RESHAPING URBANIZATION IN RWANDA

Economic and Spatial Trends and Proposals

Note 4: Profiling Secondary Cities in Rwanda— Dynamics and Opportunities

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Reshaping Urbanization in Rwanda: Economic and Spatial Trends and Proposals is an Advisory Services and Analytics (ASA), jointly provided by the Poverty and Equity Global Practice and the Social, Urban, Rural and Resilience Global Practice at the World Bank. The objective of this report is to inform the Government's policies and strategies on urbanization as a driver of economic development, job creation, and poverty reduction, through the following four stand-alone but closely related notes.

- Note 1: Urbanization and the Evolution of Rwanda's Urban Landscape
- Note 2: Internal Migration in Rwanda
- Note 3: Urbanization, Job Creation, and Poverty Reduction in Rwanda
- Note 4: Profiling Secondary Cities in Rwanda—Dynamics and Opportunities

EXECUTIVE SUMMARY

ES1   Urban Growth Beyond Kigali

Stimulating urban economic development, particularly outside the capital city of Kigali, is critical to helping Rwanda to achieve its strategic objective of a 35 percent urban population share by 2020. This Note looks at the current growth rates and characteristics of secondary cities[1] and other fast-growing towns outside of Kigali,[2] and assesses the opportunities and prospects for, as well as constraints upon, future economic growth and development. It also sets out key actions required from the Government of Rwanda (GoR) to help stimulate growth in these cities and towns.

There are multiple population estimates for secondary cities and fast-growing towns due to the inconsistencies in defining which areas are urban and in defining city boundaries, and thus which sectors to include in estimates of city populations. According to the 2002 and 2012 censuses, the six secondary cities grew at an average rate of 3.3 percent over this period, slower than the national rate of urban growth of 4.1 percent and the rate for Kigali of 4.2 percent. In comparison, the three fast-growing towns are estimated to have grown at a rate of 5.3 percent, albeit from a lower starting base, between 2002 and 2012.

Of the secondary cities, Musanze, Rubavu and Nyagatare are growing most rapidly. The Musanze to Rubavu corridor benefits from (i) the rich agricultural resources along this corridor, and (ii) Rubavu's proximity to the large market of Goma in DRC. Nyagatare has absorbed significant investment in recent years, and has also benefitted from the high levels of migration to the East of the country witnessed by the most recent inter-censual period. This is reflected in the findings of Note 2 which identifies internal migration toward the Eastern Province.

The map below (Figure ES.1) shows the location of Kigali, the intermediate urban centers in red, the medium-sized towns in blue and the fast-growing urban towns in green.

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[1] The six Secondary Cities are specified in the GoR's "Economic Development and Poverty Reduction Strategy 2 (EDPRS 2). They are Huye, Muhanga, Musanze, Nyagatare, Rubavu, and Rusizi.

[2] The three fast-growing towns considered in this Note are district towns of Gicumbi (Byumba), Bugesera (Nyamata) and Rwamagana-Kayonza (Rwamagana). They are included in the analysis with an aim to explore whether they are strategically positioned for future growth.

Figure ES.1. Urban growth in Rwanda
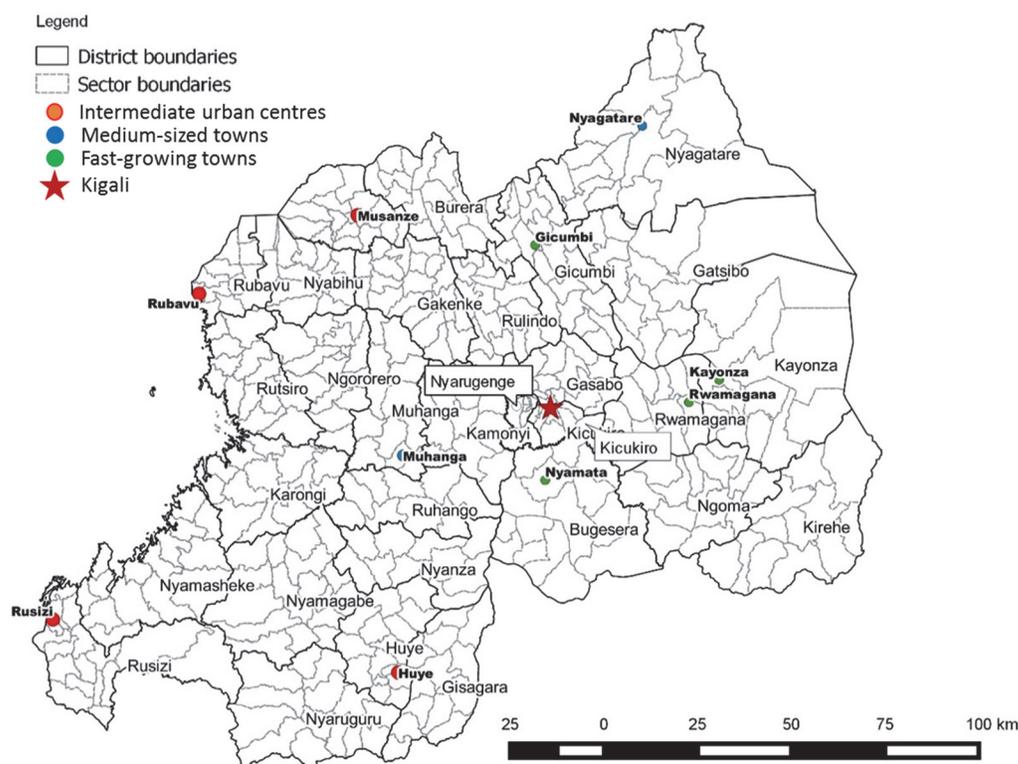
ES2   Spatial Development through Urban Sprawl

The analysis of the multi-temporal spatial expansion of secondary cities and the three fast-growing towns has revealed that all cities have expanded their urban footprint in the past decade. In comparison to the observed population growth rates, the rates of spatial expansion are generally higher in both the medium-sized towns and in the fast-growing towns. In the more compact or spatially constrained cities—such as Rubavu and Muhanga—the level of spatial expansion is more in line with population growth. The largest spatial expansions are seen in the more recently established cities, notably Nyagatare and Kayonza, and those which are unconstrained by physical barriers to growth—such as Huye.

Secondary cities are better in providing key services and infrastructure than fast-growing towns but more recently developed settlements in these cities tend to be remote from the main centers and generally exhibit lower population densities than the central business districts. The central business district is designated spatially as occupying an area within a two-kilometer radius from the district office of the city or the main market. This radius was adopted for both the analyses of moderate-resolution data carried out for this Note, and the high-resolution analysis conducted for the World Bank under the Morphology of African Cities study,[3] images from which have been used in this Report.

The Government acknowledges that current master plans lack detail and are undergoing revision and further detailing. Analysis of existing land use using Landsat datasets showed significant divergence from existing master plans, highlighting how the actual development is usually characterized by limited

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[3] http://documents.worldbank.org/curated/en/502451481312733719/The-morphology-of-African-cities

expansion of productive, commercial and industrial activities. Instead, these cities and towns are primarily residential, with a strong dependency on the rural economy and thus agricultural productivity. While this dependency has visible repercussions on the use of space and the density of development, whereby spatial growth of some cities is accompanied by reducing density of new settlements, strengthening the economic linkages between rural and urban areas around these cities may be one way to yield their economic potential.

Though secondary cities and fast-growing towns are relatively small when compared to Kigali, it is important that future development of peripheral settlements is managed to avoid the creation of sprawling residential settlements with low density which are difficult and expensive to serve with a centralized network of infrastructure. This sparse pattern of urban development also unnecessarily consumes land which could be used for more productive purposes.

ES3   Economic Development Constraints and Opportunities

Analysis of data available on business establishments and employment highlights variations in economic vibrancy and potential among the secondary cities and fast-growing towns. The Rubavu-Musanze corridor is noteworthy as it generates the same level of employment as the other secondary cities combined and accommodates: (i) a significant number of larger firms; (ii) key tourism assets that can be leveraged to generate spill-over benefits; (iii) abundant fertile agricultural hinterlands; and (iv) a key cross-border area with a market of one million people in Goma located just over the border. Given all of this, it is clear that this corridor has the most potential to act as the primary growth pole and magnet for investment outside of Kigali.

Rusizi has some potential as a secondary cross-border and tourism growth pole, although it is constrained by its relative remoteness from the rest of the country. Investment in connective infrastructure to integrate Rusizi into the national spatial economy and increase access to domestic markets is required.

The remaining secondary cities have not, as of 2017, reached the required size[4] and economic density necessary for them to serve as realistic growth poles, although there is anecdotal evidence from the fieldwork that being designated a secondary city has a positive effect on investment. Of the fast-growing towns, Bugesera urban center (known as Nyamata) is likely to be the first to become more of an economic growth pole as the planned investments in the neighboring International Airport and Special Economic Zone in Bugesera district come to fruition.

ES4   Improving Access to Urban Services and Housing

While the secondary cities are generally better served with infrastructure and services than the smaller fast-growing towns, both suffer from significant deficits in services provision, with the costs exacerbated by the emergence of urban sprawl.

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[4] This is a relative measure. None of the secondary cities would be considered a viable growth pole in a much larger country, and there is no definitive size over which a city will suddenly start generating agglomeration economies and become a 'growth pole'. However, the larger, more economically dense, cities (i.e. Rubavu, Musanze) will generate higher agglomeration economies than the rest, and therefore the returns to investment in these cities will be higher. Regional economic development is about the trade-off between the objectives of spatially balanced growth and allocating scarce resources (investment) most efficiently. Given the highly-concentrated nature of the current Rwandan spatial economy, and the lack of public investment available, it will be more efficient and have greater impact to concentrate investment in one or two secondary cities, rather than spreading thinly across all six.

In Rwanda as a whole, access to electricity is relatively low (around 20 percent in 2014[5]), although in the urban areas it is high and increasing rapidly. Accessibility to electricity connection as the main source of energy for lighting in urban areas was 72 percent in 2014; a 50 percent increase since 2011.[6] This trend suggests current urban connectivity of more than 85 percent.

Water supply is generally adequate in terms of source availability, although there are some source constraints—particularly in Gicumbi. The majority of households benefit from a household connection and relatively high levels of service reliability; about 65 percent of households have access to household supply and a further 30 percent to public standposts[7] in the secondary cities and fast-growing towns. The urban road density of the cities varies widely—largely because of topographical constraints—and only the major routes are paved, with about 75 percent of networks unpaved in the secondary cities.[8]

In the wastewater and solid waste management sub-sectors, levels of service are consistent with cities that (i) are relatively small, (ii) have generally low-density development, and (iii) exhibit low levels of consumption, which means limited water consumption (and thus low volumes of wastewater generation) and relatively low volumes of solid waste production.[9] The current urban sanitation systems, which rely on septic tanks and soakaways or pit latrines, will require further improvement as urban densities and water consumption increase. Investment will need to be made in septic sludge collection and treatment systems, and eventually in sewerage and sewage treatment. In addition, there is currently only partial collection of solid waste, most of which is disposed in rudimentary land fill sites. Investment is needed in improved collection systems and disposal facilities, as the environmental hazards associated with uncollected and improperly disposed of waste will intensify as waste volumes increase with larger and more prosperous urban populations.

While the 2015 National Housing Policy sets out mechanisms for housing development to serve different segments of the market, currently, new formal housing is affordable only to urban households with incomes in the upper 20 to 30 percent income bracket in the secondary cities and fast-growing towns. While efforts are underway to bring down the price of serviced land and housing construction, existing urban planning and building codes contribute to the relatively high costs of serviced land and buildings' regulatory compliance.

New development is also taking place on the periphery of urban cores, with the development of informal housing not in compliance with the master plans. This has implications both for the efficiency of urban development and the ultimately high cost of services provision. However, implementation of the new housing policy is beginning to see results in terms of mixed and low-income housing schemes, the attraction of additional private sector finance into the housing sector, and informal settlement upgrading schemes being supported by the World Bank.[10] The upgrading approach facilitating improved housing conditions in-situ is important in enabling housing improvements for low-income residents who cannot otherwise afford even the least expensive units in new developments.

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[5] National Institute of Statistics of Rwanda (NISR), Rwanda Poverty Profile Report, 2013/14, August 2015
[6] Ibid.
[7] RUDP Feasibility Studies 2015, MINNINFRA; and OSC estimates.
[8] Ibid.
[9] RUDP Feasibility Studies 2015, MINNINFRA; and OSC estimates.
[10] http://housingfinanceafrica.org/resources/yearbook/

ES5   The Way Forward for Secondary Cities and Emerging Towns

The key findings and recommendations are as follows:

Economic Development

- Government investment in infrastructure and business support should initially focus where economic opportunities are greatest—especially along the Musanze-Rubavu Corridor.
- Other secondary cities, notably Rusizi, which has the potential to significantly expand cross-border trade with DR Congo but scores the lowest for access to domestic markets, improved access to domestic markets, especially Kigali, can further increase its potential to serve as hub for transport logistics and a conduit for regional trade.
- Physical challenges posed to development in some cities—such as in areas characterized by very steep slopes with associated land slide risks (e.g., Gicumbi, Muhanga) and consequent high costs of development and servicing—need to be recognized when considering urban growth potential.
- For both secondary cities and fast-growing urban centers, it is important to create means to support the current level of development and encourage further expansion by creating decentralized productive areas (i.e., markets, industries) around which the lower-density peripheral residential settlement can grow and densify.

Urban Jurisdiction and Institutional Capacity

- The jurisdiction of urban areas within districts' institutional and legal frameworks is currently unclear. The lack of a dedicated provisions for urban areas in districts risks rendering the attention to such urban areas insufficient in terms of district planning, supervision and management. While this is a difficult area for reform, mechanisms to improve collaboration across sector jurisdictions should be considered, possibly leading to formation of dedicated urban management and/or governance structures in the longer-term.
- Capacity constraints and staffing shortages of One Stop Centers (OSCs)[11] should be addressed to increase their ability to support urban infrastructure and service growth and development.

Urban Land and Planning

- The Expropriation Law of 2015 defines an exhaustive list of public interest projects for which land can be expropriated. Further clarity may be required in some cases—for instance under the headings of "car parks", "markets", "public entertainment playgrounds, gardens and buildings", and "activities to implement land-use and development plans"—and careful oversight by Government is required to ensure that public interest is supported in execution of the Law.
- There is a lack of coherence in some of the planning documents designed to guide urban growth and development in specific locations. The GoR recognizes that many urban master plans are unrealistic and lack the level of detail of Local Urban Development Plans to support their execution. This is being progressively addressed.
- It is recommended that master plans, land-use, zoning and local area development plans be produced and regularly updated and revised for all the cities, particularly for those fast-growing cities and towns which are changing more rapidly.

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[11] One Stop Centers, within the Rwanda Development Board, provide private sector investment support and facilitation services to businesses registered in eligible priority sectors and with a capital investment equal to or more than US$250,000 for foreign promoters and equal to or more than US$100,000 for local and COMESA Citizens.

- The new planning process should incorporate the principles of green, inclusive and resilient urban growth, by mainstreaming climate change resilience and preparedness and disaster risk management into the planning process.

Urban Infrastructure and Services

- Urban infrastructure and services provision is falling behind demand, and investment levels are currently too low. Development requires additional financing from: (i) urban-focused GoR grants; (ii) increased local fiscal autonomy; (iii) enhanced local revenue generation; and (iv) attraction of private sector financing into urban infrastructure and services provision, particularly where direct cost recovery is possible.
- Infrastructure should lead urban development rather than follow. Strategies for future development of fast-growing urban centers should include the allocation of funds and urban space for the creation of infrastructure that can support their rapid development.
- As the infrastructure stock increases, local government systems need to pay greater attention to inventorying, scheduling and financing the operation and maintenance of these assets.

Urban Housing

- New approaches to providing affordable urban housing as set out in the new National Housing Policy, including in-situ settlement upgrading, show promise in addressing urgent urban housing needs. However, collaboration between the public and private sectors, and between national and district governments will be required to ensure that local planning and construction requirements do not constrain the delivery of housing affordable to middle- and lower-income deciles.

1   Introduction and Sector Background

This Note is the final in a series of four notes presenting analytical work on the economic geography and urbanization status and trajectory in Rwanda supported by the Government of Rwanda (GoR) and the World Bank (WB). Note 4, presents "Profiling Secondary Cities in Rwanda—Dynamics and Opportunities". The other notes in the series are:

- Note 1: Urbanization and the Evolution of Rwanda's Urban Landscape;
- Note 2: Rural-Urban Migration and its effects on Living Standards; and
- Note 3: Urbanization, Non-farm Job Creation and Poverty Reduction.

The notes are designed to assist the GoR in understanding the dynamics of urbanization in Rwanda and to make recommendations as to how GoR can stimulate urban economic development, particularly outside of Kigali. This is considered critical in helping Rwanda to achieve its strategic objective of an urban population share of 35 percent by 2020,[12] supporting a balanced urban system and thus enhanced, and better distributed, urban economic growth.

1.1.   Methodology of Approach

The information and analysis presented in this Note is based on a combination of primary and secondary data sources. Primary data was collected during a two-week mission to Rwanda made by members of the study team during June 2016. This included:

- Discussions with key national sector institutions, including: Ministry of Infrastructure (MININFRA); Ministry of Finance and Economic Planning (MINECOFIN); Ministry of Local Government (MINALOC); Rwanda Housing Authority (RHA); Rwanda Transport Development Agency (RTDA); Water and Sanitation Corporation (WASAC); Rwanda Energy Group (REG); Local Administrative Entities Development Agency (LODA) and Rwandese Association of Local Government Authorities (RALGA).
- Semi-structured interviews with representatives of district governments for identified secondary cities and fast-growing urban centers, generally including the District Mayor and other members of the District Council.
- Semi-structured interviews with district planning staff and representatives of district One Stop Centers
- Interviews with officials from the local Private Sector Federation (PSF) and with representatives of local businesses.
- Site visits to city centers, established and new housing areas, municipal and private sector urban facilities, craft centers, infrastructure and service facilities, industrial estates, etc.

Secondary data sources used in the analysis included:

- Review of GoR urban policy and strategic planning documents and key urban legislation, statistical and sector reports, and prior urban studies.
- Review of sector planning and development proposals supported by international development agencies, and particularly the World Bank, UN-HABITAT/UNDP, DFID and USAID.
- Review of district plans and urban master plans (where these exist).
- Time series of moderate resolution Landsat data, from the USGS Earth Explorer archive and purposely pre-processed and pan-sharpened. For this study it was decided to use Landsat 7 ETM+

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[12] Rwanda Vision 2020, initially published in year 2000, acknowledged the need to develop urban infrastructure in view of a targeted increase in urban population from 12 percent in the year 2000 to 30 percent by 2020, which was subsequently raised to 35 percent in the revised version of Vision 2020 published in 2012.

and Landsat 8 OLI which can be pan-sharpened to a resolution of 15 meters. This data was supplemented by high resolution SPOT imagery obtained from the World Bank and the use of base maps from OpenStreetMap and Google Earth.

- Nightlights-based estimation of district-level GDP using data from the NOAA Earth Observation Group.

It is important to note that while every effort has been made to attribute statements and assertions made in this paper to the source, certain of the analyses and conclusions are based on field observation and key informant interviews and are not readily attributable.

1.2. Sector Background—Urban Policy and Regulatory Framework

Rwanda's urban planning and regulatory framework evolved in the early 2000s, initially through Rwanda Vision 2020, which set as a target an increase in urban population from 12 percent in the year 2000 to 30 percent (subsequently revised to 35 percent) by 2020. Development guidance is provided through the second Economic Development and Poverty Reduction Strategy (EDPRS 2) which: (i) sets out the development strategy from 2013 to 2018; and (ii) treats urbanization and rural settlement as a 'standalone sector' and one of the five priorities under the strategic thematic aim of economic transformation. EDPRS2 also specifies that *"Six Secondary Cities will be developed as poles of growth and centers of non-agricultural economic activities"*, identifying Rubavu, Musanze, Huye, Rusizi, Nyagatare, and Muhanga. Table 1.1 below sets out the key legislation which guides urban sector development.

Table 1.1. Key urban sector development policies

Policy Instrument	Year	Function and Provisions
National Land Policy	2004	Established a land tenure system to guarantee tenure security and provide guidance for land reform
Organic Land Law	2005	Created a single unified legal and administrative system for land ownership
National Land Use and Development Master Plan	2011	Provides general directives for sustainable land use development and guiding principles for socio-economic development, infrastructure, environment and land administration
Rwanda Green Growth Strategy	2011	Promoting green urban growth through high-density construction and appropriate zoning
Law Governing Urban Planning and Building	2012	Establishes planning hierarchy and regulates local development based on development management and technical implementation procedures and provides Urban Planning Code and Building Code as annexes
Sector Strategic Plan	2013	Provide a framework for the production and implementation of District Development Plans
District Land Use and Development Plans	2014/15	All 30 districts have local urban development plans for portions of their main urban areas. Detailed physical plans are under various stages of preparation or finalization to support urban land management
Expropriation Law	2015	Sets out the conditions under which government can expropriate land in the public interest for planning and infrastructure development purposes
National Housing Policy	2015	Specifies the roles of agencies delivering housing to a range of income groups
National Urbanization Policy	2015	Guides urban coordination, densification, conviviality (i.e. quality of life) and economic growth (off-farm employment) through the Rwanda Spatial Development Framework (2016)

2. Selection of Focus Cities

The Note focuses on Rwanda's six secondary cities, plus three urban centers which are included for analysis as they represent urban centers which are currently growing rapidly and/or are positioned for future growth. The Urban Planning Code[13] clusters the urban population outside of Kigali in (i) secondary cities, (ii) district towns, and (iii) trade centers

The designated role of the six secondary cities in the National Urbanization Policy (NUP) is to help create a *"functional network of development poles"* which can *"cost-effectively provide socio-economic opportunities to all"*. The way in which the cities (see Figure ES.1 above) are characterized as economic growth poles in the NUP is defined as follows:

- Huye as the city of 'Education, Knowledge and Cultural History'
- Rubavu as the city of 'International Gateway City and Tourism'
- Musanze as the city of 'Eco-friendly Mountain Tourism and Industry'
- Nyagatare as the city of 'Cattle and Dairy Region, Commercial Hub of Eastern Region'
- Rusizi as the city of 'Cross-border Trade and Transportation Logistics, Nyungwe Forest'
- Muhanga as the city of 'Hydropower and Mining Center; Creative Economy; Pottery and Fashion'

The additional three fast-growing towns of Bugesera, Gicumbi and Rwamagana-Kayonza were included in the analysis for this Note as emerging urban agglomerations that are growing rapidly and are positioned strategically for further growth. The Note combines two district towns of Rwamagana and Kayonza as a binary urban center, as they are approximately 10 km apart (15 km by road), and are considered as a single urban unit in view of their proximity. However, there is currently little ribbon development between the two, and they presently function as separate urban units.

Although generally smaller than the secondary cities, between the 2002 and 2012 censuses, these towns grew at a faster rate than the secondary cities.[14] If current population growth trends continue, these towns will become larger than some secondary cities in the near future and attractive places for investment. Their inclusion in the analysis is useful as a comparison with the secondary cities in terms of the development issues that they face, as well as the level of services, economic performance and potential for future economic development.

The analysis presented below examines current development issues, opportunities, and prospects in these cities and towns. However, the analysis has also drawn on observations made by the study team on other areas subject to rapid urbanization, including residential sectors outside cities, district towns and trade centers. This observation is entirely consistent with the findings presented in Note 2[15] on internal migration, which observes that there is migration out of core urban areas towards the periphery where land and housing are less expensive.

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[13] Ministerial Order N° 04/Cab.M/015 of 18/05/2015 determining urban planning and building regulations

[14] See Note 1: Urbanization and the Evolution of Rwanda's Urban Landscape for detailed analyses of demographic trends and projections.

[15] Rwanda Economic Geography and Urbanization Note 2: Internal Migration, World Bank, 2016

3. Key Characteristics of Rwanda's Secondary Cities and Fast-growing Towns

3.1. Growth Trends, Drivers and Projections

Due to inconsistencies between the 2002 and 2012 censuses in defining which areas are urban, as well as the inconsistencies in defining city boundaries and which sectors to include in estimates of urban populations, there are multiple population estimates for secondary cities—sometimes differing significantly—and it is not possible to accurately estimate growth trends. However, based on population analysis carried out in Note 1,[16] with an average annual growth rate of 3.3 percent, the six secondary cities are growing at a slower rate than the national urbanization rate of 4.1 percent and the rate of Kigali of 4.2 percent. Meanwhile, the three fast-growing towns grew at an average rate of 5.3 percent, albeit from a lower starting base.[17] Together, this had an effect of adding a city the size of Huye to the secondary cities and fast-growing towns every two years.

One factor causing this apparent slower-than-average growth in the secondary cities is the contribution of net migration. Huye, Rusizi, Musanze, and Gicumbi all have negative rates of net internal migration, although it is important to note that internal migration data is only available at the district level, with internal migration being defined as moving from one district to another. The current patterns of internal migration are discussed in detail in Note 2.[18] Importantly, the tendency of people from surrounding rural sectors to move to the urban sectors of the city is not recorded in migration figures, and thus urban growth is likely to be substantially underestimated. Furthermore, even if sector to sector migration is measured, in order for it to help capture levels of rural to urban migration accurately, the sector boundaries need to be aligned with the physical urban boundaries, which is currently not the case in all the secondary cities and fast-growing towns.

The slow recorded rates of urban growth have implications for the GoR's overall target to achieve 35 percent urban population share by 2020 since cities would have to grow at rates many times higher than their current annual growth rates to achieve the target urban populations for 2020.

In comparison, based on analysis that classifies settlements as urban if they contain a minimum of 5,000 persons living at a minimum density of 1,000 persons per km^2, Rwanda's urban population grew from 1.49 million to 3.46 million between 2002 and 2015—an increase of 132 percent. This represents an average growth rate of 6.7 percent per annum, while the level of urbanization increased from 15.8 percent to 26.5 percent over the same period.[19] Adopting this definition, attainment of the Government's target of 35 percent urbanization by 2020 looks more attainable.

In secondary cities, however, the current rate of urban economic growth is not keeping pace with population growth. The most rapid growth among the secondary cities is occurring in Musanze, Rubavu and Nyagatare. Musanze and Rubavu are linked by the Rubavu-Musanze corridor which benefits from (i) the rich agricultural resources along this corridor, and (ii) Rubavu's proximity to the large market of Goma in DRC. Nyagatare has absorbed significant investment in recent years and has also benefitted from the

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[16] Rwanda Economic Geography and Urbanization Note 1: Urbanization and the evolution of Rwanda's urban landscape; World Bank; September 2016
[17] Ibid.
[18] Rwanda Economic Geography and Urbanization Note 2 Internal Migration; World Bank; September 2016
[19] Ibid.

high levels of migration to the East of the country over recent years.[20] These factors are further explored in the section below.

3.2. Potential for Secondary Cities to Act as Drivers of Economic Development

The National Urbanization Policy of 2015 states the role of secondary cities is to act as drivers of economic development and creators of non-agricultural jobs. As alluded to in Note 1 of this series, at present, several of the secondary cities are not fulfilling this objective, primarily because they do not yet have a sufficient size in population or density of firms to generate agglomeration economies. This section, however, focuses on assessing the potential of the designated secondary cities to serve as growth poles, and compares this performance with that of the three fast-growing towns.

Concentration of Economic Activity

Among them, the six secondary cities account for 19 percent of total non-agricultural GDP (13 percent of total GDP), while the three fast-growing towns add an additional 8 percent (5 percent of total GDP) (Table 3.1). In comparison, Kigali contributes 61 percent of total non-agricultural GDP (41 percent of total),[21] indicating the primacy of Kigali in the Rwandan economy.

Table 3.1. Economic activity indicators for Rwandan cities (city and town level data), 2014

City	Share of national non-farm GDP	Non-farm employment	Formal non-farm employment	Non-farm firms	Formal non-farm firms	Economic density (jobs per population)
Huye	4.1%	9,141	1,713	2,854	232	0.17
Muhanga	2.8%	3,560	1,364	1,326	218	0.07
Musanze	3.3%	6,109	2,538	2,891	242	0.09
Nyagatare	1.8%	5,598	811	2,023	128	0.32
Rubavu	3.7%	12,855	2,993	5,163	341	0.09
Rusizi	3.5%	9,329	1,469	3,317	203	0.33
Gicumbi	2.7%	5,976	1,120	1,498	56	0.17
Rwamagana-Kayonza	3.6%	4,526	1,116	1,739	167	0.11
Bugesera	1.9%	2,769	488	1,155	69	0.16
Kigali	60.8%	113,093	57,260	31,831	4,654	0.13
Rwanda	100%	493,302	106,73	154,236	8,726	-

Source: Analysis of GDP is based on nighttime lights estimates using satellite imagery from the NOAA; employment and firm data from Establishment Census 2014

Outside of Kigali, the largest concentration of economic activity is in the Rubavu-Musanze corridor. Together the cities of Rubavu and Musanze account for 7 percent of non-agricultural GDP, 4 percent of

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[20] Rwanda Economic Geography and Urbanization Study; Note 2: Internal Migration; World Bank; September 2016.
[21] Analysis is based on night-time lights estimates of GDP using satellite imagery from the NOAA.

jobs and 5 percent of firms. They also have a higher than average concentration of firms and jobs in the formal sector, an indicator of more productive economic activity.

The next significant concentration of economic activity is in Huye, which has the largest GDP output as estimated by nighttime lights (4.1 percent), the third highest total employment (after Rubavu and Rusizi) and third highest formal employment (after Rubavu and Musanze). Rusizi contributes 3.5 percent to national GDP (fourth-highest) but has the second highest number of non-farm jobs and firms, though the informal share of these is higher than average.

In terms of economic density (the number of non-farm jobs per capita), however, Rusizi has the highest density with 0.33 jobs per capita, while Rubavu and Musanze have a density of just 0.09, indicating that they are failing to fulfil their job creation potential.

Growth Trends in Employment and Firm Creation

While economic activity is gradually dispersing away from Kigali—just 21 percent of new firms and 27 percent of new non-farm jobs between 2011 and 2014 were created in Kigali—a different picture emerges when only formal firms and jobs are considered, with 56 percent of firms and 49 percent of jobs created in Kigali.[22]

Total employment across the nine cities increased from 43,508 in 2011 to 59,863 in 2014.[23] However, as a share of the total national employment, it declined from just under 16 percent in 2011 to 12 percent in 2014, indicating that the cities created relatively fewer jobs than Kigali and the rest of the country. Table 3.2 below shows the number of non-farm firms and jobs created between 2011 and 2014, according to Establishment Censuses, in the six secondary cities, three fast-growing towns, Kigali, and Rwanda as a whole. It shows that just 11 percent of all firms and jobs, 16 percent of formal firms[24] and 12 percent of formal jobs were created in the six secondary cities. The three fast-growing towns by comparison created only 3 percent of total and formal firms and jobs.

When we look at the cities on an individual basis, however, it is clear that some are performing better than others. Of the fast-growing towns, the Rwamagana-Kayonza agglomeration (with a population smaller than both Muhanga and Huye) created more formal jobs than all secondary cities except Rubavu and Musanze, although total employment creation was not as high. Bugesera and Gicumbi on the other hand generated few formal jobs.

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[22] Based on analysis of the 2011 and 2014 Establishment Census. The criteria used in the 2014 Establishment Census define a formal sector as (i) keeping regular operational accounts, (ii) registered with RRA and (iii) producing goods and services for sale or barter in non-agricultural activities.

[23] Ibid.

[24] Firms operating within the formal economy.

Table 3.2. Secondary cities and fast-growing towns, firm and job creation, 2011-2014

City	New non-farm firms 2011–2014	New non-farm jobs 2011–2014	New formal non-farm firms 2011–2014	New formal non-farm jobs 2011–2014	New firms with 30+ employees 2011–2014
Huye	1,904	3,305	129	666	0
Muhanga	1,998	2,954	130	530	2
Musanze	2,119	3,926	111	769	2
Nyagatare	1,088	2,255	95	481	1
Rubavu	3,537	5,938	194	1,262	9
Rusizi	1,425	2,684	98	434	1
Secondary Cities % of total	11%	11%	16%	12%	10%
Gicumbi	894	1,553	21	89	0
Rwamagana-Kayonza	1,175	2,263	88	691	2
Bugesera	762	1,424	34	267	2
Fast-growing towns % of total	3%	3%	3%	3%	3%
Kigali	22,422	50,733	2,578	17,035	60
% of total	21%	27%	56%	49%	41%
National	**106,993**	**185,757**	**4,622**	**34,728**	**147**

Source: Establishment Census 2014

The best performing city, Rubavu, created 1,262 formal jobs over the three-year period, and nearly 6,000 jobs in total, followed by Musanze with 769 formal and nearly 4,000 total. This success is largely driven by: (i) proximity to large markets in the DRC; (ii) a densely populated fertile agricultural corridor; and (iii) presence and investment from (relatively) large formal firms. Essentially, this is a function of the locational advantages of the two cities and their pre-existing competitive advantage. Together Rubavu and Musanze form a corridor of urban development in the north-west of the country that stretches to the DR Congo border and merges with the city of Goma on the other side. Between them, these two secondary cities created nearly as many jobs as the other four secondary cities combined (47 percent of total). One reason for this is the creation of a number of medium and large firms—particularly in Rubavu where nine firms with 30 or more employees where established between 2011 and 2014.

Types and Size of Businesses

In general, secondary cities are overly reliant on micro-firms to generate employment. The vast majority of firms in secondary cities and fast-growing towns are micro-enterprises with between one and three employees, as is the case nationally (see Table 3.3). The overall firm size composition is similar across all cities and nationally, although secondary cities and fast-growing towns have a slightly higher proportion of small firms and relatively fewer micro-firms. Across all cities the average firm size increased between 2011 and 2014; in 2011, 93 percent of firms were micro, with 7 percent small, compared to 90 percent and 9 percent respectively in 2014.

Table 3.3. Share of firms by size, 2014

	Micro (1-3)	Small (4-30)	Medium (31-100)	Large (100+)*
National	**90%**	**9%**	**1%**	**0%**
Huye	87%	11%	1%	0%
Nyagatare	89%	10%	1%	0%
Muhanga	93%	6%	1%	0%
Rusizi	87%	13%	1%	0%
Rubavu	91%	7%	1%	0%
Musanze	89%	10%	1%	0%
Secondary cities	**89%**	**10%**	**1%**	**0%**
Gicumbi	88%	10%	2%	0%
Rwamagana-Kayonza	90%	9%	1%	0%
Bugesera	90%	9%	1%	0%
Fast-growing towns	**89%**	**10%**	**1%**	**0%**

Source: Establishment Census 2014

*Note that these are percentages—demonstrating very few large firms although they employ a comparatively large number of people (see Table 3.4 below)

In terms of employment, secondary cities rely more on micro-firms to generate employment than do the fast-growing towns and the national average (45% compared to 40% respectively). While large firms (including public sector organizations such as hospitals, universities, etc.) contribute 20 percent of employment in Rwanda as a whole, in the secondary cities this is just 8 percent, much lower than that of fast-growing towns (15%).

Table 3.4. Share of employment by firm size, 2014

	Micro (1-3)	Small (4-30)	Medium (31-100)	Large (100+)
National	**38%**	**26%**	**15%**	**20%**
Huye	35%	34%	17%	13%
Nyagatare	50%	33%	14%	3%
Muhanga	54%	26%	16%	4%
Rusizi	44%	39%	12%	5%
Rubavu	47%	25%	19%	9%
Musanze	43%	34%	15%	9%
Secondary cities	**45%**	**31%**	**16%**	**8%**
Gicumbi	30%	25%	20%	25%
Rwamagana-Kayonza	45%	31%	14%	10%
Bugesera	51%	33%	16%	0%
Fast-growing towns	**40%**	**29%**	**17%**	**15%**

Source: Establishment Census 2014

The number of firms with foreign owners increased in seven of the nine urban centers, but the overall share of foreign-owned firms remained at 1.8 percent, although this is higher than the national average of one percent. The exception is Huye where foreign ownership is 8.5 percent, though this is down from 9.1 percent in 2011. Secondary cities and fast-growing towns need to do more to increase their attractiveness to foreign investors if they are to generate the level of non-farm jobs required to reach middle-income status and avoid large-scale informal employment in urban areas.

Ease of Doing Business

According to the *World Bank Doing Business 2017* report, Rwanda is the second easiest place to do business in Africa, and 56th overall worldwide. Although this survey was conducted on firms in Kigali only, the findings are relevant for all cities in the country, since the legal and regulatory requirements are the same across the country (unitary system of Government). According to the report, the key constraints to doing business in Rwanda are dealing with construction permits and getting electricity. Evidence from fieldwork interviews conducted with businesses and district governments for this study indicate that access to electricity (and other critical infrastructure) is likely to be more of a constraint in the secondary cities and fast-growing towns than in Kigali, while obtaining a construction permit is likely to be less of an issue due to the greater availability of land and a relatively straightforward application and approvals process (Figure 3.1).

Addressing these key constraints to doing business is crucial if secondary cities and fast-growing towns are to attract foreign and domestic investment. One way in which cities can do this is to provide serviced industrial land for firms in the form of industrial parks. Several of the secondary cities and fast-growing towns have recently established, or are currently in the process of establishing, industrial parks, including Huye, Muhanga, Musanze, Rubavu, Rusizi and Gicumbi.

Figure 3.1. Rwanda Doing Business Rankings, by regulatory ease of doing business

Source: World Bank Doing Business Rwanda 2017

Whether these designated industrial zones will be able to provide the necessary level of infrastructure and services to attract investment remains to be seen. In the majority of cases, land has been acquired (or sometimes just identified for development) and designated as an industrial zone, but limited infrastructure has been constructed. For example, in Huye, an industrial park has been established 8 km from the city

center, though it is presently without a paved access road, power supply is insufficient for industry, and businesses have to provide their own water supply. In view of the limited resources available for industrial park infrastructure development and services provision, it would be prudent to consider redirecting the strategy towards a focus on fewer parks located in strategically important cities.

It is recommended that GoR first concentrate investment in one or two industrial zones as a pilot and create industrial zones in the other cities if the pilot is successful.[25] Pilot cities should be those with an established level of economic density such as Rubavu and/or Musanze, and potentially Huye, where implementation is at the most advanced stage.

Access to Markets

It is vital that secondary cities and fast-growing towns have good access to markets for the goods they produce and are well-integrated into the national and regional spatial economy. Access to markets is an important determinant of secondary city performance as illustrated by a positive association between scores measured by market access index and the level of firm and job creation. That is, market access is essential to attract investment as none of the cities are of a sufficient size to produce a viable internal market for manufactured goods.

A background study produced in support of this Note[26] estimated access to both domestic and regional markets for each of the cities in Rwanda. The secondary city with the best access to regional markets is Rubavu, with a score more than twice as high as the others due largely to its close proximity and shared border with Goma in DR Congo. This is followed by Rusizi, which shares a border with Bukavu. In terms of domestic connectivity, however, Rusizi scores the lowest due to its distance from Kigali and the relatively poor density of the road network in the south-west of the country (although the national roads into and out of Rusizi are paved and in good condition). Nyagatare scores poorly in both domestic and international connectivity due to its remote location. This is reflected in its poor performance in firm and job creation, which is the lowest of the secondary cities. However, Nyagatare is effectively a new city, and in line with government policy for the district, there are signs of investment in animal husbandry and the leather industry (Figures 3.2 and 3.3).

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[25] The Strategy for Development of Industrial Parks is under the Ministry of Trade and Commerce (MINECOM) and is a major initiative for Government.

[26] World Bank, Rwanda: Transport Connectivity and Growth Potential (2016)

Figure 3.2. Domestic and Regional Market Access Index (0 to 1)[27]
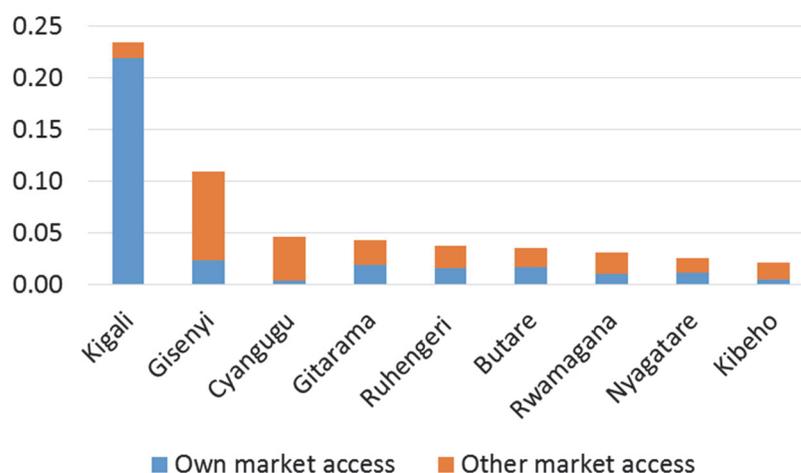
Source: World Bank, Rwanda: Transport Connectivity and Growth Potential

Figure 3.3. Domestic Market Access Index within the country (0 to 1)
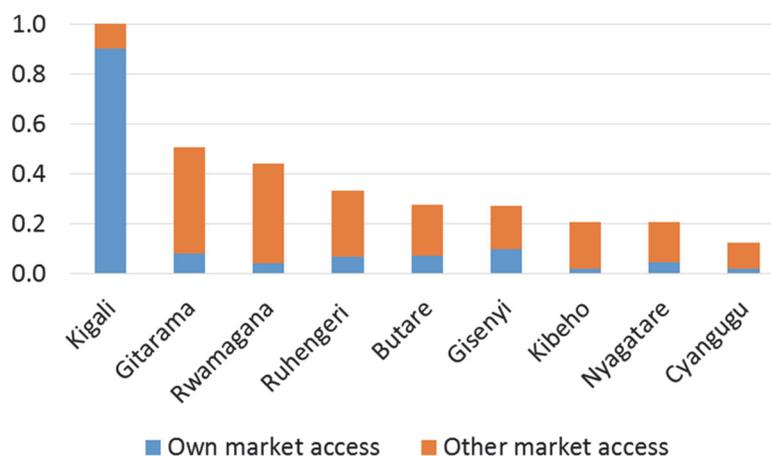
Source: World Bank, Rwanda: Transport Connectivity and Growth Potential

Increasing cross-border trade will be vital in catalyzing economic development as Rwanda is a small country with a small domestic market, but bordered by large countries—DR Congo, Uganda and Tanzania—that represent huge potential markets for Rwandan goods. At present, the most dynamic of these cross-border areas are those on the Congolese border. As DR Congo is a vast, sparsely populated country with difficult terrain, these border areas are more integrated than the national economy and of strategic importance for both countries. Evidence from the fieldwork has demonstrated the importance of cross-border trade in Rubavu—Goma is 10 times the size—with tens of thousands of people crossing the border in both directions each day in order to trade, primarily in agricultural produce and sand from nearby quarries. It is a similar situation in Rusizi where 44 percent of the workforce is employed in wholesale and retail trade—the highest share of any city.

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[27] In Figures 3.2 and 3.3 old names are used for some cities: Gisenyi=Rubavu; Cyangugu=Risuzi; Gitarama=Muhanga; Ruhengeri=Musanze; and Butare=Huye

The Government of Rwanda has made recent progress in supporting enhanced cross-border trade, for instance through the 24-hour operation of the border crossing with the DRC on the Goma side, and the easing of procedures for people and vehicles crossing the border. The Government has also made investments in border management and in border crossing-related infrastructure. In addition, the World Bank is supporting the Government in these areas through the Great Lakes Trade Facilitation Project which addresses these cross-border facilitation issues and includes support for the construction of a new airport in Rusizi.

The secondary cities and fast-growing town also play an important role in linking their rural hinterlands to the wider national economy and serving as a market place for agricultural produce, either for direct consumption or as an entry point into further markets. It is therefore essential that secondary cities and fast-growing towns are well-connected to rural areas through the road network, so that farmers have access to their local market at the lowest possible cost, and are also well-connected to each other and to Kigali to ensure that national markets are integrated. This will enable farmers to get the best possible price for their products, as well as promote specialization in agricultural production where areas have a comparative advantage, leading to a more efficient allocation of resources.

Inter-urban Transport and Access to Markets

Over recent years, the Government of Rwanda, with the assistance of development agencies and some private sector finance, has progressively increased its investment in infrastructure and services,[28] particularly in the inter-city road network, which accounts for about 10 percent of the Government budget.[29] As a result, the major urban areas in the country are connected to Kigali and, in most cases, to each other by a good quality network of National Roads, comprising about 2,750 km, about half of which is paved and considered to be relatively well-maintained.[30]

Internal road connectivity is good, from cities and their agricultural hinterlands to major border crossing points with DRC, Tanzania, Uganda and Burundi. But road quality between the border crossings and key markets in these neighboring countries is generally poor, adding to transport costs.[31]

This does not apply, however, to the cities of Rubavu and Risuzi, both of which have relatively rich agricultural hinterlands and are on the border with the DRC and contiguous with the cities of Goma and Bukavu, respectively. Both of these cities present a significant market for Rwanda's agricultural products.

In addition, it is estimated that despite their good road connections to Kigali, the transport costs of goods from both Rusizi and Huye are less expensive to Bujumbura than they are to Kigali. Similarly, Nyagatare is potentially better connected to Mbarara and Kabale in Uganda than it is to Kigali. This highlights the potential economic benefit of forming urban agglomerations across borders as well as within Rwanda itself.[32]

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[28] https://energypedia.info/wiki/Rwanda_Energy_Situation; Water Supply and Sanitation in Rwanda, Turning Finance into Services for 2015 and Beyond (World Bank 2012).
[29] http://www.rdb.rw/rdb/infrastructure.html; Rwanda Transport Sector Review and Action Plan (African Development Bank 2013).
[30] "Rwanda: Transport Connectivity and Growth Potential" (World Bank 2016).
[31] Ibid.
[32] Ibid.

Sectoral Specialization

In all secondary cities, economic activity is more concentrated in the wholesale and retail trade than the national average, the corollary being that it is significantly less concentrated in primary activities (agriculture and mining). Manufacturing has a greater share of employment in the secondary cities, with an average of 9 percent, compared to 8 percent nationally and 7 percent in fast-growing towns. There are, however, substantial differences between cities, as indicated by the location quotient (LQ)[33] analysis summarized in Table 3.5.

Table 3.5. Total employment (formal and informal) location quotients of broad sectors, secondary cities and fast-growing towns, 2014

	Wholesale, retail trade	Manufacturing	Accomodation & food	Public sector	Primary	Other activities
National	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**
Huye	1.05	0.84	1.03	1.18	0.40	0.99
Nyagatare	1.56	1.14	1.12	0.63	0.09	1.10
Muhanga	1.61	1.34	0.72	0.82	0.20	0.95
Rusizi	1.82	0.99	0.92	0.65	0.21	0.87
Rubavu	1.35	0.76	1.26	0.76	0.79	0.83
Musanze	1.38	1.39	1.26	0.76	0.02	0.90
Secondary cities	**1.46**	**1.08**	**1.05**	**0.80**	**0.29**	**0.94**
Gicumbi (Byumba)	0.97	1.15	0.88	1.02	1.43	0.81
Rwamagana-Kayonza	1.24	0.58	0.99	0.87	0.19	1.59
Nyamata	1.51	0.70	1.19	0.75	0.10	1.12
Emerging cities	**1.24**	**0.81**	**1.02**	**0.88**	**0.57**	**1.17**

Source: Establishment Census 2014
Note: Color scale of green-red indicates specialization, with green high specialization and red low

Musanze and Muhanga are relatively specialized in manufacturing, with location quotients (LQs) of 1.38 and 1.34 respectively, although these cities have just 1,045 and 658 manufacturing employees, respectively. In total, the six secondary cities and three fast-growing towns contribute just 12 percent of total national manufacturing employment.

Other notable specializations include Rubavu and Musanze, which have a greater than average share of jobs in the accommodation and food sector, reflecting the observation that tourism contributes significantly to these local economies. Rubavu serves as a tourist destination, primarily for domestic and regional visitors, with several large hotels situated on the lake, while Musanze is more focused on international tourism as a gateway to the Volcanoes National Park and the Mountain Gorillas.

Findings—Current Roles and Opportunities

The specializations outlined above correspond to the functions assigned to the cities in the National Urbanization Policy. It is plausible, from a strategic point of view, to leverage the tourism sector to catalyze development in the Rubavu-Musanze corridor, in particular building links between the two cities and encouraging tourists to visit both as part of the same trip. In addition, efforts should be made to increase the value added from tourism visits by increasing the quality of facilities and creating a market for locally-

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[33] A location quotient calculates the ratio of employment share of particular sector compared to the average employment share of that sector (city employment share / average employment share).

produced handicrafts. Moreover, to facilitate tourism it is necessary to improve infrastructure and services in the cities (i.e. roads, power, water supply and sanitation etc.). Local firms can benefit from the spill-over effects from this.

Huye has an LQ of 1.18 in the public sector, due in part to the presence of the University of Rwanda Huye campus (formerly the National University[34]). Its role in the NUP is as the city of *"Education, Knowledge and Cultural History"*. There are some cultural assets (including those that relate to Huye's colonial history) which form the basis for its potential role as a destination for domestic tourism. At this stage however, it is unclear how the presence of the university can be used to catalyze economic development beyond the direct employment and indirect impact from providing services to the students. Development related to the university, for example start-ups related to university research, is unlikely to be viable given the size of Huye and the local infrastructure, and these firms would be better located in Kigali with its access to international markets. Huye has a small industrial estate, with investments currently being made in warehousing and food processing facilities.

Of the roles designated to the other cities, Rusizi has the potential to significantly expand cross-border trade with DR Congo and already has established linkages. However, it scores the lowest for access to domestic markets. If it is to serve as hub for transport logistics and a conduit for trade between the two countries, then domestic connectivity must be significantly improved, although enhanced connectivity has resulted from the recently-completed improvements to Rusizi-Huye (RN 6) and Rusizi-Karongi (RN 7) paved roadways.

Muhanga is designated as the city of *"Hydropower and Mining Center; Creative Economy; Pottery and Fashion"*. This is a broad and diverse set of sectors and it may be better to focus on one or two, particularly given that Kigali is likely to concentrate sectors such as fashion and the creative economy. The specialization in manufacturing employment is evidence of the presence of many small-scale handicraft manufacturers in the city. These manufacturers could focus on products for the tourism market with suppliers retailing to tourists in Musanze, Rubavu and Kigali.

The aim for Nyagatare to become the *"Cattle and Dairy Region; Commercial Hub of Eastern Region"* reflects the location of the city within the drier East of the country which is the area associated with cattle husbandry. There are already some leather and milk processing industries, with the potential for more. Nyagatare may also serve as the main commercial hub for the sparsely populated and relatively more remote (from Kigali) Eastern Province. Although given its small size and relatively poor connectivity, it is unrealistic to expect the city to serve as a major growth pole of any significance in terms of catalyzing the development of industry and tradable services, the strength and extent of animal husbandry plus relatively good connectivity to the border with Uganda presents opportunities for further development of dairy, leather and possibly meat-based industries.

Of the three fast-growing towns that have been considered in addition to the six secondary cities, Gicumbi and Bugesera do not have the density of firms or population to generate the agglomeration economies necessary to serve as growth poles. The combined fast-growing towns of Rwamagan and Kayonza are together of a similar size and level of economic density as some of the secondary cities. Moreover, Kayonza is a newly established city located at an important cross-roads between Kigali, Uganda and Tanzania. However, at present, the local governments of the two districts do not coordinate economic development

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[34] While the National University has now moved to Kigali, Hyue maintains a campus which is a part of the University of Rwanda.

planning or the delivery of infrastructure and services and there is little evidence that the two settlements function as one agglomeration, despite their proximity.

While Bugesera is small at present, it is likely to benefit economically from its proximity to two significant investments: (i) the new Kigali International Airport which is at the re-construction phase and is to be located within Bugesera district; and (ii) the Special Economic Zone currently under construction, located 10 km south of Nyamata town on the RN 15 route to Burundi.

3.3. Planning and Spatial Development

District and City Development Plans

The National Land Use and Development Master Plan provides general directives for sustainable land use development and sets out the guiding principles for socio-economic development, infrastructure provision, environmental protection and land administration. The plan is intended to provide a coordinating framework for the production and implementation of District Development Plans, which have been developed for each of the districts to cover the five-year period from 2013 to 2018. While these plans follow an established format, they are formulaic in nature and provide limited guidance on the pace and nature of urban development. They identify investment priorities by sector, but do not provide guidance on spatial development.

Guidance on urban development is supposed to be provided through an urban master plan for each city and town, supported by a set of local plans, zoning plans, area upgrading plans, etc. Under the newly adopted planning regulations,[35] responsibility for urban planning and implementation of urban development plans rests with the district government and with the Rwanda Housing Authority responsible for the monitoring, evaluation and auditing of both the plans and their execution.

Currently, none of the secondary cities and fast-growing towns has the full set of plans in place which can help guide efficient and inclusive urban growth. Many of the master plans present ambitious visions for urban growth and development but which do not adequately take into account the current institutional and financial capacities and constraints. The GoR is in the process of supporting district governments' preparation of revised master plans and the associated local development plans. Table 3.6 below shows the status and nature of urban master plans and local plans currently available for the secondary cities and fast-growing towns.

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[35] Ministerial Order No. 04/Cab.M/015/ of 18/05/2015 determining urban planning and building regulations.

Table 3.6. Status of urban master plans

City	Urban Master Plan	Local Plans	Comments
Secondary Cities			
Huye	2011: Prepared at a large scale and provides only a generic development plan for city growth areas	None—Master Plan lacks detail required to support plan execution for the city as a whole	Plan focuses on diagnostic but is not implementable for lack of detail
Nyagatare	May 2015: Conceptual level only	UN-supported local plans covering 10% of planned developed area	No phased development; ignores existing structure
Muhanga	May 2013: Prepared at a large scale and provides only a generic development plan for city growth areas	None—Master Plan lacks detail required to support plan execution for the city as a whole	Only covers proposed new development areas, not the existing developed and partially developed urban area
Rusizi	2015: Covers Greater Rusizi area but focus on existing urban core	Area plans for Central Business District in the Master Plan	Contains detailed housing and servicing concepts and costs
Rubavu	May 2015: Conceptual level only, although phasing proposed	None—Master Plan lacks detail required to support plan execution for the city as a whole	Main focus on new development areas outside existing urban core
Musanze	July 2014: Provides a realistic overall development plan for the city	UN-supported local plans covering 20% of developed area	Sound plan which requires further detailing through local plans
Fast-growing towns			
Gicumbi (Byumba)	2012: Provides detailed proposed layouts (small area) but also significant resettlement	Some local-level plans in Master Plan	Recognizes severe topographical constraints but resettlement impractical
Rwamagana-Kayonza	Rwamagana: May 2008: Very comprehensive plan with some local detail	Rwamagana: Some local detail in Master Plan	Neither plan links with the other
	Kayonza: May 2010 & 2012: Two master plans which differ in extent and proposals.	Kayonza: 2012 Master Plan has some detailed layouts	Rwamagana: Comprehensive plan but not followed over nine years
Bugesera	2011: Provides large scale zoning plan	Plot layouts for existing occupied areas only	Very large scale plan; not implementable without local plans

As the master plans are being revised, they should consider:

- A realistic assessment of the resources required for plan execution in terms of financial requirements and the management, administrative and technical inputs

- Sufficient details on how they should be executed, particularly in view of the likely or potential sources of funds and quantum of funding available

- A clear link to the bottom-up process which feeds into the development of the District Development Plan

The new urban master plans and development plans proposed for preparation in the near future are being developed on the basis of the new (2015) planning framework which clarifies plan hierarchies, content, elaboration, scale, planning principles, etc. The Ministry of Infrastructure (MININFRA) and Rwanda Housing Authority (RHA) are providing support to the districts in plan preparation, during which further ownership of the plans by districts should be engendered. The challenge faced by inadequately-staffed and -skilled district governments is to develop and execute the plans, though resources have yet to be made available.

In addition to the aspect of existing urban master plans and local plans, the challenges of urban planning in Rwanda need to be viewed in the context of the overall policy and institutional framework for land tenure and land use. Rwanda has made strong progress on land titling systems through implementation of the Land Tenure Regularization Programme (LTRP), which transformed land tenure arrangements across the whole country over a period of several years, commencing in 2008. However, going forward, the issue of a mismatch between land use as appears in land titles (2008) and as stated in the NLUMP (2011) will need to be resolved to avoid a permanent challenge to synchronizing land registration and land use planning.

Spatial Development and Actual vs. Planned Growth

The actual spatial development over time of each of the secondary cities and fast-growing towns has been analyzed and, where available, compared against current development plans and maps of existing and proposed land-use prepared under the Rwanda Urban Development Project (RUDP) Feasibility Studies. This analysis not only provides valuable information on the modality and rapidity of urban development in the cities and towns analyzed, but also offers a means of comparison of the relative development patterns of these cities and towns over time. The absence of up-to-date master plans and detailed local plans limits the ability to extend this comparative analysis to the actual and planned development patterns.

Table 3.7 presents the percentage of change (i.e., urban expansion) in the areas within a 2 km radius from the Central Business District of each of the nine cities. The percentage change has been calculated by comparing two pan-sharpened 15 meter resolution Landsat scenes. Depending on available data and conditions of cloud cover, for each of the case studies, the first scene was acquired between 1999 and 2003 from the Landsat 7 ETM+ series and the second scene acquired in the period 2015-2016 from the Landsat 8 OLI series.

Due to the low resolution of the Landsat dataset, it is not possible to differentiate the categories of land-use in the urban footprint, but it is possible to determine the increase in the extent of urban footprint between images. Land-use analyses have been conducted through visual interpretation and geospatial overlay of data extracted from the available secondary literature, which included master plans and land-

use classification maps. Further detail on the methodology adopted is presented in the introduction to the Annex 1.

In general, the fast-growing towns are expanding at a much higher rate than secondary cities. In particular, the city of Nyagatare, a collection of sparse settlements in 1999, has been expanding spatially at an average annual rate of 25 percent up to 2016. In contrast, the cities of Huye and Rubavu have had a relatively low expansion rate in comparison with the other seven cities investigated. It is also of note that the rate of spatial expansion, which includes facilities such as car parks, roads and factories, does not tend to be highly correlated with the population increase.

The modality of development correlates more to the geographic conditions. It has been observed that the intermediate urban centers have densified when their development was confined by natural environmental features (i.e., forest, rivers) that constrained further expansion. Most often, when space was available, the increase in population prompted the creation of new residential settlements connected to the original settlement by main roads. Such settlements tend to be more sparsely populated and present much lower density when compared to the immediate surroundings of the cities' central business districts. Overall, the secondary cities and fast-growing towns are sprawling more than they are densifying.

Table 3.7. Summary of findings of spatial development analysis

Type	City	Spatial Growth (%)	Average per year (%)	Pace of expansion	Prevalent Modality of Growth
Intermediate urban centers	Huye	34	2.2	Slow	Densification
	Rubavu	23	1.4	Slow	Densification and sprawling
	Musanze	120	6.0	Average	Densification and sprawling
	Rusizi	109	6.4	Above average	Densification and sprawling
Medium-sized towns	Muhanga	81	4.4	Slight below average	Densification
	Nyagatare	2,280	25.0	Substantially above average	Sprawling
Emerging urban agglomerations	Gicumbi	102	4.5	Slight below average	Densification and sprawling
	Bugesera	328	9.6	Above average	Sprawling
	Rwamagana	173	6.5	Above average	Sprawling
	Kayonza	272	8.5	Above average	Densification
Average, excluding Nyagatate		138	5.5		

Source: Authors' analysis of USGS Landsat satellite imagery

With regard to the analysis of existing land-use and similarity and divergence with the master plans, there is generally a good correspondence between the use of land and the designated category in the available master plans, especially so for areas in close proximity to the commercial center and/or central business district. It is noted that in comparison with the secondary cities, fast-growing towns present a less diverse

use of the land, being mostly residential and with limited infrastructure. In all the cities, both secondary and emerging, the area occupied by productive activities is limited compared to what might be expected in cities of similar size and development.

It is also noted that master plans tend not to address the areas of the new sprawling settlements, which then need to be covered by detailed local plans. The district and local plans are currently being audited by the Government, partly to better align them with the Urban Land Use Master Plan.

The Government is currently in the process of updating the master plans. This is a welcome initiative and this Report proposes that in doing so, the updated master plans will take into account the balance between new developments and densification. In the current context, this report recommends that focus should initially be placed on densification to make use of existing infrastructure; and infrastructure development on green-field sites should be used to attract development to those areas which the master plan identifies for housing, commercial or industrial development. An analysis of the existing master plans show that some of the newer Urban Master Plans propose major reconfigurations of the urban space. A notable example is Rubavu, where the new master plan is attempting to address the issue of sprawl south of the city by suggesting the creation of an independent and uniformly-served residential settlement connected to the main portion of the city by a new main road. In Muhanga, the master plan focuses on entirely new development areas, but proposed a road network quite different from that which currently exists. While this ambition is to be welcomed, there are significant cost implications to major reconfigurations of the existing urban form.

Figure 3.4 below provides the results of the Landsat data multi-temporal analysis for a selection of the cities of Huye, Muhanga and Musanze. The same analysis for the other cities and rapidly growing towns is presented in Annex 1.

Figure 3.4. Summary of the results of the Landsat data multi-temporal series analysis—selected cities

3.4a. Huye

Comparison of the urban masks extracted with the supervised classifier algorithm, illustrating: Extent of urban development in 2002 (red); Area in which expansion occurred from 2002 to 2016 (yellow)
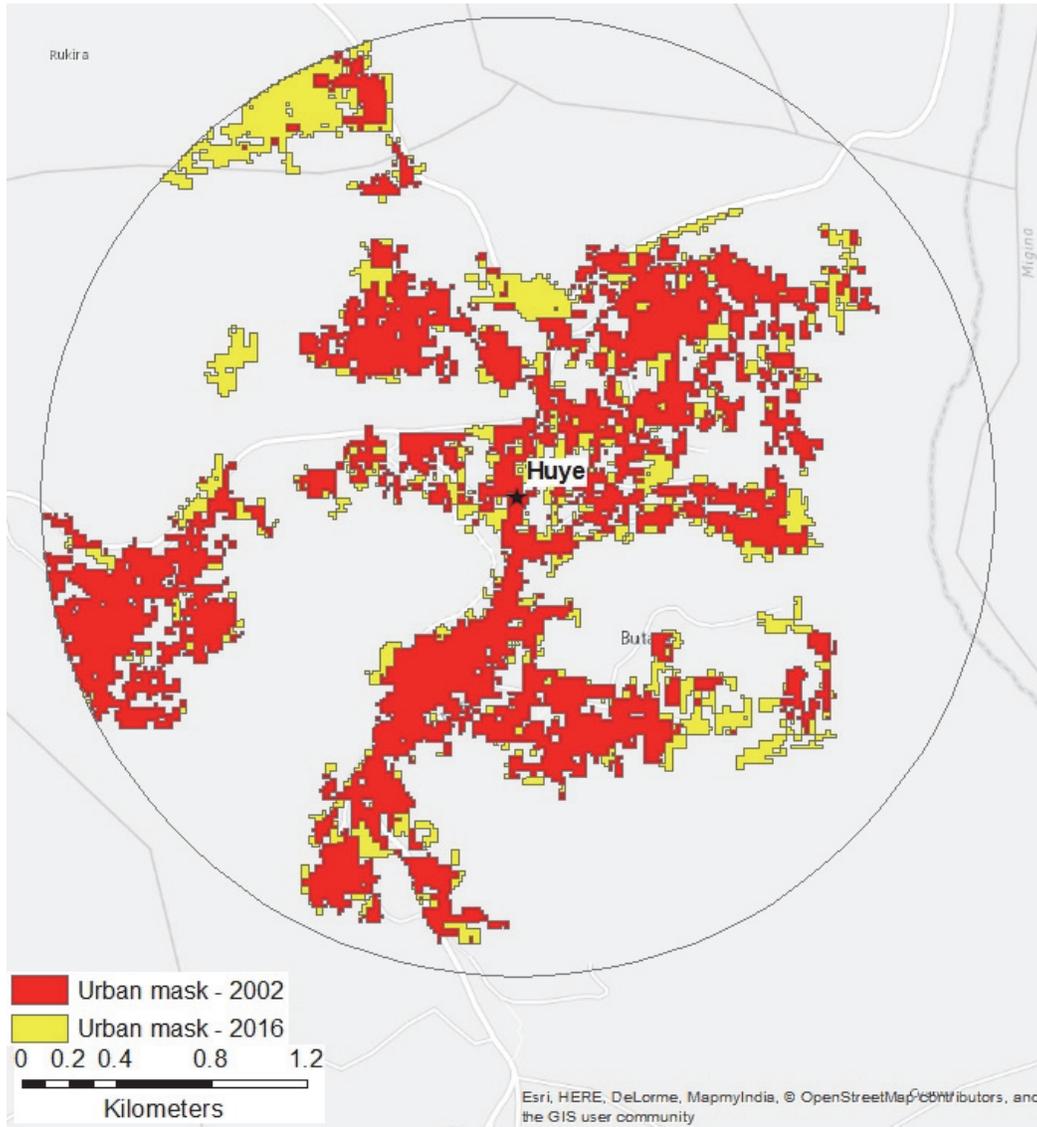
Urban expansion in 2002: 2.27 km sq, Urban expansion in 2016: 3.05 km sq, **Total expansion 2002–2016: 34.36%; Average Yearly Expansion over time period: 2.15%**

Figure 3.4a (continued)

The results of the classification of the SPOT 6/7 imagery acquired on December 17th, 2014 are shown below. The classification distinguishes among six land-use types of which three are urban: Irregular residential (red); Regular residential (yellow); and Commercial/Industrial (purple).
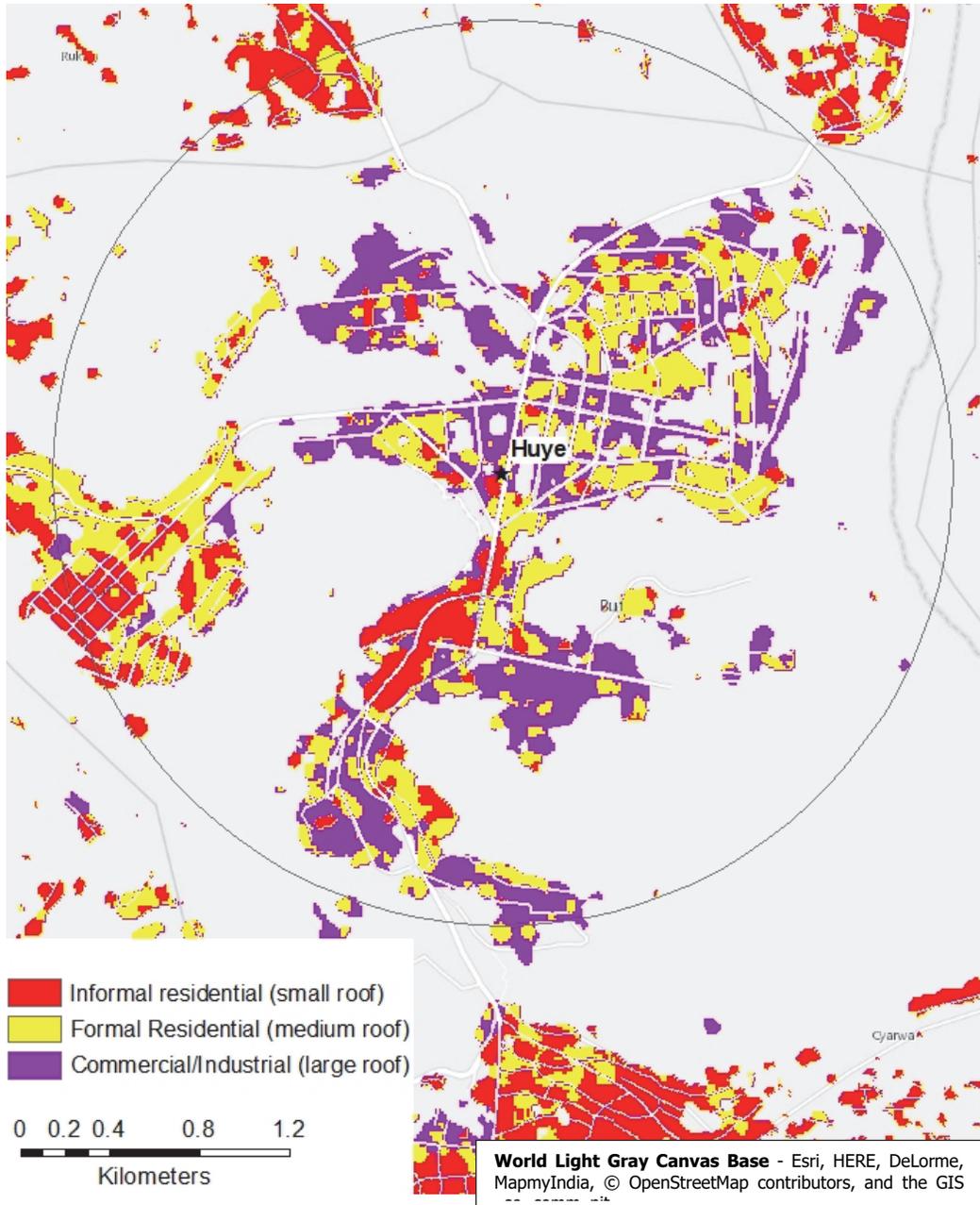
3.4b. Muhanga

Comparison of the urban masks extracted with the supervised classifier algorithm, illustrating: Extent of urban development in 2001 (red); Area in which expansion occurred from 2001 to 2015 (yellow)
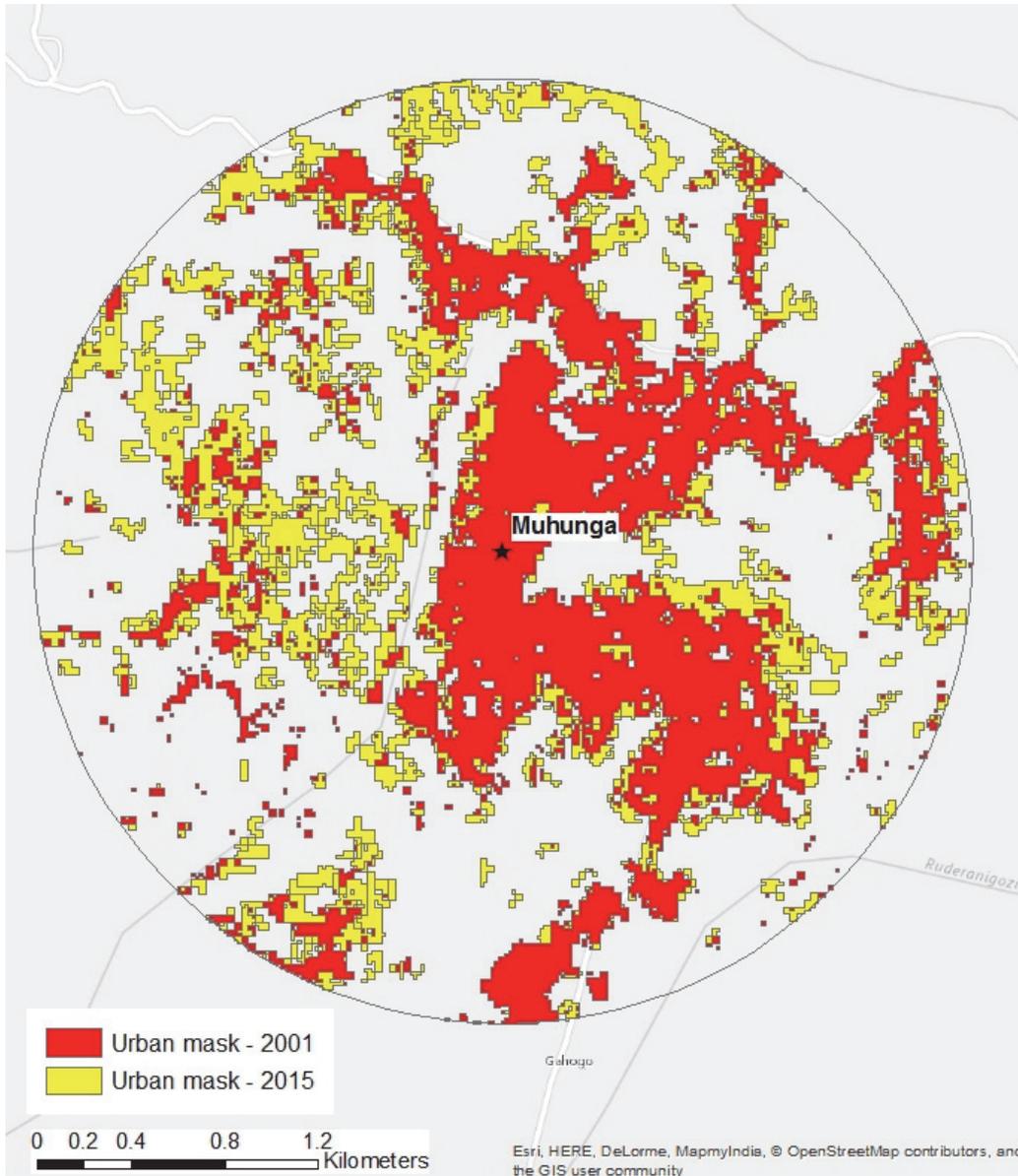
Urban expansion in 2001: 3.14 km sq, Urban expansion in 2015: 5.67 km sq, **Total expansion 2001- 2015: 80.57%, Average Yearly Expansion over time period: 4.39%**

Figure 3.4b (continued)

The results of the classification of the SPOT 6/7 imagery acquired on July 3rd, 2014 are shown below. The classification distinguishes among six land-use types of which three are urban: Irregular residential (red), Regular residential (yellow); and Commercial/Industrial areas (purple).
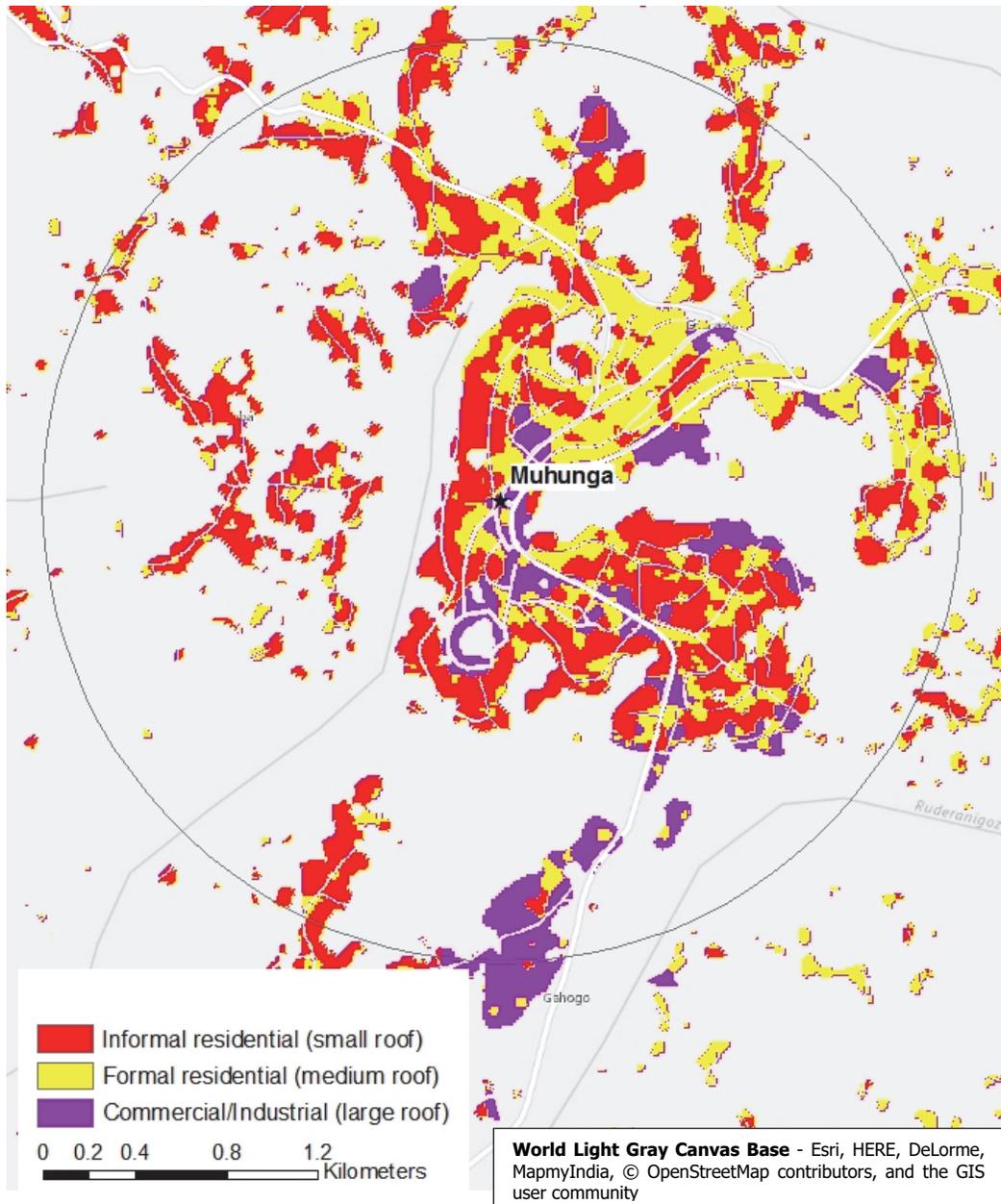
3.4c. Musanze

Comparison of the urban masks extracted with the supervised classifier algorithm illustrating: Extent of urban development in 1999 (red); Area in which expansion occurred from 1999 to 2015 (yellow)
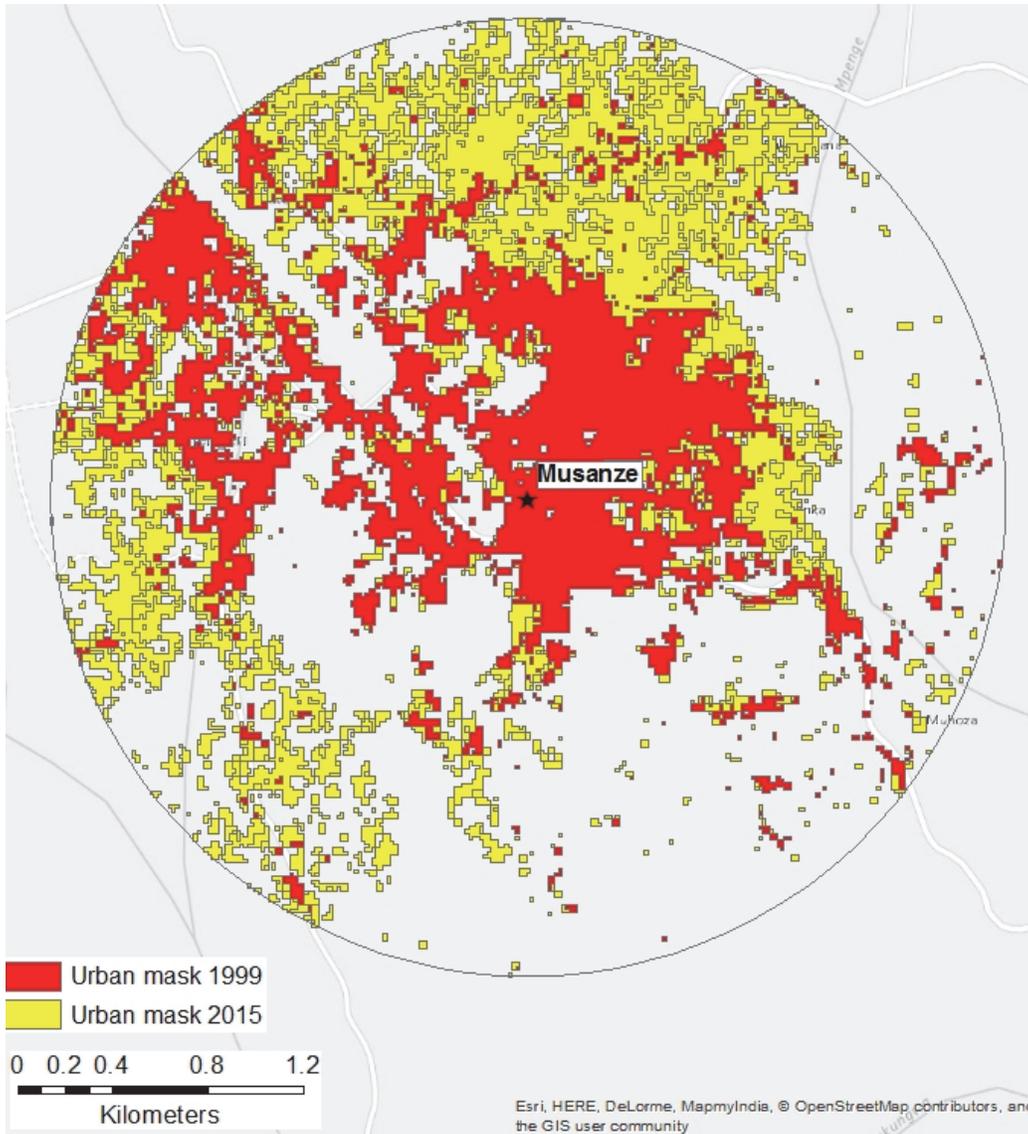
Urban expansion in 1999: 2.60 km sq, Urban expansion in 2015: 5.73 km sq, **Total expansion 1999- 2015: 120.38%; Average Yearly Expansion over time period: 5.95%**

Figure 3.4c (continued)

The results of the classification of the SPOT 6/7 imagery acquired on December 19th, 2014 are shown below. The classification distinguishes among six land-use types of which three are urban: Irregular residential (red); Regular residential (yellow); and Commercial/Industrial areas (purple).
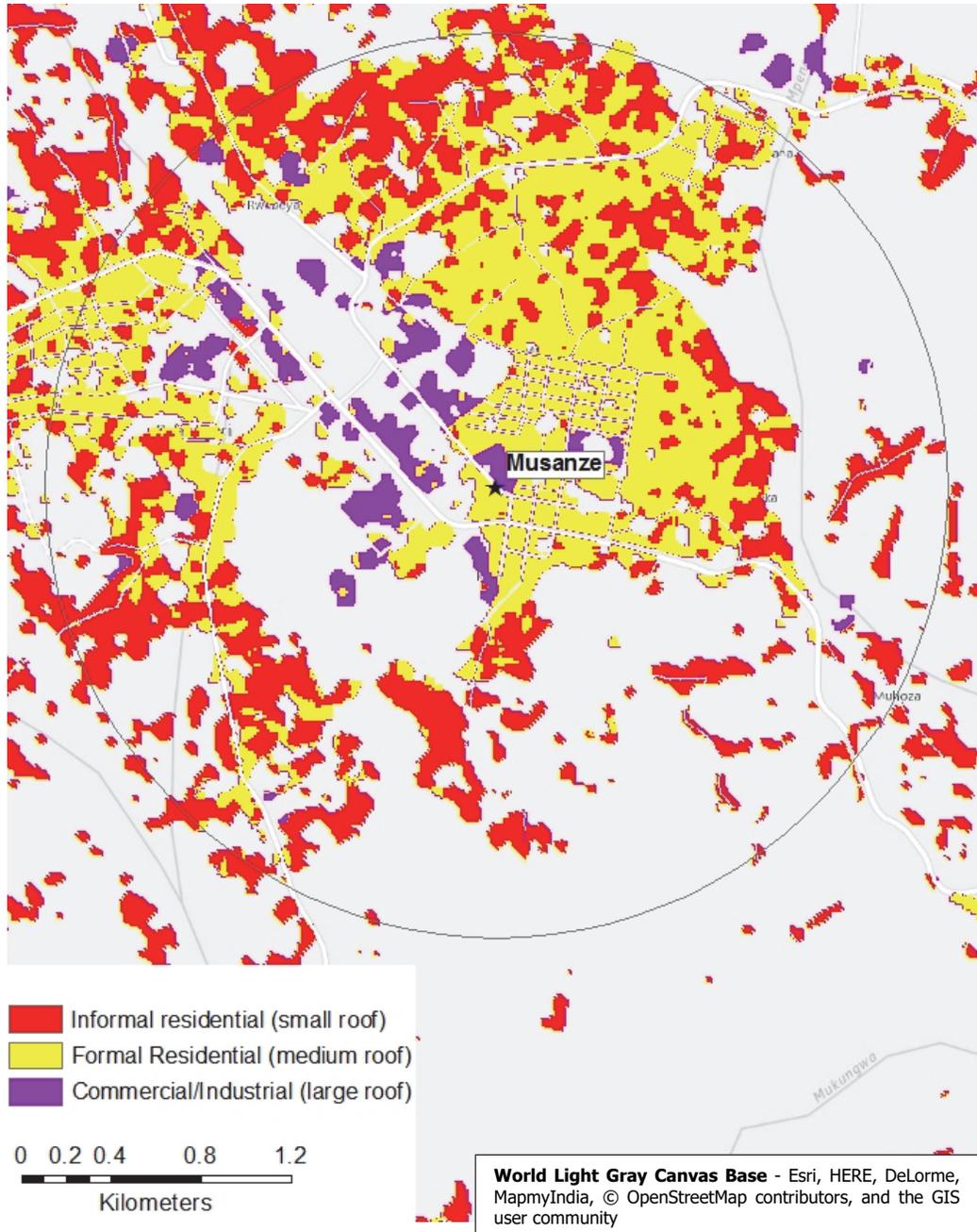
3.4. Infrastructure and Services Provision

Urban Infrastructure and Services

The relatively small populations of the secondary cities and fast-growing towns, coupled with their moderate rates of current population increase,[36] have yet to pose pressure on the towns' limited urban infrastructure and services. However, while access to some elements of urban infrastructure and services—particularly roads, power and water - within core urban areas is generally good, this falls off rapidly outside the core areas. Furthermore, sanitation, wastewater management and solid waste management systems which are adequate in small low-density cities, rapidly become inadequate as cities grow in size and density.

Accurate figures for urban road density index (URDI - expressed in kilometers of urban road per 1,000 people) are not readily available for the secondary cities and fast-growing towns. However, based on data available on major urban roads[37] in the secondary cities, the URDIs vary between 0.5 for Rubavu and 4.1 for Nyagatare. Apart from Rubavu, these URDI figures are relatively high in comparison to international norms.[38] This is a function of both low urban densities (particularly in the case of Huye and Nayagatare), and challenging terrain, which increases road length per unit of developed area (in Muhanga and Rusizi). In the fast-growing towns, based on the nature of the terrain, urban densities and investigation of satellite images, URDIs for these urban centers are also likely to fall within the same range as the secondary cities, with a relatively higher value for Gicumbi in light of the relatively challenging terrain.

However, few urban roads are paved. Unpaved roads, without the necessary longitudinal and cross drainage, accelerate road damage and risk flooding of adjacent areas. The proportion of the total urban road network which is paved in the secondary cities varies between 15 percent in Rubavu and 37 percent in Nayagatare.

In the power supply sector, 73 percent of urban households had access to an individual electricity connection in 2015.[39] Investment continues to improve accessibility to electricity both in urban and rural areas, although rural areas have far lower levels of access to household-level power supply (12 percent in 2015). Estimates obtained from One Stop Centers suggest that levels of household electricity connection in the secondary cities and fast-growing towns vary from about 75 percent to 90 percent.

Urban water supplies are generally considered adequate in the secondary cities and fast-growing towns.[40] Supplies are split almost evenly between public standposts and household-level supply, with some still using other sources such as wells, springs and rivers. In the urban sector as a whole, an estimated 42 percent of urban households had water supply connections to their house or plot in 2015, with 39 percent relying on public standposts—although these figures are dominated by data from Kigali.[41] Only in Gicumbe

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[36] Rwanda Economic Geography and Urbanization Study; Note 1: Urbanization and the evolution of Rwanda's urban landscape; World Bank; September 2016

[37] National and District Roads within urban areas and other major urban distributor roads as defined under Feasibility Studies for Secondary Cities.

[38] Africa Infrastructure Country Diagnostic, Roads in Sub-Saharan Africa, World Bank, 2008

[39] National Institute of Statistics of Rwanda (NISR) [Rwanda], Ministry of Health (MOH) [Rwanda], and ICF International. 2015. Rwanda Demographic and Health Survey 2014-15. Rockville, Maryland, USA: NISR, MOH, and ICF International.

[40] Study team discussions with One Stop Centers and WASAC.

[41] National Institute of Statistics of Rwanda (NISR) [Rwanda], Ministry of Health (MOH) [Rwanda], and ICF International. 2015. Rwanda Demographic and Health Survey 2014-15. Rockville, Maryland, USA: NISR, MOH, and ICF International.

was water supply cited as a major constraint to development by leaders of Rwanda's Private Sector Federation.

The cities are adopting urban sanitation systems that are more suitable to rural or low-density peri-urban areas, where soil conditions are porous, water use is relatively low and population densities remain low. These systems become less suitable, however, as water use and population densities increase. While the majority of urban households have access to "improved sanitation"[42] few of the toilets (estimated at 9 percent)[43] are either cistern or pour flush, and connected either to a septic tank and soakaway or pit latrine. A further 80 percent are either VIP latrines or pit latrines with cover slabs, and 11 percent are open pits. About one percent of urban households do not have individual or shared toilets and use open defecation. In the secondary cities and fast-growing towns, about 70 percent of households have access to water sealed toilets or covered pit latrines.[44] Although the proportion of households using septic tanks is still relatively low, there are currently no systems for septic sludge collection and treatment in the cities. This will become a more urgent need as water consumption (and thus the number of septic tanks) rises.

All secondary cities and fast-growing towns have partial solid waste collection, with services provided by a combination of district government, NGOs and community-based organizations Overall, 36 percent of urban households are serviced by some form of organized solid waste collection.[45] All secondary cities and fast-growing towns use rudimentary solid waste dumps sites, although Nyagatare has a solid waste landfill site provided through donor assistance.

Table 3.8 below summarizes the current status of urban services and infrastructure delivery in the secondary cities and fast-growing towns.

With the exception of the sub-sectors of sanitation, wastewater management and solid waste management, there is not a massive backlog in infrastructure and services provision in the secondary cities and fast-growing towns, largely because of their relatively small size and moderate population growth rates, and tendency for new residents to settle on the periphery of the urban area. However, current levels of service in recognized urban centers are low: few urban roads (about 25 percent on average) are paved, many households (about 25 percent) still rely on water from public stand posts, and a significant number of households (about 15 percent) lack access to electricity. If urban growth is to be accompanied by a progressive rise in levels of urban services, investment of a magnitude which is significantly above current levels will be required (see Section 3.4.4 below). Failure to dramatically increase expenditure on infrastructure and services will result in: (i) disincentives to economic investment in these cities (given the additional costs for provision of dedicated infrastructure and services); and (ii) declining liveability and quality of urban life. Furthermore, the current urban growth pattern, which involves sprawling rather than densifying development, has the potential to significantly add to the cost of services provision.

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[42] Toilets (either individual household or shared) which are cistern flush, pour flush, or VIP latrines or open latrines with slab covers

[43] National Institute of Statistics of Rwanda (NISR) [Rwanda], Ministry of Health (MOH) [Rwanda], and ICF International. 2015. Rwanda Demographic and Health Survey 2014-15. Rockville, Maryland, USA: NISR, MOH, and ICF International.

[44] Based on figures from Masterplans and Feasibility Studies for the Rwanda Urban Development Project.

[45] Rwanda Report to Habitat III, Kigali, 2015.

Table 3.8. Status of urban infrastructure and services delivery

City	Percentage of Urban Households with:			Urban Road Density Index	Solid Waste Management Arrangements
	Electric Power Connection	Water Connection	Water Sealed Latrine/ Pit with Slab		
Secondary Cities[46]					
Huye	90%	65%	66%	2.3	Partial collection by district; no sanitary landfill
Nyagatare	75%	70%	66%	4.1	67% collection by district; sanitary landfill[47]
Muhanga	90%	78%	58%	2.5	Dual community and district collection; no sanitary landfill
Rusizi	80%	86%	66%	3.8	21% collection by cooperative, no sanitary landfill
Rubavu	95%	81%	92%	0.5	67% collection by cooperative; no sanitary landfill
Musanze	90%	89%	68%	1.3	50% dual collection by district and cooperative; no sanitary landfill
Fast-growing towns[48]					
Gicumbi (Byumba)	Est. 80%	Est. 60%	Est. 55%	Est. 3.0	Partial collection by district; no sanitary landfill
Rwamagana-Kayonza	Est. 80%	Est. 65%	Est. 60%	Est. 1.5	Partial collection by districts and community; no sanitary landfill
Bugesera	Est. 90%	Est. 51%	Est. 80%	Est. 2.0	Partial collection by district; no sanitary landfill

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[46] The estimates for services provision in the secondary cities are based on surveys carried out under the feasibility studies for the WB-supported Urban Development Project.

[47] Landfill construction supported by donor-funded waste management project.

[48] The estimates for services provision in the fast-growing towns are based on estimates from the One Stop Centers for each district.

Box 3.1. A transformation in urban sanitation

One example of the challenges facing Rwanda's secondary cities is the future of wastewater management—collection, treatment and disposal. One benefit of the generally low housing densities and small Central Business Districts that currently characterize the secondary cities and fast-growing towns is that septic tanks and soakaways (or in some cases water sealed pit latrines and soakaways) and dry pit latrines offer acceptable solutions. There is, however, an increasingly urgent need for septic sludge collection, management and treatment systems. By 2020, provision of wastewater management and treatment systems to serve the core areas of secondary cities and fast-growing towns 2030 could cost as much as US$100 million.

With increasing wealth and development in Rwand's urban areas will come higher levels of water use and wastewater generation, eventually exceeding the ability of the on-site systems to accommodate the wastewater volumes. Sewerage and associated wastewater treatment systems will need to be developed to accommodate future wastewater flows, but the cost of such systems increases dramatically with lower-density development, placing further pressure on already constrained affordability. Creating the right incentives to encourage denser urban development is necessary both to minimize servicing costs and to avoid urban sprawl onto land with agricultural value or other higher-value uses.

A further consideration in providing urban sanitation is that many of the secondary cities and fast-growing towns are located in areas with relatively steep slopes. While moderate slopes can be beneficial for minimizing the costs of sewerage systems, high slopes can add to costs, and flat land is required for wastewater treatment plants.

Finally, solid waste management generation increases dramatically with the rising economic status associated with urbanization. Formalized collection and recycling systems, and sanitary landfills will be necessary in all secondary cities and fast-growing towns, requiring investment in equipment, landfill development and skills of US$10-20 million by 2030.

Serviced Land and Housing

The analysis presented in Section 3.3.2 above provides an indication of the pace and nature of spatial development in the cities. Data on the number of planning applications received and building permits issued was not available for all cities. However, for those where data were obtained,[49] the number of applications and approvals falls well short of the number that would be required to keep pace with urban population growth, and thus new household formation. The data collected suggests that formal approvals for new housing are running at barely 30 percent of the rate of formation of new households.[50] This suggests that either (i) new households are not being formed, with additional urban populations either living in increasingly overcrowded homes or living outside the urban area, or (ii) informal new housing is being created within urban areas without going through the formal planning approval system. While the

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[49] Data on new building permits issued per annum was obtained for Kayonza and Bugesera

[50] This includes both new households formed as a result of natural population growth, and new households introduced through inward urban migration.

district governments are attempting to open up new land for housing development, there are severe affordability constraints.

The new National Housing Policy[51] recognizes the challenge presented by the need for additional housing (particularly in urban areas), while the financial resources of most urban Rwandans are inadequate to afford even the smallest of new homes currently being built. The policy offers housing solutions to different market segments, with key mechanisms for those on low and irregular incomes, including: (i) direct government support in low-cost real estate development for low-income families; (ii) incremental self-build housing; and (iii) cooperative approaches which can include pooled land or pooled finances. Progress is now being made with a number of low-income housing schemes under implementation[52] and informal settlement upgrading projects that provide in-situ shelter improvements. In addition, the GoR is working with districts to develop land banks, and developing a clear strategy to reduce the cost of house financing on both the supply and demand sides.

It is too early to see the impact of any of these approaches in the secondary cities and fast-growing towns. What is clear is that currently, the cost of developed land precludes all but those with middle or higher income from access to individual or duplex units on their own plot, and there is little evidence of the development of the apartment blocks proposed in the policy. Even if apartment blocks were to be developed, these will be unaffordable to lower-income groups.[53]

In an attempt to improve the affordability of urban housing, district governments and the Rwanda Housing Authority are taking a number of steps to try to bring down the costs of serviced housing units:[54]

- Urban land is being consolidated and acquired for housing development based on the expropriation law (land acquired for public interest);
- This land is then being offered to developers at a subsidized rate (effectively a government subsidy) in order to reduce the raw land cost;
- Minimal trunk services are being provided (power distribution lines, gravel roads and water mains) to reduce the cost of servicing; and
- A standard block of four small units, each with two bedrooms and a reception area, is being constructed to minimize the house construction cost (see Figure 3.5).

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[51] Rwanda National Housing Policy, GoR, March 2015.
[52] Current schemes include: Batsinda 2 (564 units) and Kabuga (52 units) with other schemes under preparation in Busanza (Kicukiro) (2000 units) and in Bugarama (2700 units)
[53] Rwanda looks to high-rise building to ease urban housing challenge: The New Times, Kigali, June 28, 2016.
[54] Based on discussions with Rawanda Housing Authority and One Stop Centers in a number of cities—notably Huye, Rusizi, Musanze and Rubavu, and on field observations.

Figure 3.5. Block of four low-income housing units under construction

Evidence thus far indicates that these units, and others being constructed to current building codes within these developments, are unaffordable to all but those in the top two or three deciles of income distribution. However, the new interventions involving the private sector and innovative approaches to increasing housing density show promise in extending housing availability to lower-income deciles.

There are certainly affordability issues around providing serviced land at prices which businesses and residents can afford. In addition, the cost of providing services increases dramatically with poorly planned and low-density development. One of the issues which needs to be addressed is the strong public preference for single story dwellings with a surrounding wall and some open space. Other issues relate to the type of building materials used. A pilot project on low-cost housing implemented in Batsinda in Kigali-Gasabo in 2008, applied a sustainable green building approach using local construction materials (compressed earth blocks) and renewable sources of energy (biogas, solar and rain water harvesting) on a small plot size. While the structure would be unlikely to satisfy current urban planning and building standards, such innovative approaches are necessary if the urban housing crisis is to be addressed, and this demonstrated techniques for reducing the unit cost of housing.

Creating the right incentives to encourage higher-density urban development and wider use of readily available local materials and construction techniques is necessary to minimize housing and servicing costs and to avoid urban sprawl onto land with agricultural value or other higher-value uses. A recent study[55] looked at how government can best support low-income housing in Rwanda and recommends: (i) establish mechanisms to optimize construction costs in line with low-income people's willingness to pay and developers' willingness to invest; (ii) introduce incentives to support densification (high-rise building) and upgrading; (iii) allow rental housing to be eligible for governmental assistance; (iv) establish clear roles for

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[55] Housing Market Survey on affordable housing; City of Kigali, 2012

co-operatives, developers, and financiers; (v) revise outdated expropriation fees and uphold the government's right to expropriation where a large estate must be purchased from several individual land-owners (or preferably through voluntary land-pooling); (vi) slim down building codes and reduce the upper limit on plot sizes; (vii) minimize cost-recovery requirements; (viii) establish a budget with clear dispersion rules; and (ix) establish a maximum 5-6 ratio of annual income to house price, to ensure affordability. This last point infers creating acceptable houses at a cost of about RFW 2.0 million (US$2,500).

Investment Requirements

Investment in urban infrastructure, services and housing is necessary to address the existing backlog of need and to provide for and support anticipated urban growth. If it is assumed that housing will be funded largely through a combination of private sector equity and debt financing, it can be assumed that the Government will need to find the overwhelming majority of funding required to upgrade and expand urban infrastructure and services.

There are varying estimates of the proportion of GDP that should be invested in infrastructure to support and facilitate economic growth. This is also dependent on the stage of development and quality and extent of the existing infrastructure stock. For a rapidly growing economy such as Rwanda's, with its economic growth objectives as set out in Vision 2020, an investment of between 8 percent and 12 percent of GDP[56] would be reasonable based on international comparisons. At Rwanda's rate of urbanization, about 50 percent of this should go into urban and urban-related infrastructure and services. At present, the exact proportion of GDP that Rwanda spends on infrastructure is unclear, but based on figures for GDP and the 2015/16 national budget, it is estimated that the total capital expenditure on infrastructure equates about 4.5 percent of GDP—well short of what is required.[57]

Based on the estimated infrastructure and services backlog for each secondary and emerging city and projected growth rates, estimates for funding requirements for infrastructure and service improvements have been made for each. The existing levels of investment in urban infrastructure and services have been derived from district budget figures, and unit costs of provision have been derived from a number of sources.[58] This is shown in Table 3.9.

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[56] Capital Projects and Infrastructure Spending, PWC and Oxford Economics, 2014

[57] The 2015-16 Budget to prioritize "Infrastructure Development for Social and Economic Transformation": Government of Rwanda, 12 June 2016.

[58] Consultant's estimate based on unit costs of services provision taken from RUDP and WSAC sources, and with a 10 percent per annum allowance to cover progressive addressing of existing infrastructure backlog.

Table 3.9. Annual investment requirements for urban expansion to 2020

District	Town	Current Annual Local Capital Development Expenditure (FRW Billion)	Low Growth Rate (current urban) Annual Capital Expenditure Requirements (FRW Billion)	High Growth Rate (35% urban by 2020) Annual Capital Expenditure Requirements (FRW Billion)
Nyagatare	Nyagatare	0.12	4.4	8.8
Rusizi	Rusizi	0.23	2.2	11.0
Rubavu	Rubavu	1.20	8.8	17.6
Gicumbe	Gicumbe	0.30	1.8	5.5
Musanze	Musanze	0.50	5.5	17.6
Bugasera	Bugesera	0.20	2.2	4.4
Huye	Huye	0.60	1.8	6.6
Muhanga	Muhanga	0.60	2.8	6.6
Rwamagana/ Kayonza	Rwamagana/ Kayonza	0.30	2.8	6.6

While this analysis may not capture all the current expenditure on infrastructure and services supporting the secondary cities and fast-growing towns, it is clear that significant additional resources will need to be directed towards urban infrastructure and services provision if: (i) the Government's urbanization objectives are to be realized across all urban areas; and (ii) current standards for urban planning and housing are to be followed. It is probable that the best course of action would be a combination of: (i) closing the funding gap, possibly through a combination of Government and private sector funding (through service and infrastructure Public-Private Partnerships (PPPs)); and (ii) a review of urban planning development standards to see if alternative innovative approaches can bring down the unit costs of construction. Costs can also be reduced by ensuring that urban development policies encourage densification of existing urban areas and discourage urban sprawl.

3.5. Urban Institutions and Coordination

The current arrangement, where the central government provides support to district governments on urban development matters, appears to have worked well in the recent past. The districts are accustomed to the monitoring and supporting role provided by national governmental ministries and supporting institutions, notably RTDA, RHA and LODA. However, there is a question as to how well this arrangement will hold up once the pace of urbanization accelerates in multiple centers. This changing pace is already becoming evident in (i) the need for improved and more detailed master plans and development plans, and (ii) the gap between the master plan provisions and ability of the districts to execute these plans.

At present, the district governments are able to manage both urban and rural development issues simultaneously, as the urban centers are generally small and most are still dominated by agricultural activities. However, there is already some evidence that as the secondary cities and fast-growing towns increasingly attract inward investment in trade, manufacturing and services, there is a growing need to strengthen or introduce dedicated and specialist urban-related skills, particularly in urban planning (preparing and executing the master plan and local plans), infrastructure and services provision and management, and local economic development.

This is becoming clear in the One Stop Centers which have responsibility for the planning, execution, operation and maintenance of urban and rural infrastructure within the district domain, including planning and construction permitting and services delivery. The majority of the OSCs in the secondary cities and growth centers suffer from a large number of unfilled staff positions (generally of about 25-30 percent of sanctioned positions) which reduces the centers' effectiveness and slows down transactions. In addition, many OSC staff lack the full range of skills required to carry out the work, and critically, many are unfamiliar with the new legislative and regulatory requirements they are tasked with enforcing.

While many of the districts cited lack of access to development finance as a key constraint to urban growth, the lack of appropriately trained, informed and skilled staff who have a clear urban focus is likely to become an increasing constraint to efficient and inclusive urban development. Government's continuing efforts to fill vacant posts needs to be complemented by the (i) identification of additional district government positions to facilitate urban development and management, and (ii) efforts within the educational sector to offer degree and post-graduate courses, and other forms of tertiary and on-the-job training to build urban development and management skills in the country.

3.6. Urban Development Finance

The financing of urban development is currently not distinguished from district financing. Given the limited own-source revenue base, and the built-in rural bias of the inter-governmental fiscal framework, the financing available for urban areas is largely insufficient to provide the level of urban services required. Districts are largely unable to generate own source revenues (representing about 10 percent of total district government revenues) and remain highly dependent on central government grants.[59] Furthermore, revenues due to district governments (e.g. land lease fees, property taxes, rental income taxes, mortgage servicing fees, and various other land service charges such as transaction fees and fees paid for acquiring building permits, measuring plots, etc.) are collected on their behalf by the Rwanda Revenue Authority (RRA).[60]

In theory, property taxation should be the major source of locally-generated revenue, particularly in secondary cities where substantial real estate development is taking place. Yet, in 2013, the property tax collected nationally was just 0.018 percent of GDP. This is extraordinarily low, even for Africa where the average is 0.5 percent.[61]

The GoR has attempted to develop a new property taxation system and passed a law in 2011 introducing a property tax based on market value rather than floor area. Under the previous system, freehold property owners paid an annual levy of 0.2 percent of the property's registered value, based on square metres usage and not market value. This generated little revenue because only some older properties were on government registers (often with valuations from the 1960s), and though owners of new properties were required to have them valued for taxation purposes, in practice, many did not.[62]

The 2011 law set the levy at 0.1 percent of the assessed value for all properties, whether commercial, residential or industrial, lower than the previous 0.2 percent rate and extremely low by international standards. In the year after the new law came into force, property tax revenues declined, though they have subsequently started to increase again. Moreover, effective processes of valuation were never

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[59] World Bank: Background Studies for RUDP Project, 2015.
[60] It is unclear what part of the revenue collected by RRA will be retained to cover their collection costs, and there is a danger that tax revenues left over for the districts will be significantly reduced as a result.
[61] Goodfellow, T. (2016) Property Taxation and Economic Development: Lessons from Rwanda and Ethiopia.
[62] ibid

developed, and in some cases market values were opaquely determined on the basis of self-reported value.[63]

In contrast to the efforts to develop sophisticated electronic systems for the land cadastre and develop new systems and capacity for planning, there has been much less commitment to applying equivalent technological input into property taxation, or even to developing systems for information-sharing that would enable tax authorities to become aware of new developments eligible for taxation. Thus, while there are now improved registries of land parcels and planning applications, there is no link between the completion of new developments and a property register, let alone a database of property values.

Moreover, under the current system, property tax is only paid on freehold properties, and outside of Kigali, very few people hold land in freehold. Those with leasehold titles only pay land lease fees, which bear no relation to market values and are highly regressive in the sense that low-income dwellers and high-end property-owners alike pay fees on simple square metre calculations rather than property value. The central government is currently moving to substantially reform the property tax system, but until these issues are resolved, the governing authorities in secondary cities will severely lack their own revenues with which to start promoting more extensive and equitable forms of urban development.

There is potential to better link the building permit system to taxation through occupation permits or 'use certificates', which are the last stage in the building control process, issued before new buildings can legitimately be occupied and used. A tax declaration could be made a precondition for acquiring such a permit, thereby bringing new properties onto the tax register and incentivising self-declaration of property values (which is central to the current system).

A combination of (i) very limited own-source revenues and (ii) strict allocation of grant funds coming from the central government, leaves the districts with very limited flexibility in discretionary funding of development projects. This severely constrains the ability of district governments to direct expenditure towards the infrastructure and services necessary to support urban development. There is a rule that requires the districts to spend at least 40 percent of total budget expenditure on development projects.[64] However, few districts manage to exceed a 30 percent share of total expenditure on capital works project. There is no means of calculating the expenditure on urban as opposed to rural infrastructure and services. However the average development expenditure per capita by the districts containing the nine urban places under consideration (for both economic and social infrastructure) varies between about 6,300 and 11,400 FRW per annum, or between about US$8.50 and US$14.20 per capita per annum (see Table 3.10 below)

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[63] ibid
[64] Budget Framework Paper 2014 - 2016, MINECOFIN, 2014

Table 3.10. Development expenditure per capita, 2013/14

District	Town	2012 District Population	2012 Urban Population	2013/14 District Dev. Fund (FRW)	Expenditure FRW/Capita	US$/capita/year
Nyagatare	Nyagatare	466,944	17,076	3,167,455,628	6,783	8.48
Rusizi	Rusizi	404,278	28,488	3,292,763,947	8,145	10.18
Rubavu	Rubavu	404,278	149,209	3,288,154,778	8,133	10.17
Gicumbe	Gicumbe	397,871	34,544	3,493,251,344	8,780	10.97
Musanze	Musanze	368,563	68,930	2,333,337,354	6,331	7.91
Bugasera	Bugesera	363,339	17,076	3,886,052,471	10,695	13.37
Kayonza	Kayonza	346,751	18,009	2,829,474,827	8,160	10.20
Huye	Huye	328,605	52,768	3,601,377,496	10,960	13.70
Muhanga	Muhanga	318,965	50,608	3,633,651,367	11,392	14.24
Rwamagana	Rwamagana	310,238	21,482	2,125,269,341	6,850	8.56

Of the three major sources of income to the districts,[65] the Block Grant is exclusively for use in district establishment and administrative expenditures, including operations and maintenance. This grant is supposed to be equivalent to 5 percent of a district government's total revenues, but in recent years has been reduced from 5.5 percent to 4.4 percent of the total.[66] The downward pressure on administrative and operational expenditures places further constraints on districts' ability to respond to the need for improved and extended urban infrastructure and services. First, shortages of staff (due to a lack of suitably skilled candidates and the shortage of establishment funding) and funding for material support limits the effectiveness and performance of key urban support institutions such as the One Stop Centers. Second, the level of resources spent on infrastructure maintenance is well below international norms[67] and is likely to result in deteriorating infrastructure, services and facilities, adding to the backlog of need and increasing future investment demands. It is estimated[68] that districts spent only about 0.5 percent of their development budget on repair and maintenance of infrastructure in 2013-2014. This is an order of magnitude lower than it should be based on international comparisons relevant to the Rwandan situation.[69]

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[65] Block Grants, LODA development Grants and Earmarked Grants: In 2013/14 earmarked grants (for specific capital and maintenance purposes—roads, agricultural etc., road-maintenance fund, forestry fund, earmarked funds for specific sectors, and grants from external donors) represented about 68 percent of the total, while LODA grants (mainly for capital expenditures) and the Block Grants (for recurrent expenditures) were respectively equivalent to 21 and 11 percent of the total.

[66] World Bank: Background Studies for RUDP Project, 2015

[67] National Infrastructure Maintenance Strategy (NIMS), Infrastructure Maintenance Budgeting Guideline, CIDB: http://www.cidb.org.za/publications/Documents/Infrastructure%20Maintenance%20Budgeting%20Guideline.pdf

[68] World Bank: Background Studies for RUDP Project, 2015

[69] http://www.cidb.org.za/publications/Documents/Infrastructure%20Maintenance%20Budgeting%20Guideline.pdf

4. Key Findings

The preliminary findings from the sector analysis and diagnostic set out above are provided below. These findings form the basis for the set of recommendations and associated actions which seek to enhance the economic growth potential, effectiveness and inclusivity of secondary city and fast-growing town development. The recommendations are provided below in Section 5.

4.1. Urban Population Growth

Based on (i) recent urban population growth rates, (ii) the analysis of urban densities and their trends over time in the secondary cities and fast-growing towns, and (iii) the current methods for measuring urban populations, the Rwandan Government's target of 35 percent urbanization by 2020 appears unrealistic. Using the current definition of urban areas, the growth rates of the secondary cities are, on average, less than for the urban sector as a whole, although higher than the national average.

However, the actual current rate of urbanization, and thus likelihood of achieving a rate of 35 percent by 2020 depends on the urban definition adopted.[70] While the 2012 census concluded that the urban population share was 16.5 percent, analysis carried out for Note 1 using a density-based definition arrived at a current urban share of 27.5 percent.[71] Notwithstanding the definition, many of the major urban areas are still characterized by a majority of employment in the agricultural sector. Supporting a move towards more non-farm employment in the secondary cities and fast-growing towns is critical to achieving more rapid urban growth.

4.2. Urban Growth Prospects of Secondary Cities and Fast-Growing Towns

By virtue of their relatively small size, development pattern, topography and natural environment, Rwanda's secondary and other small cities have opportunities to grow in such a way as to respond to the requirements for both green and inclusive development (see point 4.5 below). However, for this growth to optimize both (i) the economic development potential and (ii) green and inclusive growth potential will require better planning and enhanced infrastructure expenditure to attract investment and lead and influence the nature of spatial development.

A further consideration which may impact growth prospects is the likely influence of physical constraints, particularly in the case of Rusizi, Muhanga, Gicumbi, and to some extent Rubavu. Each of these cities is located on land which is characterized by steeply varying topography—ridges, steep ravines and fertile valley floors. This makes land for development hard to find and/or expensive to develop and service. In contrast, development opportunities are likely to be greater in cities with easily developable flat land—Musanze, Huye, Bugesera, Nyagatere, Kayonza, Rwamagana.

4.3. Economic Potential in Secondary Cities and Fast-growing Towns

The economic potential of Rwanda's secondary cities and fast-growing towns is determined by four factors: (i) their ability to overcome constraints to doing business; (ii) their access to markets; (iii) reaching sufficient size and economic density to generate agglomeration economies; and (iv) comparative

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[70] See Appendix to Note 1

[71] Estimates are based on analysis of data from the WorldPop project and a methodology that classifies settlements by breaking the national territory into 1km² grid cells as opposed to villages or sectors, which have variable areas.

advantage based on resource endowments (including tourism). Each of these factors is discussed below, as well as the economic potential of the cities and towns.

The main constraint to doing business in the secondary cities and fast-growing towns is the lack of access to serviced land and the necessary infrastructure for productive enterprise. Cities are attempting to overcome this by creating industrial zones on the city periphery which aim to provide infrastructure including power, water and road access to manufacturing firms, and warehouses and storage facilities for logistics and distribution firms. Six of the nine cities and towns indicated in interviews that they were in the process of creating an industrial zone, though many had allocated land without providing the requisite infrastructure.

Another way in which cities and towns are seeking to overcome infrastructure constraints, and generate agglomeration economies, is through the establishment of handicrafts clusters that provide a working environment with the necessary tools and infrastructure for artisans to produce manufactured goods such as furniture, as well as the potential for collaboration and a showroom to sell their products. While a positive intervention, there is limited potential for this model to be scaled up to generate significant levels of well-paid jobs necessary for sustainable economic development.

Given the small size of the secondary cities and fast-growing towns, access to external markets is essential to compensate for their small internal markets. In the context of Rwanda, this means access to Kigali and the two large border cities of Goma and Bukavu in DRC. Inter-city and cross-border connectivity are key to increasing the size of accessible markets for firms in secondary cities and fast-growing towns.

Moreover, given the small size of Rwanda's area and population, and the primacy of Kigali, it is necessary to concentrate investment, rather than spread it evenly across the cities, to ensure that a sufficient level of economic density is reached to generate agglomeration economies. This infers focusing investment in the Rubavu-Musanze corridor where there is a good chance of generating agglomeration economies, being the largest concentration of urban population and economic activity outside of Kigali in the key sectors of manufacturing, wholesale and retail trade, and accommodation and food services. The corridor has the same level of employment as the other secondary cities combined, as well as a significant number of larger firms. Musanze has the largest concentration of manufacturing employment, followed by Rubavu, which has the largest concentration of wholesale and retail trade employment.

Rubavu benefits from close proximity and access to the cross-border market of Goma, while Musanze is the gateway to the Volcanoes National Park, the primary tourist destination in Rwanda and location of the rare mountain gorilla. Rubavu is also a tourist destination, especially for domestic and regional tourism, due to Lake Kivu. Further, bordered by productive agricultural land, the Rubavu-Musanze corridor has a strong competitive advantage in agri-processing. There is potential for greater linkages between the two cities, and investment should be made to maximize such strong comparative advantage. This includes investment in industrial zones, which should be piloted first in Rubavu and/or Musanze before being implemented in other cities, if successful.

Rusizi has potential as a further emerging growth pole, with access to the cross-border market of Bukavu, though it is currently poorly connected to Kigali. Improving the connective infrastructure between these two cities also has the potential to catalyze economic activity in Kigali by increasing demand in Bukavu for goods produced there. Rusizi has the highest density of non-agricultural jobs to residents.

Huye, while a historically important city and the former colonial capital, is at present stagnating due to its relatively isolated location and poor access to markets. The remaining secondary cities—Nyagatare and Muhanga—currently do not have the potential to reach the required size and economic density necessary for them to serve as realistic growth poles. The Government must consider whether a policy of six

officially-designated secondary cities or growth poles in a country as small as Rwanda is feasible or indeed desirable. Initially focusing investment on fewer cities which already have competitive advantage would deliver economic growth more efficiently. Alternatively, investment in these cities could concentrate on sectors where they do have some competitive advantage, for instance: (i) cultural tourism and leisure in Huye; (ii) animal husbandry product processing in Nagayatare; and (iii) as a service center for Kigali in the case of Muhanga.

Finally it should be noted that, although Bugesera is currently below the required level of population or economic density to be considered as a growth pole, it may have potential in the future as the planned investments in the International Airport and Special Economic Zone come to fruition.

4.4. Rural-Urban Linkages and Connectivity

Despite, at present, not having the necessary size and economic density to generate the agglomeration economies required for significant industrial development, it is important to note that the remaining secondary cities and emerging towns have a vital role to play linking rural areas to the national economy and providing a market for agricultural produce. Therefore, though it is recommended that investment in industrial-related infrastructure, such as industrial parks, is concentrated in the more productive Rubavu-Musanze corridor, it is important to invest in connective infrastructure across all of the cities.

4.5. Opportunities for Improved Plans through the New Planning Framework

While the existing urban master plans are generally favorably regarded by the district governments as blue-prints for future spatial growth, they are insufficiently detailed to effectively guide this growth as well as out of date. The Government is aware of this issue and is pursuing a program to (i) revise and update urban master plans and (ii) supplement these with local development plans that can form the basis for detailed development planning and zoning. If the master plans and local plans are to provide a useful tool to stimulate and support local spatial and economic development, they will need to incorporate a degree of flexibility, with mechanisms built in to allow the plans to be modified based on emerging development constraints and opportunities. They will also need to incorporate elements of the Government's Green Growth strategy (see Section 4.6 below)

One specific challenge faced by the governments of the secondary cities and fast-growing towns is the availability of sufficiently skilled and experienced planning staff to support implementation of urban development plans. Significant advances have been made in planning and building regulations over recent years, and the staff entrusted to implement the plans are in many cases struggling to absorb and execute the new legislative and regulatory framework. In all the secondary cities and fast-growing towns, there is a shortage of suitably qualified and trained staff. Additional capacity building and training at all levels in master plan and local plan development and execution is required to enable the planning system to effectively support rapid urban development. Notwithstanding the need to look at planning and construction standards in order to promote more inclusive urban development (to facilitate affordable urban housing), there is a need for stronger tools to be made available to assist planners in the execution of the master plans—including local or neighborhood plans.

Districts need to significantly strengthen the spatial planning at city and town level to ensure that these plans (i) are integrated with, or cascade from, the district development plans, and (ii) reflect the specific development opportunities and constraints presented by each urban area. The district governments are responsible for plan preparation, with the assistance of RHA, and it is important that future plans are informed by local development opportunities and constraints, and the priorities of the local community.

The current master plans also lack affordability analysis, estimates of the financing requirements for plan execution, and a discussion of possible sources of financing—all essential for balancing the district budget.

The current master plans frequently focus primarily on new development areas while providing little guidance on regeneration and densification of existing urban areas. This is a costly approach as such development requires all new trunk infrastructure. In line with the Government's own urban development policy, the plans need to focus more on facilitating better planning of infill and providing a realistic strategy for stimulating the densification of the urban core, which constitutes a more cost-efficient development model.

The evidence from Note 2 on internal migration and the spatial analysis presented in Section 3 above point to development currently taking place outside the Plan area, which may be due, in part, to avoidance of the more stringent planning and building controls within the plan area. This issue will not be resolved by simply extending the area of the plans. A balance needs to be struck between the plans, planning and building regulations and controls, and affordability. Evidence of greater flexibility in striking this balance is found in initiatives promoting low-income housing development through collaborative efforts of the national and district governments and private sector, under the umbrella of the new Urban Housing Policy.

4.6. Green Growth and Inclusive Growth

The new round of master plan and development plan preparation currently initiated under Rwanda's new urban planning framework needs to incorporate elements of the Government's Green Growth Strategy. This Strategy includes specific proposals for green urban growth—integrated urban planning, a focus on low-carbon development, climate-change resilience—and a set of specific approaches to realize these objectives.[72] This presents an opportunity for the new generation of urban development master plans, and the associated local development plans to pursue rapid urban growth while directly incorporating principles of equity and sustainability. The current urban master plans vary in the extent to which they incorporate these objectives. In attempting to achieve its target of being 35 percent urban by 2020, it is important that the green and inclusive approaches set out in the Government's own Green Growth Strategy are mainstreamed into the urban planning and development process.

4.7. Unintended Consequences of Urban Land Use Plans and Zoning

Under the guidance provided through the Urban Planning Code and related regulation, and the Land Tenure Regularization Program, urban land is being zoned for specific uses which bring with it a set of planning and building regulations. These place a set of conditions on development in terms of plot area, density and structures which, in many cases, set the threshold for the type (and cost) of development that can take place. In accordance with GoR's policies to improve the quality of urban form, this sets standards at a relatively high level.

In the case of residential development, this has in the past effectively excluded all but people in the upper-middle and high-income deciles from being able to afford housing. In addition to excluding low- and low-middle income residents from obtaining housing within planned urban areas, this has encouraged: (i) construction of informal housing within urban areas; and (ii) the development of lower income housing areas on the periphery of urban areas (outside the planned areas), creating inefficient, low-density urban sprawl, and adding to transport costs for those with jobs in the cities.

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[72] Developing Rwandan Secondary Cities as Model Green Cities with Green Economic Opportunities; IMC: 2015.

4.8. Directing Land Subsidies to Improve Access to Low Income Housing

The district governments and the RHA are aware of the difficulty in providing housing which is affordable to middle and lower-income groups. One response has been to offer land expropriated for housing at subsidized costs to developers or builders. However, the high cost of providing services to these housing plots, and high costs associated with providing houses which satisfy building requirements, mean that even with such subsidy, the housing units generated are affordable only to people in the top 20-30 percent income bracket. In effect, the benefits of the Government land subsidy are going to higher-income deciles and not the lower-income families for whom they were intended. The new National Housing Policy sets out potential approaches to encourage the development of housing affordable to urban dwellers on low or irregular incomes. Following the Prime Minister's instruction on support for affordable housing, some approaches being implemented include: (i) the amended law relating to investment promotion and facilitation, incentivizing private investment in affordable housing; (ii) the associated tax incentives; (iii) support to local production of construction materials; and (iv) a draft Presidential Order outlining the organization and functioning for improved collaborative between national and local governments and the private sector in low-income housing development.

However, continued effort is required to support approaches which can deliver urban housing at a fraction of the current cost of the least expensive new housing unit on the market. This will inevitably include some accommodation relaxing planning (plot size and plot ration) and possibly construction (building materials) standards. Through the pilot projects currently under implementation, this involves local government approval of a reduction in normal minimum plot-size within the private sector-led developments, to facilitate affordability. In-situ upgrading pilots in informal urban housing communities are also offering the prospect of shelter improvement through services development. Under current arrangements, there are improved prospects for availability of more affordable housing, but more needs to be done to provide affordable housing options for households in the lowest 20-30 percent income bracket.

4.9. Continuing Potential Risks Associated the Expropriation Law

The 2015 Expropriation Law is a significant improvement on the 2007 law, particularly in terms of procedures for appeal by people affected, and the better-defined list of lands uses which constitute the public interest. The old law's reference to dispossessing people of 'unexploited land' is no longer evident in the new law. Nevertheless, the 2015 law still has a potentially very broad definition of 'public interest', allowing for ministerial discretion over what falls into this category. It therefore does little to explicitly prevent private sector investors from lobbying government to consider their urban development projects as in the 'public interest', where these fall within the land use provisions contained in the master plan. This commits government to managing the business of locating, surveying and expropriating land on the private sector's behalf. This risk is particularly notable with respect to residential property development projects that might be initially proposed for middle- or low-income groups, and therefore claim to be justified on public interest grounds, yet due to escalating cost and other factors, end up providing more housing for wealthy groups. Thus, as it stands, even the revised law is open to discretion and potential abuse. The law, or at least procedures used in its execution, need further review and amendment as necessary to improve alignment with urban development objectives.

4.10. Strengthening Urban Governance at District Level—Mandate, Capacity and Funding

The existing urban administrative boundaries which split urban areas among multiple sectors, and the district administration's dual focus on urban and rural concerns, creates conflicts and tensions which militate against effective urban development and administration. This lack of clear urban focus is an

impediment to district governments' optimization of urban growth potential that is necessary to drive the EDPRS 2 agenda at the local level.

A specific GoR focus on urban development in the secondary cities and fast-growing towns suggests the need for a similar focus at the district level. Districts with rapidly urbanizing centers need administrations with a strong set of urban-related skills and the associated staffing structure. This could take a staged approach, which initially focuses on the enhancement of urban development skills within the district administration, and then looks at the creation of specialist urban units in those urban centers which grow most quickly.

4.11. Cost-effective Infrastructure and a Focus on Operations and Management

The level of infrastructure and services provision in all secondary cities and growth centers, while not critically poor, is inadequate to support growth, and represents a constraint to private sector investment. While the levels of provision do not vary significantly among cities, they do vary between the core and periphery. What is important is to maximize the utility of existing infrastructure through adequate O&M and (where relevant) cost recovery, and ensure that resources for infrastructure and service improvement are appropriately directed to maximize their return in both social and economic development. Available information suggests that inadequate resources are directed towards operation and maintenance. The capital cost requirements to support the proposed rapid increase in urbanization is high, and the adoption of cost-effective incremental approaches to urban infrastructure provision will be necessary. In addition, sustainability of urban services provision will require that cost-reflective tariffs are progressively introduced.

Despite the adoption of a fiscal decentralization policy by the GoR in 2006 and its progressive implementation since then, district governments remain overwhelmingly reliant upon central government transfers for development funding. Local own-source revenues, and in particular local tax collection through property taxation, has not increased as anticipated, preventing the realization of the potential benefits of fiscal decentralization. The GoR needs to strengthen the role of the district governments in enforcing property tax collection and their engagement with the RRA. District governments should work with RRA in: (i) completing property valuation; (ii) developing a performance-based system for property tax collection by RRA; (iii) establishing a system for property value appreciation and revaluation; and (iv) the dissemination of information on use of taxes in local development. The GoR also should ensure that the RRA is adequately resourced to carry out its mandated tax collection responsibilities.[73]

4.12. Urban-focused Investment and Greater Fiscal Autonomy

A significant increase in the funds made available for urban infrastructure and services provision will be required to support effective urban economic development and thus contribute to urban economic growth outside of Kigali. Funding is required both to (i) drive the densification of existing core urban areas and (ii) open up new development areas to support efficient urban expansion.

Major impediments to directing additional financial resources toward urban development include:[74] (i) districts' low own-source revenue potential (currently 10% or less of total district budget); (ii) low level of revenue autonomy of districts and cities, particularly after the recent decision to centralize collection of

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[73] Enhancing own Revenues of Decentralized Entities in Rwanda, Policy Challenges and Options in Reforming the Fixed-Asset Tax System, Mihaly Kompani, February 2015, International Growth Centre, London. S-38211-RWA-1
[74] Secondary Cities: Diagnostic Report: Hernando Garzón; Sandrine Twagirimana and John Kalisa; 2015

all local taxes and fees with RRA; (iii) incomplete transition of revenue collections from districts to RRA and unclear local accountability in revenue collection; (iv) low local human capacities in managing accounts, services and cost recovery; (v) constrained local autonomy in recruiting qualified specialists for positions to improve local service management, quality and cost recovery; (vi) difficulties in defining local urban services management and financial performance, as there is no disaggregation for urban areas; and (vi) no distinction between tax regimes in urban and rural areas.

In addition, the framework for supporting Public-Private Partnerships needs to be strengthened in order to attract further private sector financing for district level infrastructure and services. There is some evidence of private sector involvement in the financing of public facilities, such as markets and car parks, in the secondary cities. However, this investment needs to be deepened and extended as development of PPPs for urban infrastructure and services is seen as vital to enabling the Government to achieve its urbanization and economic growth targets.

5. Policy Matrix and Agency Specific Time-bound Action Plan

To address the issues highlighted in the previous chapter, an outline roadmap of suggested actions has been prepared which identifies:

- The issue to be addressed
- Possible policy response or other intervention required to address the issue
- Lead agency responsible for executing the required intervention

These issues and suggested responses are set out in the Action Plan presented in Table 5.

Table 5.1. Action plan

Issue	Response	Lead Agency
Urban Definition		
Need for more functional urban definition, to include SMART indicators and associated monitoring framework.	Develop agreed basic urban definition, associated indicators and monitoring framework. Under discussion and options being considered by Government	RHA, MINIFRA, NISR etc.
Land Use and Planning Issues		
Lack of coherence among: (i) Rwanda Spatial Development Framework; (ii) District Development Plans; (iii) Urban Master Plans; and (iv) Local Plans (where these exist). Disproportionate influence of zoning plans in the existing urban development framework. Unrealistic and unaffordable urban master plans.	Preparation of updated Urban Master Plans, Urban Development Plans and Local Plans, based on the newly adopted planning framework (2015); Clarifying plan hierarchies, content, elaboration, scale, planning principles, etc. Districts to initiate and manage the planning process following a prescribed plan formulation procedure, including public participation.

Resource constraints mean that proactive guidance from MININFRA and/or RHA and significant technical assistance to the district governments will be required. | MININFRA RHA |
| As part of the new urban master planning and development planning exercise, Rwandan cities need to deliver green, inclusive and resilient urban growth, through better planning and improved climate change resilience and preparedness. | Incorporate the principles of (i) green and inclusive growth, and (ii) enhanced resilience to projected climate change impacts into the ongoing urban planning initiatives, specifically including urban agriculture. Mainstream into planning process, urban master plans and local plans. | MININFRA |
| Physical challenges to development in urban areas and cities with very steep slopes, associated land slide risk, costs of development and servicing, etc. | The National Land Use and Development Master Plan (2011) does not have a spatial element, reflect a comprehensive development strategy, or include a human settlement framework. In the on-going Plan revision, afford high priority to physical challenges to development. The new plan needs to encourage urban growth in locations which have development benefits, including readily available and cost-effectively developable and serviced land, in addition to locations with economic potential. | MININFRA |
| The Expropriation Law still presents a very broad definition of 'public interest', allowing ministerial discretion to determine what falls into this category. As such, the law does little to explicitly prevent private sector investors from lobbying government to consider their urban development projects as in the 'public interest', often resulting in housing affordable only by the wealthy. As it stands, even the revised law is open to discretion and potential abuse. Further refinement may be required to ensure intended consequences. | Investigate the recent use of the Expropriation Law to determine the extent of examples where 'public interest' has been used to justify use of expropriated land for projects of questionable public interest.

Based on this investigation, determine whether changes are required to existing Expropriation Law to prevent its use by private sector interests to dispossess the poor and exploit local government compensation and resettlement support for private gain. | MINALOC |

Issue	Response	Lead Agency
Urban areas under new local plans subsequently become subject to zoning requirements, building codes and new forms of property taxation that come with urban status, and make housing largely unaffordable. These factors generate incentives to develop property just outside of the formal urban area, leading to: (i) medium-density unplanned developments and (ii) high-value, low-density properties on the urban periphery that use land inefficiently and unsustainably. This is in contradiction to spatial development strategies, increases potential servicing costs, and adds to transport requirements (access to work in cities).	Use provisions of the new National Housing Policy to investigate mechanisms to (i) increase urban housing density, and (ii) improve affordability by relaxing existing urban planning standards and (if necessary) building codes under certain circumstances. This will (i) bring down land development and housing costs, (ii) increase affordability of urban housing, and (iii) reduce or avoid the emerging problem of unplanned development on the edge of, or just outside the planning jurisdiction of urban areas.	MININFRA RHA
Local Economic Development, Infrastructure, Services and Financing		
Lack of access and investment in infrastructure and services is a constraint to doing business in secondary cities, despite several industrial zones planned or under construction.	Prioritize implementation of planned industrial zones in one or two pilot cities with support from the national government, focusing on cities with the greatest economic potential. Explore possibility of attracting investment by using tax incentives or designating a Free Trade Zone.	MININFRA
Given the small size of the secondary cities and fast-growing towns, access to external markets is essential to compensate for their small internal markets. Connectivity must be improved between secondary cities and Kigali and cross-border markets.	Support the ongoing identification of transport corridors with the greatest potential to increase access to markets, and invest in infrastructure to improve connectivity through economic feasibility analyses. One potential option is the corridor between Rusizi and Kigali, but would require revisiting prioritization of the large rural access road programme, to ensure its congruence with the findings of this transport corridor evaluation.	MININFRA
Urban development requires additional financing from: (i) increased local fiscal autonomy; (ii) enhanced local revenue generation; and (iii) private sector financing. Efficient urban development requires spatially-directed investment in infrastructure and services to guide infrastructure and services development into the right areas.	Continue to develop and support the creation of the Infrastructure Development Fund now under consideration by the Ministry of Finance; review existing urban financing arrangements; and remove impediments to greater urban fund mobilization for urban infrastructure and services. Enhance framework for increased private sector involvement in PPPs or other modalities of private sector financing in those areas where a clear for urban infrastructure and services, including cost recovery arrangements. Support a greater role for district governments working with the RRA to: (i) accelerate property valuation and develop systems for revaluation; (ii) improve collection rates; and (iii) disseminate information on local expenditure.	MININFRA MINECOFIN
Lack of resources for operation and maintenance of urban infrastructure and services.	Improve systems for (i) estimating infrastructure and service financing requirements, and (ii) introduction of asset inventories and systems for preventive, routine and periodic maintenance, allocating building on systems established under RUDP program.	MININFA

Issue	Response	Lead Agency
Urban Institutions and Capacity		
Urban areas currently have no clear and distinct jurisdiction and fall across sector boundaries, compromising efficient urban planning and management. Districts outside Kigali are still dominated by the rural economy, but effective urban development requires dedicated urban focused staff, and ideally, separate urban management and administration.	Investigate, pilot and execute progressive creation of dedicated urban development institutional arrangements within districts. In the short term, create Urban Development Specialist positions and units, possibly leading to the creation of Urban Development Authorities (medium term) and ultimately, urban local government (long term).	MINALOC
One Stop Centers' capacity constraints and staffing shortages compromise the Centers' ability to support urban infrastructure and service growth and development.	Drive to fully staff OSCs and, in particular, to hire and develop the skills of urban planners in OSC positions, and to adequately resource the OSCs.	LODA MIECOFIN

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Annex 1. Methodology Adopted and Analysis of Satellite Imagery

The spatial analysis is based on medium resolution Landsat 7 ETM+ and Landsat 8 OLI dataset acquired over two time periods (1990s–early 2000s and 2015-2016) and supplementary data available in the secondary literature. The geospatial analysis presented here is seen as a means to support and complement the available secondary literature with visual intelligence so as to infer and corroborate the considerations presented about growth trends and their future projections.

For each of the nine cities, raw Landsat scenes have been pre-processed and augmented in their spatial resolution of up to 15 meters in order to provide a clearer depiction of the urban expansion that has occurred over time. Radiometric and atmospheric calibration, Dark-Object Subtraction, and HSV pan-sharpening algorithms have been applied in order to reduce the difference of reflectance among data acquired over two different time periods and by sensors with different radiometric calibrations.

Due to the resolution of the Landsat dataset, it is not possible to differentiate the categories of land use in the urban footprint. For this type of analysis, datasets with a refined geometric resolution (of approximately of 0.5 meters) are necessary. In consideration of the lack of higher resolution datasets, moderate resolution Landsat scenes are used to extract urban masks outlining the location and extension of the urban development footprint. For this purpose, the maximum likelihood algorithm of supervised classification has been used. Although the method presents its inherent data-dependent limitations, only the Landsat archive allows the investigation of change over the spans of several decades, as higher resolution commercial satellite imagery, besides being costly for large acquisition, have only been commercially made available from 2000 onwards. This multi-temporal analysis of the urban expansion allows for a better understanding of the cities' growth rate in the time periods analyzed.

All the considerations resulting from evaluations of the Landsat data-derived built-up analysis and more detailed analysis about the land use of the built-up areas have been compared against other available data sources. In particular, this includes (i) the Google Earth archive and (ii) secondary literature (i.e. RUDP feasibility studies and city masterplans) where available. Land-use analyses have been based on visual interpretation and geospatial overlay of data extracted from the available secondary literature, which included master plans and land-use classification maps. Considerations on the diversity, assortment, and extent of different land-use classes have been made possible by using the Google Earth archive "time-slider".

A1.1 Data sets

Table A1.1 Low resolution

Dataset	Low resolution	
Huye	2002 - LE71730622002156SGS00 Landsat 7 ETM+ Jun 5th, 2002	2016 - LC81730622016235LGN00 Landsat 8 OLI Aug 22nd, 2015
Muhanga	2001 - LE71730612001217SGS00 Landsat 7 ETM+ Aug 5th, 2001	2015 - LC81730612015280LGN00 Landsat 8 OLI Oct 7th, 2015
Musanze	1999 - LE71730611999340SGS00 Landsat 7 ETM+ Dec 6th, 1999	2015 - PAN_LC81730612015280L Landsat 8 OLI Oct 7th, 2015GN00
Nyagatare	LE71720611999189AGS01	LC81720612016244LGN00

Dataset	Low resolution	
	Landsat 7 ETM+ Jul 8th, 1999	Landsat 8 OLI Aug 31st, 2015
Gicumbi	1999 - LE71720611999189AGS01 Landsat 7 ETM+ Jul 8th, 1999	2016 - LC81720612016244LGN00 Landsat 8 OLI Aug 31st, 2015
Rwamagana	LE71720611999189AGS01 Landsat 7 ETM+ Jul 8th, 1999	LC81720612016244LGN00 Landsat 8 OLI Aug 31st, 2015
Kayonza	LE71720611999189AGS01 Landsat 7 ETM+ Jul 8th, 1999	LC81720612016244LGN00 Landsat 8 OLI Aug 31st, 2015
Rusizi	LE71730622002028JSA00 Landsat 7 ETM+ Jan 28th, 2002	LC81730622015264LGN00 Landsat 8 OLI Sep 21st, 2015
Rubavu	PAN_LE71730611999340SGS00 Landsat 7 ETM+ Dec 6th, 1999	LC81730612015280LGN00 Landsat 8 OLI Oct 7th, 2015
Nyamata	LE71720611999189AGS01 Landsat 7 ETM+ Jul 8th, 1999	Nyam_16_C__PAN_LC81720612016244LGN00

Table A1.2   High Resolution

City	Satellite	Year	Area (km²)
Byumba	Spot7	2014	207
Rwamagana/Kayonza	Pleiades	2014	335
Nyamata	Spot6	2015	688
Nyagatare	Spot 6	2014	109
Rusizi	Spot 7	2013/14	207
Musanze-Rubavu corridor	Spot6	2013/14	667
Huye	Pleiades	2013	200
Muhanga-Huye corridor	Spot6	2013/14	887