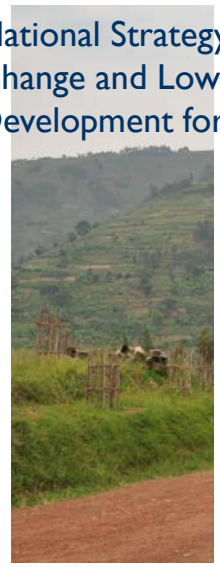
National Strategy on Climate Change and Low Carbon Development for Rwanda



SUSTAINABLE LAND USE MANAGEMENT IN RWANDA

FIG Working Week, Rome, Wednesday, 09 May 2012

Dr Mathew Warnest, Eng. Didier G.Sagashya

Rwanda

Source: Google Map Data 2012

2

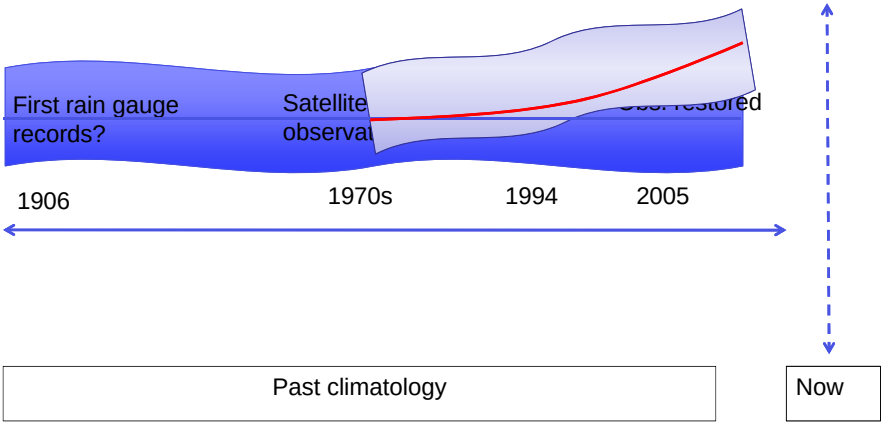
The Challenge

"As conventional supplies of oil diminish and prices rise this will impact countries like Rwanda's ability to improve wellbeing for its people…it is essential we have a new vigour to leapfrog Rwanda into a sustainable future rather than go through the painful development process that the developed world went through. Despite the economic challenges, we have an opportunity now to design Rwanda's infrastructure in a way that optimises its transition into the future."

Sir David King, Director
Smith School of Enterprise and Environment

3

Changing baseline climatology



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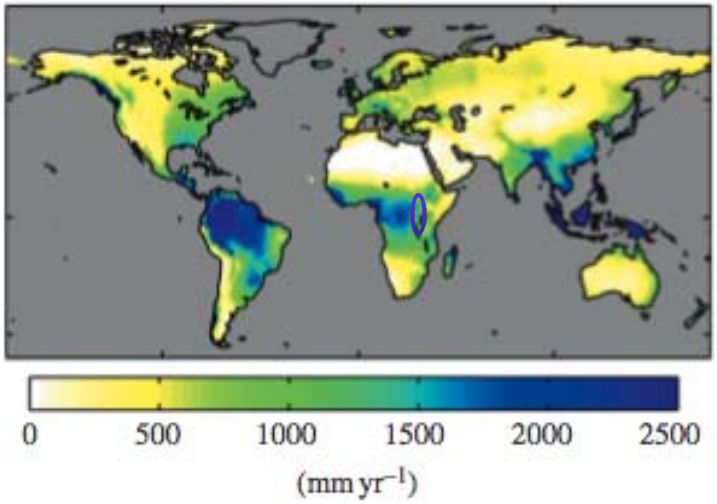
Changing baseline climatology



F. Fung et al., *Phil. Trans. R. Soc. A* (2011)

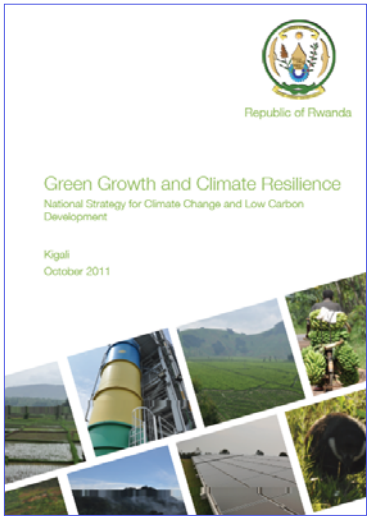
5

The Challenge

Green Growth and Climate Resilience
National Strategy for Climate Change and Low Carbon Development

Kigali, Rwanda
October 2011

Available:
http://www.smithschool.ox.ac.uk/wp-content/uploads/2011/03/Rwanda-Green-Growth-Strategy-FINAL-high-res.pdf



6

Painting a Vision for 2050

Vision

For Rwanda to be an economically self-sufficient, climate-resilient, developed low-carbon economy by 2050, having led the way for other developing countries to do the same.

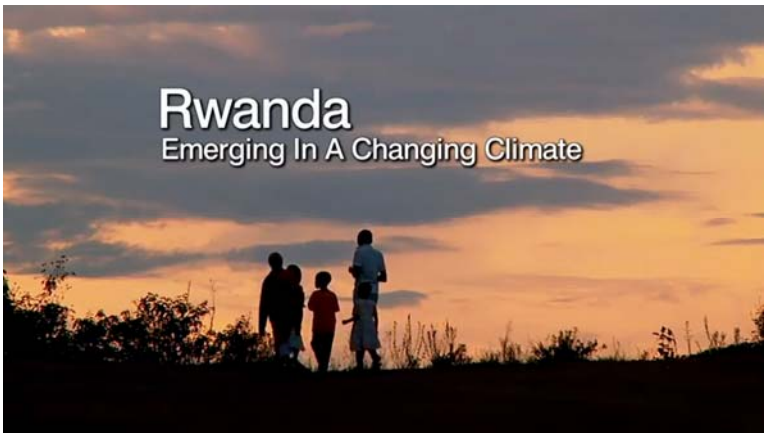
Objectives

- To streamline adaptation and mitigation into the development planning process
- To mobilise foreign funds and investments for climate change related activities
- To generate scientific and technological knowledge, skills and social systems for running a low carbon economy
- To reduce dependence on imported fossil fuels and become energy secure, and as a result reduce greenhouse gas emissions
- To become resilient to current and future impacts of climate change
- To become a global leader in climate compatible development

7

Emerging in a Changing Climate

A film by John D. Liu, EEMP with support by CDKN & SSEE



Launched at UNFCCC/COP 17 in Durban, South Africa Dec 2011
http://www.youtube.com/watch?v=WWqV_UWwFpg

http://eempc.org/ http://cdkn.org/

8

Core components

- Painting a Vision for 2050
- Mainstreaming climate change into all sectors
- Engaging with stakeholders to ensure ownership
- Enabling access to climate finance
- Establishing a national/regional climate centre of excellence
- Laying out a roadmap for implementation

9

Painting a Vision for 2050

Guiding Principles (EDPRS, Vision 2020)

- Economic growth and poverty reduction
- Welfare and wellness
- Gender equality and equity
- Sustainability of the environment and natural resources

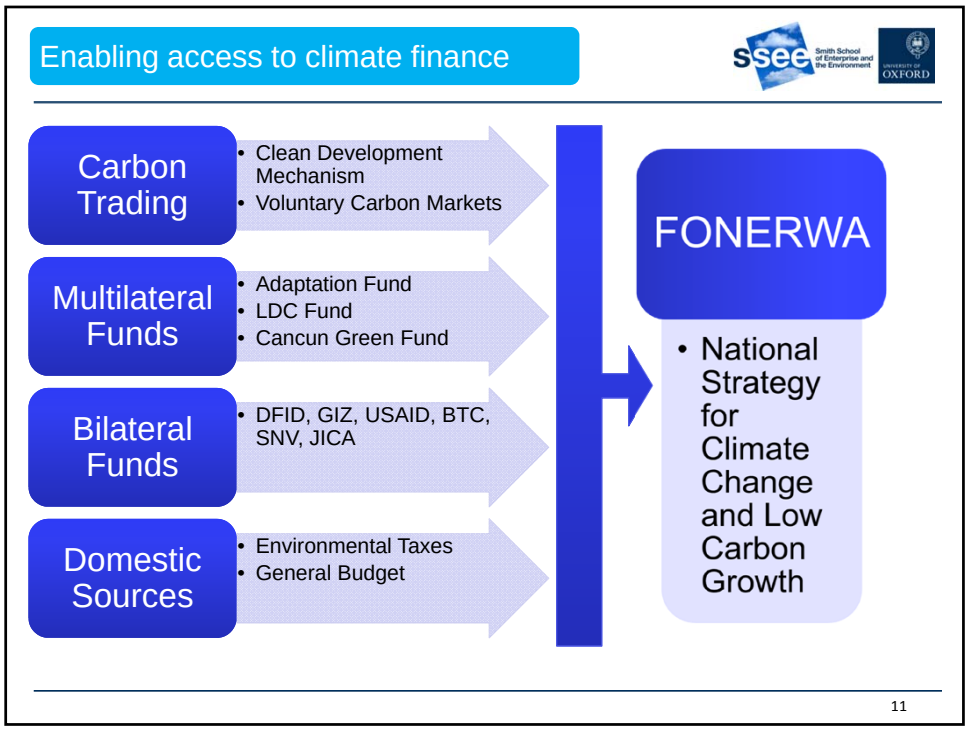
Action Plan: Programmes

Food Security	Water Security	Energy Security	Environment	Infrastructure

Enabling Pillars

Institutional framework	Financial framework	Capacity building	Technology and Research	Data and Information	Communica-tion

10



Climate Funds Toolkit

	Agriculture	Built Environment	Climate Observatory	Energy	Forestry	Land	Mining	Transport	Water
Adaptation Fund	*	*	*	*	*	*		*	*
Least Developed Country Fund	*		*	*	*	*			*
Global Environment Facility	*			*	*	*		*	*
Global Facility for Disaster Reduction and Recovery	*	*	*		*	*		*	*
Global Climate Change Alliance	*	*	*	*	*	*		*	*
Special Climate Change Fund	*	*	*			*			*
International Development Association	*	*			*	*			*
ClimDev-Africa Special Fund	*			*	*	*			*
Nordic Climate Facility	*	*		*	*			*	*
Public-Private Infrastructure Advisory Facility		*		*		*		*	*
Global Energy Efficiency and Renewable Energy Fund		*		*					
Climate Finance Innovation Facility		*		*	*				
World Bank Carbon Facility	*	*		*	*	*	*	*	*
World Bank Catastrophe Risk Management Facility	*								
Private Infrastructure Development Group		*		*				*	
Africa Enterprise Challenge Fund	*	*		*		*	*	*	*
UNDP/MDG Carbon Facility	*	*		*			*	*	
AfDB Congo Basin Forest Fund					*				
UNDP Green Commodities Facility	*				*				

National Vulnerability - 2050

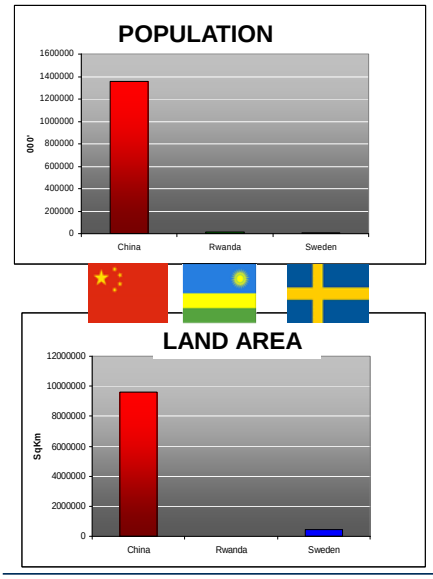
LOW ***Progression of vulnerability*** ***HIGH***

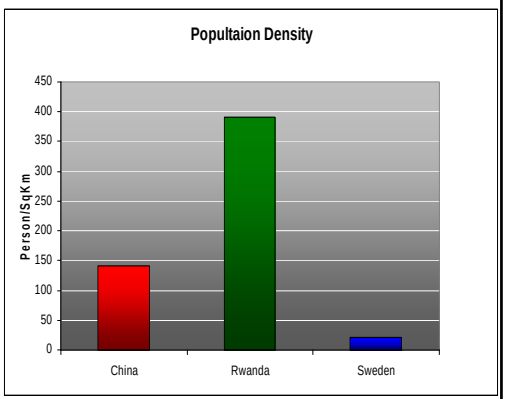
2012	*2030*	*2050*
Increased rainfall variability		
Increased temperatures		
Rising oil prices		
Rising food prices		
	Peak phosphorus resulting in steep rises to inorganic fertilizer costs	
	Population growth resulting in high demand for food, land, & water	

(A. Adam-Bradford 2011)

13

Land Use Management & Planning





2009 Figures
Source: Eng. Didier G. Sagashya
(GWF 2012)

14

Vulnerabilities - Land

- **Access to land**
- **Optimal land use**
- **Increased temperatures, climate variance impact on rainfall, soil quality, land use, intensive agriculture, urbanisation**
- **Population growth - higher demand for food, land, & water**
- **Industrial and agricultural growth and modernisation**

Economic	Social	Technological	Political	Legal	Environment
Land degradation, soil and fertility loss, land unavailable for productive use and development, un-planned settlements and urbanisation.	Access to land for production, access to credit and opportunity for wealth creation, sporadic development, settlement in high risk or sensitive areas	Land use management decision making based on adequate geo-information, prevention of unplanned communities at risk of natural and man-made disaster	Land made available for development, for individuals, imbalance of national priorities for land, confidence in governance	Formalisation security of land ownership, inadequate land use planning and development approvals	Land allocated for environmental protection, encroachment on protected areas, biodiversity loss

15

Land Use Management & Planning

Focus Areas:

- Planning
- Spatial Information
- Management
- Technology Diffusion: GIS Adoption
- Professional & Technical Capacity

16

Land Use Planning and Management: Focus Areas

- Integrated Planning
- Spatial Information Management
- Technology Diffusion: GIS Adoption
- Professional & Technical Capacity

Strategic Objective Achieved:

Sustainable Land Use and Water Resource Management, supports appropriate Urban Development, Food Security and Protection of Ecosystems

Climate Resilience and Low Carbon Development

Enabling Pillar

17

Rwanda – Achievements in Land

Key targets (on-track):
- Complete demarcation and adjudication in whole country by June 2012
- Complete issuance of all leasehold titles in all districts by Dec 2013

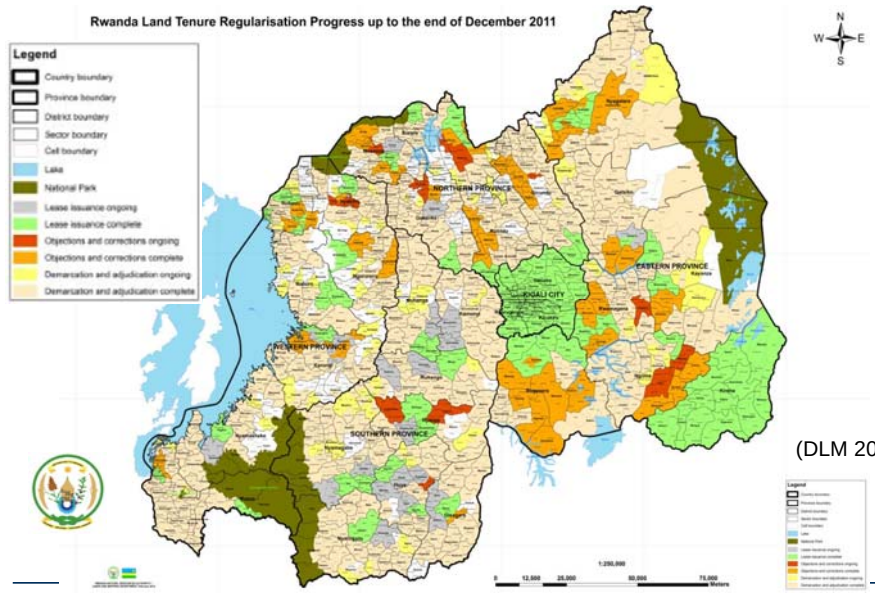
Recent Achievements:
- Over 10 million parcels demarcated to date (97%), nearly 6 million digitised, 6.5 million entered into Land Tenure Regularisation database
- National Land Use and Development Master Plan approved by Cabinet on 19th January 2011
- Land Use Planning and Development Law passed by Parliament in March 2012

"By 2013, Rwanda will be the most prepared nation in Africa to meet future challenges regarding land administration"

Eng. Didier G. Sagashya,
Head of Department of Lands and Mapping,
Deputy Director, Rwanda Natural Resources Authority

18

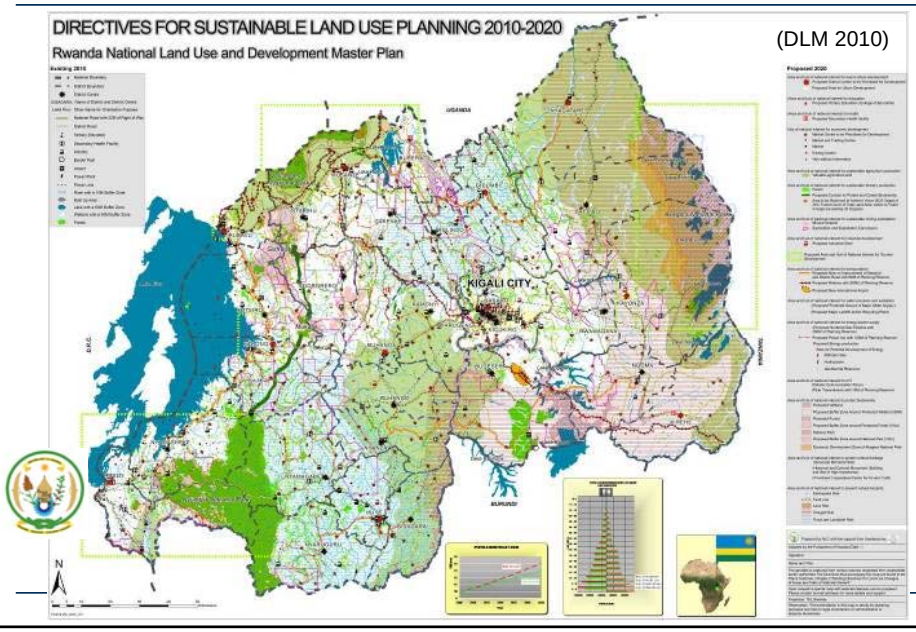
Achievements – Land Tenure



(DLM 2011)

19

Achievements – Land Use Planning



(DLM 2010)

Climate Smart Agriculture

21

Achievements- Irrigation

22

Achievements – Water Storage

23

Targets – Data & Observation

24

Targets – Energy & Innovation

25

Laying out a roadmap for implementation

Programmes of Action

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. Climate-proof and low carbon VUP programme
6. Low-carbon urban development
7. Integrated robust transport system
8. Low carbon mix for power generation for national grid
9. Renewable energy small scale installations in rural areas
10. Climate compatible mining
11. Green industry and private sector development
12. Preservation of national parks and promotion of eco-tourism
13. Sustainable biomass
14. Vulnerability mapping and Early Warning Systems
15. Disease tracking, mapping and risk management

26

Programmes of Action

Programmes of Action	Energy security	Low Carbon Development	Food security	Water security	Social protection DRR	Low carbon urban development	Preservation of ecosystems
1. Sustainable intensification of small scale farming							
2. Agricultural diversity for local and export markets							
3. Integrated Water Resource Management (IWRM)							
4. Sustainable Land Use Management and Planning							
5. Climate-proof and low carbon VUP programme							
6. Low-carbon urban development							
7. Integrated robust transport system							
8. Low carbon mix of power generation for national grid							
9. Renewable energy small scale installations in rural areas							
10. Climate compatible mining							
11. Green industry and private sector investment							
12. Preservation of national parks and promotion of eco-tourism							
13. Sustainable biomass							
14. Vulnerability mapping and EWS							
15. Disease tracking, mapping and risk management							

27

Take home points

Why Land Registration and Security of Tenure is so Important:

- Predominant means to control land use, ensure optimal land use
- Encourages land improvement & sustainable land use
- Access to credit and finance – land owners have means to improve land and livelihoods
  - Increased employment
  - Improved child access to education
- Increased revenue from property enables improved services
- Tenure security increases confidence of financiers and allows increase in equity/lending, driving development
- Directly fosters household-level and national economic growth
- A primary step in nation building and overcoming poverty
- Higher income populations are more resilient to disaster

28

Take home points

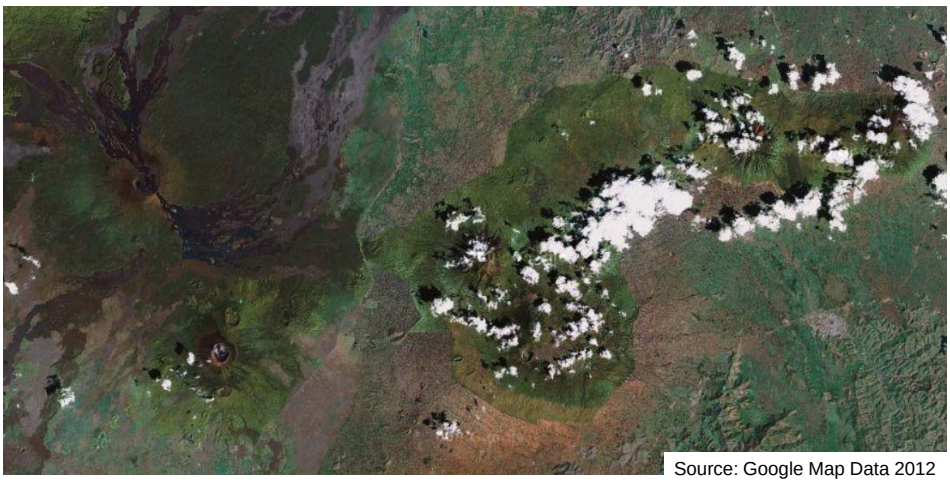
"Comprehensive and integrated spatial information and systems are critical to understanding our natural and built environments and preparing communities for unknown futures"

"The spatial sciences disciplines have the expertise, technology and skills base to contribute to solving the worlds most pressing challenges of food security, climate change, resource efficiency, water security, optimal land use, and disaster risk reduction"

"Rwanda is setting the benchmark for emerging nations to achieve optimal land use through comprehensive land tenure regularisation, integrated national planning, sustainable land use management and improved spatial information management"

29

Volcanoes National Park



Source: Google Map Data 2012

30

Thank you

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Photos: Warnest 2009-2011

31