

**NASA IDS: Seasonal Prediction of Hydro-Climatic
Extremes in the Greater Horn of Africa (GHA)
*The Second Participatory Research Workshop and
Project Meeting***

Mainstreaming Climate Smart Agriculture (CSA) into
National Policies and Programs

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Becoming “climate smart”

**CLIMATE-BLIND AGRICULTURAL
INVESTMENTS ARE DOOMED
TO BE INEFFICIENT IF NOT
DISASTROUS FOR FOOD
SECURITY AND NUTRITION**



OUTLINE OF THE PRESENTATION

- **Why is climate-smart agriculture needed?**
- **Defining the concept**
- **Mainstreaming CSA into National Policies and Programmes**
- **Climate-smart agriculture within larger economic and policy frameworks**
- **Conclusions**

Why is climate-smart agriculture needed?

- Between now and 2050, **the world's population will increase by one-third**. Most of these additional 2 billion people will live in developing countries. At the same time, more people will be living in cities. If current income and consumption growth trends continue,
- FAO estimates that agricultural production will have to **increase by 60 percent by 2050** to satisfy the expected demands for food and feed.
- **Agriculture must therefore transform itself** without depletion of the natural resource base if it is to feed a growing global population and provide the basis for economic growth and poverty reduction.
- Climate change will make this task more difficult under a **business-as-usual scenario**, due to adverse impacts on agriculture, requiring spiraling adaptation and related costs (**see next page**)
- Enhancing food security while contributing to mitigate climate change and preserving the natural resource base and vital ecosystem services requires the transition to agricultural production systems that are more productive, **use inputs more efficiently**, have less variability and greater stability in their outputs, and are more resilient to risks, shocks and long-term climate variability



Impacts

Why is climate-smart agriculture...cont'd?

- More productive and more resilient agriculture requires **a major shift in the way land, water, soil nutrients and genetic resources** are managed to ensure that these resources are used more efficiently.
- Making this shift requires considerable **changes in national and local governance, legislation, policies and financial mechanisms.**
- This transformation will also involve improving producers' **access to markets.** By reducing greenhouse gas emissions per unit of land and/or agricultural product and increasing carbon sinks, these changes will contribute significantly to the **mitigation of climate change.**
- A key component of CSA approach is the **integrated landscape approach** that follows the principles of ecosystem management and sustainable land and water use.
- CSA is not a single specific agricultural technology or practice that can be universally applied. It is an approach that requires **site-specific** assessments to identify suitable agricultural production technologies and practices.

What defines climate-smart agriculture?

Climate-smart agriculture (CSA) is an integrative approach to address these interlinked challenges of food security and climate change, that explicitly aims for three objectives:

- 1. sustainably increasing agricultural productivity, to support equitable increases in farm incomes, food security and development;**
- 2. adapting and building resilience of agricultural and food security systems to climate change at multiple levels; and**
- 3. reducing greenhouse gas emissions from agriculture (including crops, livestock and fisheries).**

What is different about climate-smart agriculture?

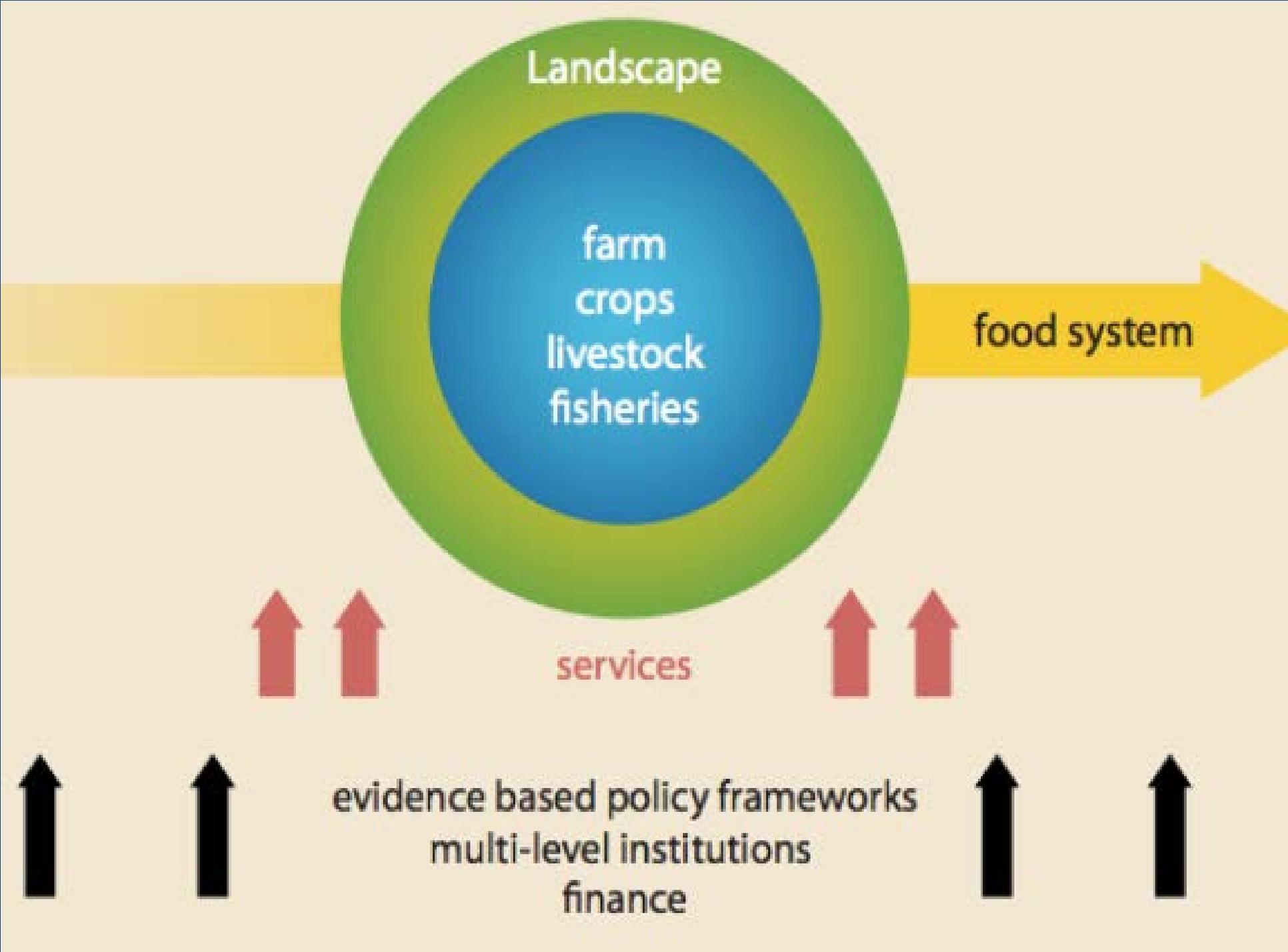
What is new about CSA is an explicit consideration of climatic risks that are happening more rapidly and with greater intensity than in the past. New climate risks, require changes in agricultural technologies and approaches to improve the lives of those still locked in food insecurity and poverty and to prevent the loss of gains already achieved. CSA approaches entail greater investment in

- managing climate risks,
- understanding and planning for adaptive transitions that may be needed, for example into new farming systems or livelihoods,
- exploiting opportunities for reducing or removing greenhouse gas emissions where feasible.

What are the main elements of climate-smart agriculture?

CSA is not a set of practices that can be universally applied, but rather an approach that involves different elements embedded in local contexts. CSA relates to actions both on-farm and beyond the farm, and incorporates technologies, policies, institutions and investment. Different elements which can be integrated in climate-smart agricultural approaches include:

- Management of farms, crops, livestock, aquaculture and capture fisheries to manage resources better, produce more with less while increasing resilience**
- Ecosystem and landscape management to conserve ecosystem services that are key to increase at the same time resource efficiency and resilience**
- Services for farmers and land managers to enable them to implement the necessary changes**



Landscape

farm
crops
livestock
fisheries

food system

services

evidence based policy frameworks
multi-level institutions
finance

Mainstreaming CSA into National Policies and Programmes

- Greater **coherence, coordination and integration** between various sectors dealing with climate change, agricultural development and food security is a key requirement for creating an enabling policy environment to promote the transformation to climate-smart agriculture (CSA).
- **CSA policies and support measures** need to be mainstreamed into broader public policy, expenditure and planning frameworks at the national, subnational and local level.
- Coordination is also necessary between concerned agencies across sectors at the national and local level
- **Policy priority** needs to be given to CSA practices that bring productivity gains, enhance resilience and reduce emissions. CSA needs to be mainstreamed into core government programmes with appropriate priority given to public support of CSA.

Mainstreaming CSA into National...cont'd

- **Mainstreaming of CSA should be developed consistently with ongoing national climate-resilient long-term visions**, such as the National Adaptation Programmes of Action (NAPAs), National Appropriate Mitigation Actions (NAMAs) and United Nations Framework Convention on Climate Change (UNFCCC) National Communications. It should include vulnerable economic sectors and ecosystems.
- **A gender-sensitive approach is also crucial to achieving CSA**. The roles, responsibilities and capabilities of men and women need to be well understood to ensure that both men and women have access to and benefit from CSA practices and policies.
- The national interest to pursue **CSA provides an opportunity for shaping both domestic policies and international instruments** for meeting the challenges of ensuring global food security and addressing climate change
- CSA policies and programmes, as with any cross-sectoral development programme, need to be **aligned across various levels of government**

Climate-smart agriculture within larger economic and policy frameworks

- **Agriculture is an essential driver of economic growth**, particularly in rural areas and least developed countries and boosting agricultural production at national level and stimulates overall economic growth and development, particularly in countries with high economic dependence on agriculture
- At the same time, **agriculture is a major user of natural capital** and has a considerable impact on the environment.
- **Nation's Conference on Sustainable Development in Rio** considered the green economy¹ as one of the essential tools for achieving sustainable development. It called for economically viable sustainable agriculture (crops, livestock, forestry, fisheries and aquaculture) to eradicate hunger.
- At the same time, the move to more **sustainable agriculture** must also help conserve land, water, plant and animal genetic resources, biodiversity and ecosystems, and enhance resilience to climate change and natural disasters (UN, 2012).

Climate-smart agriculture within largereconomic...cont'd

- CSA meets these expectations by improving productivity, enhancing resilience and reducing greenhouse gas (GHG) emissions. CSA and green economy are thus complementary concepts, and greening the economy with CSA is a concrete way to operationalize sustainable development (FAO, 2012a).
- CSA policies must facilitate “**using natural capital without using it up**”.
- Agriculture is crucial to climate-smart development and overall green growth because of the key contribution it makes to food security and human welfare and because of its role as a principle ‘user’ of natural capital.
- Agriculture accounts for 70 percent of water extracted; covers 40 percent of land area; and, together with land use change, forest degradation and deforestation, produces 30 percent of global GHG emissions.**(see next 2 pages)**
- CSA is about meeting the needs of people for food, fuel, timber and fiber. It also contributes to economic development and poverty alleviation; **maintains and enhances the resilience of the natural ecosystem functions on which green economic growth depends; and addresses the new challenge of climate change and is also resource-efficient, resilient, and low-carbon emitting.**

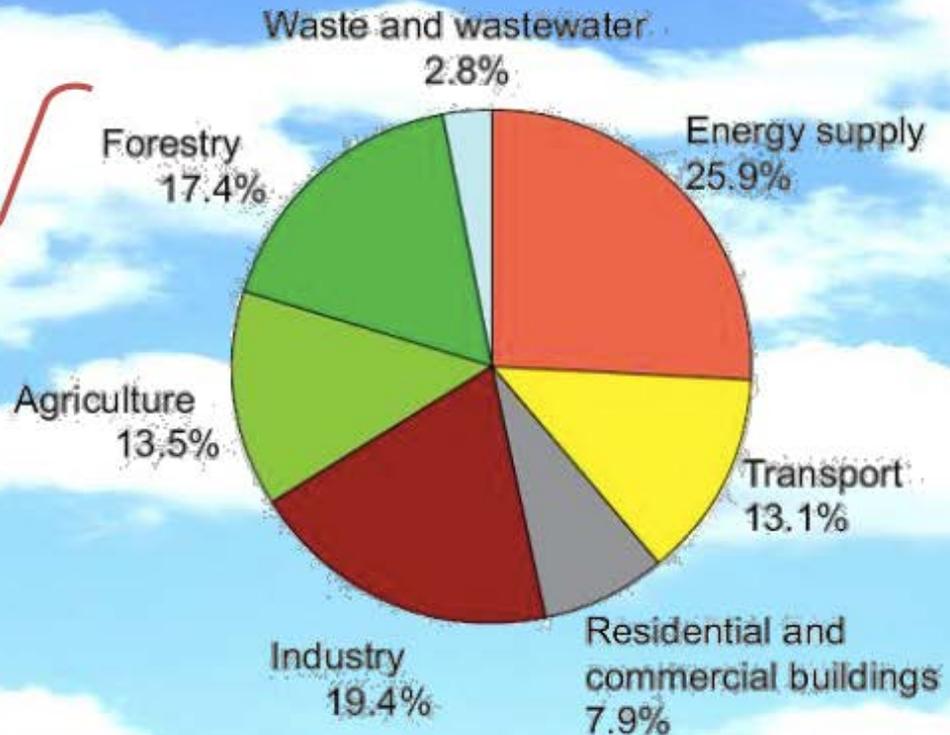
Setting the scene: some numbers

Global GHG emissions by sector

AFOLU=Agriculture, Forestry and Other Land Use

LULUCF = Land Use, Land Use Change and Forestry

LULUCF or
AFOLU = ~31%

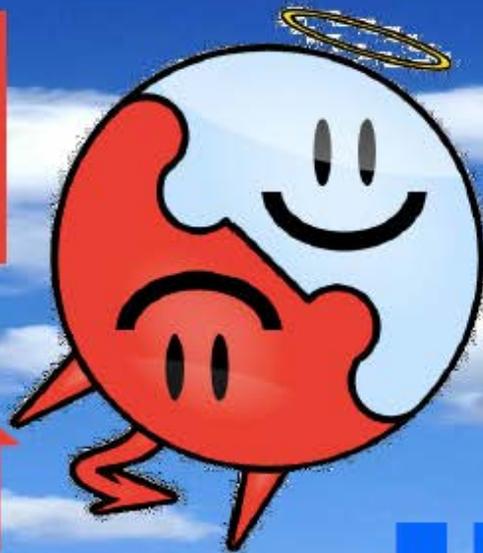


AFOLU-LULUCF
~ 20% of CO₂
~ 55% of CH₄
~ 80% of N₂O



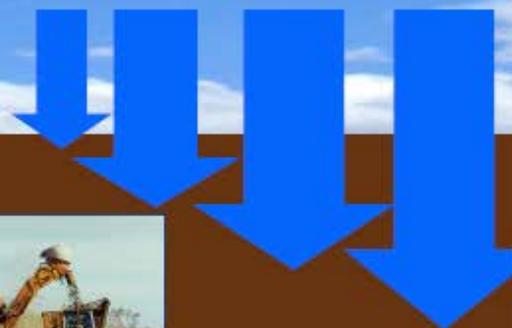
Agriculture & Climate

1/3 total
GHG
emissions



*Agriculture, and thus
carbon soil
management, are
essential in mitigation
of GHG*

Sinks



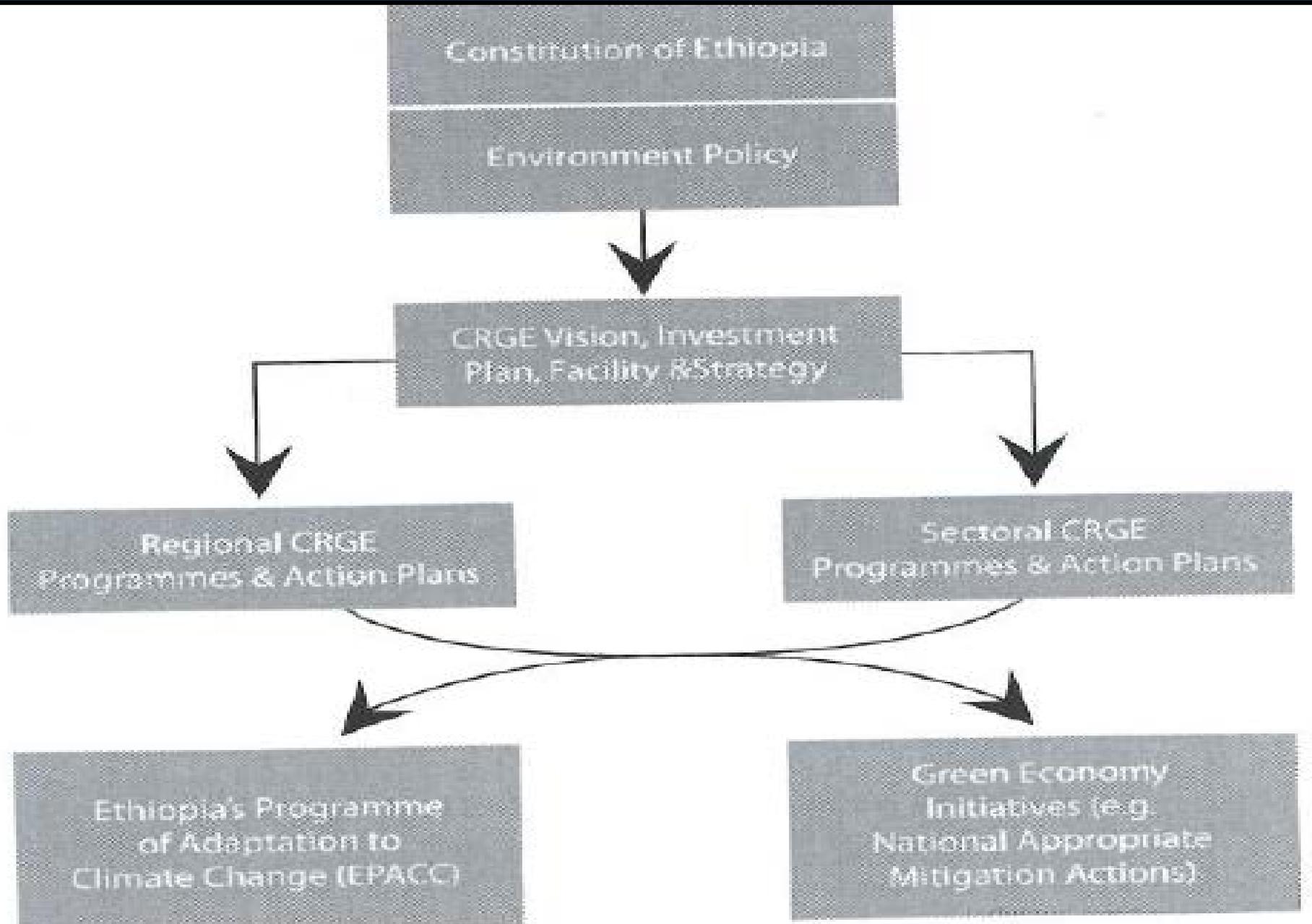
Climate Policy and Agriculture Development in Ethiopia

- The country embarked on Climate Resilient Green Economy (CRGE) initiative, a key plank in the wider even more ambitious Growth and Transformation Plan (GTP) that seeks to enable an economic transformation to middle income status by 2025
- According to Conway and Schipper (2011) climate change scenarios specific to Ethiopia have projected mean **annual temperature across the country increasing by between 1.4 and 2.9°C by the 2050**
- Projection regarding **rainfall are less certain** but suggest the possibility of more frequent and intense patterns of extreme weather (World Bank 2010)
- At the national level , World Bank (2010) states suggests the climate change may **reduce Ethiopia's GDP compared to a baseline scenario by 2-6% by 2015 and by upto 10% by 2045**
- Referencing the same source , the CRGE states that **climate change will reduce Ethiopia's GDP growth by between 0.5 and 2.5% per year** until effective steps are taken to build resilience (FDR, 2011). Much of this effects in the agriculture sector

Climate Policy and Agriculture Development ,,,,cont'd

- Many of Ethiopia's emerging policy narratives on agriculture and climate change crystallized in early 2012 when a decision was taken to harmonize and mainstream agriculture-related activities under **the CRGE into the Agricultural Sector Policy and Investment Framework (PIF)**, launched in 2011, has been described as a "Strategic Framework" for organizing Ethiopia's response on climate change (DFID, 2011)
- The CRGE initiative priorities different initiative to **limit the soil-based emissions from agriculture and the pressure on forests from the expansion of land under cultivation**
- A second major initiative is broader in scope and sits within earlier policy concerns (i.e. pre-dating major climate concern) and relates to **generating growth through more value-based forms of production**
- Ethiopia's policy responses on climate and agriculture include a programme of institution building. This involves new technical institution shaping policy and new vehicles for canalling future climate finance
- In 2011 the GoE established **Agricultural Transformation Agency (ATA)** that aims to promote agriculture sector transformation and its modeled on similar initiative in Korea and Malaysia.

Climate Resilient Green Economy (CRGE) initiatives in Ethiopia



Conclusions

- We can feed 9-10 billion people
- Food supply needs to be increased whilst reducing environmental impact of agriculture
- Need to find options and policies that co-deliver improved food security and improved environmental outcomes
- Some promising supply-side measures (e.g. efficiency improvements) improve food security and reduce environmental impact
- Demand-side measures (e.g. changing diets, waste reduction) are under-researched, for food security and for potential to reduce environmental impact
- We need to change consumption patterns (demand-side measures) – techno-fixes are not enough to make the necessary changes
- We need Agriculture that sustainably increases productivity, resilience (adaptation), reduces/removes greenhouse gases (mitigation), and enhances achievement of national food security and development goals.

- **The successful design and implementation of CSA approaches require integration with disaster risk management strategies and actions, and social safety net programmes.**
- **Investment in CSA brings long-term gains in productivity, builds resilience, reduces GHG emissions and increases carbon sequestration. The most successful programmes often blend sources of funding. Incentive measures need to focus on overcoming barriers to adoption of CSA practices.**
- **Price and non-price measures are needed to support transition to CSA. Behavioural change is also an important element. Price support certainly has a role to play in countries affected by climate change, but often other forms of support (regulations, incentives, capacity development, investments in technology, innovation, efficiency gains and infrastructure, connectivity or the broader enabling environment, social protection and safety nets, and use of social capital) are more effective in paving the way for CSA**
- **Civil society, the private sector and financial institutions all play vital roles in implementing CSA. These groups should work jointly with key national line ministries and development agencies and donors through an efficient stakeholder consultation process.**

EXAMPLES OF CSA RELATED INTERVENTIONS

- **Improving climate resilience through participatory pastoral development in Ethiopia: A community pastoral development programme in Ethiopia (US\$ 80 million) is working to increase the resilience of Ethiopian pastoralists to external shocks and improve the livelihoods of beneficiary communities, and in doing so, contribute to overall poverty alleviation in the country.**
- **In Southern and Northern Kenya , Feed the Future 's Pastoralist Areas programme livestock productivity and access to market, enhancing communities' ability to adapt to more frequent drought and market shocks: Food the Future in alliance with US Global Climate Change Initiative**
- **Scaling-up climate smart agriculture through policies and institutions: linking national agenda with food security : the project aims to scale up the concept of "climate smart village" being implemented by the CGIAR research programme on Climate Change. Funded by CGIAR Research Programmed on Climate Change , Agriculture and Food Security (CAAFS)**

Food security



Many thanks for your attention

Adaptation

Ecological footprint

“Climate-smart agriculture” means building resilience, balancing trade-offs, suiting the context