



Low-carbon resilient development in Rwanda

Erin Nash and Jean Chrysostome Ngabitsinze

Country Report

May 2014

Climate change

Keywords:

Rwanda, low carbon resilient
development, planning,
climate change

About the authors

Erin Nash is a consultant for IIED. She holds a Masters degree in philosophy and public policy from the London School of Economics and Political Science, and Bachelor of Environmental Science (Hons) from Deakin and Monash Universities in Australia. She has previously worked in the public sector on natural resource management and sustainability in Australia and for non-government organisations in SE Asia on climate change adaptation.
Email: erin.jade.nash@gmail.com

Jean Chrysostome Ngabitsinze is a Lecturer and Researcher of Applied Economics in Agriculture at the National University of Rwanda, Butare and the Head of Department of Agricultural Economics and Agribusiness.
E-mail: jcngabitsinze@gmail.com

Acknowledgements

Thanks to Issa Nkurunziza, Jillian Dyszinski for research and background data collection for the report; John Rwihirira, Susannah Fisher, Nanki Kaur, and Alex Mulisa for comments and review; and to all those who gave their time to give information for the report. Any errors and omissions remain our own.

Produced by IIED's climate change group

The Climate Change Group works with partners to help secure fair and equitable solutions to climate change by combining appropriate support for adaptation by the poor in low- and middle-income countries, with ambitious and practical mitigation targets.

The work of the Climate Change Group focuses on achieving the following objectives:

- Supporting public planning processes in delivering climate resilient development outcomes for the poorest.
- Supporting climate change negotiators from poor and vulnerable countries for equitable, balanced and multilateral solutions to climate change.
- Building capacity to act on the implications of changing ecology and economics for equitable and climate resilient development in the drylands

Published by IIED, May 2014

Nash, E. and Chrysostome Ngabitsinze, J., 2014. *Low-carbon resilient development in Rwanda*. IIED Country Report. IIED, London.

<http://pubs.iied.org/10065IIED>

ISBN 978-1-84369-998-9

Printed on recycled paper with vegetable-based inks.

International Institute for Environment and Development
80-86 Gray's Inn Road, London WC1X 8NH, UK
Tel: +44 (0)20 3463 7399
Fax: +44 (0)20 3514 9055
email: info@iied.org
www.iied.org

 @iied

 www.facebook.com/theIIED

Download more publications at www.iied.org/pubs

This country report provides an overview of the three key dimensions of Rwanda’s planning system – policy frameworks, financial mechanisms and institutional arrangements – and explains how low-carbon resilient development is being integrated into each of these components. Rwanda is an early adopter of low-carbon resilient development and therefore provides an example of how national governments are working towards climate resilient planning in different contexts. This report is part of a comparative research project involving Rwanda, Ethiopia and Bangladesh which explores how the low-carbon and climate resilience agendas can be brought together in national planning. See Fisher (2013) for a comprehensive overview of low-carbon resilient development in the least developed countries.

Contents

Acronyms	4	3 Financial needs, sources and mechanisms	20
Summary	5	4 Institutional arrangements	24
1 Introduction	6	Public-sector actors	25
2 Policy Frameworks	11	Private-sector actors	26
Development Planning Policy Framework in Rwanda	12	5 Discussion and conclusion	28
Climate Change Planning Policy Framework in Rwanda	14	Annex	30
Low-carbon resilient development planning in Rwanda	14	Related Reading	38
How has the National Strategy for Climate Change and Low Carbon Development been mainstreamed into the EDPRS2?	17		

Acronyms

BDF:	Rwandan Development Fund
BRD:	Rwandan Development Bank
CCKD:	Centre for Climate Knowledge for Development
CIFs:	Climate Investment Funds
EDPRS:	economic development and poverty reduction strategy
EIA:	environmental impact assessment
FMC:	FONERWA Managing Committee
FMT:	Fund Management Team (under FONERWA)
FONERWA:	National Environment and Climate Change Fund
GDP:	gross domestic product
GHG:	greenhouse gas
GoR:	Government of Rwanda
IWRM:	Integrated water resource management
LDC:	least developed country
MINECOFIN:	Ministry of Finance and Economic Planning
MINIRENA:	Ministry of Natural Resources
MINAGRI:	Ministry of Agriculture
MINALOC:	Ministry of Local Government
MoU:	Memorandum of understanding
NAPA:	national adaptation programme of action
NAP:	national adaptation plan
NIE:	national implementing entity
PSF:	Private Sector Federation
REMA:	Rwanda Environmental Management Agency
RMS:	Rwanda Meteorological Services
RWF:	Rwandan francs
SME:	small and medium enterprise
SNC:	second national communication
tCO ₂ e:	tonnes of carbon dioxide equivalent
UNFCCC:	United Nations Framework Convention on Climate Change

Summary

Rwanda has made considerable progress over the past two decades in economic growth and social development. Anthropogenic climate change has the potential to undermine these achievements and to hamper Rwanda's future social and economic progress. With this in mind, the Government of Rwanda is leading on a new approach to development – low-carbon resilient development – which aims to integrate climate change mitigation and adaptation agendas into national development planning. This country report provides an overview of the three key dimensions of Rwanda's planning system – the policy frameworks, financial mechanisms, and institutional arrangements – and explains how a low-carbon resilient development approach is being built into, and facilitated by, each of these components.

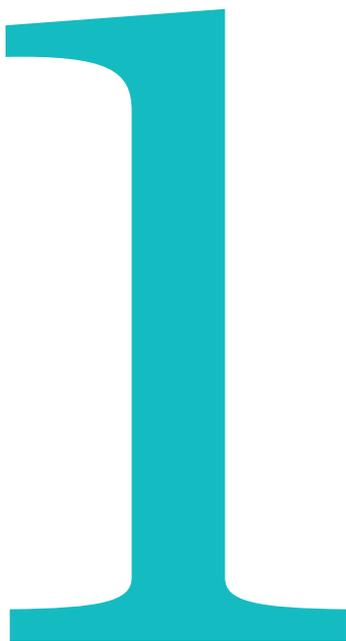
The centrepiece of Rwanda's low-carbon resilient development agenda is the 2011 National Strategy for Climate Change and Low Carbon Development (NSCCLCD) which articulates climate mitigation and adaptation as integral aspects of, and key influences on, Rwanda's national and sectoral socio-economic development objectives. We look at how the Government of Rwanda (GoR) is working towards mainstreaming low-carbon resilient development in policy and plans across sectors, and focus on the integration of low-carbon resilient development strategies from the NSCCLCD into Rwanda's primary national development strategy, the second Economic Development and Poverty Reduction Strategy (EDPRS2) as a key step in this process. We found that the EDPRS2 has made progress in integrating low-carbon resilient development, particularly in regards to integrated land use planning and management, sustainable small-scale energy installations in rural areas, and low-carbon urban systems.

A key element of Rwanda's approach is the explicit use of mainstreaming in relation to a broad agenda encompassing climate, environment and development. Such an approach may offer some solutions to the problem of a climate change 'policy silo'. Mainstreaming also requires significant investment in training and capacity building, something that will take time to develop as well as political will to engage in negotiations over differing priorities.

An important aspect to Rwanda being able to successfully implement a low-carbon resilient development agenda and leap-frog old notions of development will be how it manages to capture, harness and direct the potential of the private sector in driving Rwanda's low-carbon resilient development (GoR 2000; GoR 2011). Rwanda has been pioneering in its pursuit of this goal through the actual and planned architecture of the National Environment and Climate Change Fund (FONERWA), Rwanda's innovative basket fund for financing low-carbon resilient development, and the way in which it has built strategic public-private relationships for financing initiatives and building capacity.

There has been very little empirical work in developing countries on how or if low-carbon resilient development approaches work in practice (Fisher, 2013) and so Rwanda's activities will be important in contributing to an evidence base to support policymaking and the practical application of low-carbon resilient development in the least developed countries (LDCs). Effective monitoring and evaluation is needed to better understand the scale of any synergies, the location of win-wins and co-benefits, and any particular trade-offs or unexpected consequences such as distributional effects. This will ensure that the wider group of LDCs can learn from different approaches used, and that any potential trade-offs are recognised and managed according to national priorities.

Introduction



The impacts of a changing climate are already being felt in Rwanda. Rwanda has experienced temperature increases higher than the global average (1.4°C since 1970) (GoR 2011, p.i), and the overall trend in rainfall over the past decade has been one of decline (Figure 1). However, compared to the previous decade, extreme rainfall events have been more frequent and intense. Major flood events occurred in 1997, 2006, 2007, 2008 and 2009. These events and their secondary consequences, such as landslides and soil erosion, have directly and indirectly led to fatalities and injuries, population displacements, building and infrastructure damage, and crop failure. It was estimated that the direct economic costs of the 2007 floods were \$4 to \$22 million (equivalent to around 0.1–0.6% of GDP) for two districts alone, and therefore that the total economic costs of this event were likely to have been much larger and have had a significant impact on Rwanda's national GDP (SEI 2009). The ten years from 1991–2000 was the driest period since 1961 and some regions experienced drought in 1999/2000 and 2005/06. A decline in the water levels of lakes and rivers has also been regularly observed which can affect agricultural productivity and hydropower generation, threatening Rwanda's food and energy security.

Under future climate change scenarios, increases in mean annual temperature (average monthly temperatures) are projected to be in the range of 1.5 to 3°C by the 2050s (SEI 2009). Whilst changes in precipitation are more uncertain, all climate models indicate that rainfall regimes will change, with most models pointing to an increase in average annual rainfall (with an average value of 10 per cent), particularly in September to November; however, some models project rainfall reductions in some months (Figure 2) (SEI 2009). The data on extreme events such as floods and droughts is more variable, and while there is some evidence of a recent intensification of these events, future projections vary widely. Nevertheless, many models indicate an intensification of heavy rainfall during the wet seasons, signaling greater flood risk (SEI 2009).

Rwanda is currently heavily dependent on rain-fed agriculture, which employs approximately 80 per cent of the Rwandan workforce and contributes 35 per cent of Rwanda's GDP (GoR 2013). Rwanda also relies on hydropower for half of its electricity needs and will continue to rely on it for around a third of its electricity needs into the future (AfDB 2013). Any changes to rainfall patterns therefore have the potential to have a marked impact on Rwanda's economy. High rates of poverty, poor infrastructure and lack of domestic access to electricity mean the current adaptive capacity of the average Rwandan to deal with the impacts of climate change is low. All of these factors combined render

Rwanda one of the most climate-vulnerable countries in the world (The World Bank 2009, p. 19). Rwanda's vulnerability to climate change can be reduced through economic development and poverty alleviation, creating jobs and energy sources outside climate-sensitive sectors and sub-sectors, and putting in place social protection mechanisms.

Over the past decade Rwanda's development performance has been considerable – particularly for a country that experienced genocide and civil war as recently as 1994 – meeting and in some cases exceeding its development targets. Between 2001 and 2012, real GDP growth averaged 8.1 per cent per annum and Rwanda was the world's 10th fastest growing economy during the decade to 2010 (GoR 2013). Rwanda's poverty rate dropped from 59 per cent in 2001 to 45 per cent in 2011 and reductions in income inequality have been observed since 2005 (GoR 2013).

RWANDA AT A GLANCE

Population: 12,012,589

Population density: 415.5 per square km. (highest in Africa)

Population growth rate: 2.9%

Population below poverty line: 44.9%

GDP per capita: \$583 USD

Life expectancy at birth (f/m): 57.1/54.5

GINI coefficient: 50.82

Human Development Index: 0.434 (low) – positioning Rwanda 167 out of 187 countries



Source: http://reliefweb.int/sites/reliefweb.int/files/resources/rwa_ocha.pdf

Figure 1: Annual anomaly and trend for a) temperature* and b) precipitation** in Rwanda.

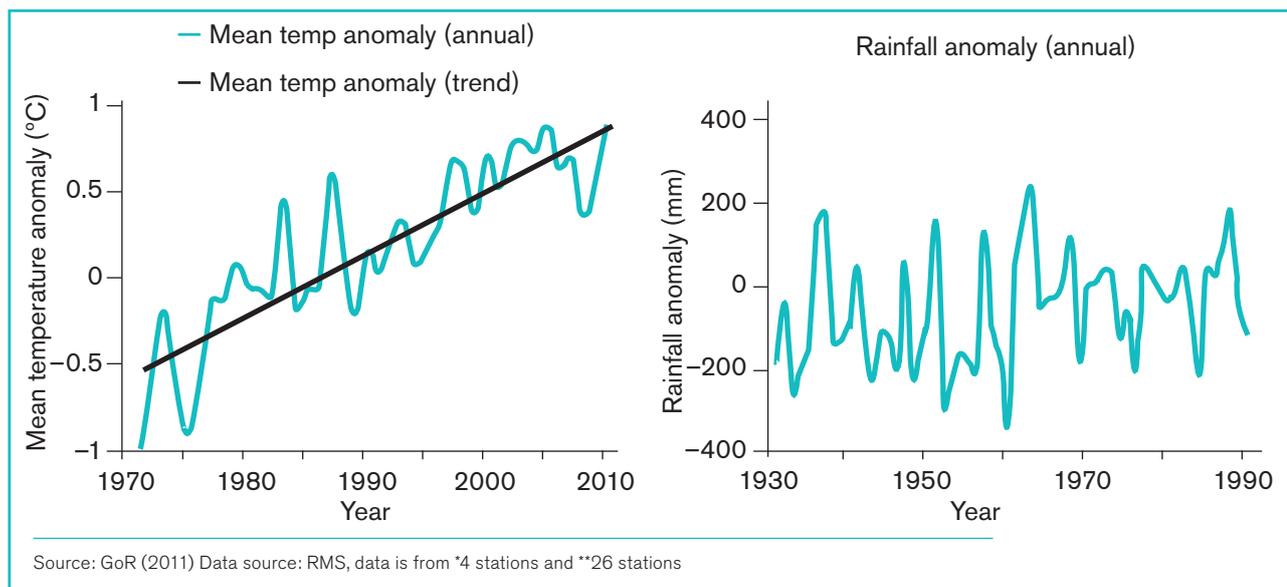
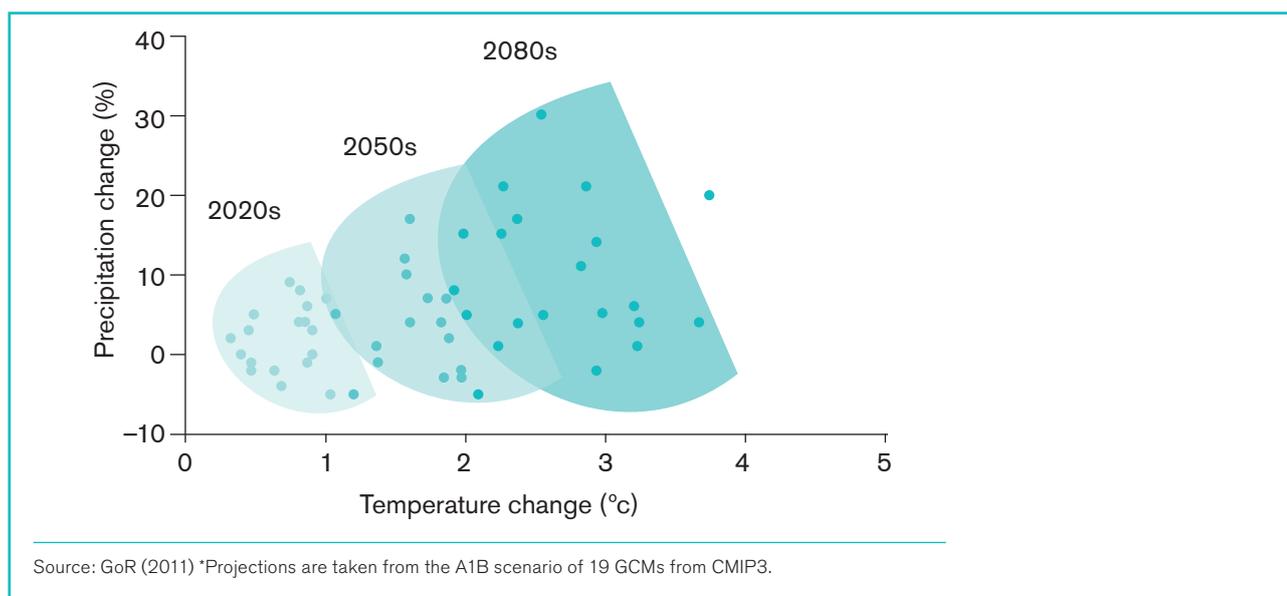


Figure 2: Projected* annual change in temperature and precipitation for Rwanda for the 2020s, 2050s and 2080s.

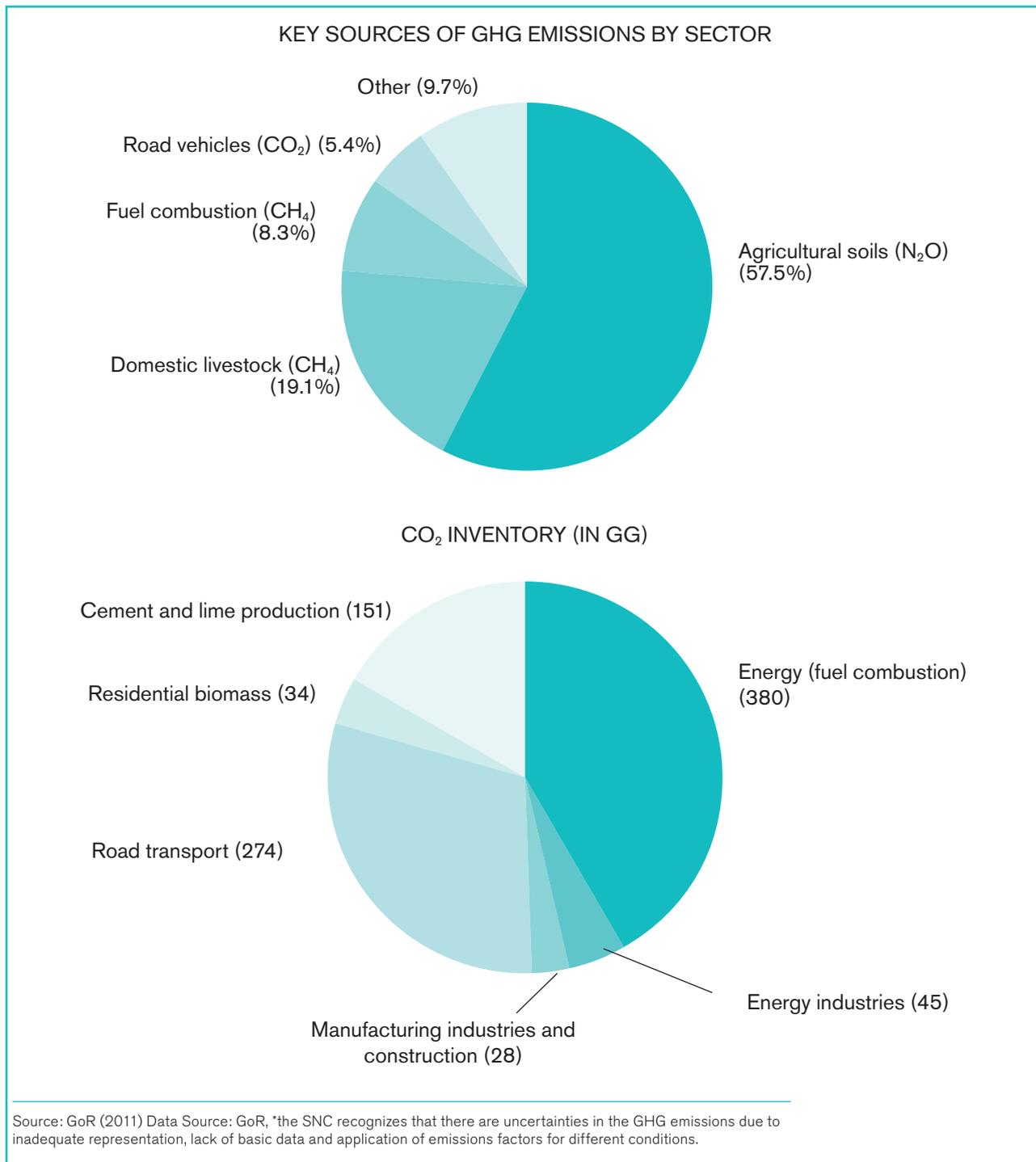


Although there is much uncertainty as to the future economic costs of anthropogenic climate change to Rwanda, SEI (2009) estimated that the net economic costs of climate change, over and above the costs of existing climate variability, could be as much as one per cent of Rwanda's GDP each year by 2030; however, as this excludes the future impacts of floods and other extreme events, this represents a conservative estimate, equivalent to the lower bound of estimations. Without the implementation of adaptation strategies, the costs of extreme events could increase by a factor of five by 2030 (SEI, 2009). The future economic costs of malaria alone could be over fifty million dollars a year by the 2050s (SEI 2009). Under business as usual scenarios, it is anticipated that these costs will rise again post-

2050, potentially very significantly. However, the most socially and economically harmful consequences can be avoided if global GHG emissions stabilise at approximately a 2°C target, emphasising the importance of collective global climate change mitigation.

Despite Rwanda having one of the lowest per capita rates of emissions in the world (0.4 tCO₂e/person, compared to global average of 6.7 tCO₂e/person) Rwanda is eager to contribute to global efforts to curb greenhouse gas emissions. Four key sources contribute to 91% of Rwanda's aggregate emissions (Figure 3): nitrous oxide from agricultural soils (57%); methane from enteric fermentation in domestic livestock (19%) and residential fuel combustion (8%); and carbon dioxide from vehicles (5%). Economic modeling within

Figure 3: Rwanda's key sources of GHG emissions by sector* and CO₂ inventory (in Gg) for 2005.

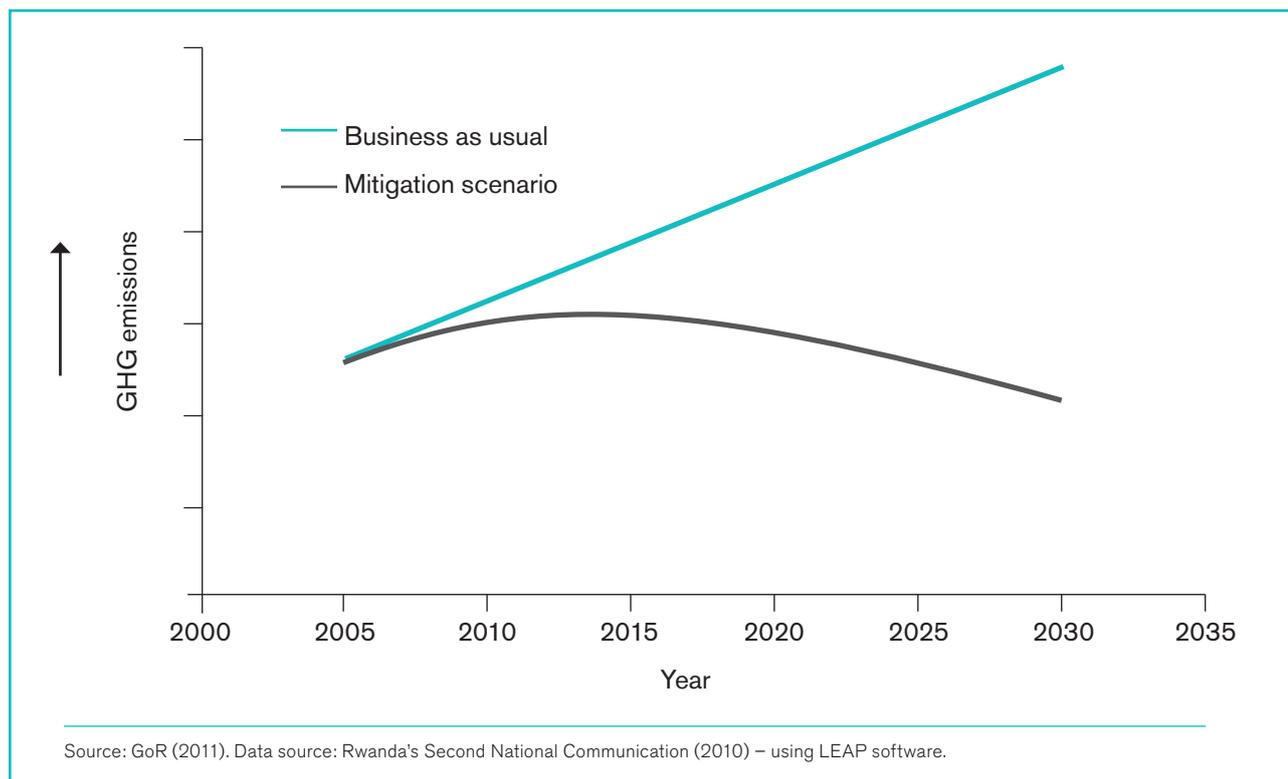


Rwanda's Second National Communication (SNC) illustrates the projected decline in greenhouse gas emissions Rwanda can achieve by implementing mitigation strategies (Figure 4).

The government of Rwanda has been working towards designing and implementing low-carbon resilient development strategies to ensure future development progress is sustainable and that its development targets can be reached. Low-carbon resilience is

an agenda that tackles reducing carbon emissions whilst simultaneously building climate resilience and supporting growth and socio-economic development. It aims to bring together several issues that have traditionally been addressed separately into one single agenda. The underlying assumption is that addressing multiple policy areas simultaneously will leverage win-wins or triple-wins and be more cost-effective (Fisher 2013). Whilst this may be true, there is not yet a strong

Figure 4: Illustration of projected GHG emissions for 'Business as usual' versus 'Mitigation scenario' for Rwanda.



evidence base to support this approach in practice (Fisher 2013).

Rwanda is an early adopter of low-carbon resilient development; this country report provides an overview of the three key dimensions of Rwanda's planning system – policy frameworks, financial mechanisms and institutional arrangements – and explains how low-carbon resilient development is being integrated into each of these components, as well as how each of these components are being aligned with one another. As Rwanda's approach is a 'development-first' approach¹ to mainstreaming low-carbon resilient development, this report's narrative centres around how low-carbon resilient development has evolved from, and is being embedded into, Rwanda's existing development planning and priority-setting framework.

¹ See Pervin et al. 2013, p. 12, for a full description of this approach.

Policy Frameworks



Development Planning Policy Framework in Rwanda

Rwanda Vision 2020:

Rwanda Vision 2020 articulates the high-level, longer-term development goals which will shape and guide Rwanda's development over the period of 2000–2020. Vision 2020's key aspiration and target is to significantly reduce poverty and establish Rwanda as a middle-income country by the year 2020. It aims to achieve this through a fundamental transformation of the Rwandan economy, from one largely based on subsistence agriculture to a knowledge-based service-orientated economy. Vision 2020 mandates several key reforms such as enhancing the private sector, investing in major infrastructure (power, transport, and information and communications technology), increasing agricultural productivity, and boosting national skills development. The protection of the environment and sustainable natural resource management is highlighted as a cross-cutting theme.

Vision 2020's key development targets were reviewed and revised in 2012. Table 1 outlines the adopted targets, which have been integrated into Rwanda's

second Economic Development and Poverty Reduction Strategy (EDPRS2) (see p. 13).

Economic Development and Poverty Reduction Strategies:

The longer-term aspirations of Vision 2020 are implemented through medium-term national-scale strategic plans, which also function to secure progress towards meeting the Millennium Development Goals.

The first of these plans was the **Poverty Reduction Strategy (2002–2006)** which represented the Government of Rwanda (GoR)'s first attempt at addressing poverty through stimulating pro-poor economic growth. During the review period it was revealed that whilst significant progress had been made on meeting social objectives, particularly those related to health and education, progress on meeting economic objectives related to income dimensions of poverty had lagged behind, leaving Rwanda heavily dependent on foreign aid (GoR 2013, pp. 2–3).

Concerned about the longer-term sustainability of this social progress without economic development, in the subsequent plan, the **Economic Development and Poverty Reduction Strategy (EDPRS1) (2008–2012)**, greater emphasis was placed on accelerating growth, creating employment and generating exports.

Table 1: Vision 2020: key objectives and targets

OBJECTIVE	CURRENT STATUS	2020 TARGET
Rapid economic growth to middle income status	<ul style="list-style-type: none"> GDP per capita of \$644 (2012) Average GDP growth of 8.2% (2008–2012) 	<ul style="list-style-type: none"> GDP per capita of \$1240 Average GDP growth of 11.5%
Increased poverty reduction	<ul style="list-style-type: none"> Poverty reduced from 57% to 44.9% over 2006/11 Extreme poverty reduced from 36% to 24% over 2006/11 	<ul style="list-style-type: none"> Poverty reduced to 20% Extreme poverty moving towards elimination
More off-farm jobs; more urbanisation	<ul style="list-style-type: none"> 1.4 million off-farm jobs in 2011 	<ul style="list-style-type: none"> 1.8 million new off-farm jobs 35% of population urban
Reduced external dependency	<ul style="list-style-type: none"> Exports growth of 22.8% over 2008/12 Exports coverage of imports 42.3% in 2012 	<ul style="list-style-type: none"> Exports growth of 28% per annum Exports coverage of imports 80%
Private sector as engine of growth	<ul style="list-style-type: none"> Private sector investment equivalent to 10% of GDP 	<ul style="list-style-type: none"> Private sector takes dominant share of investment

Source: GoR (2013: p. 2).

To help facilitate these changes, the EDPRS1 directed public investment towards improving infrastructure and outlined the regulatory reforms needed to create an environment more conducive to private sector investment and activity. This was achieved primarily through further decentralisation of government decision-making to reduce the costs and risks of doing business in Rwanda.

During the EDPRS1 period, Rwanda experienced sustained economic growth (an average of eight per cent), poverty was reduced by 14 per cent and income inequality was reduced by three points². Ultimately, in less than five years, more than one million Rwandans moved out of poverty. However, the level of extreme poverty within Rwanda remains high and persistent, particularly in rural areas, as does comparative inequality.

The second **Economic Development and Poverty Reduction Strategy (EDPRS2)** (2013–2018) replaced the EDPRS1 in mid-2013. The overarching goal of the EDPRS2 is: “Accelerating progress to middle income status and better quality of life for all Rwandans through sustained growth of 11.5 per cent and accelerated reduction of poverty to less than 30 per cent of the population”.

Under four thematic areas – economic transformation, rural development, productivity and youth employment, accountable governance – the EDPRS2 builds on the policies within the EDPRS1 that were effective in meeting socio-economic development targets whilst recognising that climate change and environmental degradation, left unchecked, have the potential to undermine economic growth and progress. ‘Sustainability’, defined as ensuring that the economic, social and environmental dimensions of the outcomes achieved through EDPRS2 are sustained over the long term, is one of the five principles that informed the development of the Strategy. ‘Environment and Climate Change’ features as one of the seven cross-cutting issues within EDPRS2, aiming to secure the long-term sustainability of development interventions by mainstreaming sustainability and climate resilience into productive and social sectors. Targeted sectors include agriculture, energy, environment and natural resources, infrastructure, and health, as well as the private and financial sectors. Disaster management is also highlighted as a cross-cutting issue within the EDPRS2, however, links between disaster risk reduction and disaster management and climate change adaptation are not explicitly made.

The **National Strategy for Climate Change and Low Carbon Development (NSCCLCD)** (see p. 14) is cited in the EDPRS2 as Rwanda’s key document for promoting cross-sector interventions that mainstream climate change and sustainability objectives whilst addressing national growth and socio-economic development priorities. Further discussion of the relationship between the NSCCLCD and the EDPRS2 can be found on page 17.

Sector Strategic Plans and District Development Plans:

Sector Strategic Plans and **Sub-Sector Strategic Plans** are nested under the EDPRS2. These plans translate and operationalise the high-level priorities and objectives of the EDPRS2 within different sectors at national, regional and local scales. A number of sector or sub-sector strategic plans were reviewed and/or developed concurrently alongside the EDPRS2 to ensure coherence (GoR 2013, p. xiv). For example, a review of Rwanda’s Energy Sector Strategic Plan (2008 – 2012) was carried out by the GoR and the African Development Bank in 2012 to inform the development of the EDPRS2. The EDPRS2 will then be reflected in subsequent iterations of the Energy Sector Strategic Plan. The Sector Strategic Plans therefore play a dual role, both in informing and feeding into national socio-economic development planning processes, as well as being the tools for its implementation. This highlights the nature of mainstreaming low-carbon resilient development as a continuous, progressive and iterative process (Pervin et al. 2013).

Priority actions from the National Action Plan for Adaptation (NAPA) and Second National Communication (SNC), as well as the National Strategy for Climate Change and Low Carbon Development (NSCCLCD), are also being mainstreamed through Sector Strategic Plans.

Sector Strategic Plans are accompanied by Sector Investment Plans that outline the investment required to implement each Sector Strategic Plan. They detail the total costs of programs and actions identified in the Sector Strategic Plans, highlight investment gaps, and outline priorities for investment.

District Development Plans translate and operationalise the high-level priorities and objectives of Sector Strategic Plans and the EDPRS2 and within geographic areas. These plans are being updated over the period 2013/14³, as by this time the EDPRS2 and the latest iterations of Sector Strategic Plans will have been completed. This highlights the importance of the

² From a GINI coefficient of 0.52 to 0.49 (GoR, 2013).

³ According to Figure 19 on p. 43 of Rwanda’s National Strategy on Climate Change and Low Carbon Development.

Careful sequencing of plans within a planning system to ensure the successful mainstreaming of low-carbon resilient development into socio-economic development planning across all sectors, at all geographic scales.

Climate Change Planning Policy Framework in Rwanda

Rwanda's National Adaptation Programme Of Action (Napa) & Second National Communication (SNC):

National Adaptation Programmes of Action (NAPAs) under the United Nations Framework Convention for Climate Change (UNFCCC) were used by Least Developed Countries (LDCs) to identify their *urgent* and *immediate* climate change adaptation needs and flag priority projects. The GoR completed its NAPA in 2006 and submitted its Second National Communication (SNC) to the UNFCCC in 2010. Together with an outline of the adaptation activities considered a priority in the water resources, agriculture, forests and health sectors, the SNC included an updated greenhouse gas emissions inventory and a strategy to reduce Rwanda's greenhouse gas emissions and enhance its carbon sinks. The SNC also identified activities within other sectors that need to be undertaken to facilitate and support successful adaptation to climate change, such as technology transfer, developing systematic observation and research programmes, disseminating information on existing research programmes, integrating climate change into education curricula, building new skills and capacity through training, and raising the public's awareness and understanding of climate change.

The priority actions for climate change mitigation and adaptation from the NAPA and SNC have been consolidated within and mainstreamed through Sector Strategic Plans, and were used to inform the development of the NSCCLCD and the EDPRS2.

National Adaptation Plans:

The objective of National Adaptation Plans (NAPs) is to identify the *medium-* and *long-term* strategies that will help build adaptive capacity and resilience to reduce vulnerability and successfully adapt to climate change. Moving away from the traditional approach of addressing climate change as a stand-alone issue,

the UNFCCC has stated that NAPs should “*facilitate the integration of climate change adaptation, in a coherent manner, into relevant new and existing policies, programmes and activities, in particular development planning processes and strategies, within all relevant sectors and at different levels, as appropriate*” (UNFCCC 2012, paragraph 1). NAPs are therefore expected to consider both a country's development needs and its vulnerability to climate change, simultaneously, and should be coordinated with the country's more short-term focused NAPA.

Rwanda is yet to develop a NAP but the GoR is already articulating climate resilience as an integral aspect of its national and sectoral development objectives. The NSCCLCD represents the GoR's first step towards strategically integrating climate resilience into development planning.

Low-carbon resilient development planning in Rwanda

Green Growth and Carbon Resilience: National Strategy for Climate Change and Low Carbon Development (2011)

In 2010/11 the GoR developed its first integrated strategy for low-carbon resilient development, highlighting the significant level of political will that exists within Rwanda to mainstream climate change mitigation and adaptation into development planning processes and the GoR's ongoing commitment to green growth⁴. The purpose of Rwanda's National Strategy for Climate Change and Low-Carbon Development (NSCCLCD) is to:

1. Guide national policy and planning in an integrated way;
2. Mainstream climate change into all sectors of the economy; and
3. Position Rwanda to access international funding to achieve low-carbon climate resilient development.

By building on and bringing together existing strategies related to climate change and development, the NSCCLCD provides a framework for a holistic approach to Rwanda's socio-economic development by integrating Rwanda's traditional development agenda with Rwanda's climate change adaptation and mitigation needs. Acknowledging that successful adaptation to

⁴ The development of the National Strategy for Climate Change and Low-Carbon Development was a collaborative effort between the Government of Rwanda, the Smith School of Enterprise and Environment at the University of Oxford, and donor institutes UK DFID-Rwanda and the Climate and Development Knowledge Network.

climate change is critical to Rwanda's ability to maintain and enhance its economic growth and social progress into the future, the GoR is attempting to leapfrog old technologies and ineffective and inefficient development pathways by taking a low-carbon path to development and building a green economy (GoR 2013).

The vision outlined in the NSCCLCD looks beyond 'Rwanda Vision 2020' to 2050, by which time it is hoped that Rwanda is a developed low-carbon climate resilient economy. Three strategic objectives are outlined under that vision:

1. To achieve energy security and a low-carbon energy supply that supports the development of green industry and services and avoids deforestation;
2. To achieve sustainable land use and water resource management that results in food security,

appropriate urban development and preservation of biodiversity and ecosystem services; and

3. To ensure social protection, improved health and disaster risk reduction that reduces vulnerability to climate change impacts.

To realise the vision and these objectives, 14 programmes of action that cut across multiple sectors are detailed in the NSCCLCD (Figure 5). Under each programme of action, the lead authority and key stakeholders are identified, as well as potential streams of project funding. Three to five priority actions are articulated as well as a key indicator for monitoring and evaluation purposes. Together with an estimated timescale and length for each action's implementation, evaluations of the action's comparative cost, emissions reduction potential and contribution to climate resilience are also provided.

Figure 5: Sectors involved in each Programme of Action (lead sector in bold)

PROGRAMMES OF ACTION	SECTORS												
	Agriculture	Water	Land	Built Environment	Transport	Forestry	Mining	Energy	Industry	Health	Education	Local Government	Disaster Management
1. Sustainable intensification of small scale farming	✓	✓	✓			✓					✓	✓	✓
2. Agricultural diversity for local and export markets	✓	✓	✓		✓			✓	✓		✓		
3. Integrated Water Resource Management and Planning	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓
4. Sustainable Land Use Management and Planning	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	
5. Low carbon mix of power generation for national grid		✓	✓	✓	✓		✓	✓	✓	✓	✓		✓
6. Sustainable small-scale energy installations in rural areas	✓	✓	✓	✓		✓		✓	✓	✓	✓	✓	✓
7. Green industry and private sector investment	✓	✓	✓	✓	✓		✓	✓	✓		✓		
8. Climate compatible mining		✓	✓		✓		✓	✓	✓		✓	✓	✓
9. Efficient resilient transport systems	✓		✓	✓	✓		✓	✓	✓	✓	✓	✓	✓
10. Low carbon urban settlements		✓	✓	✓	✓			✓	✓	✓	✓	✓	✓
11. Ecotourism, Conservation and PES Promotion	✓	✓	✓			✓		✓	✓	✓	✓	✓	✓
12. Sustainable forestry, agroforestry and biomass energy	✓	✓	✓			✓		✓	✓	✓	✓	✓	✓
13. Disaster Management and Disease Prevention	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
14. Climate data and projections	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Source: GoR (2011)

Five 'Enabling Pillars' – institutional arrangements, finance, capacity building and knowledge management, integrated planning and data management, and technology, innovation and infrastructure – establish the processes and enabling environment required to mobilise the NSCCLCD. An enabling environment is a prerequisite for effective mainstreaming, and thus a fundamental building block that a systemic approach to mainstreaming through policy and planning can be built upon (Pervin et al. 2013, pp. 15–19). With this in mind, a number of 'quick wins' were identified for immediate implementation to quickly put in place these foundations by mainstreaming actions into initiatives currently under way, such as the EDPRS2 development process at the time.

A series of larger-scale, longer-term 'big wins' related to low-carbon development/mitigation and climate-resilience/adaptation are also highlighted.

The components of the NSCCLCD are represented diagrammatically in figure 6.

BIG WINS

Low-carbon development/ mitigation

- Geothermal power generation
- Integrated soil fertility management
- High-density walkable cities

Climate-resilience/adaptation

- Irrigation infrastructure
- Robust road networks
- Centre for Climate Knowledge for Development
- Agroforestry

Figure 6: Outline of the components of Rwanda's National Strategy for Climate Change and Low Carbon Development.

<p>Guiding Principles – from Vision 2020 & EDPRS Economic Growth and Poverty Reduction Sustainability of the Environment and Natural Resources Welfare and wellness of all citizens in a growing population Good regional and global citizenship Gender equality and equity</p>	<p>Vision: Rwanda is a developed low-carbon climate resilient economy by 2050</p>	<p>Enabling Pillars: Institutional arrangements Finance Capacity building and knowledge management Technology, innovation and infrastructure Integrated planning and data management</p>
	<p>Strategic Objectives:</p> <ol style="list-style-type: none"> 1. To achieve energy security and a low-carbon energy supply that supports the development of green industry and services and avoids deforestation; 2. To achieve sustainable land use and water resource management that results in food security, appropriate urban development and preservation of biodiversity and ecosystem services; and 3. To ensure social protection, improved health and disaster risk reduction that reduces vulnerability to climate change impacts. 	
	<p>Programs of Action:</p> <ul style="list-style-type: none"> • Sustainable intensification of small-scale farming • Agricultural diversity of markets • Sustainable land use and management • Integrated water resource management • Low carbon energy/grid • Small-scale energy access in rural areas • Disaster management and disease prevention • Green industry and private sector development • Climate compatible mining • Resilient transport systems • Low carbon urban systems • Ecotourism, conservation and payment for ecosystem services • Sustainable forestry, agroforestry and biomass • Climate data and projections 	

BOX 1 : APPROACHES TO MAINSTREAMING

Mainstreaming at a country level means moving towards the strategic integration of both the low-carbon and climate resilience agendas into development planning (Pervin et al. 2013, p. 11). This integration needs to occur across a number of dimensions: development policy objectives, spatial planning scales and temporal planning scales. Mainstreaming climate change can take several approaches: it can be a climate-proofing, climate-first or development-first approach. The UNFCCC supports this type of integration which is exemplified in the new approach towards the National Adaptation Plans (NAPs) that provide support for the mainstreaming of medium to long term climate risks into development planning.

Rwanda has taken what Pervin et al. (2013) characterise as a 'development-first' approach to mainstreaming low-carbon climate-resilient development. Through this type of approach, building resilience to climate change and undertaking mitigation actions where possible are recognised as integral to development planning processes from the beginning to ensure that development outcomes achieve climate change adaptation and mitigation-related co-benefits.

For Rwanda, the entry-point for this process is its national development planning system, however, the GoR has noted that the NSCCLCD is its key document for promoting cross-sector interventions that mainstream climate change and sustainability objectives whilst addressing national growth and socio-economic development priorities (GoR 2011, p. ii and p. 2; GoR 2013, p. 85). The NSCCLCD was informed by Vision 2020 and the EDPRS1 as well as Rwanda's NAPA and SNC. The NSCCLCD then informed the development of the next iteration of Rwanda's key five-yearly development plan, the EDPRS2, which subsequently directed the development of a series of Sector-Strategic Plans and Sub-Sector Strategic Plans. These plans act to translate the high-level priorities and objectives of the EDPRS2, such as those related to low-carbon resilient development, within different sectors at different geographic scales.

Finally, the priorities and objectives contained within Sector and Sub-Sector Strategic plans are operationalised at the finest geographic scale through District Development Plans. These plans are currently being updated to reflect the content of the most recent Sector and Sub-Sector Strategic Plans, highlighting the nature of the mainstreaming process as one that is sequential, iterative, and continuous.

How has the National Strategy for Climate Change and Low Carbon Development been mainstreamed into the EDPRS2?

The development of the NSCCLCD was informed by a set of guiding principles adapted from Vision 2020 and the former EDPRS1, as well as Rwanda's NAPA and SNC. The final NSCCLCD was then subsequently used to inform the development of the EDPRS2.

Actions from the NSCCLCD are also being integrated into and implemented through Sector Strategic Plans⁵, further contributing to the mainstreaming of low-carbon resilient development strategies into socio-economic development planning in Rwanda.

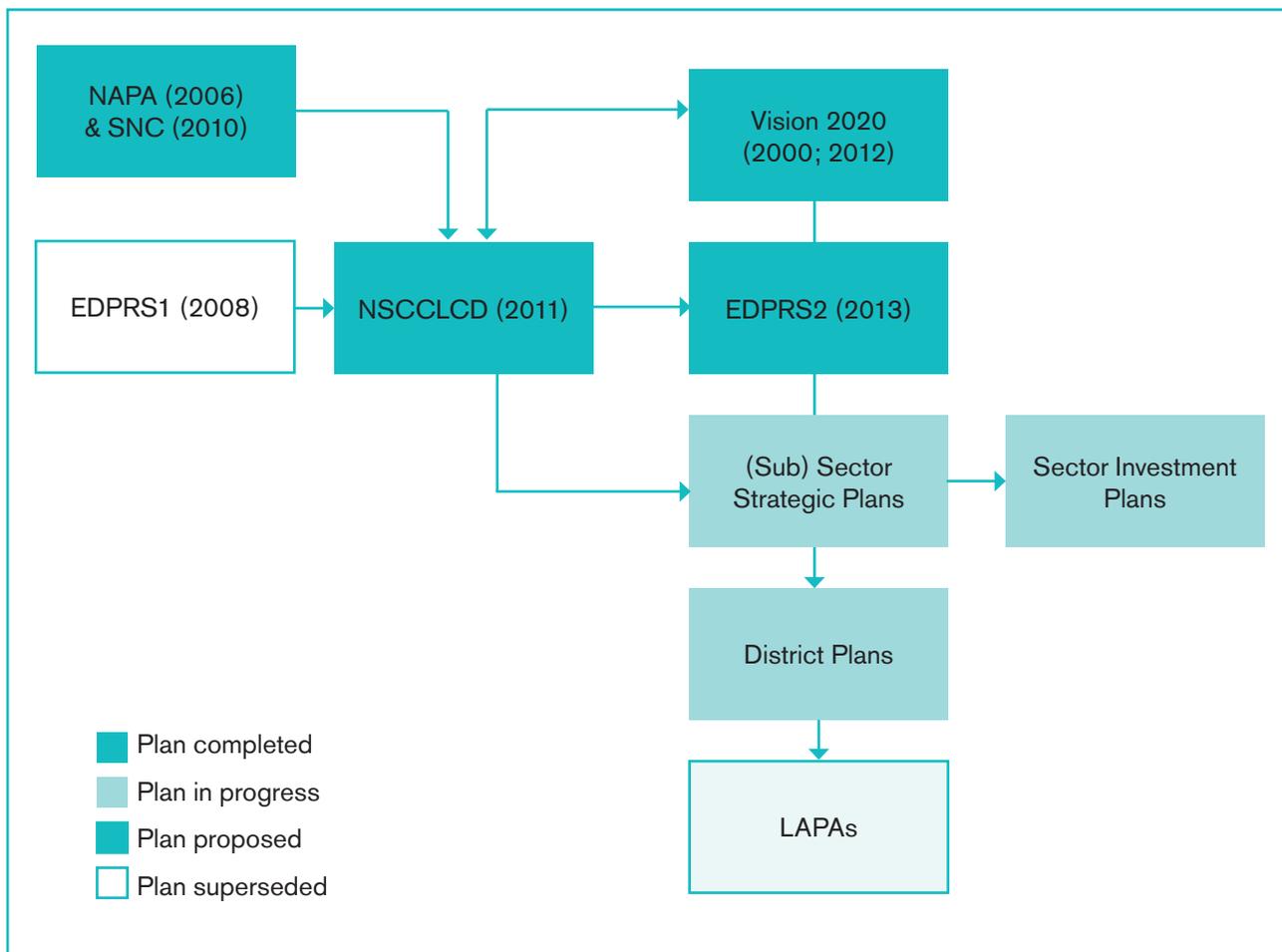
Many of the objectives and actions within the NSCCLCD's 14 Programmes of Action have been incorporated into the EDPRS2 primarily through adopting a low-carbon pathway or 'green growth' approach to development under the EDPRS2's *economic transformation* and *rural development* themes⁶. Tables 2 – 6 (see Annex) provide an analysis of which aspects of the NSCCLCD have been mainstreamed through the EDPRS2.

Overall, the EDPRS2 has made the most progress in incorporating strategies from the National Strategy for Climate Change and Low Carbon Development regarding: integrated land use planning and management; sustainable small-scale energy installations in rural areas; and low-carbon urban systems.

⁵ According to Figure 19 on p. 43 of Rwanda's NSCCLCD.

⁶ There are four themes in total.

Figure 7: Low-carbon resilient development planning framework in Rwanda.



The following broad areas of the National Strategy for Climate Change and Low Carbon Development do not appear to have yet been incorporated into the EDPRS2, however, may be being mainstreamed through other GoR plans and strategies:

- Programme of Action 1: **Sustainable intensification of agriculture** – including resource recovery and reuse, fertiliser enriched compost, and mainstreaming ‘push-pull’ strategies.
- Big Win 2 (low-carbon development/mitigation): **Integrated soil fertility management** – to reduce demand for inorganic fertilisers and reduce greenhouse gas emissions.
- Programme of Action 3: **Integrated water resource management** – including establishing a national integrated water resource management framework, establishing district and community-based catchment management under the national framework, and understanding water balance through monitoring, modeling and analysis and information management.
- Programme of Action 5: **Low-carbon energy mix powering the national grid** – including a strategy for fossil-fuel generation phase out, incentivising

private investment in renewable energy, developing renewable energy norms and codes of practice and developing a strategy for peat phase out.

- Programme of Action 11: **Ecotourism, conservation, and payments for ecosystem services.**
- Programme of Action 13: **Disaster management and disease prevention.**
- Programme of Action 14: **Climate data and projections.**
- Big Win 3 (climate resilience/adaptation): **Centre for Climate Knowledge for Development** – to improve climate data and projections and translate this information into policy options.

The mainstreaming of climate change and environmental actions into national development planning is a political process that involves negotiation between different ministries and a re-assessment of different priorities. It is likely therefore that such a process will take time to be embedded and will be taken up in different ways in different sectors.

Whilst it may be the case that these strategies will be integrated within alternative plans and strategies such as sector policies and sector strategic plans, it could also be that some of the strategies within the NSCCLCD present extra costs and potential trade-offs with other GoR growth and socio-economic development priorities. For example, Rwanda may not be able to meet its agricultural productivity targets without the heavy **use of inorganic fertiliser**, as it is not yet known whether the use of fertiliser enriched compost (PA1) and integrated soil fertility management strategies (BW2) can meet the same productivity targets with similar financial resources within approximately the same time horizon⁷. However, whilst using greater levels of inorganic fertiliser may assist Rwanda in meeting its growth and socio-economic goals, this would lead to increased emissions due to the nitrous oxide emissions associated with inorganic fertiliser use. If this is the case, it may be decided that this trade-off is worthwhile and fair, as Rwanda may have a greater need for increasing agricultural productivity than it does for reducing greenhouse gas emissions, particularly in the context of its current status as a LDC and it having one of the lowest rates of GHG emissions per capita.

Other examples of potential areas of trade-off and/or extra cost include:

- The need for **rapid increases in the supply of and access to electricity** (outcome 1.1 under PA1 in the economic transformation section of the EDPRS2), particularly in order to meet the energy demands of the private sector which Rwanda is relying on to drive its growth and socio-economic progress. It appears that Rwanda can only achieve this through greater use of traditional electricity resources such as methane, peat, and hydro, which in turn may affect Rwanda's emissions reduction and adaptation aspirations (AfDB 2013). The Rwanda Energy Sector Review and Action Plan (AfDB 2013) states that the GoR's target of 1160 MW installed capacity by 2017 will be comprised of 340 MW of hydro, 310 MW of geothermal, 300 MW of methane-based power, 200 MW of peat-based power, and 20 MW from thermal plants. The goal for geothermal power under this Action Plan is much less than the goal stated in the NSCCLCD, which was to fully exploit all commercially viable sources of geothermal power in Rwanda, equivalent to 700 MW, by 2020. This may be due to the high costs involved in developing this technology in Rwanda, and current skills shortages.
- The **focus on road-based public transport and improving the road network** for trade purposes in Rwanda, together with **expanded airline operations** (outcome 2.1 under PA2 in the economic transformation section of the EDPRS2), may result in Rwanda having higher GHG emissions, again, potentially challenging its climate change mitigation objectives.
- Expanding exports by **increasing the tea production area** by 18 000 ha and **accelerating the growth of mining** (outcome 2.3 under PA2 in the economic transformation section of the EDPRS2) may conflict with Rwanda's climate mitigation and conservation and ecotourism objectives. However, the expansion of these industries may also present opportunities related to payment for ecosystem services programmes (PA 11).

At this early stage of implementation the extent to which the GoR can simultaneously meet its growth and socio-economic development goals, whilst reducing Rwanda's greenhouse gas emissions and building resilience to climate change, is not yet clear. Whilst some policies may indeed be able to create 'triple wins', there is the potential that others might only bring benefits in one of the three areas, or strong benefits in one but only weak benefits in the others, consistent with the notion of a sliding scale of win-wins (Fisher, 2013). As the GoR searches for synergies and win-win scenarios, it's important that the implications of pursuing low-carbon resilient development to increasing energy access and poverty reduction efforts be fully explored, and that climate justice and peoples' rights to socio-economic progress are fully considered (Tompkins et al. 2013).

As such, the GoR will need to use an iterative process of policy development as it becomes clearer which strategies yield the best results (Ranger and Garbett-Shiels 2012). Rwanda will be able to learn from the evidence that emerges from its own experiences, and the experiences of other LDCs, as it implements the new low-carbon resilient development strategies it has adopted. This learning-by doing approach will generate robust empirical evidence about where to find and how to support 'win-win' strategies, and how to avoid trade-offs and regrets, from which all can learn.

⁷ This empirical information is currently difficult to calculate due to the lack of data on soil nutrient levels for major land units across most of Rwanda (see Pratt et al. 2012 p. 21). Pratt et al. (2012) conclude that that use of inorganic fertiliser is expected to keep increasing and therefore that the intensity of its use is the main pressure in terms of greenhouse gas emissions in Rwanda. They conclude that efficiency and optimisation of use will be a key measure of success (p. 21, 53, and 68).

Financial needs, sources and mechanisms

3

Rwanda is highly dependent on development partners and external grants and borrowing, which in 2010 provided approximately 48 per cent of the GoR's revenue (GoR 2010, p. 5). In order to achieve sustainable economic growth, the GoR anticipates that the private sector must take on a larger role within Rwanda's economy (GoR 2000; GoR 2011; GoR 2013). However, since 1994, Rwanda's economy has been largely informal and dominated by owner-operated micro and small-medium enterprises (98% of firms) which provide low returns on investments and struggle to grow. The GoR therefore aims to catalyse the transformation of the private sector to be the engine of economic growth in Rwanda (GoR 2000; GoR 2013). The EDPRS2 aims to address and alleviate the barriers to structural transformation and the growth of private firms, such as key infrastructure gaps (e.g. insufficient and costly electricity) and poorly connected transport corridors that impede domestic and international trade.

The GoR have calculated the cost of financing the EDPRS2 at RWF 9.929 billion, or 21.3 per cent of Rwanda's GDP in 2013, and 29.7 per cent of GDP in 2017 (GoR 2013). In the early years of implementation a significant amount of public finance (equivalent to 15 per cent of GDP in 2015) will be strategically invested to boost productivity and stimulate private sector growth. After this time it is expected that the private sector will become larger and more autonomous and thus the primary driver of growth, with its share of investment overtaking public investment and reaching 15.4 per cent of GDP by 2017 (GoR 2013).

The GoR also sees an opportunity to capitalise on the rise of international climate finance and has worked to position Rwanda as a natural centre for green investments (GoR 2013).

The GoR made the decision to pool domestic and external financial resources into a basket fund known as the Rwanda Environment and Climate Change Fund (FONERWA). The architecture of a financial structure such as FONERWA is critical to a state's ability to successfully bring multiple agendas together. FONERWA has been designed with the aim of achieving the development objectives of environmentally sustainable, climate resilient and green economic growth (GoR 2014, p. 3).

DOMESTIC RESOURCES:

- Environmental fines and fees;
- Environmental Investigation Agency Fees;
- Forestry and water fund;
- Other environmental revenue;
- Seed financing from line ministries.

EXTERNAL RESOURCES:

- Donor contributions;
- International environment and climate change funds;
- Targeted private sector investment

Rwanda Environment and Climate Change Fund (FONERWA):

The National Environment and Climate Change Fund – FONERWA – is an innovative cross-sectoral financing mechanism that was established in 2012 as a fund dedicated to achieving the GoR's low-carbon resilient development objectives. As a basket fund, a diverse range of domestic and external resources are streamlined and rationalised into FONERWA for programming, disbursement and monitoring:

The GoR has identified at least £1.7 million of domestic resources to capitalise FONERWA over the first three years and the UK's Department for International Development (DFID) has committed £22.5m of capitalisation financing assistance for FONERWA for a two-year period (MINECOFIN, 2013). Funding proposals began to be received by the FONERWA Management Committee in July 2013.

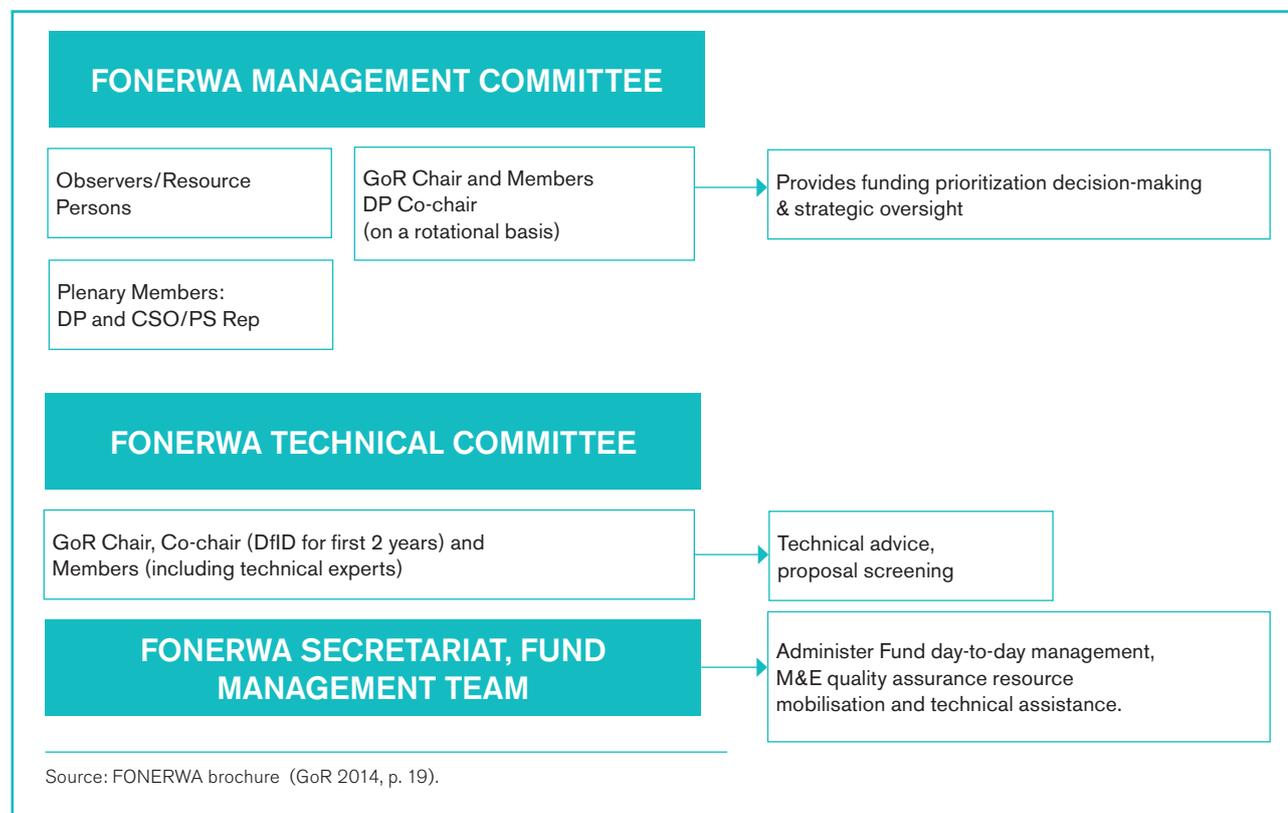
FONERWA is a demand-based fund meaning that it is driven by proposals from project promoters that align with broad priority areas defined by the GoR in relation to environment, climate change and development. Disbursement decisions are guided by the national priorities reflected in sector investment plans. FONERWA's design consists of four thematic financing windows or priority investment areas, under which a number of entry points are listed, as outlined in Table 7. These themes align with the thematic areas outlined within the FONERWA Law, as well as objectives listed within the National Strategy for Climate Change and Low-Carbon Development and EDPRS2.

Table 7: FONERWA's financing windows.

WINDOW 1 – CONSERVATION AND SUSTAINABLE NATURAL RESOURCE MANAGEMENT	WINDOW 2 – ENERGY, RESEARCH AND DEVELOPMENT AND TECHNOLOGY TRANSFER, AND IMPLEMENTATION	WINDOW 3 – ENVIRONMENT AND CLIMATE CHANGE MAINSTREAMING	WINDOW 4 – ENVIRONMENTAL IMPACT ASSESSMENT (EIA) MONITORING AND ENFORCEMENT⁸
<ul style="list-style-type: none"> • Ecosystem rehabilitation • Sustainable land management • Integrated water resource management (IWRM) • Sustainable forestry management • Sustainable mines and quarries • Promotion and protection of biodiversity 	<ul style="list-style-type: none"> • Renewable energy and energy efficiency technology • Pollution management • Water storage, conservation and irrigation technologies • Applied and adaptive research (agro forestry, waste and urban planning) • Disaster risk reduction • Data collection, monitoring and MIS 	<ul style="list-style-type: none"> • Strategic Environment and Climate Assessments • Sector-specific adaptation and mitigation • Support to implementation of cross-sectoral integrated planning (e.g. IDP, VUP) 	<ul style="list-style-type: none"> • Monitoring implementation of environment management plans for capital projects • Environmental auditing

Source: FONERWA brochure (GoR 2014, pp. 8-9).

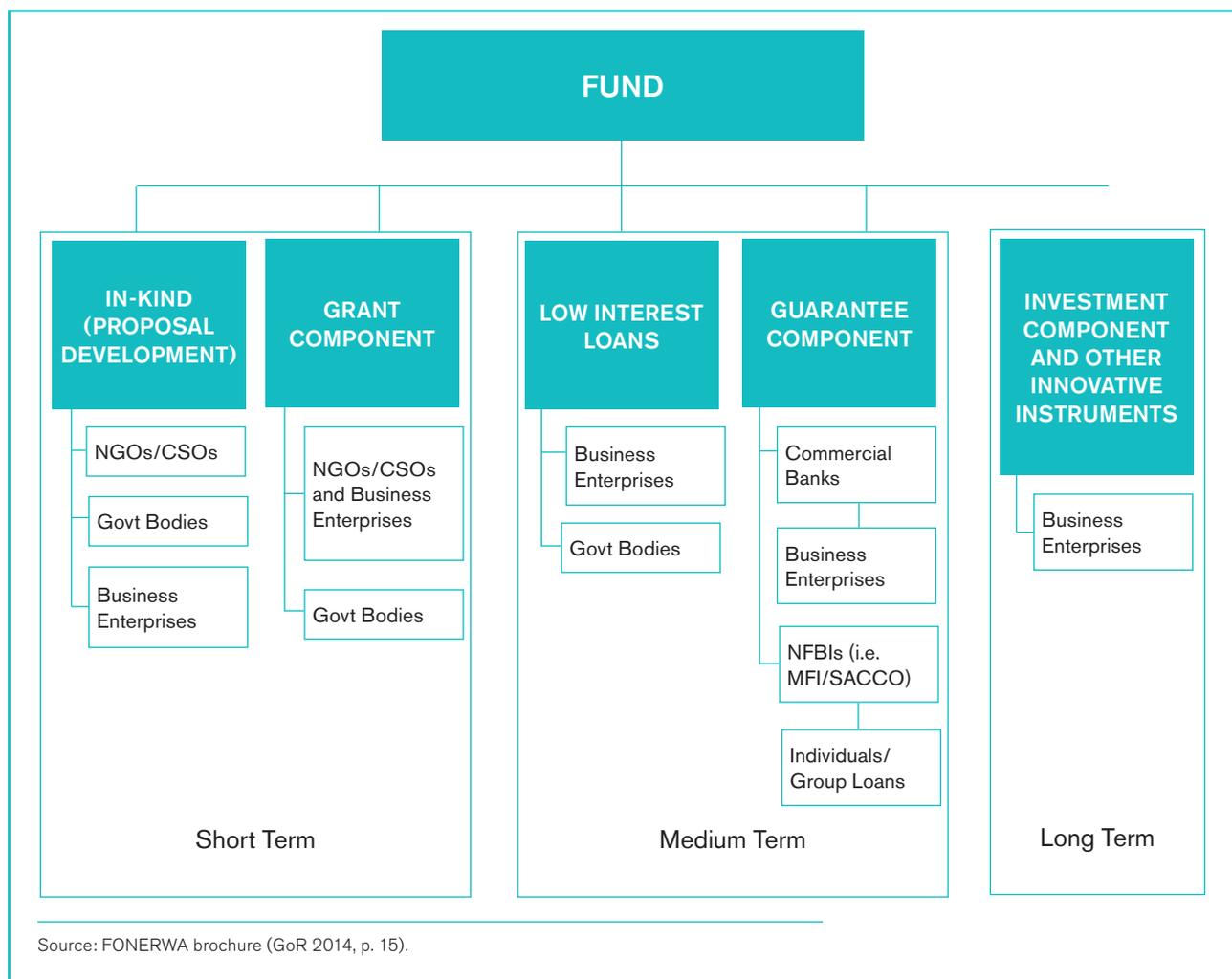
Figure 8: FONERWA's institutional arrangements



Source: FONERWA brochure (GoR 2014, p. 19).

⁸ The FONERWA Law requires that 0.1% of all public and private capital projects (less operating costs) are collected under FONERWA for Environmental Impact Assessment (EIA) related monitoring and enforcement by the GoR, and has therefore been assigned its own thematic window.

Figure 9: An outline of FONERWA's phased approach to mobilisation.



Line ministries, government agencies, districts, civil society organisations, academic institutions and the private sector can all access FONERWA funds. At least 10 per cent of FONERWA's funds are earmarked for districts, and 20 per cent is allocated to the private sector.

Over the longer term, FONERWA has the potential to evolve and utilise more complex financial instruments to provide the private sector with a greater range of investment and borrowing options, subject to demand for finance as well as a solid track record of achieving adequate returns on investments. FONERWA has a phased strategy for mobilisation over the short, medium, and longer term to enable it to establish this record (see Figure 9). If investment into low-carbon climate-resilient development becomes commercially viable, FONERWA has the scope to evolve and be managed as a venture capital fund (Kaur et al. 2014).

Institutional arrangements



The design of institutional structures can also affect the likelihood of finding policy synergies between low-carbon development and climate change mitigation and adaptation. The GoR has prioritised strengthening its institutional set-up and clarifying the roles and responsibilities of different actors to better facilitate its mainstreaming activities.

Public-sector actors

Within the GoR, responsibilities for developing policy around low-carbon resilient development and mainstreaming strategies are shared amongst different institutions. However, two of the key Ministries are the Ministry of Natural Resources (MINIRENA) and the Ministry of Finance and Economic Planning (MINECOFIN).

Ministry of Natural Resources (MINIRENA)

MINIRENA's mission is to ensure the protection and conservation of Rwanda's environment, and ensure the optimal and rational utilisation of natural resources for sustainable development (MINIRENA 2014). The **Rwanda Environment Management Authority (REMA)** operates under MINIRENA, and facilitates the coordination and oversight of the implementation of national environmental policy and legislation. It has been designated as the lead authority and given a statutory role to coordinate, regulate and support Rwanda's national response to climate change. REMA has created the **Climate Change and International Obligations Unit (CCIOU)** which, among a number of functions, is responsible for coordinating the preparation and implementation of policy, strategy and regulatory frameworks and instruments relating to climate change mitigation and adaptation. The CCIOU has prepared a number of sector-specific guidelines to encourage and facilitate the process of mainstreaming of climate adaptation and mitigation. Each prioritised sector has been assigned a Ministry as a lead agent to help integrate climate change concerns in all policy processes by working with Local Governments and other relevant state and non-state institutions. Within each Ministry a climate change focal point has been designated.

The preparation of the NSCCLCD was coordinated by the MINIRENA. However, a range of Ministries contributed to the development of the NSCCLCD and sat on its steering committee: Disaster Management (MIDIMAR), Agriculture and Animal Resources (MINAGRI), Trade and Industry (MINICOM), Finance and Economic Planning (MINECOFIN),

Education (MINEDUC), Infrastructure (MININFRA), Natural Resources (MINIRENA), Local Government (MINALOC) and Health (MOH).

MINIRENA is also the custodian of FONERWA.

Ministry of Finance and Economic Planning (MINECOFIN)

MINECOFIN's mission is to facilitate sustainable growth and economic opportunities, and raise the living standards of all Rwandans (MINECOFIN 2014). It carries this out through its strategic planning and policy development responsibilities, which are coordinated with its functions in mobilising the GoR's internal and external financial resources. MINECOFIN led the development of the EDPRS2.

MINECOFIN is responsible for the planning, coordination, and budgetary oversight of FONERWA.

FONERWA arrangements

FONERWA's internal architecture consists of:

- **FONERWA Managing Committee (FMC):** responsible for all funding decisions including defining project selection criteria (GoR 2012). Includes representatives from the GoR at central and district levels as well as development partners and representatives from civil society organisations and the private sector. The FMC is co-chaired by a development partner representative, on a rotational basis⁹.
- **Technical Committee:** supports and advises the FMC in relation to the approval, execution, and monitoring of FONERWA, and also ensures that approved projects are aligned with FONERWA objectives and national priorities (GoR 2012, p. 85). Includes GoR representatives, development partners, and technical experts.
- **FONERWA Secretariat/Fund Management Team:** operationalises and manages the day-to-day activities of FONERWA (GoR 2012, p. 88). REMA houses the FMT.

A comparative advantage analysis found that a disbursement mechanism divided between the public sector and the private sector to be the most advantageous design in terms of maximising efficiency and sustainability, and reaching target beneficiaries (GoR n.d). Publicly orientated funds are channelled through MINIRENA/REMA using existing GoR procedures, whilst the **Rwanda Development Bank (BRD)**, through the **Rwanda Development Fund (BDF)** channels private sector disbursement using its

⁹ DFID for the first two years

existing procedures. FONERWA resources that are allocated to districts will be channelled through the **Ministry of Local Government (MINALOC)**.

The FONERWA Secretariat is also looking to facilitate project support or co-financing from multilateral funds, including the Green Climate Fund (GCF) when it becomes operational. Along with the GCF, the other major initiative that currently combines public and private sector finance are the Climate Investment Funds (CIFs). Rwanda qualifies for three of the four CIFs – Forest Investment Programme, Pilot Programme for Climate Resilience and Programme for Scaling-up Renewable Energy in Low Income Countries. The FONERWA Secretariat will offer direct technical assistance to prospective project promoters who wish to access external funding.

In addition, the FMT is actively exploring potential private sector beneficiaries and investors both within and outside of Rwanda – from individual entrepreneurs and businesses to civil society, private equity funds and philanthropic foundations.

Rwanda Development Bank (BRD):

The **Rwanda Development Bank (BRD)** is the investment arm of the GoR that finances Rwanda's socio-economic development and poverty reduction objectives, focusing on the priority sectors of the economy identified within the GoR's strategic plans. As a part publicly funded – part privately funded entity, the Rwanda Development Bank is uniquely placed and has a key role as an important conduit and mediator between the public and private sectors in Rwanda. A large proportion of the BRD's lending activities provide direct financing to SMEs and cooperatives, refinancing to microfinance institutions, equity financing and equipment leasing through agricultural and other loan funds. Other lending facilities, managed by commercial banks as well as micro-finance institutions, target women, cooperatives, youth and agribusiness. Rwanda Development Fund is a subsidiary of BRD and is the entity through which private-sector finance under FONERWA will be disbursed.

Other key public entities in the context of low-carbon resilient development in Rwanda:

The **Rwanda Development Board (RDB)** was established to provide a 'one-stop shop' for the private sector in order to simplify the regulatory landscape and fast-track economic development in Rwanda. It brings together all government functions related to investment in Rwanda, such as business registration and environmental clearances.

The **Rwanda Meteorological Service (RMS)** is responsible for collection of meteorological data and weather forecasting. A new institution, a **Centre for Climate Knowledge for Development (CCKD)**, has also been proposed to work with the RMS, REMA and research institutions to translate information and knowledge on climate change into low-carbon resilient development policy options. This has been proposed in response to a perceived gap in the ability to translate climate information into sector-specific knowledge and policy options. In terms of disaster management, disaster risk assessments are carried out by a **Disaster Management Unit (DMU)** under the Ministry of Disaster Preparedness and Refugee Affairs.

Private-sector actors

As noted previously, the GoR believe enhancing the private sector in Rwanda will be critical to the GoR's ability to achieve its development goals and successfully mainstream a low-carbon climate resilient agenda. Since 1994, Rwanda's economy has been largely informal and dominated by owner-operated SMEs in trade and agriculture. However, through the policy framework outlined previously, the GoR has commenced an extensive economic reconstruction programme aimed at reducing Rwanda's dependency on foreign aid and becoming self-sufficient. Rwanda has made progress in creating a favourable business environment in recent years, and was named as the third easiest place to do business in Africa in the World Bank's Doing Business Report in 2012.

Small and Medium Enterprises (SMEs):

Although there are more than 72 000 SMEs in Rwanda, only 25 000 are formally registered (GoR 2010). Rwandan small and micro businesses comprise 97.8% of the private sector and account for 36% of private sector employment (GoR 2010). Medium-sized enterprises account for 0.22% of businesses in Rwanda, and contribute 5% of total private sector employment (GoR 2010). Therefore SMEs comprise approximately 98% of the businesses in Rwanda and account for 41% of all private sector employment. Only 24% of the formally registered businesses in Rwanda pay taxation regularly (GoR 2010). SMEs therefore represent a potential source of tax revenue to help alleviate Rwanda's dependence on foreign assistance and reduce comparative inequality within Rwanda.

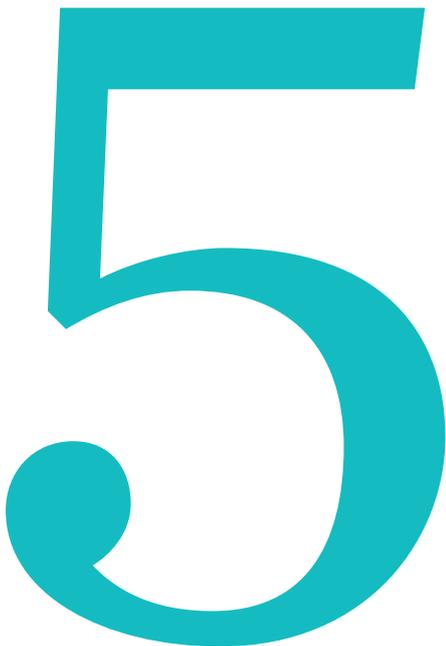
The GoR developed the **SME Development Policy** in 2010 to address shortcomings within the SME landscape and to help unlock the underlying potential of SMEs to contribute to Rwanda's national development. This policy was seen as a critical step towards making existing and new Rwandan SMEs more competitive in the East African Community common market and reversing the current import:export trade imbalance.

Private Sector Federation (PSF):

The Private Sector Federation (PSF) is a professional umbrella organisation dedicated to promoting and representing the interests of the Rwandan business community. It states that its mission, "Profitable businesses for a prosperous Rwanda", reconciles business and Rwandan society by aligning the business communities' interests to those of broader Rwandan society. Through its nine chambers the PSF collects information from private sector actors, provides training and support to these businesses, facilitates access to information on local, regional and international markets, and enters into dialogue with the GoR to advocate for businesses' needs on their behalf.

The PSF and REMA have signed a Memorandum of Understanding (MoU) regarding the training of business operators and investors on the potential impacts of climate change, how to convert the risks associated with climate change into opportunities, and the importance of maintaining the integrity of the natural environment and ecosystem services that underpin their business operations (REMA 2013). This is part of the GoR's efforts to develop innovative public-private sector relationships to facilitate low-carbon resilient development through knowledge transfer and skill development to build the capacity of the private sector in Rwanda.

Discussion and conclusion



It is clear that the GoR is aware of the threat of anthropogenic climate change to the economic growth and social progress Rwanda has already achieved, and that which it aspires to in the future. Attempting to mitigate these risks and ensure that its development is sustainable and that its ambitious targets can be reached, the GoR has made strides in recent years in implementing a development-first approach to mainstreaming low-carbon resilient development strategies into its traditional development planning processes. Rwanda is pioneering the way as an early adopter of this approach. Without a doubt, the significant level of political will and support for this agenda has been critical to Rwanda's progress in this regard.

The GoR has designed a well-structured and coherent planning system to deliver its low-carbon resilient development agenda. Through this desk-based analysis we found that each of the major components of the system – the policy framework, financial mechanisms, and institutional arrangements – have been carefully designed to align, compliment, and help facilitate the functioning of one another. It appears that there has been attention to sequencing in the recent development of policies, strategies and plans, leading to what looks to be their successful alignment.

The explicit use of mainstreaming and a broad agenda encompassing climate, environment and development have been key elements of Rwanda's approach. Rwanda's National Strategy for Climate Change and Low Carbon Development represents the GoR's first comprehensive attempt to articulate climate mitigation and adaptation as integral aspects of national and sectoral socio-economic development objectives. Rwanda's key national development strategy, the EDPRS2, has gone a long way to mainstreaming strategies from the National Strategy for Climate Change and Low Carbon Development into its traditional development planning framework, particularly in relation to integrated land use planning and management, sustainable small-scale energy installations in rural areas, and low-carbon urban systems.

As the EDPRS2 was written earlier in 2013, it is still too early to see how mainstreaming into the broader development agenda will work in practice, but such an approach may offer some solutions to the problem of a climate change 'policy silo'. Mainstreaming also requires significant investment in training and capacity building, something that will take time to develop as well as political will to engage in inter-ministry negotiations over differing priorities.

An important aspect of Rwanda's success will be managing to capture, harness and direct the potential of the private sector in driving Rwanda's low-carbon resilient development (GoR 2000; GoR 2011). The GoR has been innovative in its pursuit of this goal through the actual and planned architecture of FONERWA, and the way in which it has built strategic public-private relationships for financing initiatives and building capacity, including softer instruments such as MOUs and training for different partner organisations.

There has been very little empirical work in developing countries on how or if low-carbon resilient development approaches work in practice (Fisher, 2013), and so Rwanda's activities will be important in contributing to an evidence base to support policymaking and the practical application of low-carbon resilient development in the least developed countries (LDCs). Effective monitoring and evaluation is needed to better understand the scale of any synergies, the location of win-wins and co-benefits, and any particular trade-offs or unexpected consequences such as distributional effects. This will ensure that LDC governments can learn from different approaches used, and that any potential trade-offs are recognised and managed according to nationally identified priorities.

Annex

The following five tables provide an analysis of how the strategies identified in the NSCCLCD have been mainstreamed through the EDPRS2. Although the EDPRS2 has four themes, only two of these themes – Economic Transformation and Rural Development – are relevant to this analysis.

Each theme within the EDPRS2 has a number of priority areas, which each have outcomes. Under each outcome is a list of interventions expected to achieve an outcome. Only those priority areas, outcomes and interventions relevant to the mainstreaming of the content of the NSCCLCD are listed.

The NSCCLCD has 14 programme areas (PAs) that each contain a number of actions (A). The NSCCLCD also has enabling pillars (EPs) with priorities (P) listed under each pillar. It also features a separate section known as Big Wins (BW). Only those programme areas, actions, enabling pillars, priorities and big wins that have been mainstreamed through the EDPRS2 are listed in these tables.

Table 2: How the NSCCLCD has been integrated into the EDPRS2 – Economic Transformation Theme: Priority Area 4

EDPRS2 – ECONOMIC TRANSFORMATION THEME PRIORITY AREA 4: TRANSFORM THE ECONOMIC GEOGRAPHY OF RWANDA BY FACILITATING AND MANAGING URBANISATION AND PROMOTING SECONDARY CITIES AS POLES OF ECONOMIC GROWTH.						
EDPRS2 Thematic outcome	EDPRS2 Interventions	S-ED*	CCM†	CCA‡	Link to NSCCLCD Programme Area (PA), Action (A), Enabling Pillar (EP), Priority (P)	Notes and analysis
4.1 Integrated development planning and management.	An in-depth review of the urban planning system	✓	✓	✓	PA4, A1: Integrated approach to planning and sustainable land use management	The EDPRS2 specifically states that climate change adaptation and mitigation strategies will be integrated into these planning reforms. Further detail of these strategies is not provided.
	Clear urban planning and management guidelines	✓	✓	✓	PA10, A3: Urban planning	
4.2 Develop secondary cities as poles of growth.	National investments in infrastructure planning and development	✓		✓	PA9, A3: Investment in infrastructure PA10, A3: Urban planning EP5, P3: Invest in relevant climate-resilient infrastructure projects, particularly an all-weather road network and irrigation.	The EDPRS2 focuses on improving road-based transport, and bus infrastructure in particular, representing a potential area of trade-off in relation to Rwanda's climate mitigation agenda if these vehicles are powered by fossil fuels. The NSCCLCD emphasises that the key to making urban areas sustainable will be high-density urban development which facilitates walking as a key mode of transport. This emphasis does not appear to be mirrored in the EDPRS2. The emphasis on there being multiple modes of public transport in the NSCCLCD does not feature as prominently within the EDPRS2, with its reliance on buses within a public transport system.
	Develop integrated public transport systems in major urban areas.	✓			PA10, A2: Integrated multi-mode urban transport	

* S-ED: Socio-economic development (economic growth orientated) agenda; † Climate change mitigation agenda; ‡ Climate change adaptation agenda

Table 3: How the NSCCLCD has been integrated into the EDPRS2 – Economic Transformation Theme: Priority Area 5

EDPRS2 – ECONOMIC TRANSFORMATION THEME						
PRIORITY AREA 5: PURSUE A ‘GREEN ECONOMY’ APPROACH TO ECONOMIC TRANSFORMATION.						
EDPRS2 Thematic outcome	EDPRS2 Interventions	S-ED	CCM	CCA	Link to NSCCLCD Programme Area (PA), Action (A), Big Win (BW)	Notes
5.1 Increased level of ‘green’ investment and environmentally sustainable urban development that exploits ‘green’ economic opportunities.	Build the case for green urbanisation in Rwanda.	✓	✓	✓	Links to PA10 ‘Low-carbon urban systems’	The EDPRS2 states that analytical work will be conducted on the following: 1) information on existing initiatives; 2) cost benefit analysis of potential design options for developing green urban areas; 3) analysis of policy and incentive mechanisms in the sector; 4) analysis of key capacity constraints to the implementation of green urbanisation; 5) analysis of potential institutional structures for implementing green urbanisation; 6) initial feasibility study for locating a green city pilot.
	Establish an institutional structure – a Centre of Excellence – to promote and develop green urban areas and technologies.	✓	✓	✓	X	Establishing a Rwandan-based Centre of Excellence is a new initiative in the EDPRS2. However similarly, EP5 (P4) in the NSCCLCD suggests that Rwanda develops links to regional and international Centres of Excellence to benefit from the latest research on climate resilience and low-carbon development.
	Reform policies to support green urban development.	✓	✓	✓	PA10, A1: Low energy buildings and services. PA10, A3: Urban planning – i.e. In preventing construction on unsuitable sites, such as flood plains and steep slopes.	EDPRS2 states that regulatory instruments will be developed (e.g. energy efficiency requirements in building codes; grants and rebates for renewable technology etc.).
	Develop a pilot ‘green’ city.	✓	✓	✓	X	This is a new initiative in the EDPRS2. However, the NSCCLCD suggested the piloting of ‘climate-smart villages’ under P3 of EP1.

continues

EDPRS2 – ECONOMIC TRANSFORMATION THEME

PRIORITY AREA 5: PURSUE A ‘GREEN ECONOMY’ APPROACH TO ECONOMIC TRANSFORMATION.

EDPRS2 Thematic outcome	EDPRS2 Interventions	S-ED	CCM	CCA	Link to NSCCLCD Programme Area (PA), Action (A), Big Win (BW)	Notes
5.2 High environmental standards and sustainable green innovations in the industrial and private sectors incentivised.	Develop an Environment and Climate Change Innovation Centre.		✓	✓	PA7, A3: Promoting green technologies.	The EDPRS2 states that the centre will have a mandate to promote transformational green innovation in the industrial and private sectors. It will build on and link to existing institutions – specifically the National Industrial Research and Development Centre, the Cleaner Production Centre, and the Centre of Excellence described under Outcome 5.1. The NSCCLCD states that Rwanda will host a Climate Innovation Centre in its Special Economic Zone (SEZ) in Kigali.
	Build a regulatory environment that incentivises green technologies and innovation.	✓	✓		PA7, A3: Promoting green technologies.	
	Pilot promising ‘green’ technologies.	✓	✓		PA7, A3: Promoting green technologies. BW1 (LDC/CM): Geothermal power generation	
	Pilot a model mine.	✓	✓		X	This is a new initiative in the EDPRS2. Although not stated within the EDPRS2 what a ‘model mine’ entails, a ‘model mine’ may be one that meets the standards set out in actions 1–4 of Programme 8 (Climate compatible mining) within the NSCCLCD, including measures in relation to renewable energy use, energy efficiency, water management and capacity building.

Table 4: How the NSCCLCD has been integrated into the EDPRS2 – Rural Development Theme: Priority Area 1

EDPRS2 – RURAL DEVELOPMENT THEME						
PRIORITY AREA 1: INTEGRATED APPROACH TO LAND USE AND RURAL SETTLEMENTS.						
EDPRS2 Thematic outcome	EDPRS2 Interventions	S-ED	CCM	CCA	Link to NSCCLCD Programme Area (PA), Action (A), Enabling Pillar (EP), Priority (P)	Notes
1.1 Improved land rights and land administration.	Securing land tenure for all land claimants through systematic Land Administration. Coordinated Land Use Planning through District Land Use Master Plans.	✓	✓	✓	PA4, A1: Integrated approach to planning and sustainable land use management.	
	Layout plans of villages designed through a consultative process.	✓	✓	✓	X	This is a new initiative in EDPRS2.
	Land use planning is monitored and enforced.	✓	✓	✓	EP4, P4: Develop monitoring, evaluation and reporting systems to improve planning and provide the evidence base to receive climate finance.	

Table 5: How the NSCCLCD has been integrated into the EDPRS2 – Rural Development Theme: Priority Area 2

EDPRS2 – RURAL DEVELOPMENT						
PRIORITY AREA 2: PRODUCTIVITY AND SUSTAINABILITY OF AGRICULTURE.						
EDPRS2 Thematic outcome	EDPRS2 Interventions	S-ED	CCM	CCA	Link to NSCCLCD Programme Area (PA), Action (A), Enabling Pillar (EP), Priority (P), Big Win (BW)	Notes
2.1 Increased productivity and sustainability of agriculture.	Irrigation expanded and developed by public and private sector.	✓		✓	BW1 (CCA): Irrigation infrastructure.	Whilst the NSCCLCD links the need to expand irrigation infrastructure to building resilience to climate change, the EDPRS2 has not explicitly done so. The NSCCLCD also emphasises the relationship between irrigation and broader integrated water resource management (PA3) to improve sustainability of the infrastructure and coordinate its development with disaster risk reduction (PA13) activities.
	Land husbandry approach promoted across Rwanda.	✓	✓	✓	PA1, A1: Mainstreaming of agroecology	The detail provided in both strategies does not make it clear which agroecology techniques will be mainstreamed into Rwanda's Land Husbandry programme, and how this will increase productivity. However, terracing is mentioned, as well as agroforestry (PA12) and integrated soil fertility management and erosion control.
2.2 Increased public and private advisory services to farmers for skills development.	Farmer field school scaled up	✓	✓	✓	EP3, P1: Improve education by...expanding farmer field schools to address climate resilience and low-carbon development.	The EDPRS2's focus is on the ability of farmer field schools to help farmers increase productivity and income generation. The EDPRS2 does not explicitly make the link to climate change's ability to potentially undermine productivity and income generation and does not state that farmer field schools will address climate resilience and low-carbon development.

Table 6: How the NSCCLCD has been integrated into the EDPRS2 – Rural Development Theme: Priority Area 4

EDPRS2 – RURAL DEVELOPMENT						
PRIORITY AREA 4: CONNECTING RURAL COMMUNITIES TO ECONOMIC OPPORTUNITIES THROUGH IMPROVED INFRASTRUCTURE.						
EDPRS2 Thematic outcome	EDPRS2 Interventions	S-ED	CCM	CCA	Link to NSCCLCD Programme Area (PA), Action (A), Big Win (BW)	Notes
4.1 Quality road network and rural feeder roads extended and in good condition.	Feeder road construction	✓		✓	BW2 (CCA): Robust road network.	Potential area of trade-off (see p. 19).
4.2 Increased access to electricity for rural households.	Targeted electrification.	✓		✓	PA5 'Low-carbon energy mix powering the national grid'.	<p>Potential area of trade-off (see p. 19).</p> <p>The EDPRS2 does not appear to have incorporated the strategies under PA5 'Low-carbon energy mix powering the national grid' from the NSCCLCD.</p> <p>The EDPRS2 states that the typical rural household requires energy for a cell phone, radio and lights. These types of consumption may also be suited to solar and micro-grid.</p>
	Encourage rapid growth in private sector solar products.	✓	✓	✓	PA6, A1: Private sector involvement	
	Scale-up of off-grid micro hydro generation.	✓	✓	✓		
	Ensure energy education for the population.	✓	✓	✓	PA6, A3: Build consumer confidence	

continues

EDPRS2 – RURAL DEVELOPMENT

PRIORITY AREA 4: CONNECTING RURAL COMMUNITIES TO ECONOMIC OPPORTUNITIES THROUGH IMPROVED INFRASTRUCTURE.

EDPRS2 Thematic outcome	EDPRS2 Interventions	S-ED	CCM	CCA	Link to NSCCLCD Programme Area (PA), Action (A), Big Win (BW)	Notes
4.3 Increased rural households use of efficient cooking sources and methods.	Improve sourcing of wood and charcoal sector support.	✓	✓	✓	PA12, A4: Licensing of sustainable charcoal production techniques and promotion of Improved Cookstoves for efficient and clean wood and charcoal consumption.	
	Promote biogas and alternative sustainable biomass sources.	✓	✓	✓		
	Promotion of improved cooking stoves.	✓	✓	✓		
4.5 Increased access to water and sanitation facilities in rural areas.	Quality of water delivery improved.	✓		✓	PA3, A4: Water security through efficiency and conservation.	
	Sanitation coverage is improved in rural areas.	✓		✓		

References

- African Development Bank (AfDB) and Government of Rwanda. 2013. *Rwanda Energy Sector Review and Action Plan – Final Report*. Accessed at: www.afdb.org/en/documents/document/rwanda-energy-sector-review-and-action-plan-31814/ on 19 May 2014
- Fisher, S. 2013. *Low-carbon resilient development in the least developed countries: emerging issues and areas of research*. Issues Paper. International Institute for Environment and Development, London. October, 2013.
- Government of Rwanda. 2000. *Rwanda Vision 2020*. Accessed at: http://www.minecofin.gov.rw/fileadmin/General/Vision_2020/Vision-2020.pdf on 22 May 2014.
- Government of Rwanda. 2010. *Small and medium enterprises (SME) Development Policy*. Ministry of Trade and Industry. June 2010.
- Government of Rwanda. 2011. *Green Growth and Climate Resilience: National Strategy for Climate Change and Low Carbon Development*. Kigali. October 2011.
- Government of Rwanda (GoR). 2012. Operational manual: Government of Rwanda Environment and Climate Change Fund (FONERWA) Design Project. July 2012.
- Government of Rwanda. 2013. *Economic Development and Poverty Reduction Strategy 2: 2013 – 2018*. Kigali. July 2013.
- Government of Rwanda. 2014. *FONERWA Brochure*. Accessed at: <http://www.fonerwa.org/about> on 15 May 2014.
- Government of Rwanda, no date, FONERWA Final Report. Accessed at http://rema.gov.rw/rema_doc/FONERWA/fonerwa_finalreport_web.pdf on 19 May 2014.
- Kaur, N., Rwirahira, J., Fikreyesus, D., Rai, N., and Fisher, S. 2014. IIED Policy and Planning Briefing: Financing a transition to climate-resilient green economies. International Institute for Environment and Development (IIED), London, April 2014.
- Ministry of Finance and Economic Planning (MINECOFIN). 2014. Webpage: About: <http://www.minecofin.gov.rw/index.php?id=53> – accessed on 26 July 2014.
- Ministry of Natural Resources (MINIRENA). 2014. Webpage: Missing and Function: <http://www.minirena.gov.rw/index.php?id=133> – accessed on 26 July 2014.
- Pervin, M., Sultana, S., Phirum, A., Camara, I.F., Nzau, V.M., Phonnasane, V., Kaur, P.N., and Anderson, S. 2013. *A framework for mainstreaming climate resilience into development planning*. IIED Working Paper, August 2013.
- Pratt, J., Palerm, J., and Gakuba, A. 2012. Strategic Environmental Assessment for Agricultural Sector in Rwanda. SEA Study Report – January 2012. SAFEGE Consortium. Funded by the European Development Fund.
- Ranger, N., & Garbett-Shiels, S.-L. 2012. Accounting for a Changing and Uncertain Climate in Planning and Policymaking Today: lessons for developing countries. *Climate and Development*, 4(4), pp.288–300.
- REMA. 2013. *REMA Enhances Existing Partnership with PSF*. 1 March 2013. Accessed at: http://www.rema.gov.rw/index.php?option=com_content&view=article&id=366%3Arema-enhances-the-existing-partnership-with-psf&catid=189%3Arecent-events&lang=en on 15 May 2014.
- Stockholm Environment Institute (SEI). 2009. *Economics of Climate Change in Rwanda*.
- Tompkins, E., et al. 2013. *An investigation of the evidence of benefits from climate compatible development*. Sustainability Research Institute working paper No. 44. University of Leeds.
- The World Bank. 2009. *Convenient solutions to an inconvenient truth: ecosystem-based approaches to climate change*. Environment Department, The World Bank: Washington D.C. June 2009.
- United Nations Framework Convention on Climate Change (UNFCCC). 2012. *The National Adaptation Plan Process: a brief overview*. LDC Expert Group, December 2012.

Related Reading

- Fisher, S. 2013. *Low-carbon resilient development in the least developed countries: emerging issues and areas of research*. Issues Paper. International Institute for Environment and Development, London. October, 2013.

This country report provides an overview of the three key dimensions of Rwanda's planning system – policy frameworks, financial mechanisms and institutional arrangements – and explains how low-carbon resilient development is being integrated into each of these components. Rwanda is an early adopter of low-carbon resilient development and therefore provides an example of how national governments are working towards climate resilient planning in different contexts. This report is part of a comparative research project involving Rwanda, Ethiopia and Bangladesh which explores how the low-carbon and climate resilience agendas can be brought together in national planning. See Fisher (2013) for a comprehensive overview of low-carbon resilient development in the least developed countries.

IIED is a policy and action research organisation. We promote sustainable development to improve livelihoods and protect the environments on which these livelihoods are built. We specialise in linking local priorities to global challenges. IIED is based in London and works in Africa, Asia, Latin America, the Middle East and the Pacific, with some of the world's most vulnerable people. We work with them to strengthen their voice in the decision-making arenas that affect them – from village councils to international conventions.



International Institute for Environment and Development
80-86 Gray's Inn Road, London WC1X 8NH, UK
Tel: +44 (0)20 3463 7399
Fax: +44 (0)20 3514 9055
email: info@iied.org
www.iied.org



Knowledge
Products