



REPUBLIC OF RWANDA

INTENDED NATIONALLY DETERMINED CONTRIBUTION (INDC) FOR THE REPUBLIC OF RWANDA

INTRODUCTION

Rwanda, known as the "land of a thousand hills" is a landlocked country of 26,338 square kilometres, geographically located in Central Africa between 1°04' and 2°51' of south latitude and between 28°45' and 31°15' of east longitude¹. The country has seen significant economic development in recent years, with GDP growing at an average of over 8% annually over the last decade and targeted to reach 11.5 % under the medium term development implementation framework EDPRS II². It has a population of 10,515,973 people³ which is growing at 2.8% per year. Important to note however is that Rwanda's fertility rate has reduced from 6.1 in 2005 to 4.2 in 2014 and that food crop production growth has grown more twice that of the population between 2007 and 2014 while per capita income has tripled from US\$ 211 in 2001 to US\$ 718 in 2014⁴. A vision for 2050 based on the Green Growth and Climate Resilience Strategy envisages Rwanda as a developed climate-resilient, low carbon economy, with a strong services sector, low unemployment and low levels of poverty. It would be a country where agriculture and industry have a minimal negative impact on the environment, operating in a sustainable way, and enabling self-sufficient basic necessities for all living in it. By 2050, development will be achieved with low carbon domestic energy resources and practices, reducing the country's contribution to climate change while allowing it to be independent of imported oil for power generation. Finally, Rwanda will have the robust local and regional knowledge to be able to respond and adapt to changes in the climate and the resulting impacts.

Rwanda is pleased to submit this preliminary INDC to the Convention. This affirms the country's commitment to engage in the forthcoming international process of developing a

¹ second National Communication report 2012

² Economic Development and Poverty Reduction Strategy II (2013-2018)

³ Fourth Population and Housing Census 2012

⁴ 4th Integrated Household Living Conditions Survey (2013/14)

climate change agreement. Rwanda plans to elaborate this INDC in full and re-submit it prior to the Conference of Parties in Paris in December 2015.

Rwanda has been committed to addressing the challenge of climate change since 1998 when it ratified the United Nations Framework Convention on Climate Change (UNFCCC) and later the Kyoto Protocol in 2003. The country submitted its Initial National Communication to the UNFCCC in 2005, National Adaptation Programmes of Action (NAPA) in 2006, and the Second National Communication in 2012. The Third National Communication is under preparation.

Rwanda's INDC is built upon its National Strategy for Climate Change and Low Carbon Development Strategy. The full implementation of this strategy rests upon five enabling pillars: Institutional Arrangements; Finance; Capacity Building and Knowledge Management; Technology, Innovation and Infrastructure; and Integrated Planning and Data Management.

ADAPTATION CONTRIBUTION	
Rationale and process for adaptation contribution	Rwanda is highly vulnerable to climate change, as it is strongly reliant on rain-fed agriculture both for rural livelihoods and for exports of mainly tea and coffee. With the highest population density in Africa ⁵ , adaptation concerns are central to the INDC. In recent years, extreme weather events in Rwanda increased in frequency and magnitude what, in some parts of the country, led to significant losses including human lives ⁶ . Floods and landslides were increasingly reported in the high altitude Western and Northern Provinces, whereas droughts made severe damages in the Eastern Province ⁷ .
Summary of climate change trends, impacts and vulnerabilities	Rwanda has experienced a temperature increase of 1.4°C since 1970 ⁸ , higher than the global average, and can expect an increase in temperature of up to 2.0°C by the 2030s from 1970. Rainfall is highly variable in Rwanda but average annual rainfall may increase by up to 5-10% by the 2030s from 1970 ⁹ . This is expected to lead to increasing rainfall intensity, leading to a higher frequency of floods and storms resulting in landslides, crop losses, health risks, and damage to infrastructure, as well as an increase in temperatures resulting in proliferation of diseases, crop decline and reduced land availability that impacts on food security and export earnings.
Adaptation vision and goals	
Vision for adaptation	Rwanda's long term vision is to become a climate resilient economy, with strategic objectives to achieve Energy Security and a Low Carbon Energy Supply that supports the development of Green Industry and Services; Sustainable Land

⁵ World Bank Data 2015

⁶ The assessment of economic impacts of the 2012 wet season flooding in Rwanda 2013

⁷ Rwanda baseline climate change vulnerability index 2015

⁸ Green Growth and Climate Resilience Strategy 2011

⁹ IPCC Fifth Assessment Report 2013

	Use and Water Resource Management that result in Food Security, appropriate Urban Development and preservation of Biodiversity and Ecosystem Services, as well as to ensure Social Protection, Improved Health and Disaster Risk Reduction that reduces vulnerability to climate change impacts ¹⁰		
Sector goals	The priority adaptation actions have been identified in Rwanda's Green Growth and Climate Resilient Strategy (2011), are on-going and will be partially or fully achieved by 2050. Many of the actions specified under the sectors programmes have both mitigation and adaptation benefits.		
	Programmes of Action	Mitigation benefit	
		Indirect	direct
Agriculture	<i>Sustainable intensification of agriculture</i>		
	Mainstreaming agroecology techniques using spatial plant stacking as in agroforestry, kitchen gardens, nutrient recycling, and water conservation to maximise sustainable food production;	X	
	Utilising resource recovery and reuse through organic waste composting and wastewater irrigation;	X	
	Using fertiliser enriched compost		X
	Mainstreaming sustainable pest management techniques to control plant parasites and pathogens	X	
	<i>Agricultural diversity in local and export markets</i>	X	
	Expanding crop varieties for import substitution and climate resilience	X	
	Add value to agricultural products through processing to meet its own market demand for food stuffs;	X	
	Develop decentralised village-based agricultural processing centres that incorporate low-carbon sources of energy, such as biogas-digesters and solar driers; and		X
	Develop niche export crops under organic and fair-trade branding.	X	
Forestry	<i>Sustainable Forestry, Agroforestry and Biomass Energy</i>		
	Promote afforestation/reforestation of designated areas through enhanced germplasm and technical practices in planting and post-planting processes;		X
	Employ Improved Forest Management for degraded forest resources;		X
	Formulate a joint strategy for agroforestry between the Ministry of Natural Resources (MINIRENA) and the Ministry of Agriculture and Animal Resources (MINAGRI);		X
	Mandate licensing of sustainable charcoal production techniques and promote improved cookstoves for efficient and		X

¹⁰ Green Growth and climate resilience Strategy, 2011

	clean wood and charcoal consumptions.		
Tourism	<i>Ecotourism, Conservation and Payment for Ecosystem Services Promotion in Protected Areas</i>		
	Maximise business tourism (the largest source of export revenues) through strategic conference management in order to maximise the distribution and volume of business travellers throughout the year	X	
	Increase the Community Benefit Fund from 5% of tourism revenues and ensure more equal distribution of resources to the poorest income quintiles; and	X	
	Establish participatory Payments for Ecosystem Services (PES) schemes in Nyungwe forest and establishing the 4th National Park of Gishwati-Mukurawe.	X	
Climate Data and Projections	<i>Climate Data and Projections</i>		
	Arrange additional observations to provide all climate information necessary for future monitoring, climate trend detection, management of climate variability, early warning and disaster management;	X	
	Strengthen the institutional capacity to produce and interpret climate change projections for Rwanda, with a focus on disseminating climate model data in a user-friendly format for use by all stakeholders	X	
	Develop the capacity in climate science by incorporating climate science into secondary school, and university curricula.	X	
	Enhance the use of climate data in disease prevention and mitigation programmes for human health and agricultural crop productivity.	X	
Water	<i>Integrated Water Resource Management and Planning</i> Establish a national integrated water resource management framework that incorporates district and community-based catchment management; Develop water resource models, improved meteorological services, water quality testing, and improved hydro-related information management; and Develop a National Water Security Plan to employ water storage and rain water harvesting, water conservation practices, efficient irrigation, and other water efficient technologies.		
Land Use	<i>Integrated Approach to Sustainable Land Use Planning and Management</i> Employ an integrated approach to planning and sustainable land use management; Improve spatial data by harnessing ICT and GIS (Geographic Information System) technology; and Establish a National Information Sharing and Access Policy to guide management of this data.		
Health and Disaster Risk Management	<i>Disaster Management and Disease Prevention</i> Conduct risk assessments, vulnerability mapping and vector-borne disease surveillance; Establish an integrated early-warning system, and disaster response plans;		

	<p>Incorporate disaster and disease considerations into land-use, building and infrastructure regulations; and</p> <p>Employ community-based disaster risk reduction (DRR) programmes designed around local environmental and economic conditions, to mobilise local capacity in emergency response, and to reduce locally-specific hazards.</p> <p>Increase investment in climate resilient transport infrastructure, particularly roads;</p>
Reporting on current and planned undertakings and support in adaptation	<p>The Government of Rwanda has taken various measures in order to limit the losses linked to climate and increase adaptive capacity, including:</p> <p>Putting in place a ministry in charge of managing disasters, most of which are linked to climate;</p> <p>Establishing a climate change department in its environment regulation agency, the Rwanda Environment Management Authority (REMA);</p> <p>The recognition that whereas Rwanda wishes to maintain rapid economic growth and whereas climate change is a serious threat to the achievements of economic development and poverty reduction:</p> <ul style="list-style-type: none"> ▪ A national strategy green growth and low-carbon development was developed and implemented in 2011; ▪ A statutory fund for environment and climate change established in 2012; and ▪ Priority interventions for developing a green economy approach to economic transformation elaborated in the medium term strategy- EDPRS II. ▪ Additional costs determined for the green growth of the key sectors of Rwanda's economy: energy, water and agriculture.
MITIGATION CONTRIBUTION	
Timeframe	up to 2030 ¹¹
Type of Contribution	Emission reductions from projected emissions resulting from the deviation of BAU emissions for the year 2030 based on policies /actions conditional on availability of international support for finance, technology and capacity building.
Estimated GHG emissions reduction	Estimated impact of policies/actions is underway and will be informed by the Third National Communication Report which will be completed by 2017.
Sectors covered	Agriculture, Energy, Industry, Urban and Rural Settlement, Transport, Land use, Forestry, Waste
GHG covered	CO ₂ , N ₂ O, CH ₄ .
Mitigation actions	
Vision for mitigation	On the road to a low carbon economy, Rwanda aims to achieve Energy Security and a Low Carbon Energy Supply that support the development of Green Industry

¹¹ Although the Green Growth and Climate Resilience Strategy is a 2050 vision, the planning framework for mitigation actions was set for 2030 taking into consideration the dynamic tendency for rapid change in technologies.

	and Services and avoids deforestation.	
Sector	Programmes of Action	
Energy	<i>Low carbon energy mix powering the national grid</i> Develop a strategy to phase out fossil fuels, utilise Rwanda's domestic energy resources, and increase energy efficiency; Establish renewable energy feed-in-tariffs and public-private partnership to encourage investment Implement renewable energy guidelines and codes of practice	
	<i>Sustainable small-scale energy installations in rural areas</i> Encourage Private Sector involvement through performance-based grants and incentives for consumer finance Maximise energy project potential through high load factors and appropriate maintenance; Build consumer confidence through demonstration and product standards	
Transport	<i>Efficient resilient transport systems</i> Improve vehicle efficiency through vehicle and fuel quality regulations and taxation policies; Promote new technologies to reduce transport emissions Establish an integrated multi-mode urban transport system	
Industry	<i>Green industry and private sector development</i>	Adaptation benefit
	Scale up resource efficiency to reduce energy and water demand, thus reducing emissions and promoting resilience	x
	Employ efficient and zero waste technologies, practices and design in Special Economic Zones and provincial industrial parks;	x
	Establish Climate Innovation Centres to support investment in industries producing and/or green technologies.	x
	Build carbon trading capacity within the private sector	
	<i>Climate compatible mining</i>	
	Implement energy efficiency at operations, through measuring and reporting, setting targets and using efficient technologies	
	Utilise electricity from renewable energy sources, either from the national grid or on-site generation;	
	Employ good water management practices on operations, including water efficiency and flood management	x
Settlement and waste	<i>Low Carbon Urban Systems</i>	
	Adopt energy and water efficiency standards into building codes	x
	Employ low carbon urban planning	
	Fully utilize urban waste as a high-value resource stream.	
Fairness, equity, ambition and means of implementation (cross-cutting for both mitigation and adaptation)		
Fairness, equity and ambition	Rwanda is part of the Least Developed Countries and has a low human development index according to the Human Development Report 2014. The country is still facing social and economic challenges addressed in the Economic	

	<p>Development and Poverty Reduction Strategy (2013 - 2018).</p> <p>Adaptation is the first priority of the country due to high vulnerability of key economic activities such as agriculture, energy and forestry. In addition, Rwanda has one of the lowest GHG emissions per capita in the world estimated at 0.99 tCO₂eq/person (2013)¹². It should also be noted that the net emissions of Rwanda as per second national communication (emissions net of sequestration) were negative in 2005.</p> <p>Despite this, Rwanda has established mitigation targets in different sectors through its Green Growth and Climate Resilience Strategy and mainstreamed Green Economy in its Economic Development and Poverty Reduction Strategy. In this context, Rwanda considers that its Contribution is equitable and ambitious.</p>
Planning processes	<p>Rwanda's INDC has been developed taking into consideration various national guiding documents, including Green Growth and Climate Resilience Strategy (2011), Vision 2020, Economic Development and Poverty Reduction Strategy 2 (2013 - 2018), Sustainable Energy for All (2015 - 2030), and others.</p> <p>The development of this INDC was achieved through a participatory and transparent process through stakeholder consultations and workshops.</p>
Means of Implementation	<p>The Government of Rwanda already spends a substantial portion of its annual budget on infrastructure and the provision of social services, which contribute to low carbon and build climate resilience. However, the full implementation of this INDC will require predictable, sustainable and reliable support in the form of finance, capacity building and technology transfer.</p> <p>The initial costing of implementing the green growth and climate resilience strategy indicated that Rwanda will need 24.15 Billion USD in the sector of Water resource management, Agriculture and Energy up to 2030¹³. Costing of the remaining sectors will give the clear indication of financial needs.</p> <p>Rwanda successfully completed its Technology Needs Assessment (TNA). Elements of Rwanda's TNA process included institutional arrangements for TNA, extensive stakeholders' involvement and consultations, prioritization of sectors, barrier/market analysis and Technology Action Plans (TAP). Prioritized sectors in Rwanda's TNA were agriculture and energy.</p>
Monitoring and	<p>The Republic of Rwanda through the Ministry of Natural Resources hold the</p>

¹² The Republic of Rwanda Statistical Yearbook 2014

¹³ Report on Costing of Green Growth and Climate Resilience Strategy

reporting progress and MRV	<p>responsibility to monitor and evaluate the implementation of INDCs through regular statutory stakeholders' consultative engagement including the Environment and Natural Resources Joint Sector Review (JSR) meetings. This will ensure the effective updating and implementation of both mitigation and adaptation plans.</p>
Institutional arrangements	<p>At the institutional level, the Ministry of Natural Resources (MINIRENA) is the Ministry responsible for formulating and monitoring national policies related to climate change and environment, while the Rwanda Environment Management Authority (REMA) is the official organ responsible for implementing national policies and strategies related to climate change and environment.</p> <p>A successful implementation of this INDC requires a close coordination and collaboration between MINIRENA, REMA and all potential stakeholders including the private sector, civil society and public institutions including Ministry of Agriculture and Animal Resources, the Ministry of Trade and Industry, Ministry of Local Government, the Ministry of Infrastructure, Ministry of Education, Ministry of Health, the Ministry of Finance and Economic Planning, Ministry of Disaster Management and Refugee Affairs, Rwanda Meteorology Agency, National Institute of Statistics, Rwanda Development Board, Rwanda Standards Board, Rwanda Agriculture Board; Rwanda Energy Group; Water and Sanitation Corporation; Rwanda Natural Resources Authority; Rwanda Biomedical Centre; Rwanda Transport Development Agency; Rwanda Housing Authority; Rwanda Revenue Authority; National Industrial Research and Development Agency; research centers and Universities.</p> <p>In order to coordinate and monitor the implementation of the adaptation and mitigation actions in the different sectors, Rwanda has set up different bodies and operationalized institutional arrangements, namely the Green Economy Technical Coordinating Committee and the National Fund for Environment and Climate change (FONERWA) as a national green fund to mobilize additional internal and external climate funds. In addition, MINIRENA has been accredited as implementing entity for Adaptation Fund and Green Climate Fund (GCF) while REMA has been nominated as national designated authority for GCF. These institutions are based on a sectorwide approach and work closely with development partners, civil society, academia and the private sector.</p>
Participation in international market mechanism and	<p>The Government of Rwanda intends to sell carbon credits during the period to contribute towards achieving its Green Growth and Climate Resilience Strategy. Rwanda will also participate in other international emissions reduction mechanisms such as the Clean Development Mechanism (CDM), Nationally</p>

other emission reduction mechanisms	Appropriate Mitigation Actions (NAMAs), and the mechanism for Reducing Emissions from Deforestation and Forest Degradation (REDD+). Rwanda supports the development of effective accounting rules under the UNFCCC to guarantee the environmental integrity of market mechanisms.
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