation challenges in Kigali. *African Review of Economics and Finance*, 6(1), 161-180.
<https://www.ajol.info/index.php/aref/article/view/106931>

Mind'je, R., Li, L., Amanambu, A. C., Nahayo, L., Nsengiyumva, J. B., Gasirabo, A., & Mindje, M. (2019). Flood susceptibility modeling and hazard perception in Rwanda. *International Journal of Disaster Risk Reduction*, 101211. <https://doi.org/10.1016/j.ijdr.2019.101211>

Ministry of Finance and Economic Planning. (2013). *Economic development and poverty reduction strategy II 2013–2018*. Kigali: Government of Rwanda.
http://www.minecofin.gov.rw/fileadmin/templates/documents/NDPR/EDPRS_2.pdf

Ministry of Finance and Economic Planning. (2018). *7 years government programme: National strategy for transformation (NST 1) 2017–2024*. Kigali: Government of Rwanda.
http://www.minecofin.gov.rw/fileadmin/user_upload/NST_A5_booklet_final_2.04.19_WEB.pdf

Ministry of Infrastructure. (2019). *3rd National Urban Forum: A Background Paper*. Kigali: Government of Rwanda. https://unhabitat.org/wp-content/uploads/2019/02/NUF_Rwanda_v03.pdf

Government of Rwanda & GGGI. (2015). *National roadmap for green secondary cities development*. Kigali: Government of Rwanda.
<https://gggi.org/site/assets/uploads/2017/12/National-Roadmap-for-Green-Secondary-City-Development.pdf>

Ministry of Foreign Affairs. (2018). *Climate Change Profile: Rwanda*. The Hague: Ministry of Foreign Affairs, Government of the Netherlands.
<https://www.government.nl/documents/publications/2019/02/05/climate-change-profiles>

Nash, E. & Ngabitsinze, J.C. (2014). Low-carbon resilient development in Rwanda. IIED Country Report. IIED, London. <http://pubs.iied.org/10065IIED>

Pervin, M., Sultana, S., Phirum, A., Camara, I.F., Nzau, V.M., Phonnasane, V., Khounsy, P., Kaur, N. & Anderson, S. (2013). *A framework for mainstreaming climate resilience into development planning*, IIED Working Paper, Climate Change. <http://pubs.iied.org/10050IIED>

Rwanda Environment Management Authority. (2017). *Rwanda state of environment and outlook report 2017: Achieving sustainable urbanization*. Kigali: Government of Rwanda.
https://www.researchgate.net/publication/327041096_Rwanda_State_of_Environment_and_Outlook_Report_2017_-_Achieving_Sustainable_Urbanization

USAID. (2019). Climate Change Risk Profile: Rwanda. Adaptation Thought Leadership and Assessments (ATLAS). USAID.
https://www.climatelinks.org/sites/default/files/asset/document/2019_USAID-ATLAS-Rwanda-Climate-Risk-Profile.pdf

World Bank. (2018). *Future Drivers of Growth in Rwanda: Innovation, Integration, Agglomeration, and Competition (Vol. 2): Overview (English)*. Washington, D.C.: World Bank Group.
<http://documents.worldbank.org/curated/en/680671541618477651/Overview>

Acknowledgements

We thank the following expert who voluntarily provided suggestions for relevant literature or other advice to the author to support the preparation of this report. The content of the report does not necessarily reflect the opinions of any of the experts consulted.

- Sue Enfield, Institute of Development Studies

Suggested citation

Price, R.A. (2019). *Climate compatible development and rapid urbanisation in Rwanda*. K4D Helpdesk Report 660. Brighton, UK: Institute of Development Studies.

About this report

This report is based on six days of desk-based research. The K4D research helpdesk provides rapid syntheses of a selection of recent relevant literature and international expert thinking in response to specific questions relating to international development. For any enquiries, contact helpdesk@k4d.info.

K4D services are provided by a consortium of leading organisations working in international development, led by the Institute of Development Studies (IDS), with Education Development Trust, Itad, University of Leeds Nuffield Centre for International Health and Development, Liverpool School of Tropical Medicine (LSTM), University of Birmingham International Development Department (IDD) and the University of Manchester Humanitarian and Conflict Response Institute (HCRI).

This report was prepared for the UK Government's Department for International Development (DFID) and its partners in support of pro-poor programmes. It is licensed for non-commercial purposes only. K4D cannot be held responsible for errors or any consequences arising from the use of information contained in this report. Any views and opinions expressed do not necessarily reflect those of DFID, K4D or any other contributing organisation. © DFID - Crown copyright 2019.

