RESEARCH PROGRAM ON Climate Change, Agriculture and Food Security

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Collaboration on climate innovation for a low carbon and climate resilient Africa: CCAFS partnerships and approaches

James Kinyangi

CCAFS Regional Program Leader – East Africa

CCAFS is a global research partnership on smallholder agriculture under climate change

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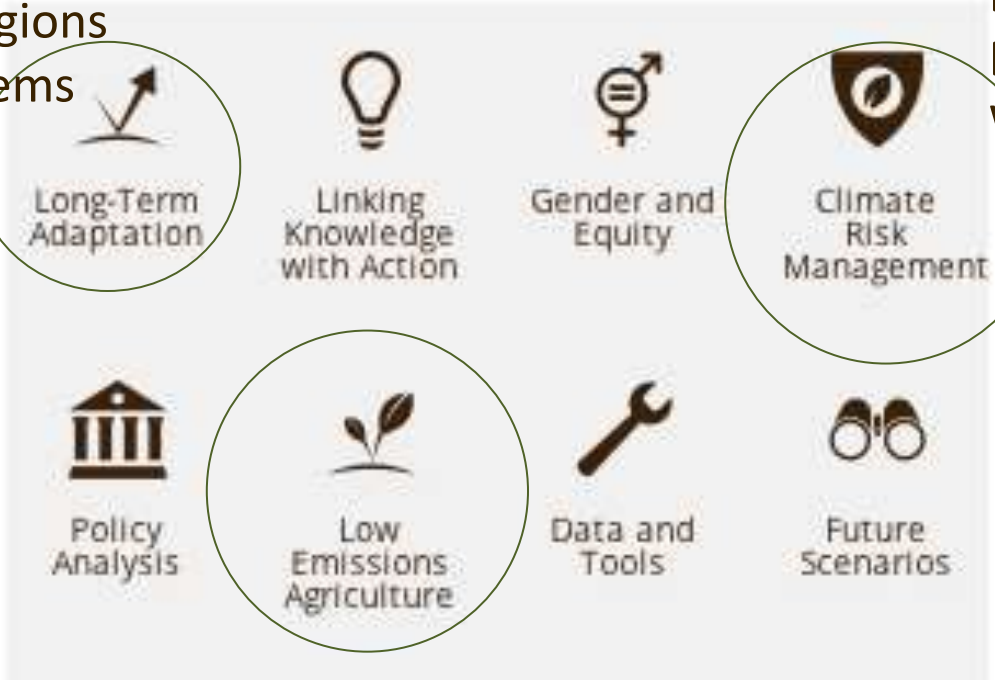
Climate & impact models
Future farming regions
New farming systems
Public policy

Seasonal forecasts
Diversification
Early warning systems
Weather insurance



Low-carbon development pathways
Solutions for mitigation in smallholder systems

All CCAFS outputs are free & online at www.ccafs.cgiar.org

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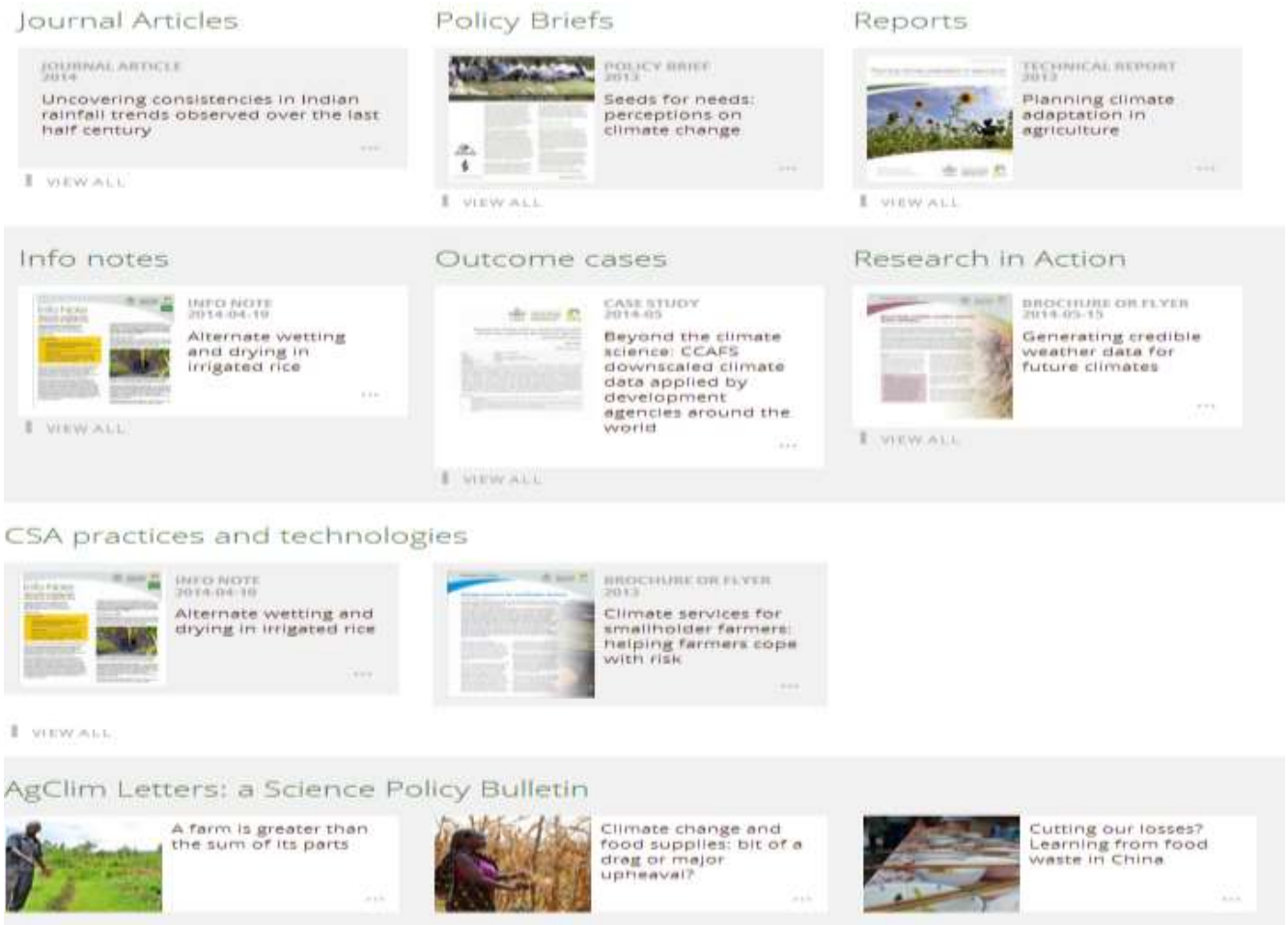

Searchable blog stories provide an easy entry point

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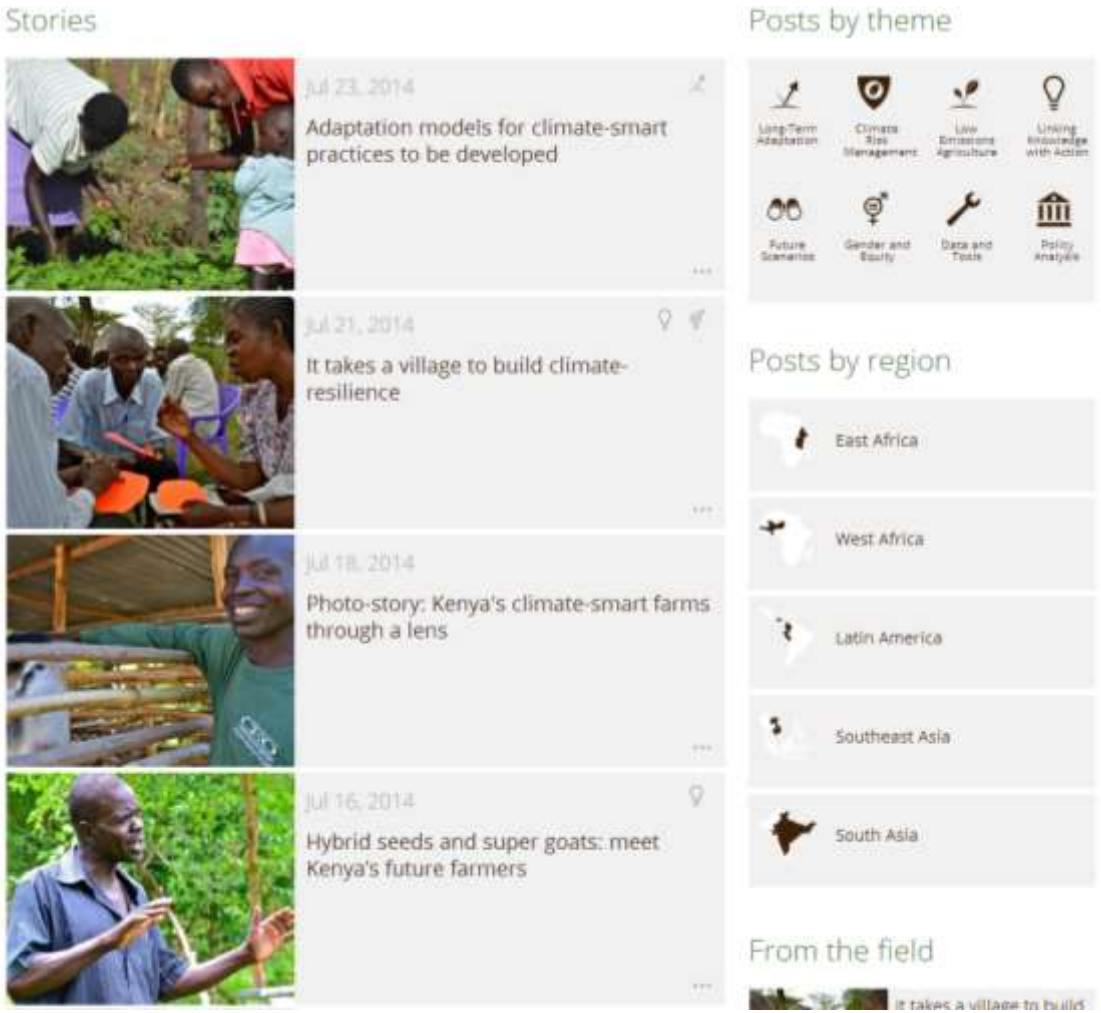
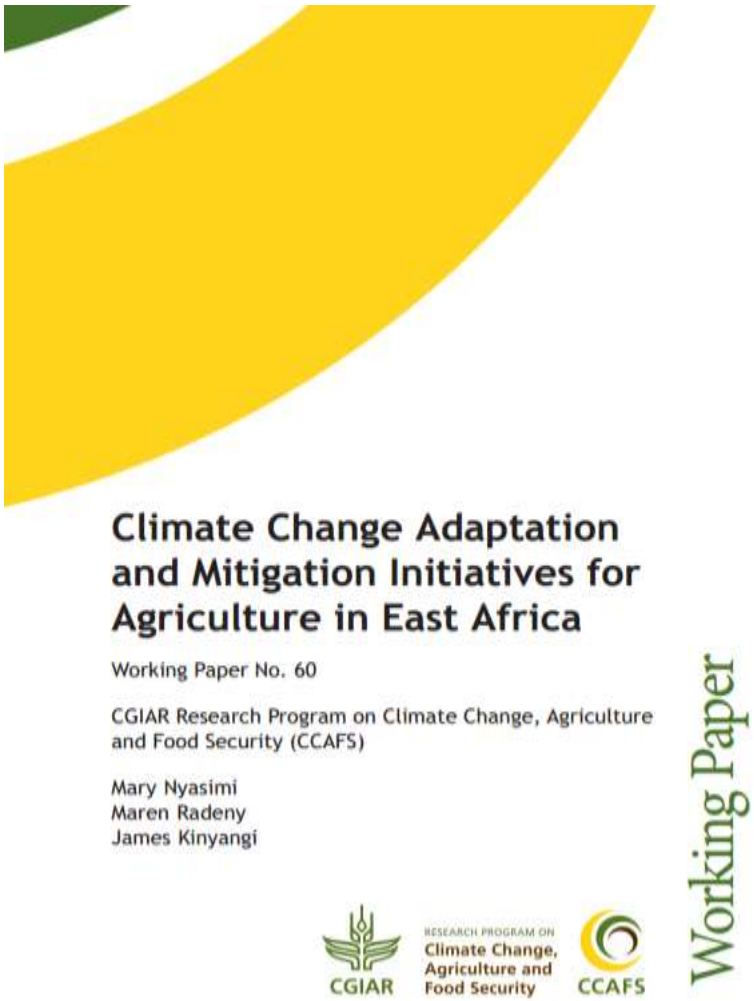


Climate change adaptation and mitigation initiatives for agriculture in East Africa

http://hdl.handle.net/10568/35083



Climate change, food security and small-scale producers: Summary of findings of the Fifth Assessment Report (AR5) of the IPCC

http://hdl.handle.net/10568/35215

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Info Note

Climate change, food security and small-scale producers

Analysis of findings of the Fifth Assessment Report (AR5) of the Intergovernmental Panel on Climate Change (IPCC)

By Sonja Vermeulen, in association with Pramod Aggarwal, Bruce Campbell, Edward Davey, Elwyn Grainger-Jones and Xiangjun Yao

APRIL 2014

The findings of AR5 lead us to seven priorities for action:

- **Urgency**: since climate change is affecting food and farming now, we need to speed up the pace of adaptation, and to achieve mitigation co-benefits wherever possible.
- **Investment:** we need to increase the proportion of climate finance going into adaptation, and to secure a flow of resources to locations and populations where adaptation needs are greatest.
- **Private finance:** we need creative finance and insurance products to improve both risk management and access to capital for adaptation actions, especially among small producers.
- **Value chains:** we need to pay more attention to how food value chains are managed, to deal with climate risks, secure affordable and nutritious food supplies for poor consumers, and improve the links for small producers and processors to stable markets, whether local or distant.
- **Knowledge:** since climate change is not static, we will continually need to generate and share new knowledge, extending the information revolution into fields, forests and fisheries in remote localities.
- **Breeding:** we need to invest now in farmer-led and science-led breeding, as it is demonstrably one of the most effective adaptation measure to the 2030s, and requires 8-20 year lead times for release of new varieties of crops and livestock.

Farmers, businesses and governments around the world report growing impacts of climate change on agricultural production and food security, and are trying to find ways to adapt to change. The chance to measure these real-life experiences and efforts against new science is extremely useful, but rare. Released during 2013 and 2014, the Fifth Assessment Report (AR5) of the Intergovernmental Panel on Climate Change (IPCC) offers the first opportunity since 2007 for us to appraise the global scientific consensus on climate change drivers, impacts, adaptation and mitigation.

This briefing note offers an overview of what AR5 has to say on the impacts of climate change on food and farming – particularly the food and farming of the half a billion small-scale croppers, livestock keepers and fishers who are most immediately dependent on agricultural systems for their livelihoods. It is based on two related sources within the output of Working Group 2 under AR5: (a) Chapter 7 on Food Security and Food Production Systems and (b) the Summary for Policy Makers. The IPCC's Working Group 2 is tasked with assessing the vulnerability of socio-economic and natural systems to climate change, negative and positive consequences of climate change, and options for adaptation.

The briefing note starts with where we are at with climate change in the 2010s, then looks ahead 15 years to impacts and adaptation in the 2030s, before touching finally on the 2050s and beyond.

CCAFS offers free tools & data for all users

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Tools, Maps, Models and Data

More data, models and tools are housed at the **CIAT-GCM page**.

Big Facts and Infographics on Climate Change, Agriculture and Food Security

Get all the Big Facts on the links between climate change, agriculture and food security. Explore over 100 stunning infographics that illustrate the most up-to-date, thoroughly researched information on these topics.

Data Management Support Pack

Welcome to the CCAFS Data Management Support Pack. This pack has been designed to help you produce high quality, reusable and open data from your research activities. It consists of documents, templates and videos covering the different aspects of data management and ranging from the overarching concepts and strategies through to the day-to-day activities. For each of the videos in the pack we have included a transcript of the narrative.

Atlas of CCAFS sites

Browse colourful maps of CCAFS research sites in three regions: East Africa, West Africa and South Asia

Spatial Downscaling Methods: CCAFS-Climate Data Portal

Includes different Statistical downscaling methods, Pattern Scaling MarkSim Weather Generator and Dynamical Downscaling RCMs PRECIS

Data

Agtrials

AgTrials— Le Référentiel mondial des essais agronomiques

Agtrials

The Global Agricultural Trial Repository

Downscaled GCM Data Portal

Climate change downscaled datasets

CCAFS baseline survey data and materials

Baseline surveys took place at 15 CCAFS sites in 2010 and 2011. All information and data is openly available.

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Our research themes

The Ag Trials database contains data from 35,000 crop and livestock trials, with weather information

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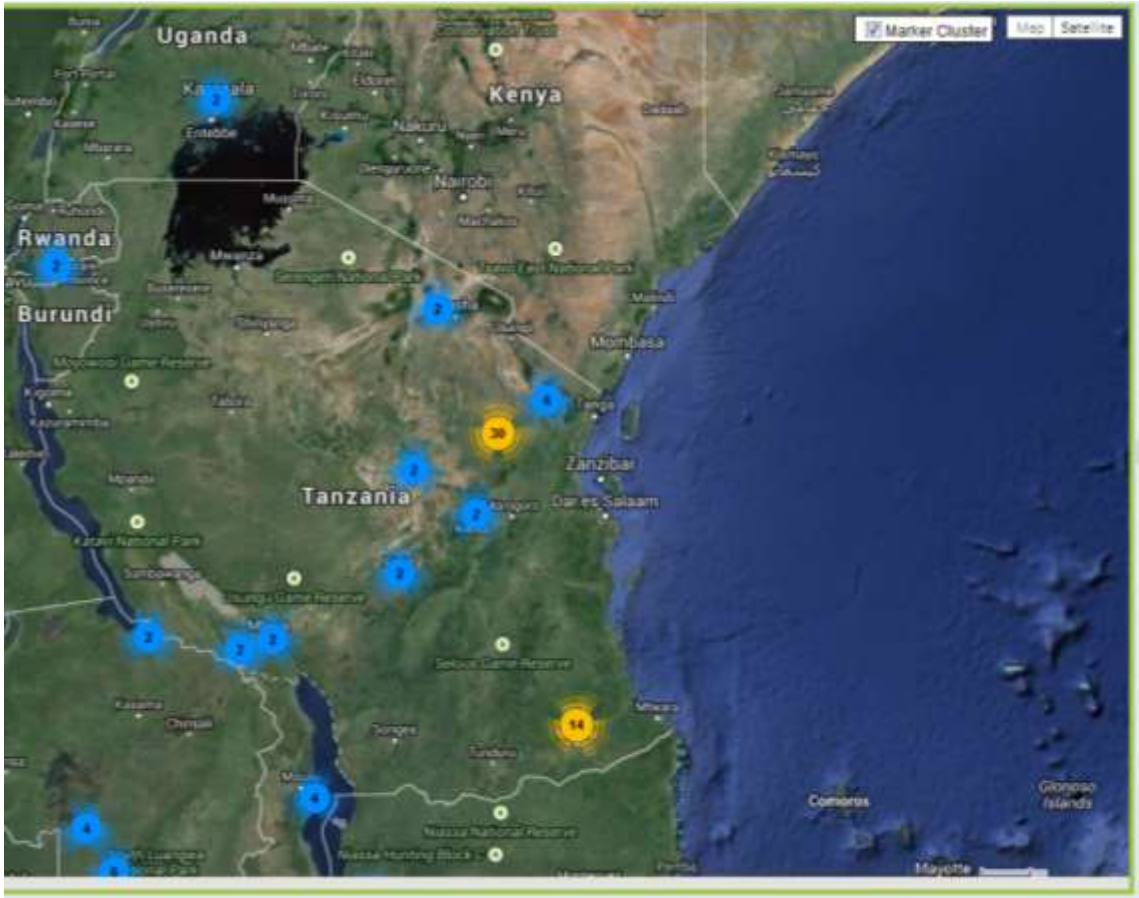

CIAT · ILRI

www.agtrials.org

Food Security Case Maps give models of future crop yields and food security by country

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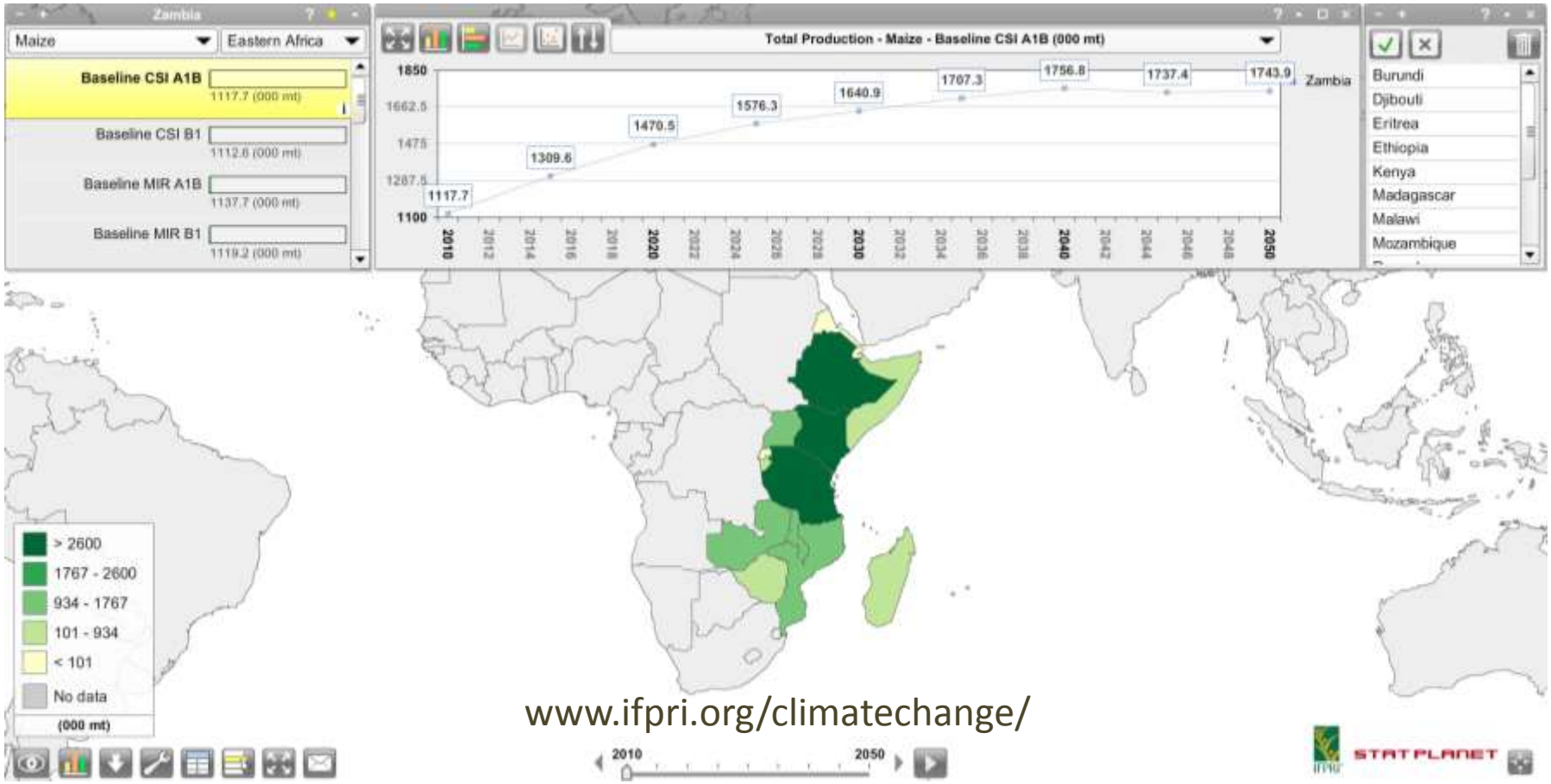

The CCAFS Climate Portal provides place-specific climate change information relevant to agriculture

www.ccafs-climate.org

Big Facts shares simple scientific facts on food and climate

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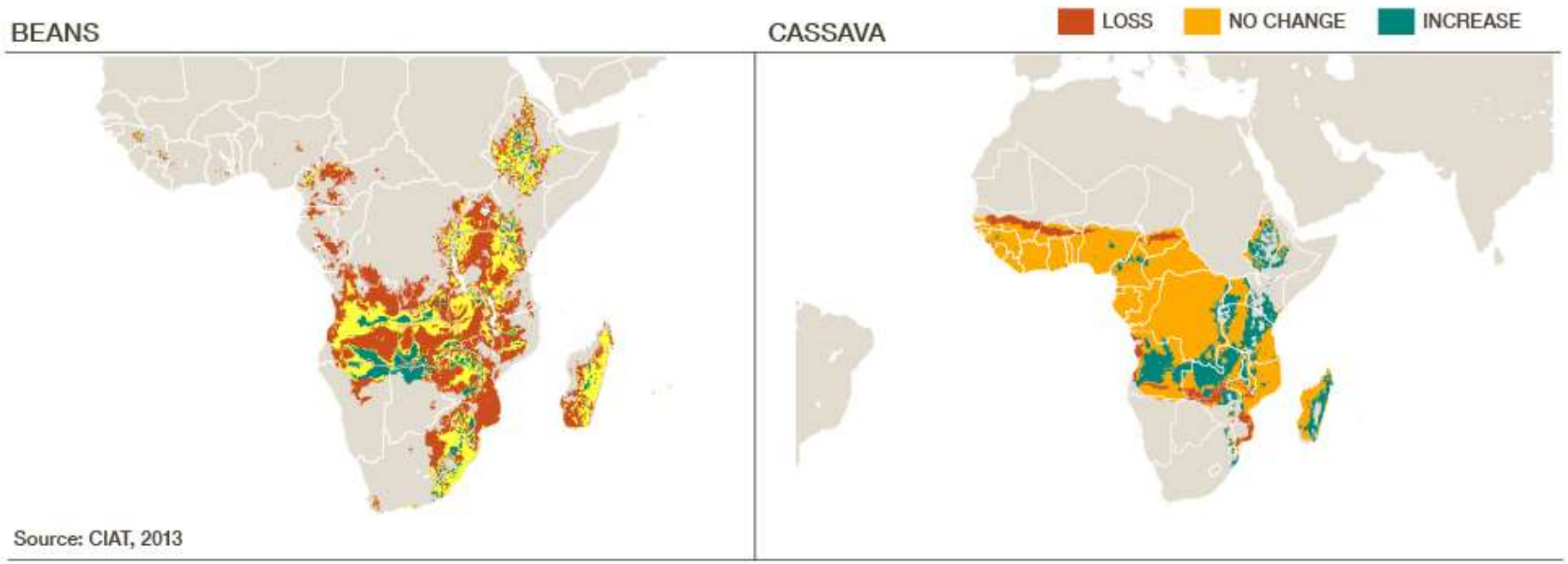
CLIMATE IMPACTS ON CROPS

Overall, vast areas of Sub-Saharan Africa will experience a loss in suitability for bean production, while the suitability for cassava production will increase, especially in Eastern Africa.



Big Facts
ccafs.cgiar.org/bigfacts

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ccafs.cgiar.org/bigfacts2014

Big Facts shares simple scientific facts on food and climate

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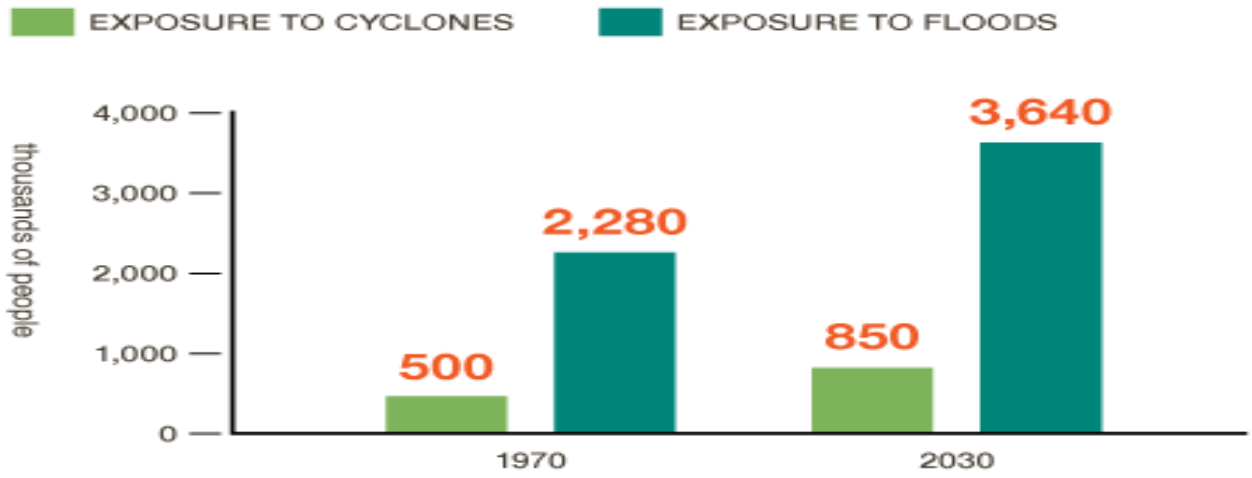
***DISASTERS**

The numbers of people exposed to cyclones and floods in sub-Saharan Africa are expected to increase substantially.



Source: IPCC, 2012

*Flood and cyclone data is for all of Africa

Big Facts

ccafs.cgiar.org/bigfacts

CGIAR RESEARCH PROGRAM ON Climate Change, Agriculture and Food Security CCAFS

ccafs.cgiar.org/bigfacts2014

Climate Smart development of the East African Dairy Sector

In East Africa, Milk is Money

The East Africa Dairy Development (EADD) program is designed to boost the milk yields and incomes of small-scale farmers in Africa so they can lift their communities out of hunger and poverty. With help from a $25.5 million grant from the Bill & Melinda Gates Foundation, the second phase of EADD will work with more than 200,000 farmers to improve dairy production and access to markets over the next four years.

Building on the success and lessons learned in Phase I, the vision for EADD II is to provide an additional 136,000 smallholder farm families the opportunities to create financial independence and social equality. Together with our program partners, we are changing the nutritional landscape in East Africa, one family, one community at a time.

Index-Based Livestock Insurance for climate resilience

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The Economist World politics Business & finance Economics

Kenyan farmers

Insure my cows

A new kind of insurance may protect herders against drought

Apr 19th 2014 | WAJIR | From the print edition Timekeeper

How the private sector can catalyze innovations for feeding Africa

By Gordon Conway, Stephanie Brittain | 06 August 2014

Workers at Arusha Blooms in Tanzania prepare and process green beans for export to Europe. Feed the Future helps connect smallholder farmers to international markets. Photo by: Fintrac Inc. / USAID / CC BY-NC

This week, as U.S. and African leaders convene in Washington, D.C. for the inaugural U.S.-Africa Leaders Summit, the 200 million Africans who still go to bed hungry feature prominently on the agenda.

Maxwell School of Citizenship and Public Affairs, Syracuse University

Cornell University

BASIS

CGIAR

ILRI International Livestock Research Institute

http://livestockinsurance.wordpress.com /

Agricultural NAMA development in Kenya: A project supported by CCAFS

Timm Tennigkeit, Suzanne van Dijk

GHG emissions inventory

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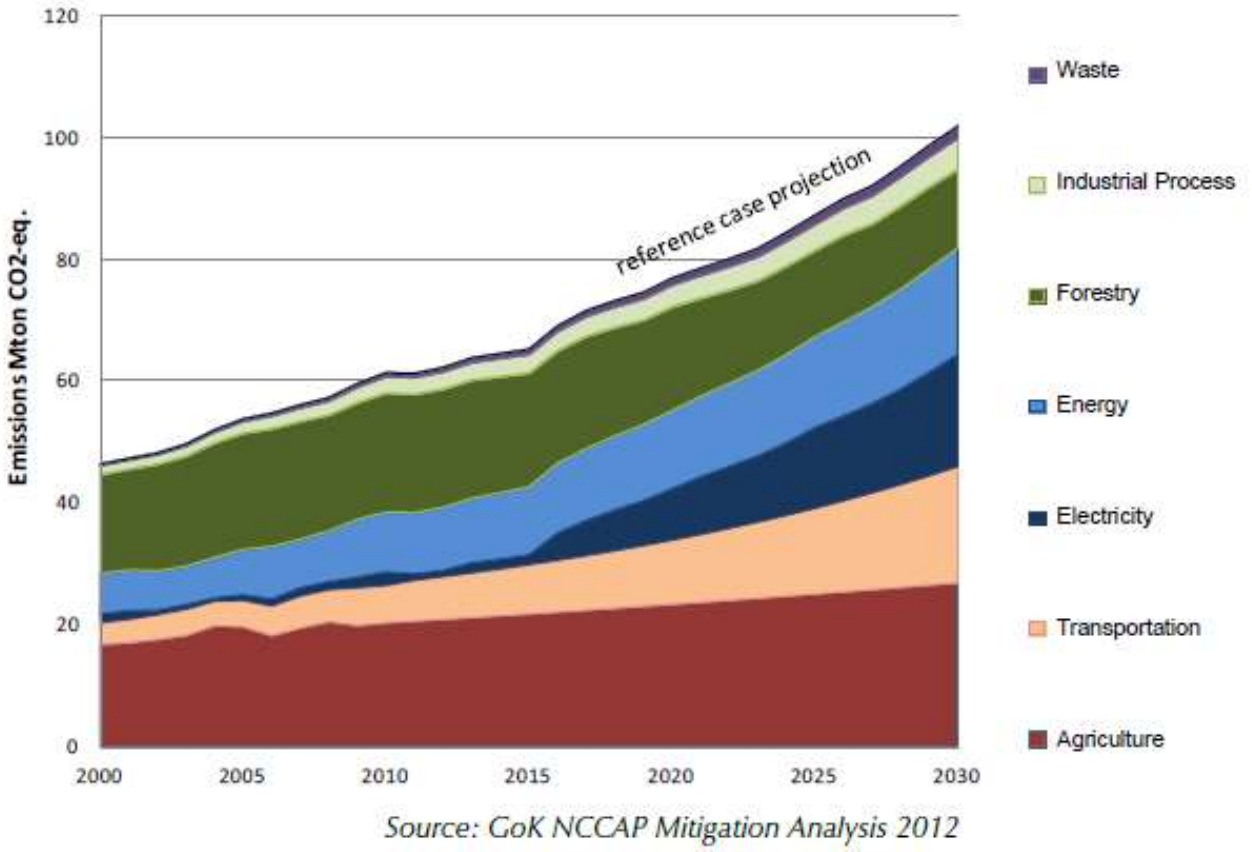
Important to identify subsectors, regions or types of agricultural activity that should be addressed in mitigation plans

- Agriculture and forestry are the largest emittors
- Projections for 2030 show agriculture will cause 72% of Kenya's GHG



Source: GoK NCCAP Mitigation Analysis 2012

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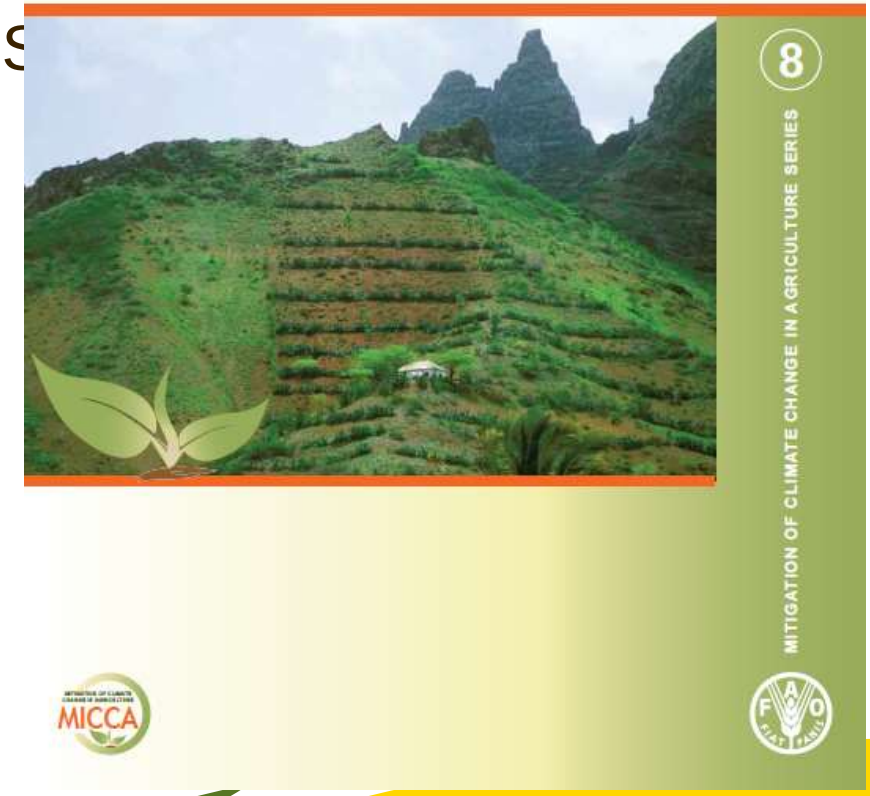
A guide to mitigation approaches

- Two main approaches to mitigation planning in developi countries: Low Emission Development Strategies (LEDS and Nationally Appropriate Mitigation Actions (NAMAs)
- Policy, institutional and technical elements



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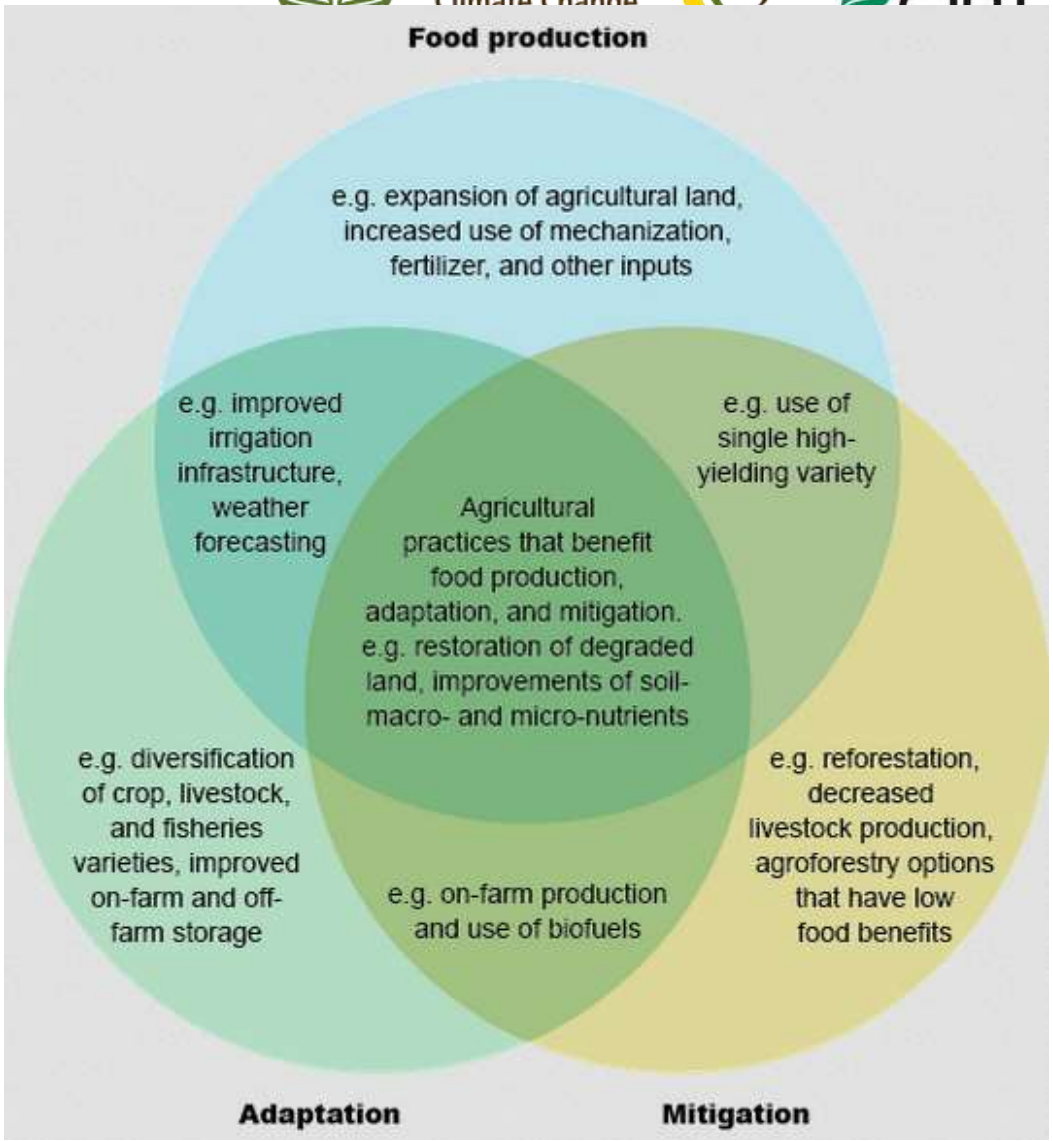
Food security, adaptation and mitigation

A balance between synergies and trade-offs is needed to meet multiple objectives

We strive for:

- **Win-win** options;
- **No-regret** options.



Meridian Institute, 2011

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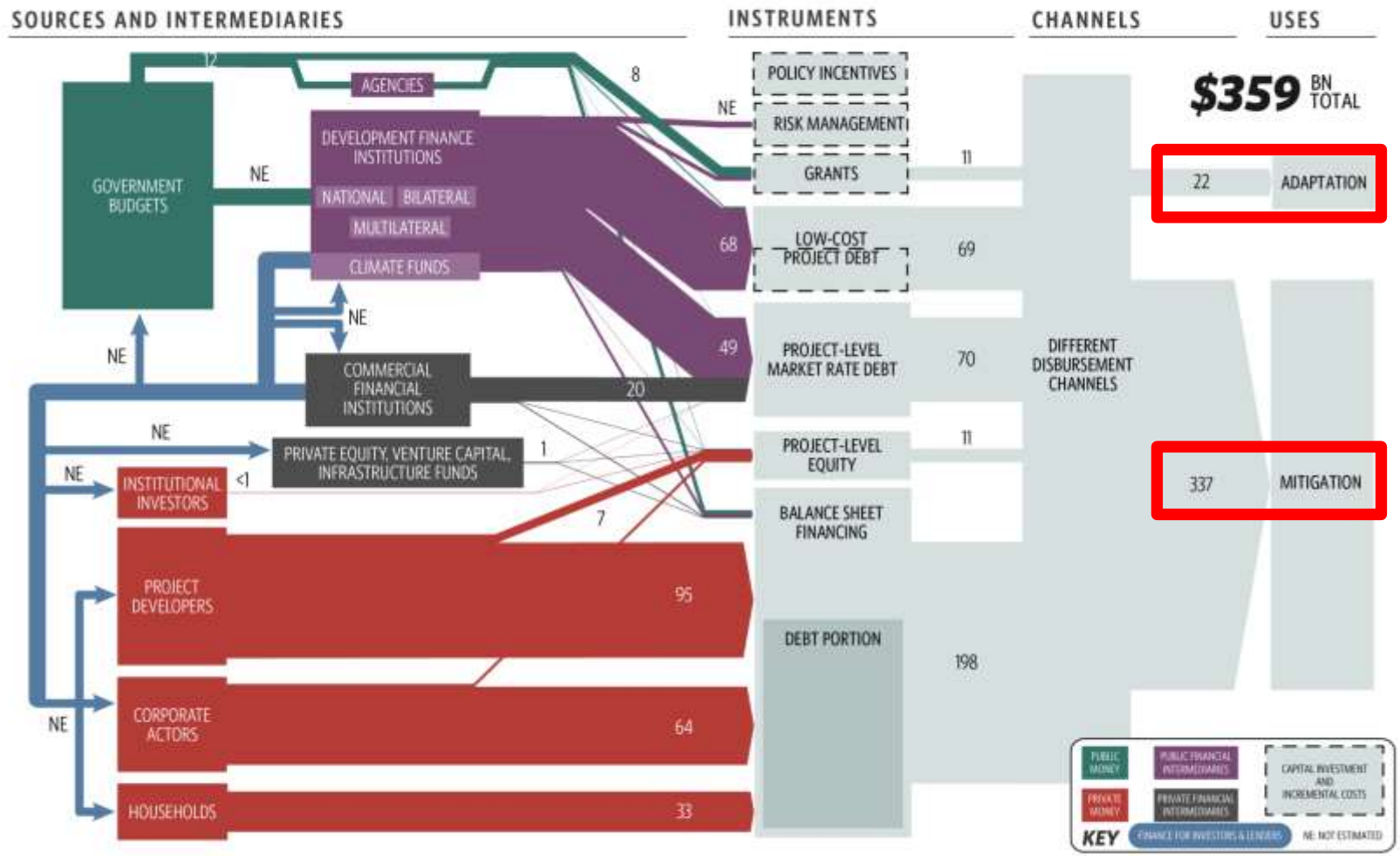
Climate finance



Climate Policy Initiative, 2013

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Nationally Appropriate Mitigation Actions

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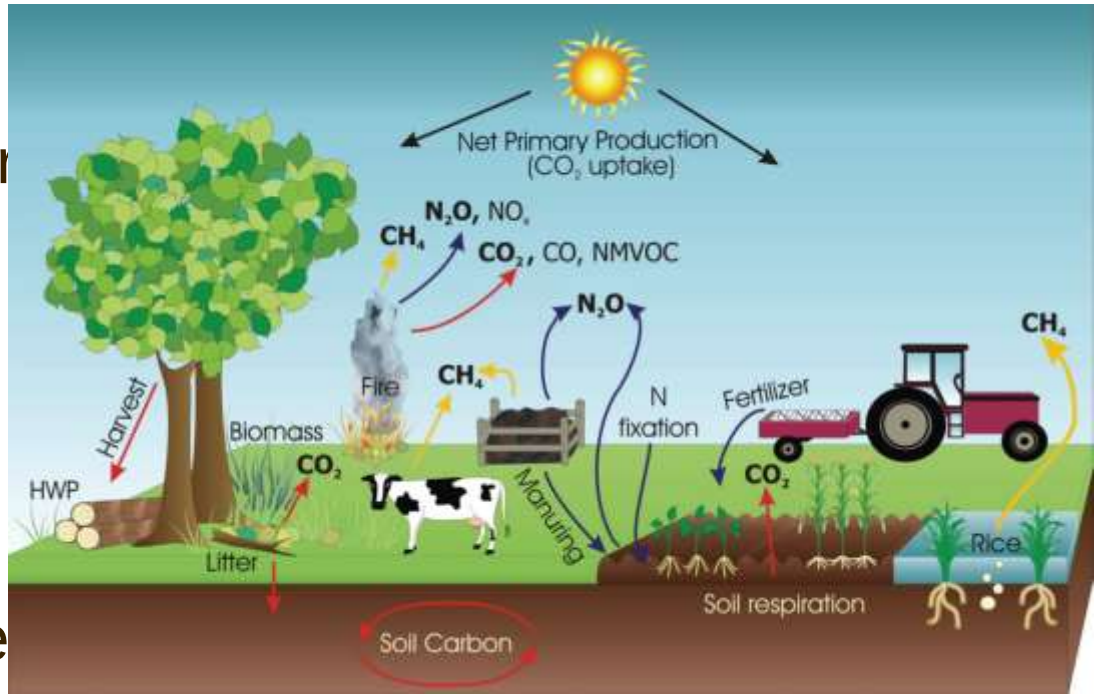
- NAMAs: climate finance and planning instrument for national appropriate mitigation actions
- Can be integrated into national adaptation actions that have mitigation co-benefits
- Can support national or sectoral programmes, strategies or project-level action
- NAMAs and agriculture



IPCC, 2006

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Development pathway of a NAMA

NAMA development pathway

1. Analysis of framework conditions and policy gaps → Country sets overall policy goal:

National goal

2. National infrastructure is put in place: inventory, registry, approval and MRV procedures

Institutional & operational procedures

MRV system

3. Set of actions that reduce emissions below BAU and form part of NAMAs are identified

Mitigation activities

Agriculture | **Livestock** | G

4. A concrete project or a whole sector NAMA applies for national approval and finance

F

National public finance

Inter. Climate finance

Financing vehicle

Private climate finance

5. NAMA approved →MRV system validated → seeking finance

6. Project/NAMA financed and implemented

F

7. National NAMA registry

8. International NAMA registry

F

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Key elements of a NAMA

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Technical dimensions	Institutional dimensions	Policy dimensions
GHG inventory – assess GHG measurement options	Sector institutions and procedures	Alignment with national development and climate change policies
Estimate abatement and/or mitigation potentials	MRV systems	Setting priorities and targets for the NAMAs
Understand barriers to adoption	Stakeholder involvement	Assess supporting legal and policy framework
Identify policies and measures		Financing mechanisms
Identify adaptation benefits		
Analyze economic costs and benefits		
Identify finance needs		

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Key elements of a NAMA

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Technical dimensions

- GHG inventory – assess GHG measurement options
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Institutional dimensions

- Sector institutions and procedures
- MRV systems
- Stakeholder involvement

Policy dimensions

- Alignment with national development and climate change policies
- Setting priorities and targets for the NAMAs
- Assess supporting legal and policy framework
- Financing mechanisms

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Policy alignment

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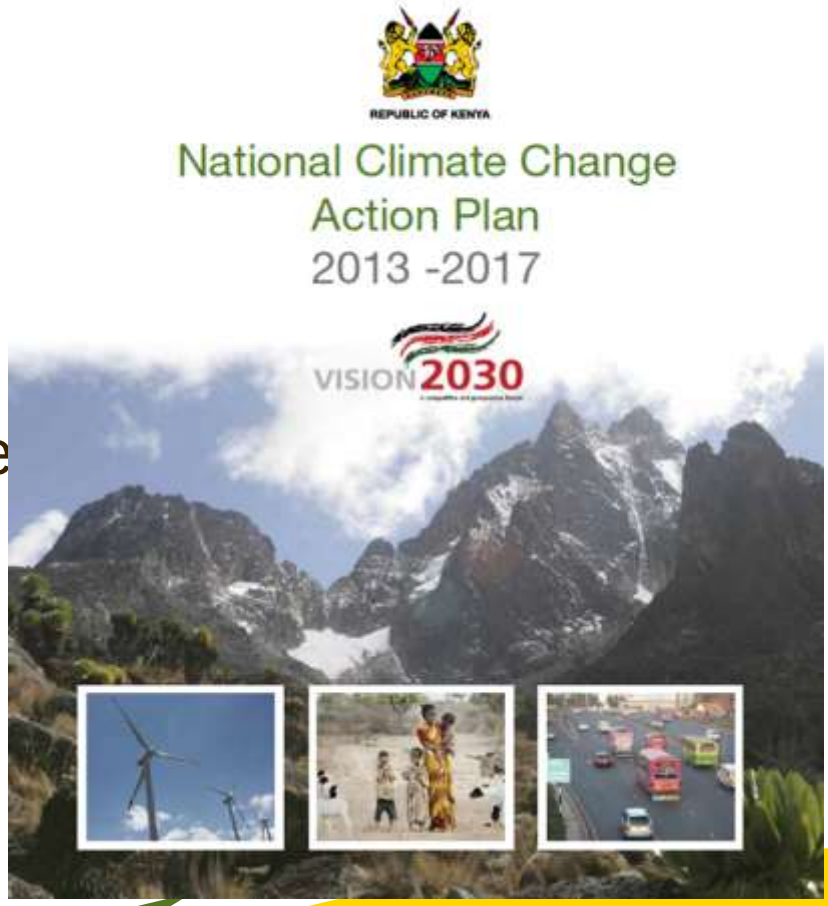
NAMAs should support the achievement of national development objectives

Priority actions:

- Agroforestry
- Conservation tillage, limiting use of fires
- Adaptation
- Other climate change actions



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Agricultural sector development strategy

- Vision: "*a food-secure and prosperous nation*"
- Overall goal: to achieve an average growth rate of 7 per cent per year over the next 5 years
- Two thrusts:
  1. Increasing productivity, commercialization and competitiveness of agricultural commodities and enterprises
  2. Developing and managing the key factors of production
- Critical role of institutional reforms and improved coordination

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Key elements of a NAMA

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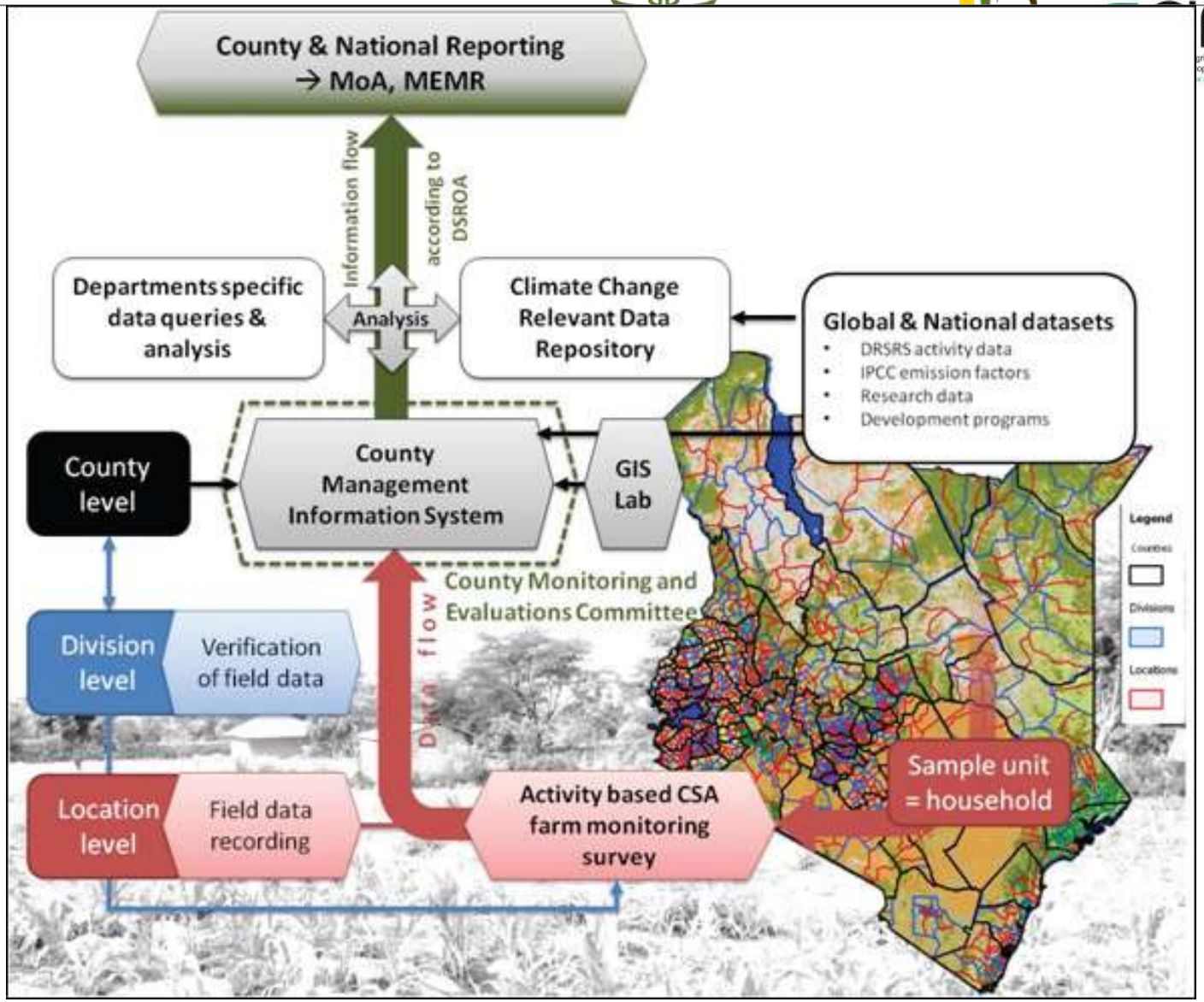
Monitoring



CCU, 2013

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Key elements of a NAMA

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Pathway to NAMA design and development

- Pilot NAMA design in Kisumu and Kericho;
- Production systems: dairy livestock, poultry
- Other priorities: inputs (improved seeds, fertilizer), pests and disease management, extension
- Set up of institutional, MRV and investment framework

Questions:

- Initial response?
- What are important stakeholders to involve?
- What could be your role in the design and development

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