

Ethiopia's Climate Resilient Green Economy Strategy

Wondwossen Sintayehu
Environmental Protection Authority

GMI, Vancouver, Canada
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Outline

- **Introduction**
- **CRGE vision**
- **GE – mitigation**
- **CR – adaptation**
- **CRGE Facility**
- **CRGE Registry**

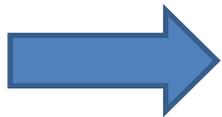
1. Introduction

Global climate change is affecting Ethiopia.

- **Average temperature rise causes disruptions across sectors**
- **Rainfall patterns changing**
- **extreme weather events (such as **floods** and **droughts**) recurring.**

1. Introduction

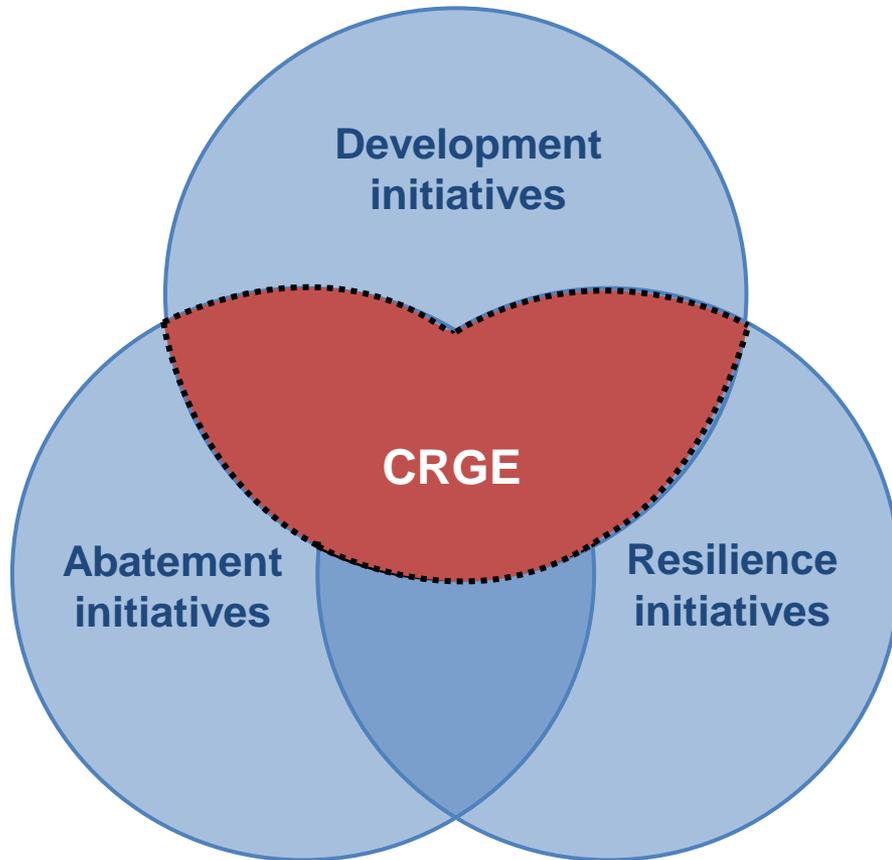
- **GDP growth of Ethiopia has direct correlation with rainfall availability.**
- **Therefore, for Ethiopia, development and implementation of a holistic CRGE strategy is imperative.**



It is key to address poverty, enhance economic growth & ensure sustainable development of the country

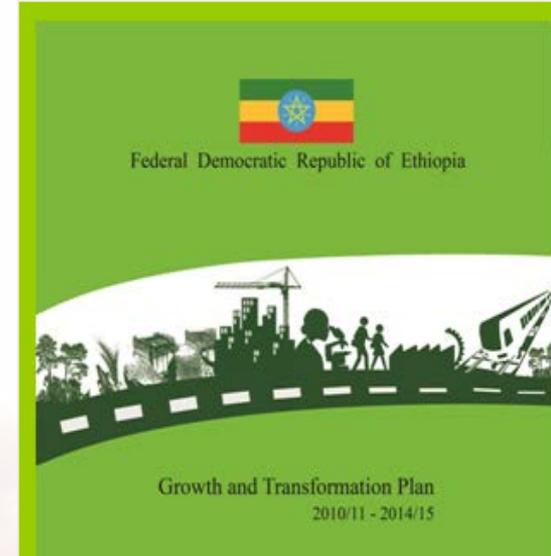
1. CRGE Vision

Conceptual framework



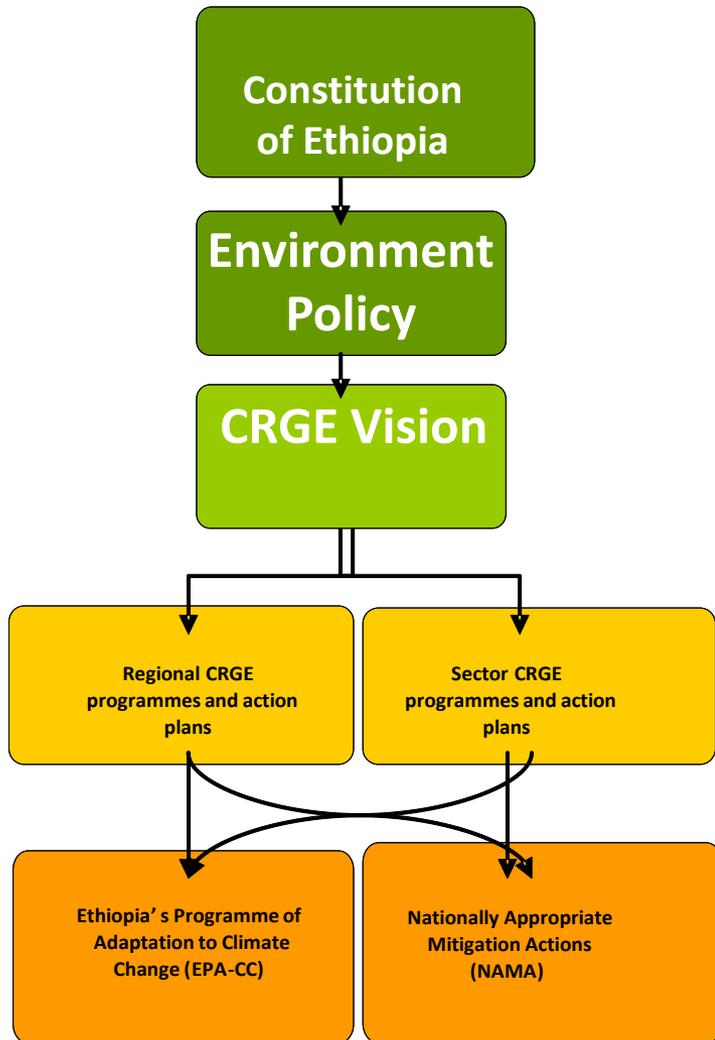
**Developing a
Climate Resilient
Green Economy
requires the
integration of
economic
development,
adaptation and
mitigation**

Setting the vision

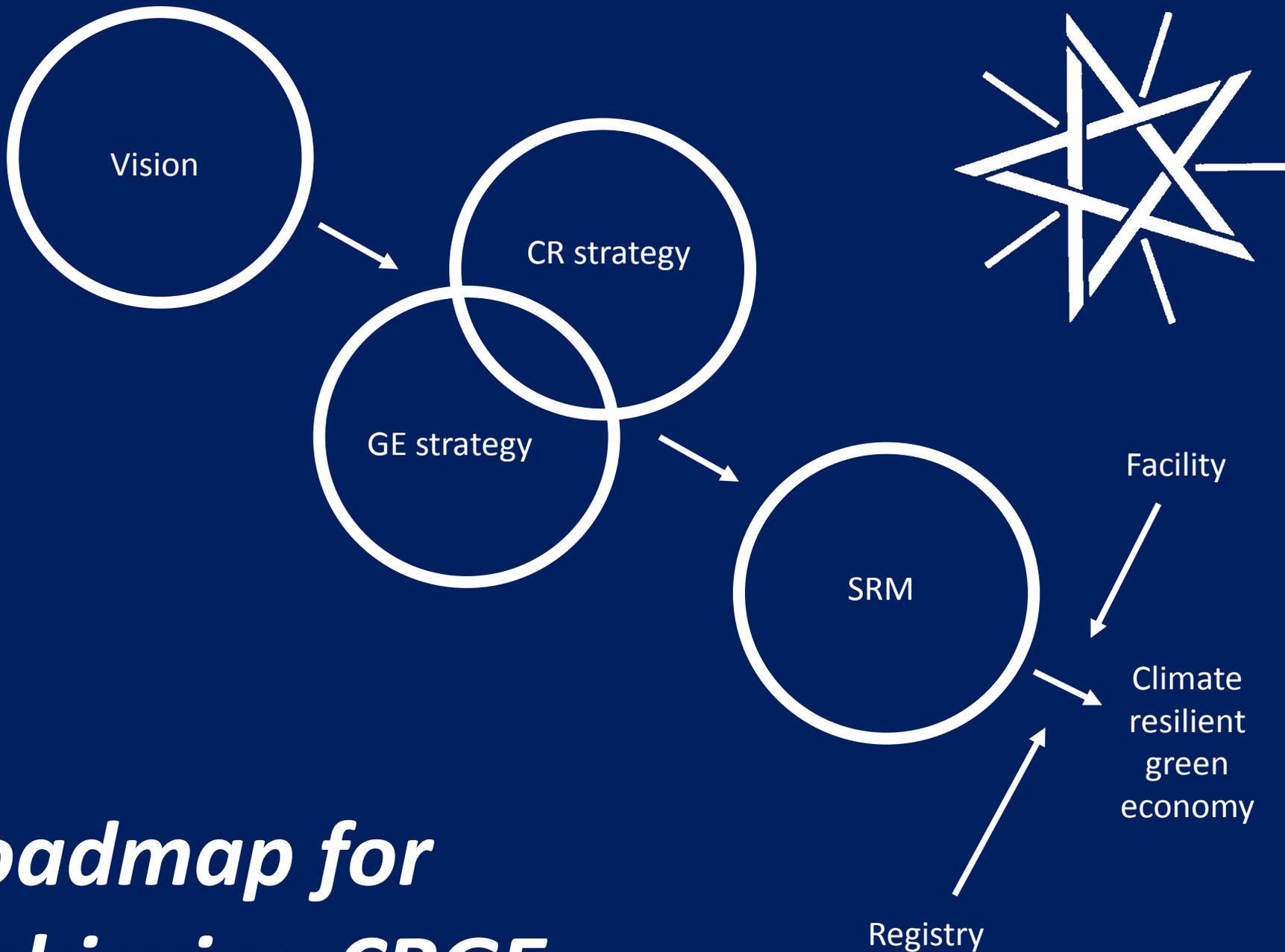


- **Ethiopia: a middle income country by 2025**
- **Net emission of GHGs to become zero/ neutral**

CRGE... policy alignment



Ethiopia- CRGE by 2025



***roadmap for
achieving CRGE***

CR GE

Justifications for a GE

- natural resource assets
 - **necessary to arrest agro-ecological degradation (70 % of Ethiopia is arid...)**
 - **Carrying capacity**
- huge low carbon potential – (ex: rich in forests, hydro, solar, wind & geothermal energy.)
- co-benefits (for health, wellbeing, economic growth and natural resource conservation)
- Deviation from lock-in in old technologies
- global carbon finance
- Ethiopia is well positioned to become a regional and global leader in low carbon growth which will have legacy and commercial benefit long into the future.

Identified GE potentials

Goal of the sectors and implications

The diagram shows seven sectors listed vertically on the left, each with a small image to its right. A red line graph starts at the bottom left and trends upwards towards the top right, ending with an arrowhead. The sectors are:

- 1 Power** (Image: Dam)
- 2 Buildings/ Gr. Cities** (Image: City skyline)
- 3 Forestry** (Image: Forest)
- 4 Soil** (Image: Field)
- 5 Livestock** (Image: Cows)
- 6 Transport** (Image: Traffic)
- 7 Industry** (Image: Factory)

Implications listed to the right of the sectors:

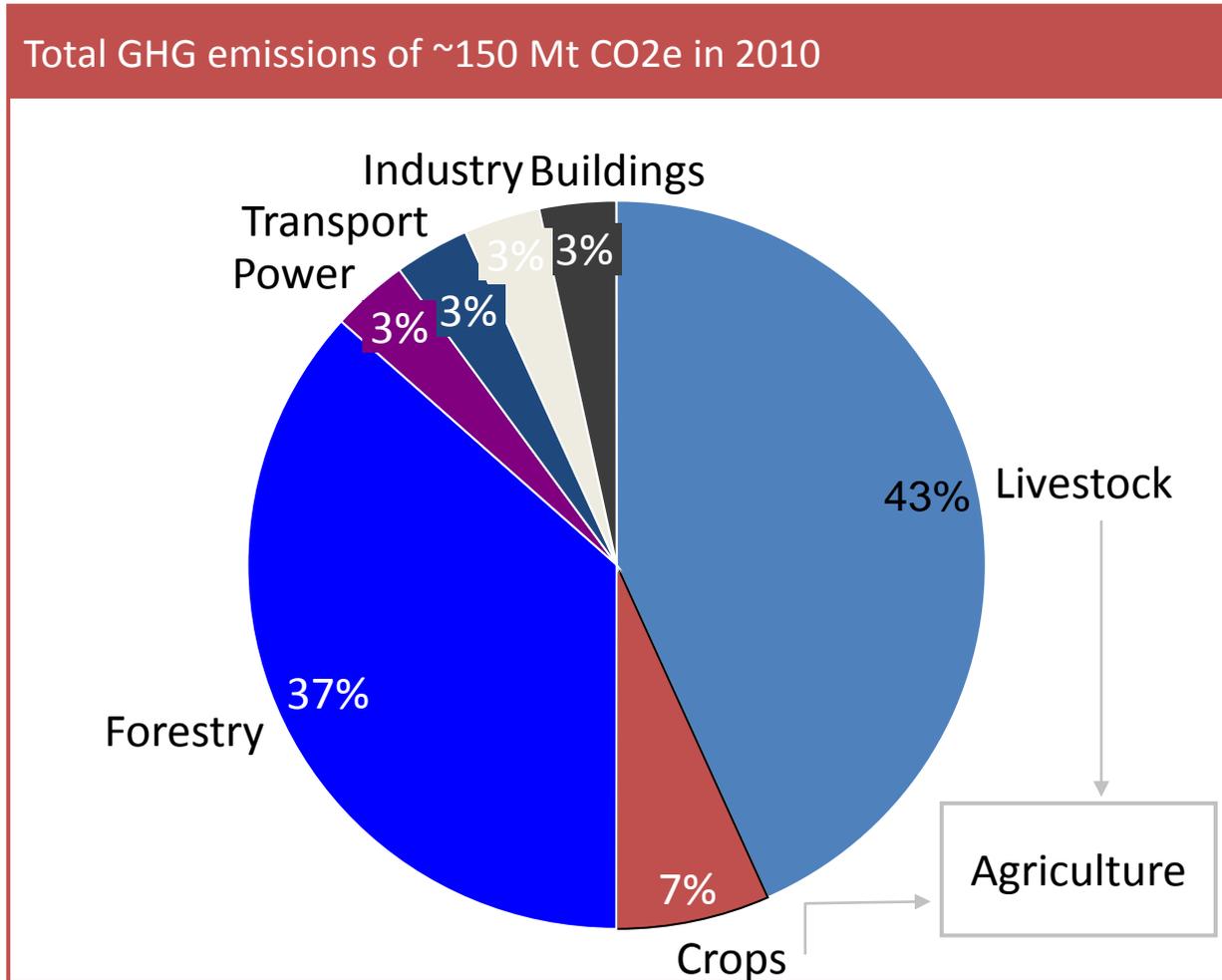
- Build generation capacity to satisfy growing demand
- Reach economic growth targets as planned in the GTP
- Economic growth of each sector will lead to higher emissions

Contribution of CRGE

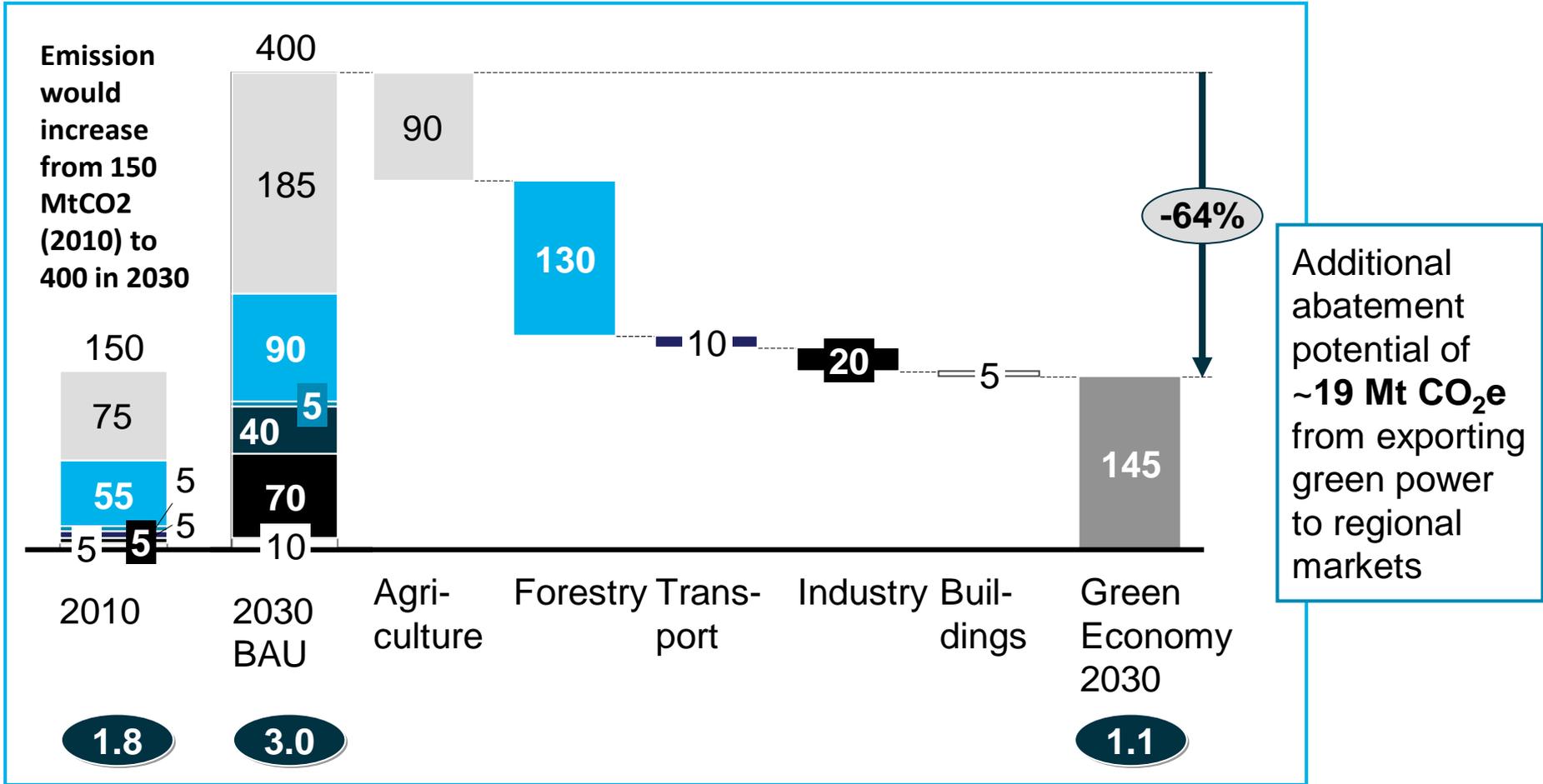
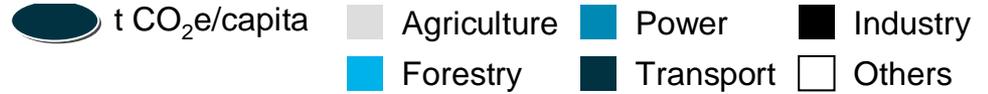
- **Enable** infrastructure development by developing strategy to **obtain financing**
- Develop green growth initiatives to **achieve GTP targets** while **reducing emissions**
- Provide essential analytics required to **secure carbon funding**
 - Estimate business-as-usual (BAU) emissions
 - Develop list of green growth interventions
 - Estimate abatement, growth contributions and feasibility of interventions
 - Develop implementation plans

More than 85% of GHG emissions in Ethiopia come from forestry and agriculture

Share of GHG emissions, 2010



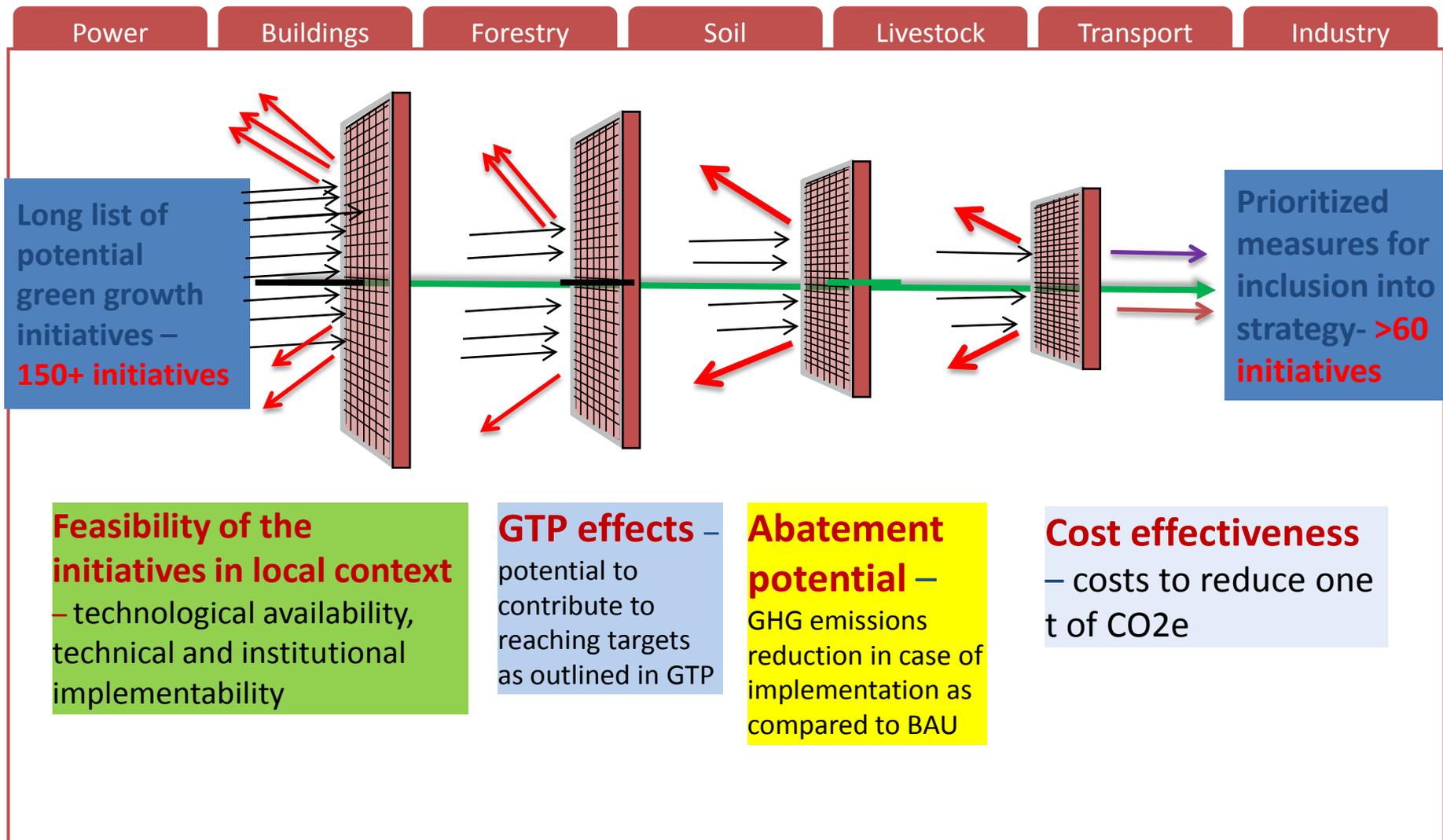
Emissions per year¹, Mt CO₂e



¹ Rounded numbers

² Currently estimated emissions from buildings and waste

Ethiopia has shortlisted >60 green economy initiatives



The strategy for a green economy is based on four pillars

Mt CO₂e abatement potential in 2030

Middle income country in 2025

Agriculture – Improving crop and livestock practices

- Reduce deforestation by agricultural intensification and irrigation of degraded land
- Use lower-emitting techniques
- Improve animal value chain
- Shift animal mix
- Mechanize draft power

90

Forestry – Protecting and growing forests as carbon stocks

- Reduce demand for fuel-wood via efficient stoves
- Increase sequestration by afforestation/ reforestation, forest management and area closure

130

Power – Deploying renewable and clean power generation

- Build renewable power generation capacity and switch-off fossil fuel power generation
- Geothermal is a high priority
- Export renewable power to substitute for fossil fuel power generation abroad

19¹

Industry, transport and buildings – Using advanced technologies

- Improve industry energy efficiency
- Improve production processes
- Tighten fuel efficiency of cars
- Construct electric rail network
- Substitute fossil fuel by biofuels
- Improve waste management

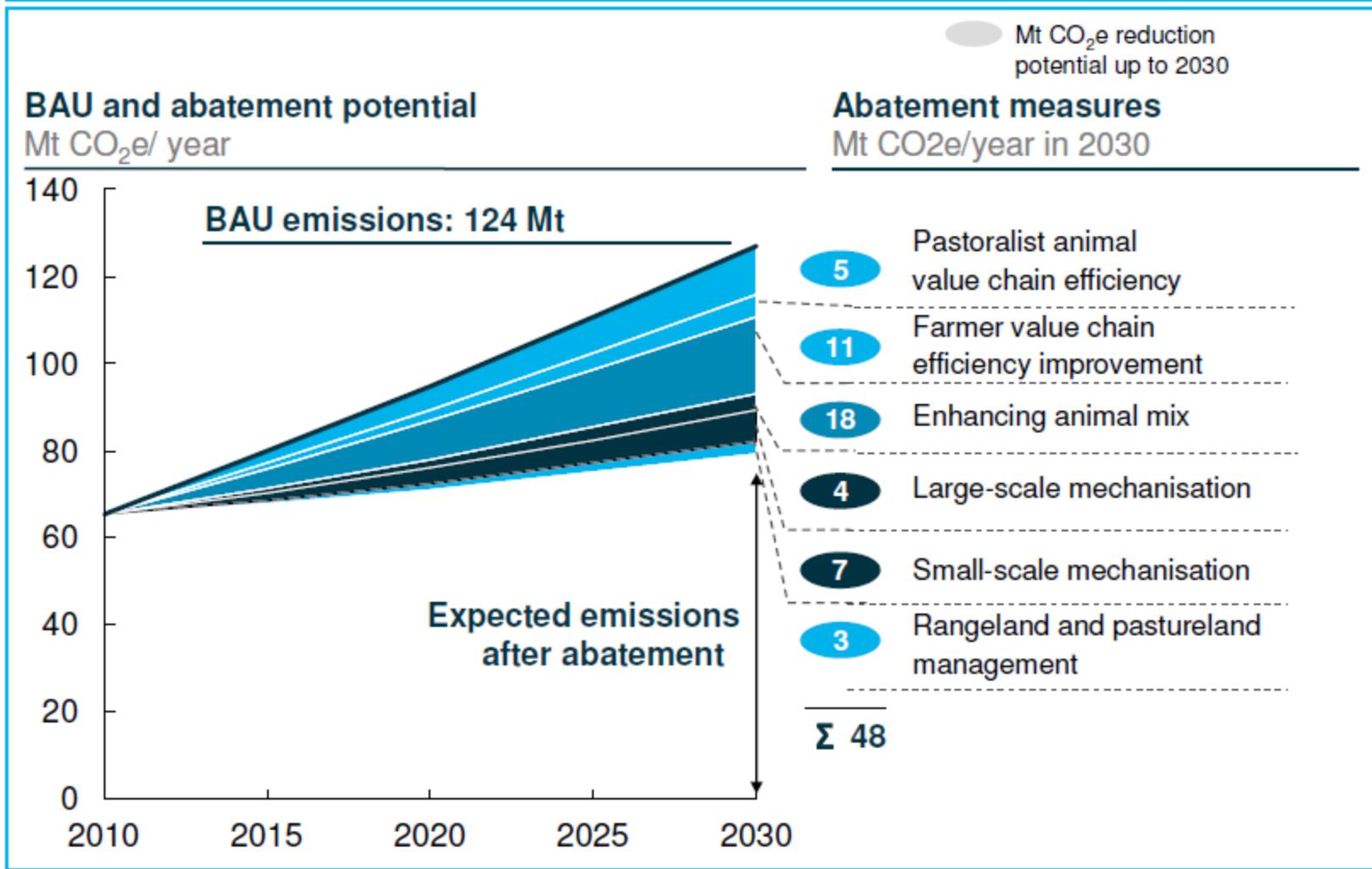
35

Climate resilient green economy strategy

1 Non-domestic abatement potential from power exports

Identified abatement levers and specific examples

Livestock – Abatement potential until 2030 is 48 Mt CO₂e per year



`Livestock` - List of identified abatement levers

■ Levers quantified

Levers	Description
<ul style="list-style-type: none"> ■ Increase animal value chain efficiency to improve productivity 	<ul style="list-style-type: none"> ■ Interventions aimed at improving GDP output per cattle via <ul style="list-style-type: none"> — Higher production per animal — Increased Off take rate, let by better health and marketing
<ul style="list-style-type: none"> ■ Support consumption of lower emitting sources of protein 	<ul style="list-style-type: none"> ■ Support the increase in poultry consumption (objective of 30% of meat consumption by 2030) by acting both on supply and demand aspects
<ul style="list-style-type: none"> ■ Mechanization of draft power 	<ul style="list-style-type: none"> ■ Introduction of mechanic equipment for plowing/tillage in substitution of ~50% of animal draft power
<ul style="list-style-type: none"> ■ Grazing land management and pasture improvement 	<ul style="list-style-type: none"> ■ Introduction of techniques to increase soil carbon content and productivity of pasture land
<ul style="list-style-type: none"> ■ Manure management 	<ul style="list-style-type: none"> ■ Wide range of activities including manure storage and utilization (e.g., for electricity generation through biogas)
<ul style="list-style-type: none"> ■ Modify rumine ecology 	<ul style="list-style-type: none"> ■ Additives, diet mix ■ Manipulating rumine flora ■ Vaccines to stop activity of methane producing organisms
<ul style="list-style-type: none"> ■ Low emitting cattle breeds 	<ul style="list-style-type: none"> ■ Select low emitting breeds

`Forestry` – List of identified levers

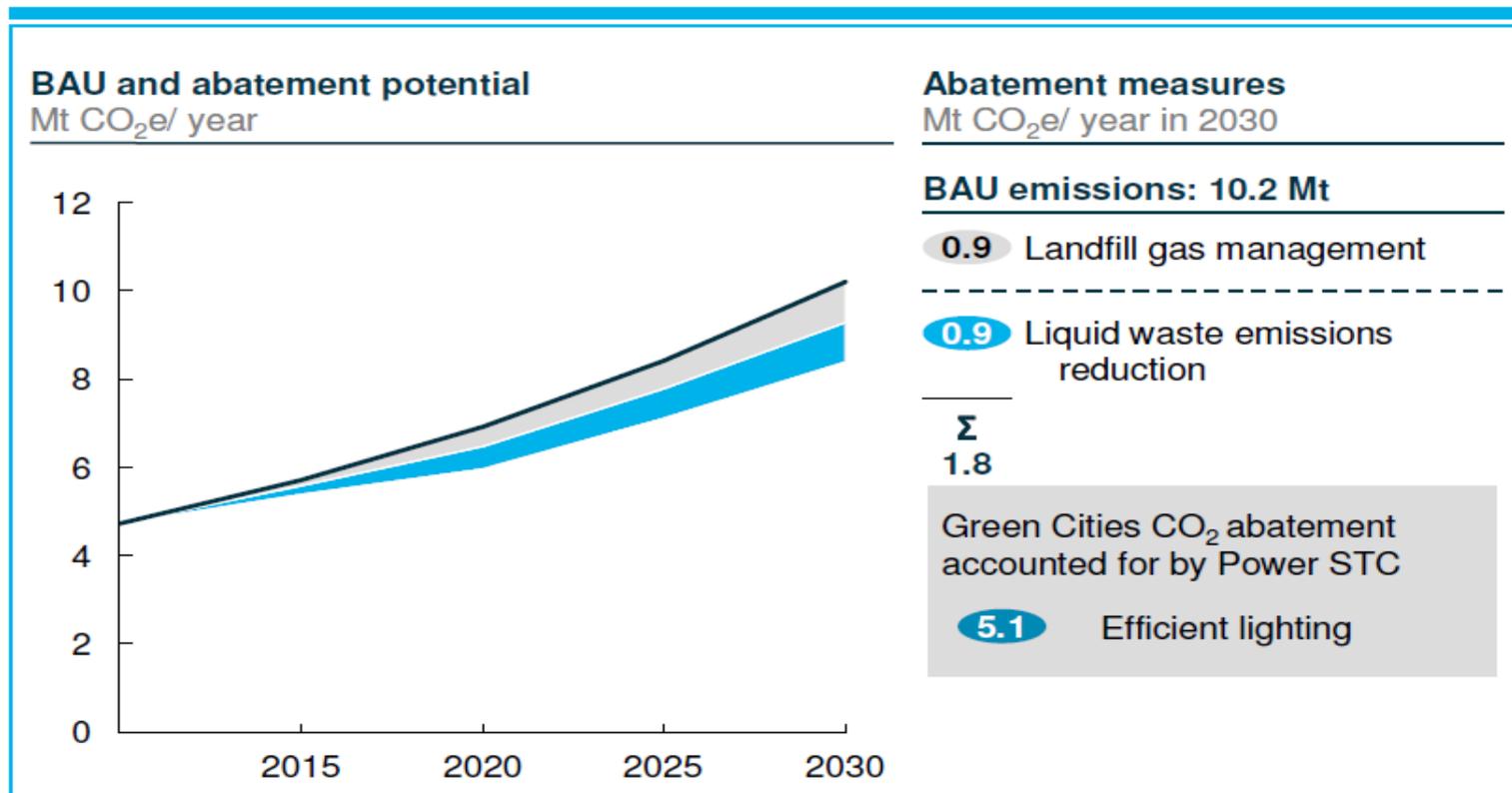
Macro levers	Levers	Description
<ul style="list-style-type: none"> ▪ Reduce pressure from agriculture on forests 	<ul style="list-style-type: none"> ▪ Agriculture intensification on existing land 	<ul style="list-style-type: none"> ▪ Decrease requirements for new agricultural land by increasing yield and value of crops
	<ul style="list-style-type: none"> ▪ Prepare new land for agriculture through medium and large scale irrigation 	<ul style="list-style-type: none"> ▪ Shift of new agricultural land from forest to degraded land brought into production thanks to irrigation
	<ul style="list-style-type: none"> ▪ Prepare new land for agriculture through small scale irrigation 	<ul style="list-style-type: none"> ▪ Shift of new agricultural land from forest to degraded land brought into production thanks to irrigation
<ul style="list-style-type: none"> ▪ Reduce demand for fuelwood 	<ul style="list-style-type: none"> ▪ Fuelwood efficient stoves 	<ul style="list-style-type: none"> ▪ Reduce wood requirements thanks to efficient stoves (in rural areas mostly)
	<ul style="list-style-type: none"> ▪ Electric stoves 	<ul style="list-style-type: none"> ▪ Switch to electric stoves (in urban areas mostly)
	<ul style="list-style-type: none"> ▪ LPG stoves 	<ul style="list-style-type: none"> ▪ Switch to LPG stoves
	<ul style="list-style-type: none"> ▪ Biogas stoves 	<ul style="list-style-type: none"> ▪ Switch to biogas stoves (in rural areas)
<ul style="list-style-type: none"> ▪ Increase sequestration 	<ul style="list-style-type: none"> ▪ Afforestation and reforestation 	<ul style="list-style-type: none"> ▪ Large scale afforestation and reforestation degraded areas
	<ul style="list-style-type: none"> ▪ Forest management 	<ul style="list-style-type: none"> ▪ Large scale forest management programs

`Soil` – List of identified abatement levers

Lever Categories	Example Levers	Description
<ul style="list-style-type: none"> ▪ Introduction of Lower Emitting Techniques <i>(includes 10+ levers)</i> 	<ul style="list-style-type: none"> ▪ Promote use of organic fertilizers ▪ Conservation agriculture ▪ Use crop cultivars known for carbon and nitrogen use efficiency ▪ Adjust fertilizer rates to crop needs (e.g., precision farming) ▪ Integrated use of high value tree crops on degraded land 	<p>Increase soil stock of C per unit of area; decrease N volatilization, percolation, leaching and improve plants N absorption</p>
<ul style="list-style-type: none"> ▪ Agriculture Intensification <i>(includes 10+ levers)</i> 	<ul style="list-style-type: none"> ▪ Improved inputs usage ▪ Residue management 	<p>Decrease requirements for new agricultural land (coming primarily from forests)</p>
<ul style="list-style-type: none"> ▪ Creation of New Land through Irrigation 	<ul style="list-style-type: none"> ▪ Small scale irrigation ▪ Large scale irrigation 	<p>Decrease requirements for new agricultural land (coming primarily from forests)</p>

'Green cities' – landfill mgt, liquid waste mgt and efficient lighting

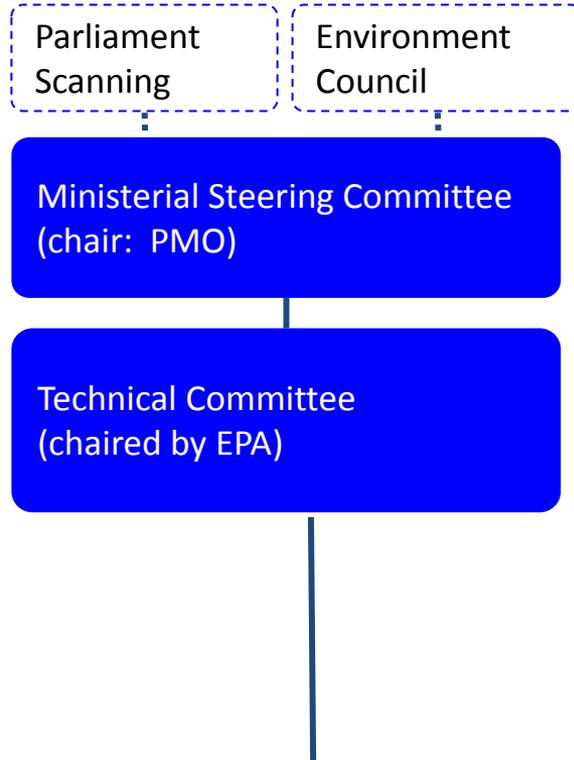
Green cities – Abatement and sequestration potential reaches 1.9 Mt CO₂e per year in 2030



CRGE - Organization

- **inter- sectoral collaboration**
 - PMO led the inter-ministerial committee
 - EPA led the technical committee
- **National launch – 16 November 2011**
- **launch (international community) – 07 December 2011**

CRGE - Organization



Sub-Technical Committees

Focus: GHG mitigation, economic growth and climate resilience

Power Supply

Buildings & green cities

REDD+

Soil based emissions

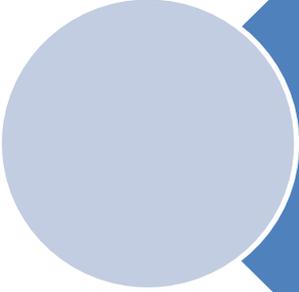
Live-stock

Transport

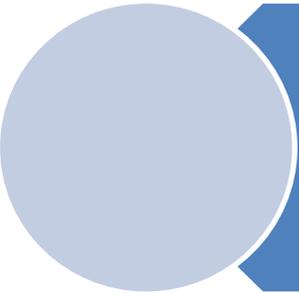
Industry

Finance for GE implementation

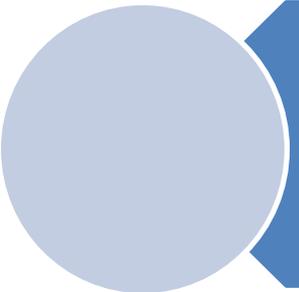
US\$: 150 Billion



1. Government budget- **by mainstreaming the Green Economy initiatives into existing development programmes**



2. Supported - **Development partners**



3. Credited - **International Carbon Finance Mechanisms – ex:- JCM, CDM**

CRGE Facility

CRGE Facility Objectives

1. To support the implementation of the priorities set out in the CRGE Strategy through:
 - Mobilizing; accessing and combining domestic and international, public and private sources of finance
2. To improve environmental management for a climate resilient green development
 - by providing grants, loans or ex-post rewards for capacity building, technology generation, transfer, or for a combination thereof

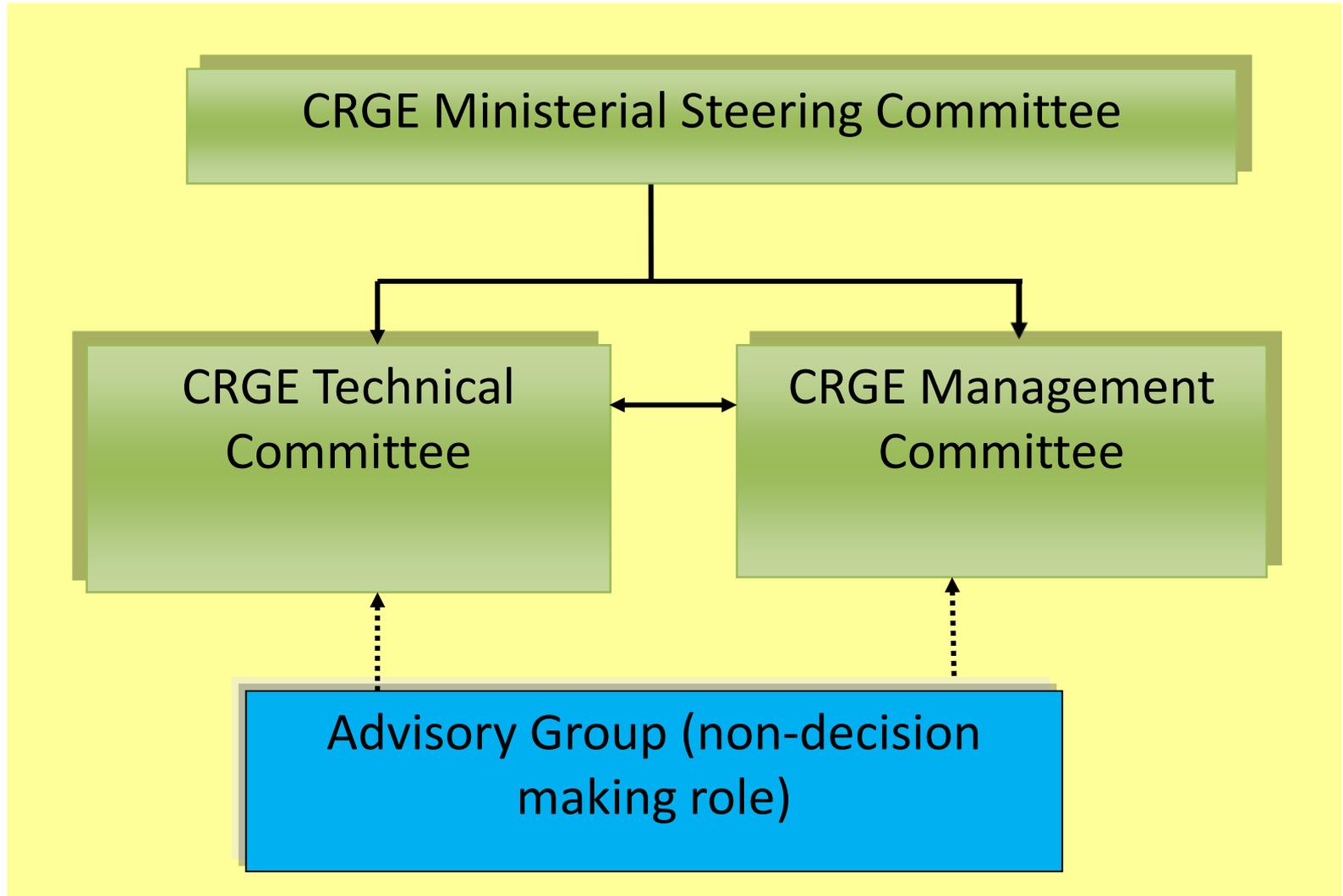
Financial Sources

- Budgetary support from government – 2% of GDP this year
- Private finance
- Carbon credits
- Development partners
- Financial mechanism of MEAs
- Innovative sources – PES, CSER, taxes

Structure of the CRGE Facility

- Two windows:
 - a **Strategic window**-exclusively provide support for implementation of activities that have been identified through a strategic process (the SRM) and
 - a **Responsive window**-provide demand-driven support for implementation and institution-building activities

CRGE Facility Governance Structure



CRGE Facility

- **Launched on 21 August, 2012**
- **Hosted by MoFED**
- **Initial financial flow ...**
 - **Government budget**
 - **Donors – Austria, UK, Norway, Denmark...**



***roadmap for
achieving CRGE***

CRGE Registry

CRGE Registry – to track progress, transparency, interact...

Firefox About CRGE

www.ethcrge.info/ethcrge/1/2/index.php?option=com_content&view=article&id=5&Itemid=2

Climate Resilient Green Economy CRGE

HOME ABOUT CRGE SRM PROJECTS NAMA PARTNERS RESOURCES

About Us

In the last several years, Ethiopia had recorded double digit economic growth and the government of Ethiopia as well as international organizations such as the IMF has indicated that Ethiopia's economy will continue to grow in a fast pace. With this rate Ethiopia aims to achieve middle-income status by 2025. However, following the conventional development path would, among other adverse effects, result in a sharp increase in GHG emissions and unsustainable use of natural resources. To avoid such negative effects, the government has developed a strategy to build a green economy. In order to achieve this, the Government of Ethiopia has developed a Climate Resilient Green Economic (CRGE) plan. The vision of CRGE is to achieve middle-income status by 2025 in a climate-resilient green economy. As set forth in the Growth and Transformation Plan (GTP), reaching this goal will require boosting agricultural productivity, strengthening the industrial base, and fostering export growth. Ethiopia's ambition to become a "green economy front-runner" is an expression of its potential for and belief in a sustainable model of growth. To achieve middle-income status before 2025, these five-year growth rates must be sustained for 15 years. The growth will result in a significant shift in GDP shares: In 2025, agriculture would contribute only 29% to the GDP, industry 32%, and services the remaining 39%.

If Ethiopia were to pursue a conventional economic development path to achieve its ambition of reaching middle-income status by 2025, GHG emissions would more than double from 150

In the last several years, Ethiopia had recorded double digit economic growth and the government of Ethiopia as well as international organizations such as the IMF has indicated that Ethiopia's economy will continue to grow in a fast pace. With this rate Ethiopia aims to achieve middle-income status by 2025.

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www.ethcrge.info/ethcrge/1/2/index.php?option=com_content&view=article&id=5&Itemid=2

3:08 PM 1/3/2013

CRGE Registry underway

The screenshot shows a Firefox browser window with the address bar displaying www.ethcrge.info/ethcrge/1/2/index.php?option=com_content&view=article&id=6&Itemid=3. The page features the logo for the Climate Resilient Green Economy (CRGE) at the top left. A green navigation bar contains the following menu items: HOME, ABOUT CRGE, SRM PROJECTS, NAMA, PARTNERS, and RESOURCES. The main content area is divided into several sections:

- Sectoral Reduction Mechanism:** A text block explaining the SRM Framework, designed by the EPA to meet the Government of Ethiopia's goal of zero carbon growth and middle income status by 2025. It mentions that the EPA will enable line ministries to deliver bankable investment plans for international climate funding.
- LOG IN TO DATABASE:** A login form with fields for Username and Password, a Login button, and links for [Forgot login?](#) and [Register](#).
- SEARCH FOR A PROJECT:** A search box with the placeholder text "search..." and a Search button.
- LOGIN TO REGISTER A NEW PROJECT:** A registration form with fields for Username and Password, a Remember Me checkbox, a Login button, and a [Forgot your password?](#) link.

The Windows taskbar at the bottom shows the system tray with the date and time set to 3:08 PM on 1/3/2013, along with icons for various applications and system utilities.

CRGE Registry

The screenshot displays a web browser window with the URL www.ethcrge.info/ethcrge/1/2/index.php?option=com_smartformer&Itemid=12. The page features the logo for the Climate Resilient Green Economy (CRGE) and a navigation menu with the following items: HOME, ABOUT CRGE, SRM PROJECTS, NAMA, PARTNERS, and RESOURCES.

The main content area is titled "NAMAs Registration Form" and contains the following fields and sections:

- Party**:
- A.2 Title of Mitigation Action**:
- A.3 Description of mitigation action**:
- A.4 Sector**:
- A.5 Technology**:
- A.6 Type of action**:
- Other**: Pls enter Other text here
- B. National Implementing Entity**:
- B.1 Name**:
- B.2.1 Contact Person**:
- B.2.3 Phone**:
- B.2.4 Email**:
- B.3.1 Contact Person**:
- Alternative Contact Person 1**:
- B.3.2 Address**:
- C. Expected timeframe for preparation of the mitigation action**:
- C.1 Number of months for completion**:
- D.1 Used Currency**:
- E Estimated full cost of preparation**:
- E Estimated full cost of preparation**:
- F Support required to prepare the mitigation action**:
- F.1.1 Amount of financial support**:
- F.1.2 Type of required financial support**:
- Other**: Pls enter Other text here
- F.1.3 Comments on Financial Support**: An initial estimate of USD 400 000 is requested to support the preparation of the NAMA. This amount would be used to design a framework of operations, detailed budgets, detailed GHG estimates and identify potential partners and donors for:
 - The NAMA co-financing facility
 - The technical assistance to the National Railways Institute
 - The technical assistance to the Ethiopian Railways Corporation

Thank you!