

FAO Activities for Supporting NAMAs in Agriculture

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***Monitoring and Assessment of GHG
Emissions in Agriculture***

MICCA Programme

Climate, Energy and Tenure Division

African Regional Workshop on NAMAs
Windhoek, Namibia
1-3 October, 2014



FAO Objectives

- Identify mitigation strategies that are consistent with food security, resilience and rural development goals
- Support member countries to improve rural statistics, analyze GHG emissions, evaluate practices, for the agriculture, forestry and the land use sector –NCs, BURs, NAMAs and REDD+
- Coordinate with relevant international programmes towards coherent frameworks, focusing on national processes –UNDP; UNREDD; UNFCCC; IPCC

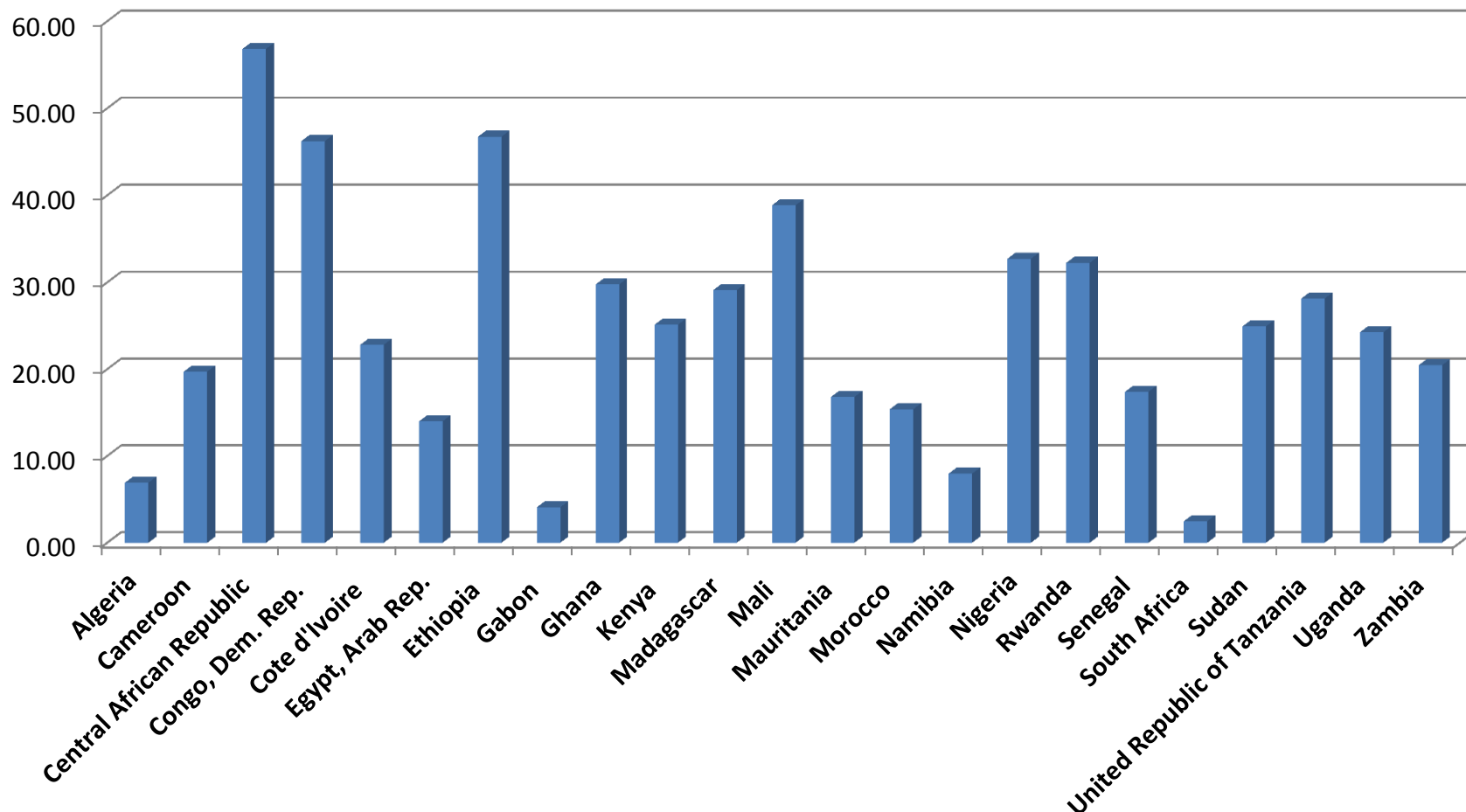


Why Focus on Agriculture for Mitigation: Dominant economic and emission sector

- Agriculture is a substantial portion of GDP in most developing countries, contributing significantly employment and earnings
- Average percent share of GDP_{ag} / GDP by continent:
 - Africa **23%**
 - Asia **22%**
 - Latin America **10%**
 - Annex I ~ **2-3%**
- Economic growth linked to overall rural development and the prosperity of farming communities



Agriculture GDP share, Africa

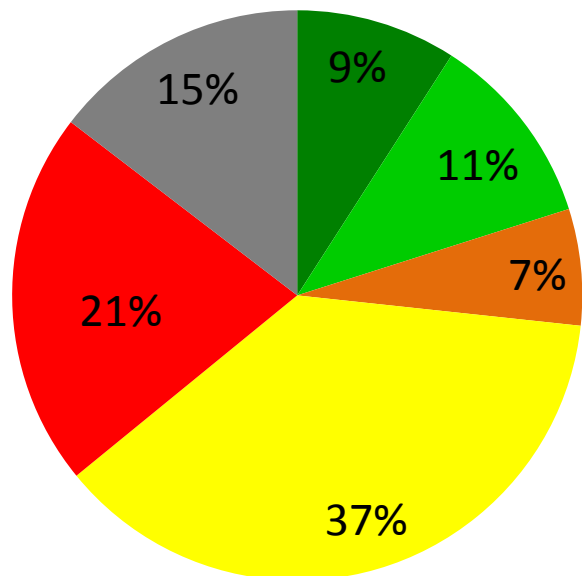


Source: World Bank, 2010



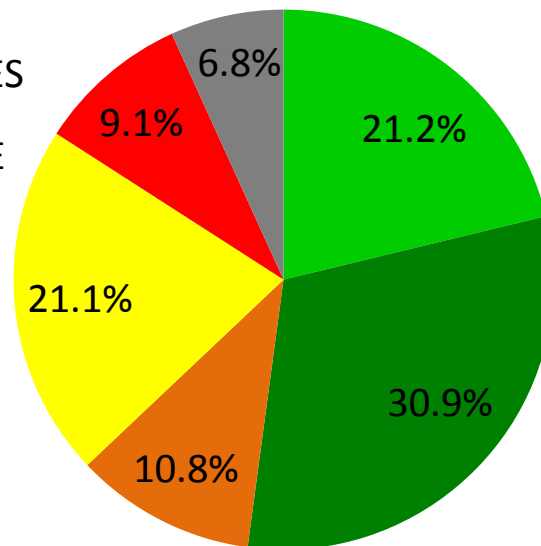
Agriculture is a dominant GHG emitter

GLOBAL



- FOLU SOURCES
- AGRICULTURE
- BUILDINGS
- ENERGY
- INDUSTRY
- TRANSPORT

AFRICA



GREENHOUSE GAS EMISSIONS

from Agriculture, Forestry and Other Land Use
in Africa

Food Security and Agriculture face major challenges under climate change. In terms of expected negative impacts on productivity as well as implementation of technical actions to limit global warming, Agriculture's greenhouse gas emissions continue to rise – although not as fast as emissions from other human activities. Better regional and national data on emissions from farming, livestock rearing, silviculture and forestry can help countries identify opportunities for reducing emissions while addressing their food security, resilience and rural development goals – and gain access to global funding to pursue them.

The new FAOSTAT emissions database represents the most comprehensive knowledge base on agricultural greenhouse gas emissions ever assembled. Updated annually, it provides a global point of reference on emissions and mitigation opportunities in the sector.

2001-2010 average emissions

Global emissions: 1900 million tonnes CO₂eq/year, of which

Agriculture
729 million tonnes CO₂eq/year

Deforestation
370 million tonnes CO₂eq/year

Forest
82 million tonnes CO₂eq/year

Biomass fires
131 million tonnes CO₂eq/year

Degraded pastlands
60 million tonnes CO₂eq/year

Figures are averages for the period 2001-2010, approved in Million tonnes CO₂eq

Regional emissions from agriculture (crops & livestock) increased by almost 248% in the last 50 years

1961
232 million tonnes CO₂eq

2011
more than
809
million tonnes CO₂eq

2001-2010 average contributions to agriculture GHG:

38%

Enteric fermentation

27%

Manure left on pasture

24%

Burning of savannahs

3%

Synthetic fertilizers

3%

Paddy rice

2%

Manure management

Livestock related emissions from enteric fermentation and manure contributed nearly two-thirds of the total.

Emissions from agriculture by continent are:

Figures are averages for the period 2001-2010

Emissions from energy use in agriculture added another

29 million tonnes CO₂eq/year

The data include emissions from fossil fuel energy needed to power machinery, irrigation pumps and fishing vessels.

The FAOSTAT Emissions database was first launched in Dec. 2012 as a service to all FAO member countries. It provides the basis for GHG emissions data analysis for all agriculture, forestry and land use change related activities in the 19th Assessment Report of the Intergovernmental Panel on Climate Change (IPCC). FAOSTAT Emissions data are also published in the FAO Statistics of Yearbook of products in 2013 and 2014. The Emissions database was implemented by the "Monitoring and Assessment of GHG Emissions in Agriculture (MAGS)" project of the MICCA Program of the Climate, Energy and Nature Division and Statistics Division of FAO, with generous funding by the Government of Germany and Norway.

Food and Agriculture Organization of the United Nations

http://www.fao.org/sector/governance/indicators/CO2eq/16
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Agriculture NAMAs: Addressing Mitigation, Adaptation and Food Security:

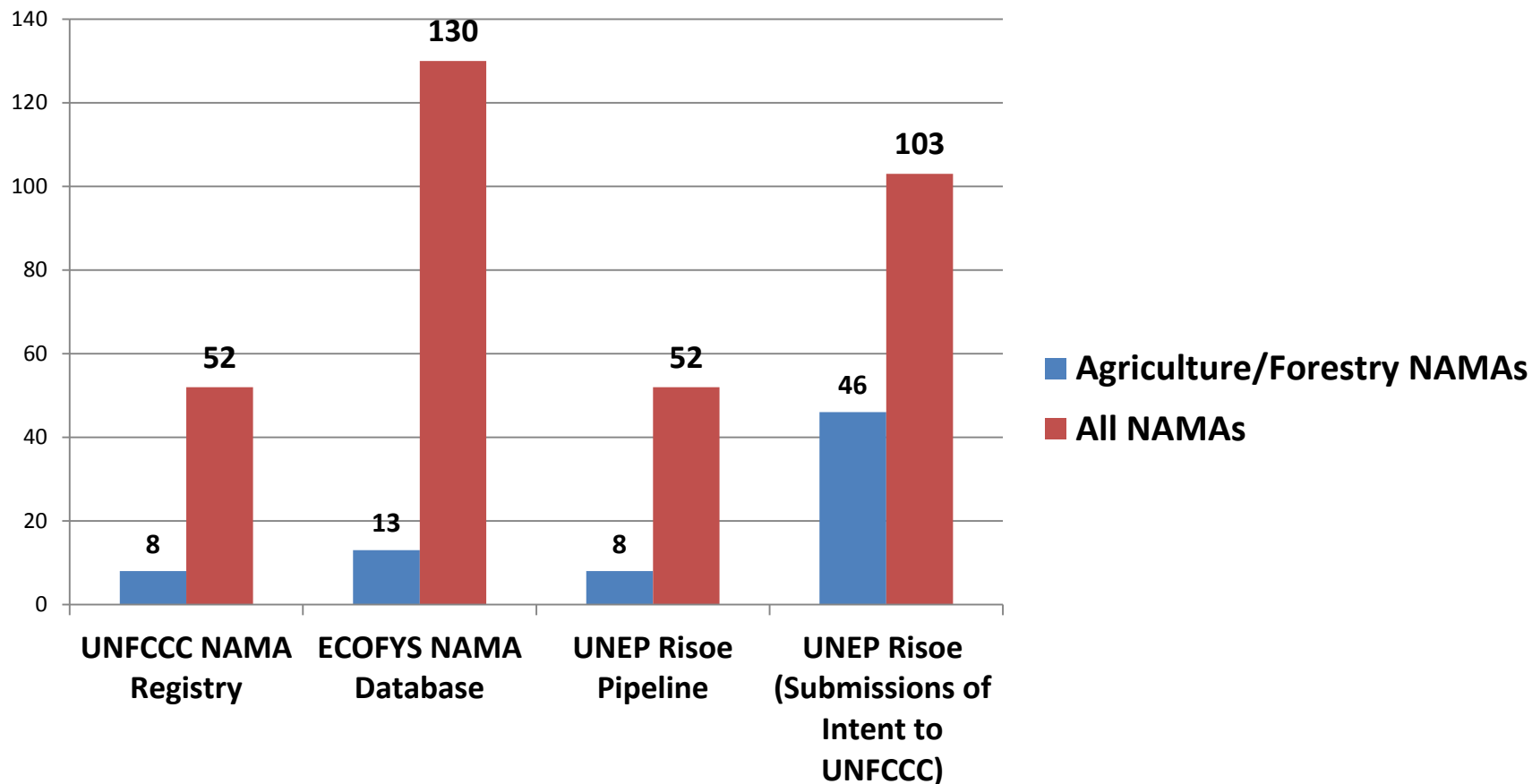
- Agriculture offers significant opportunity to link adaptation, resilience, mitigation and food security goals into one coherent package

Joint adaptation and mitigation measures include, among others:

- Reduce land degradation
 - Increase efficiency of input applications
 - Increase efficiency of supply chains/Reduce Waste
 - Agroforestry
- Addressing synergies in a coherent package could help to leverage funding, with potential to integrate NAMAs/NAPs



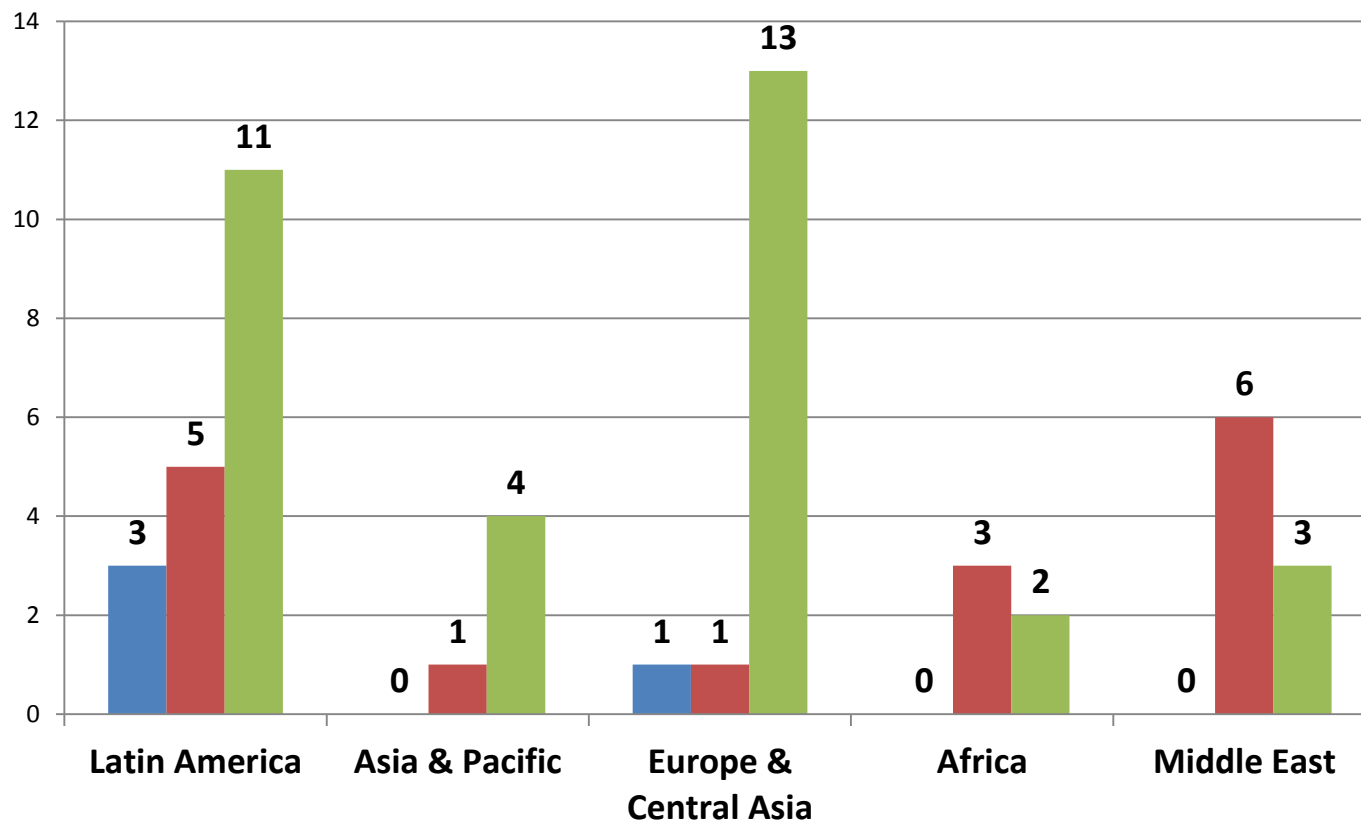
Current Status of Agriculture NAMAs:



September 2014



NAMAs By Region



■ For recognition ■ For preparation ■ For implementation

Source: UNEP Risoe NAMA Pipeline
September 2014



FAO Activities

- Global data: FAOSTAT Emissions database for AFOLU
- Knowledge generation: IPCC AR5 and NAMA Guidelines, GHG Reports, MICCA Pilots Knowledge Generation
- Capacity Development: Support member countries identify and analyze GHG data, identify practices



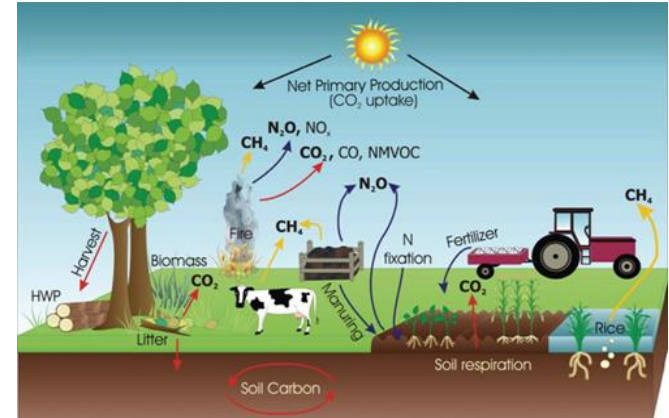
FAOSTAT Emissions Database: A reference Tier 1 Exercise



& geo-reference data



IPCC 2006 Guidelines



FAO
Food and Agriculture Organization of the United Nations
FAOSTAT

Home Browse Data Download Data Compare Data Search Data Analysis Methods & Standards

Browse Data

By Domain | By Country/Region | Rankings

Production

- Crops
- Crops processed
- Live Animals
- Livestock Primary
- Livestock Processed
- Production Indices
- Trade
- Food Supply
- Commodity Balances
- Food Balance Sheets
- Food Security
- Prices
- Resources
- Population
- Investment
- Emissions - Agriculture**
 - Enteric Fermentation
 - Manure Management
 - Rice Cultivation
 - Synthetic Fertilizers
 - Manure applied to soils
 - Manure left on pasture
- Crop Residues
- Cultured Organic Soils
- Burning Crop Residues
- Emissions - Land Use
- Forestry

Emissions - Agriculture
Emissions of methane and nitrous oxide produced from agricultural activities

Items: All GHG Agricultural Sectors Countries/Areas: World From Year: 1998 To Year: 2010 Aggregation: Average

Emissions by country (CO2 equivalent)
Average 1990 - 2010

Legend: Gt/annum
 0-5,121
 5,121-14,411
 14,411-48,491
 48,491-140,741
 140,741-347,804
 347,804+

Emissions (CO2 equivalent) 1990-2010: 500K

Emissions growth rate by continent: Africa 2.29%



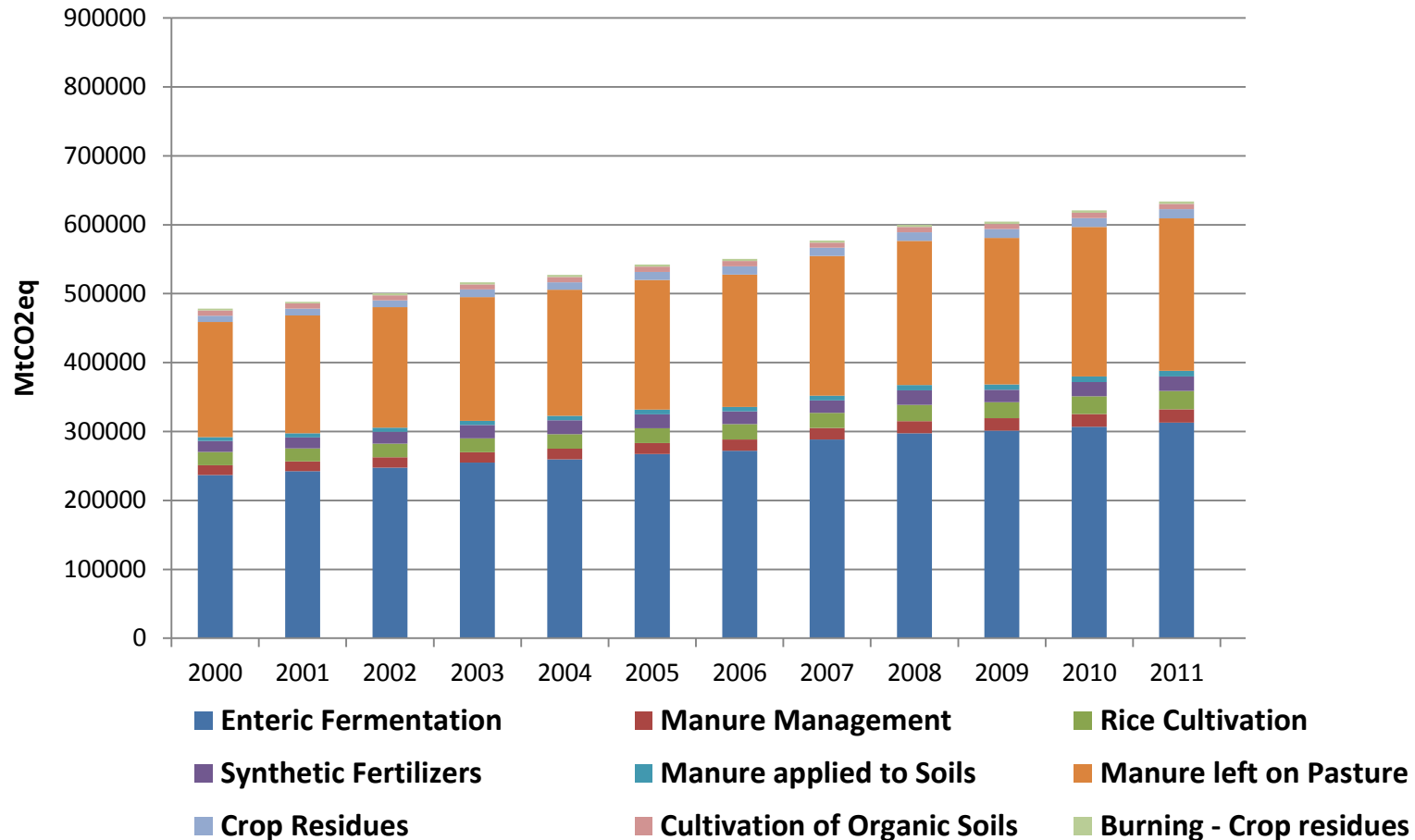
Addressing different data analysis needs:

1. National, Regional and Global Assessments: Facilitate regional comparisons and trend analysis for AFOLU –IPCC AR5
2. Support GHG Inventories: Provide a reference, Tier 1 data framework for analysis of AFOLU GHG trends for all countries—including reference emissions to 2030 by country and subsector
3. Develop Indicators: Derive complex GHG indexes useful for analysis and policy support
4. Access geo-referenced data: Move beyond nationally aggregated statistics for the land use sector



Trends and BASELINE Projections

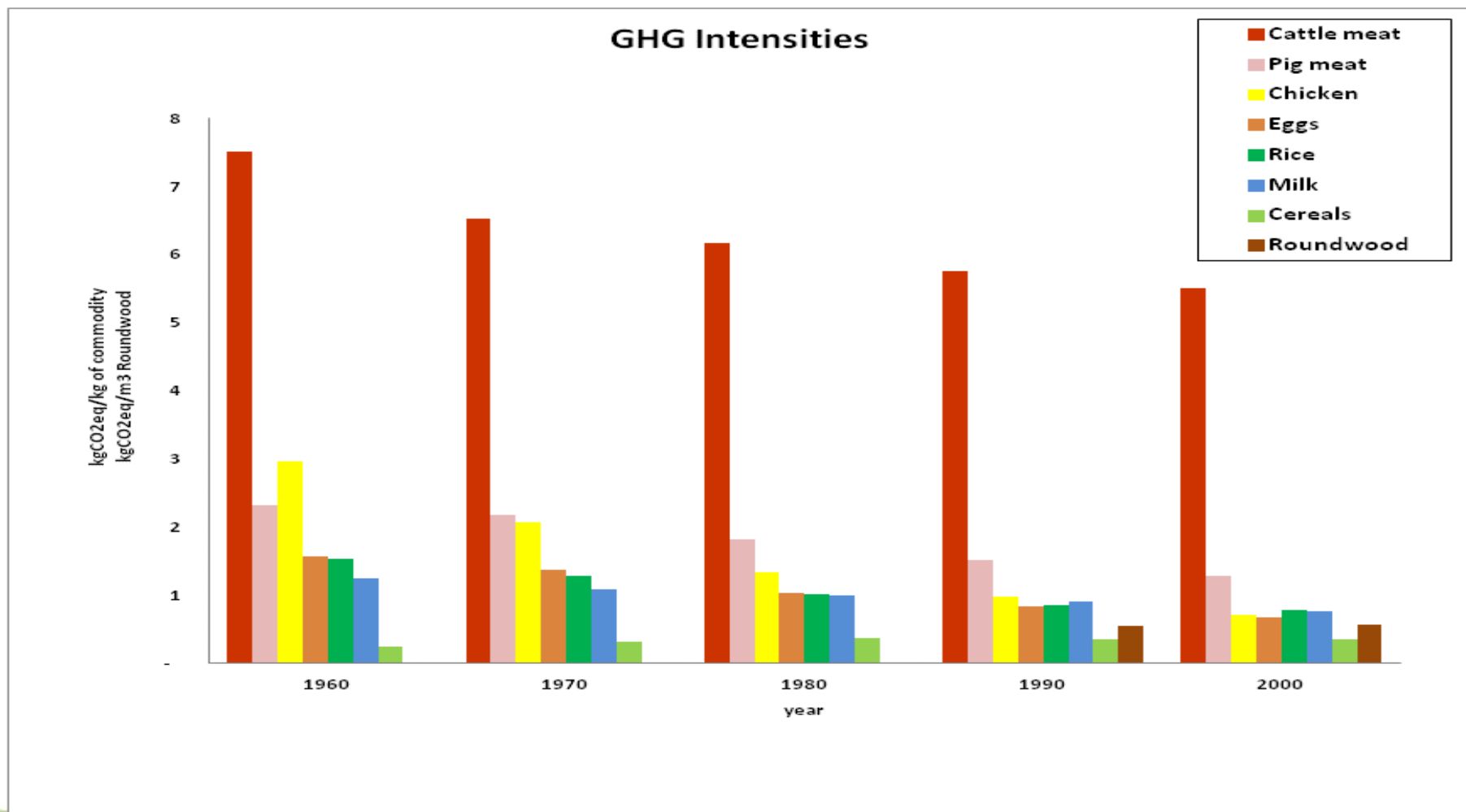
Africa: Agriculture by Category, 2000-2050



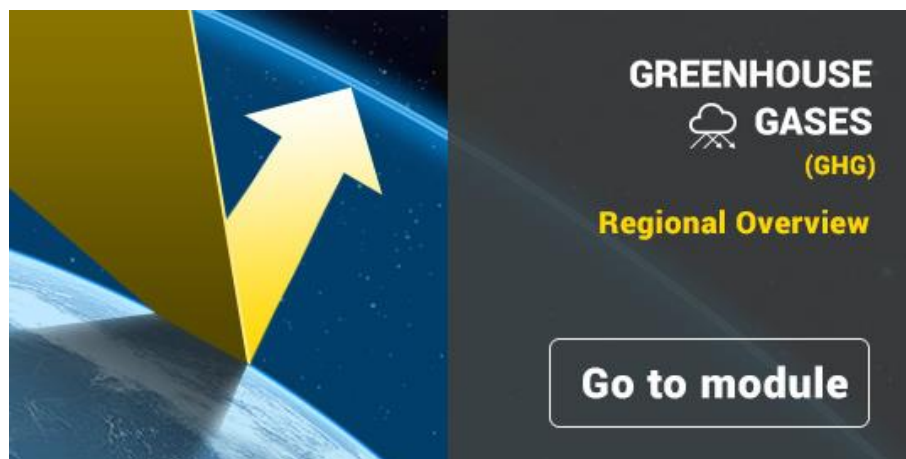
Source: FAOSTAT, 2014



GHG/Commodity Indicators



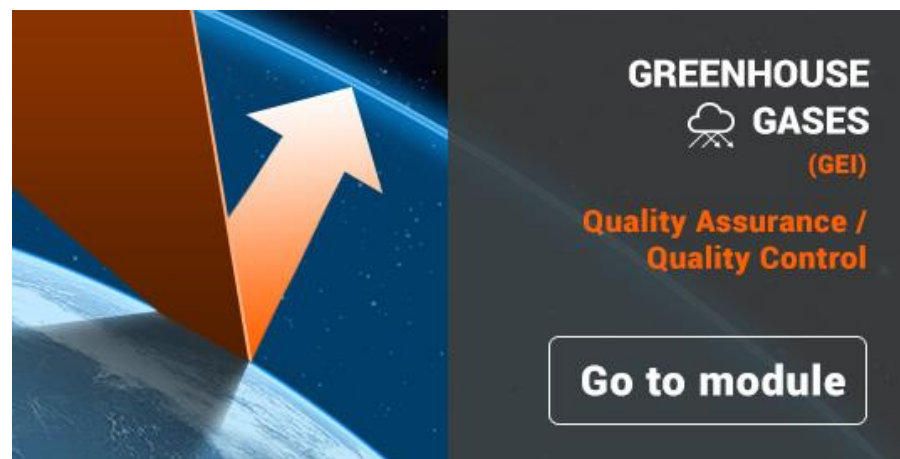
New Data Analysis Tools in FAOSTAT Emissions Database



**GREENHOUSE
GASES
(GHG)**

Regional Overview

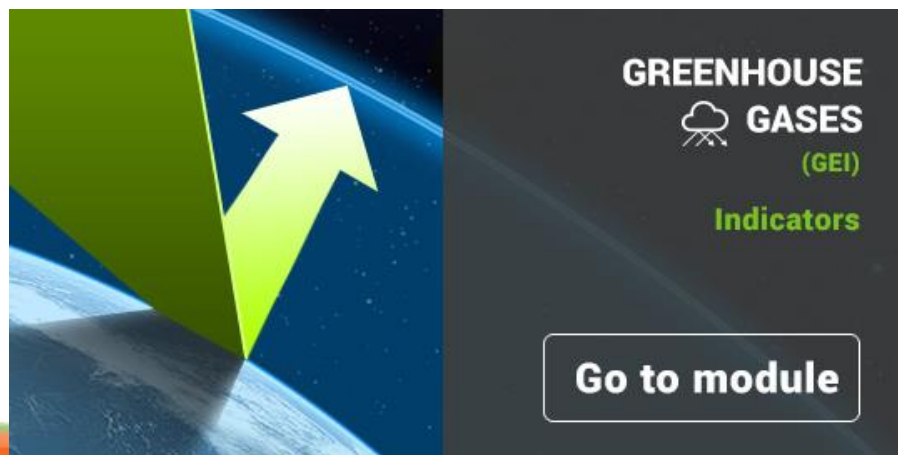
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**GREENHOUSE
GASES
(GEI)**

**Quality Assurance /
Quality Control**

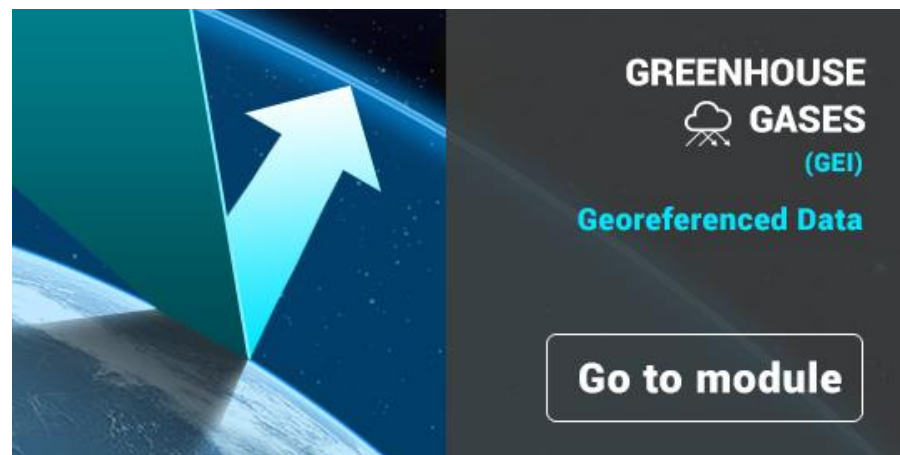
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**GREENHOUSE
GASES
(GEI)**

Indicators

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**GREENHOUSE
GASES
(GEI)**

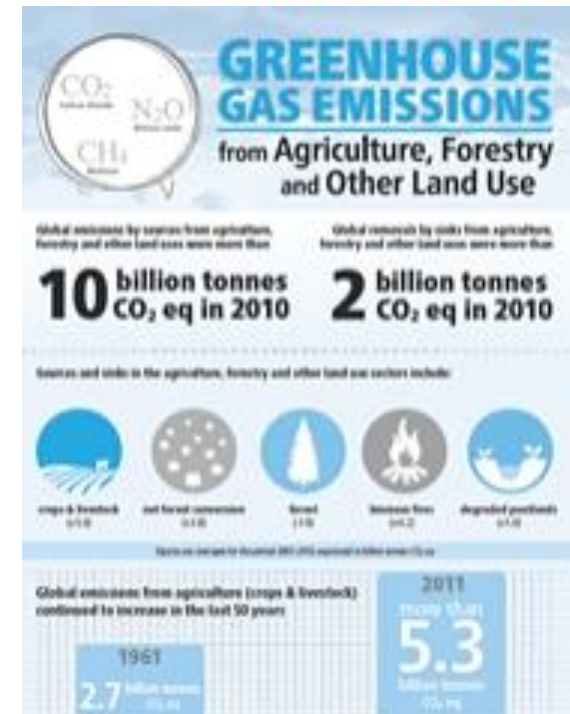
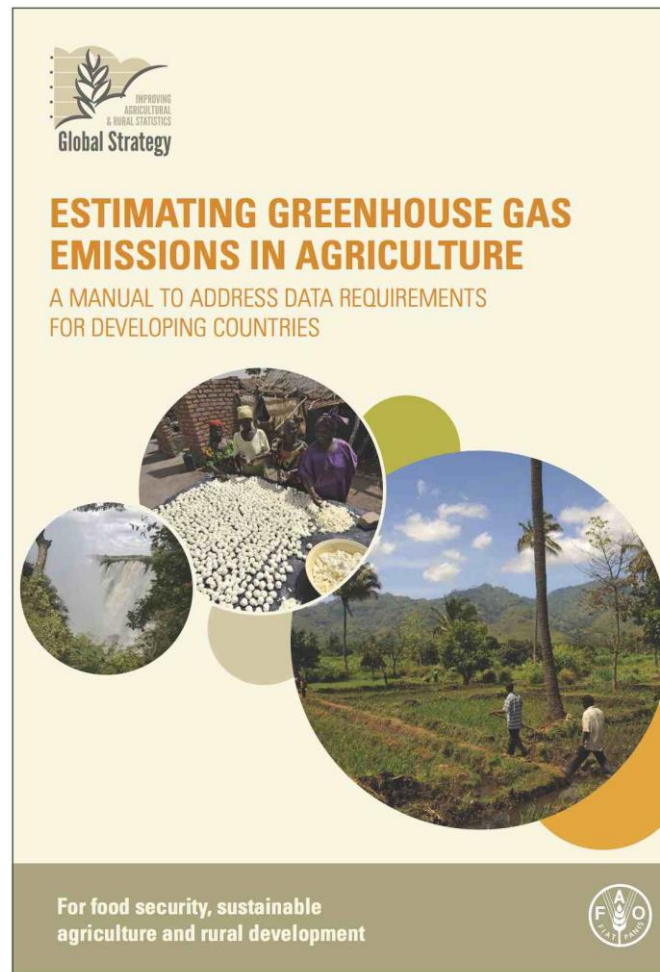
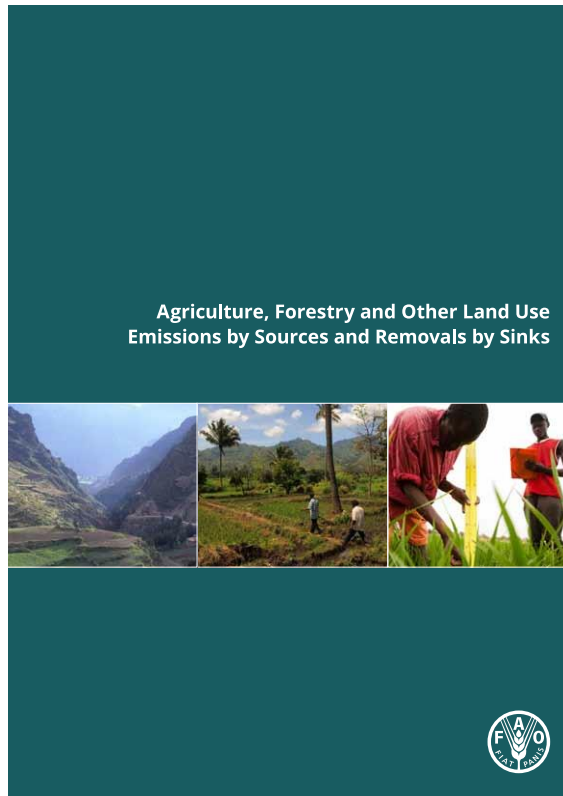
Georeferenced Data

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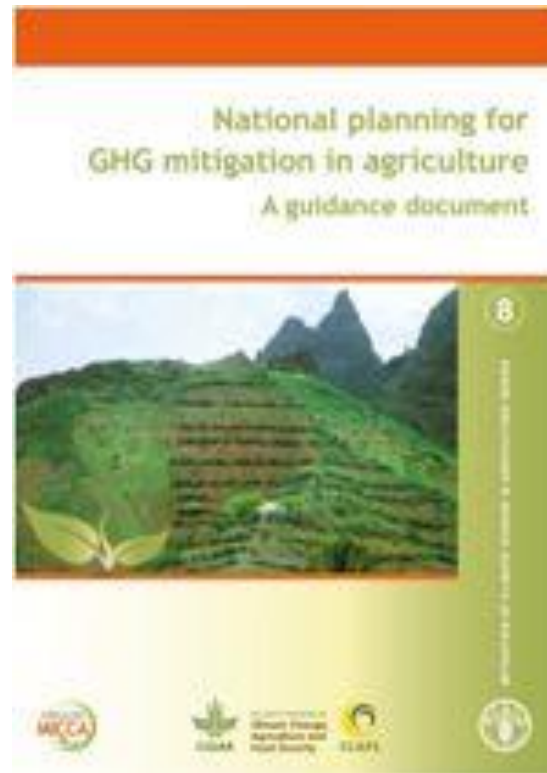
Capacity Development-Knowledge

- Knowledge Generation; GHG Data Analyses, Manuals in support of GHG Inventory and submission processes



Capacity Development-Knowledge

- Knowledge Generation; GHG Data Analyses, Manuals and Analyses on NAMA-relevant processes



Capacity Development-Regional

- **Asia-Pacific, Latin America, Africa 2012-2014**

Da Lat, Viet Nam, 5 - 6 October 2012

33 participants; 18 countries (Bangladesh, Bhutan, Cambodia, China, Fiji, India, Indonesia, LAO PDR, Korea ROK, Malaysia, Myanmar, Nepal, Pakistan, Philippines, Sri Lanka, Thailand, Viet Nam)

Port of Spain, Trinidad and Tobago, 3 - 4 June 2013

29 participants; 18 countries (Argentina, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Ecuador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Dominican Republic, Peru, Uruguay, and Trinidad and Tobago)

Casablanca, Morocco, 2 - 3 December 2013

37 participants; 23 countries (Algeria, Cameroon, Central African Republic, Congo Dem. Rep., Cote d'Ivoire, Egypt, Ethiopia, Gabon, Ghana, Kenya, Madagascar, Mali, Mauritania, Morocco, Namibia, Nigeria, Rwanda, Senegal, South Africa, Sudan, United Republic of Tanzania, Uganda, and Zambia).

- **National Workshops in Kenya and Tanzania on Climate Change and Agriculture: Sharing Evidence and Experience on Climate-Smart Agriculture.**

Nairobi, Oct 8-9 2014; Dar es Salaam, Oct 15-16 2014



Capacity Development-BURs/NAMAs

- **BUR “Pilots” QA**

Mexico, Uruguay, Costa Rica

- **UN REDD Targeted Support**

Ecuador, Colombia, DRC, Congo

- **Special activity on Peatlands**

Indonesia

- **Tanzania and Kenya MICCA Pilots**

- **NAMA Training Package, Vietnam**

- Data Gaps; QA/QC
- Project Base Processes
- Interagency Coordination
- UNREDD, UNDP, UNFCCC, IPCC



Conclusions

- Agriculture has a critical role to address linkages among mitigation, resilience and food security goals, and these could be funded through agriculture NAMAs
- FAO supports member countries with data tools, knowledge on practices, manuals and in-country capacity development activities



Thank you for Your Attention!

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With Funding From:



Addressing Data and Institutional Gaps

FAOSTAT Emissions database for AFOLU

Released on Apr 14th 2014, contributes to IPCC AR5 WGIII

- Platform containing domains for AFOLU GHG emissions at global, regional, and national level (identification of hotspots, baselines, projections)
- Four dimensions of applicability:
 - 1) Global and regional assessments
 - 2) Filling data gaps and building capacity
 - 3) QA/QC of national data
 - 4) Development of indicators

Regional Workshops on Statistics for GHG emissions

- Assist Member countries with agricultural data collection in order to prepare BURs and NAMAs; provides exchange of experiences between countries



Critical Role of National GHG Inventories

Improved data collection and sound GHG emission inventories within robust National data systems:

- Enable development of baselines and MRV of NAMAs
- Help identify emissions hotspots

