Monitoring and Assessment of Greenhouse Gas Emissions and Mitigation Potential in Agriculture: The new GHG Emissions database in FAOSTAT

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Outline

1. Introduction to the FAO GHG Activities
2. Science and Policy Context, Gaps, Capacity Needs
3. The FAOSTAT emissions database
4. Capacity Development
5. 3rd FAO GHG Workshop, Casablanca
6. Conclusions

Monitoring and Assessment of GHG Emissions and Mitigation Potentials in Agriculture

PROJECT GOALS:

- Generate knowledge to help developing countries identify, assess and report their GHG emissions in agriculture, forestry and fisheries

- Help countries identify mitigation options consistent with their rural development goals, food security, agro-ecosystems resilience, including NAMAs

- Close collaboration with IPCC and UNFCCC in support of reporting and negotiations

Monitoring and Assessment of GHG Emissions and Mitigation Potentials in Agriculture

PROJECT ACTIVITIES:

- FAOSTAT Emissions database, to identify global and regional trends and support FAO member countries
- Capacity development for GHG data reporting and NAMA development
- Contribution to Intergovernmental Panel on Climate Change: IPCC: AR5, Revised 2013 Guidelines, IPCC Software

Need for GHG Statistics:
The science and policy context

1. Climate Change International Agreements require that countries report their GHG emissions regularly (UNFCCC)
2. Developed parties use GHG reporting to demonstrate their emission reduction commitments (e.g., Kyoto Protocol)
3. Developing countries parties use GHG reporting as a key to receive climate funding and to inform international negotiations and support policy decisions

Need for GHG Statistics:
Urgent need for action in developing countries

1. Agriculture sectors are key emitters in developing countries, and a basis for climate mitigation that is relevant to food security and sustainable development goals
2. Need to improve capacity to collect and analyze activity data and GHG statistics. Only 3-4 reports per country over the past 20 years
3. Starting in 2014, need to report bi-annually to UNFCCC

GHG Emission Statistics:
Categories

DOMAIN	CATEGORY		GAS
Agriculture	Enteric Fermentation		CH_4
	Rice Cultivation		CH_4
	Manure Management		CH_4, N_2O
	Agricultural soils	Synthetic Fertilizers	N_2O
		Manure applied to soils	N_2O
		Manure left on pasture	N_2O
		Crop residues	N_2O
		Degraded organic soils	N_2O, CO_2
	Biomass burning		CH4, N2O

DOMAIN	CATEGORY	GAS
LULUCF	Forest land	CO_2
	Cropland	CO_2
	Grassland	CO_2
	Wetlands	CO_2
	Settlements	CO_2
	Other land	CO_2

FAOSTAT Emissions Database

Food and Agriculture Organization of the United Nations
FAOSTAT

& geo-reference data

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IPCC 2006 Guidelines

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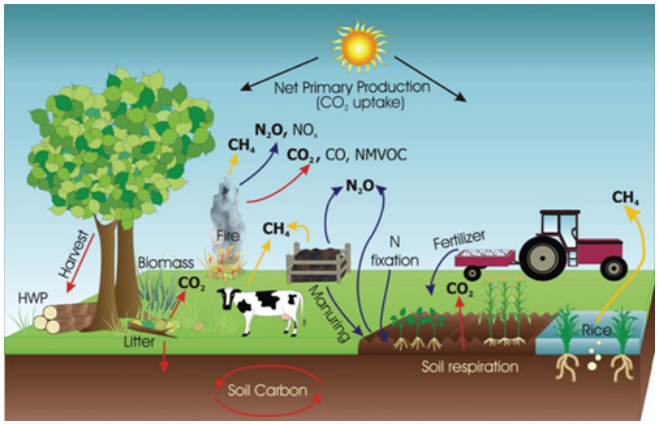
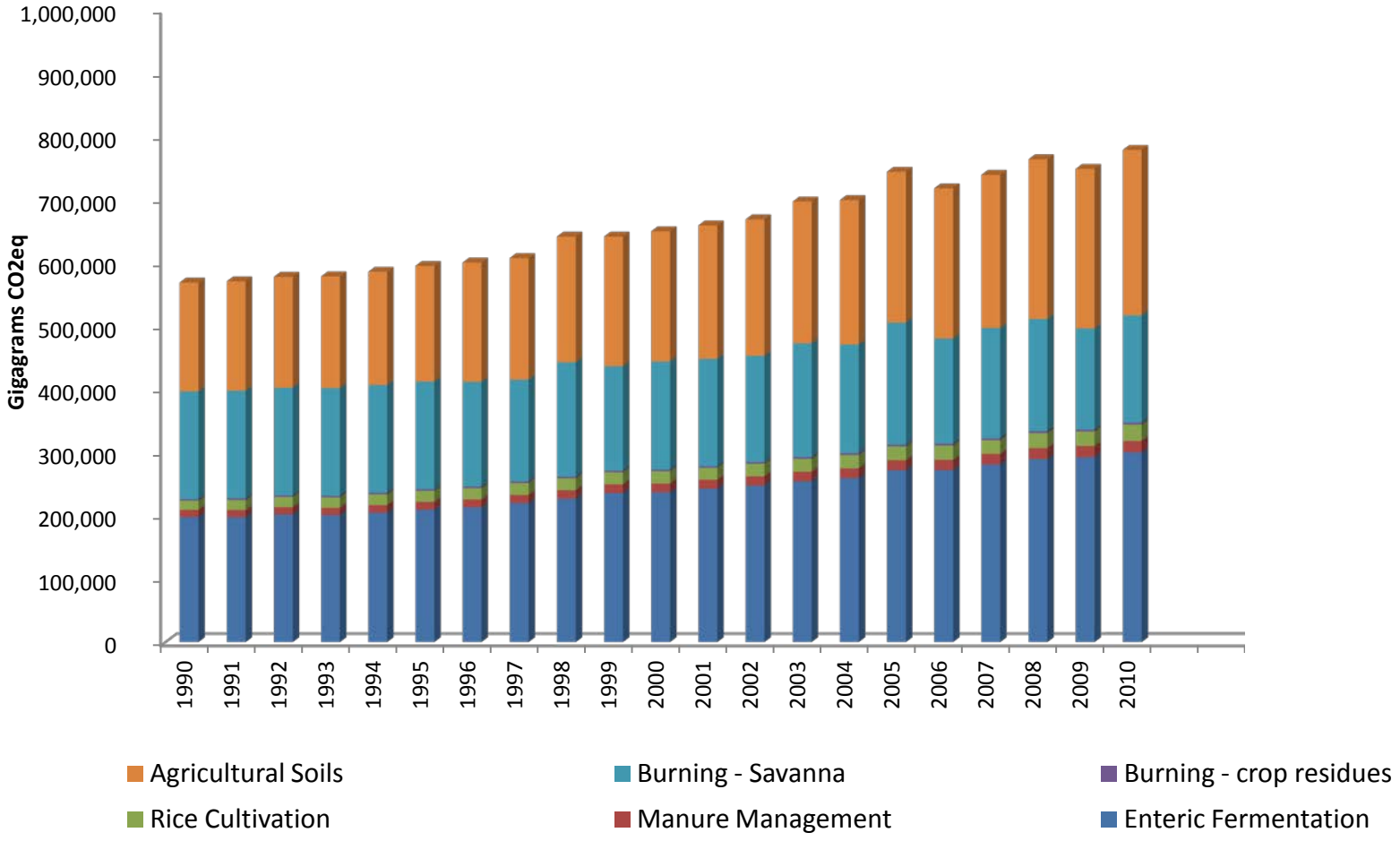


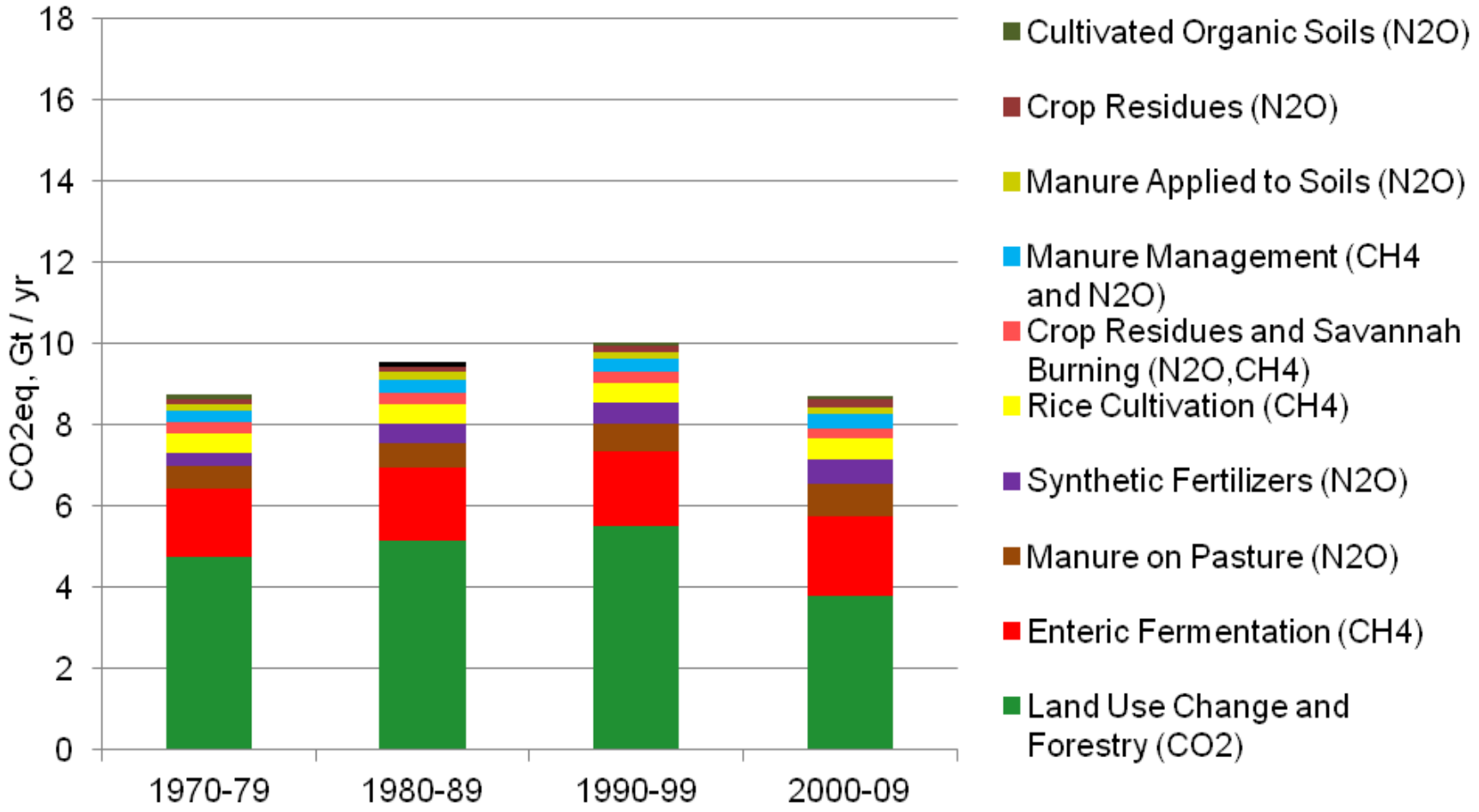
Addressing different needs

1. Global and regional assessments: Unlike for energy, no international agency regularly reports for GHG from agriculture
2. Fill data gaps and build capacity: a bridging tool for many non-Annex I parties
3. QA/QC procedures and data analysis: provide an internationally accepted and neutral data platform for evaluation of national reporting
4. Develop indicators for further analysis: derive complex indexes useful for analysis and policy support

1. Global and Regional Analyses



1. IPCC AR5 AFOLU GHG Data



2. Fill data gaps and build capacity

World Top non-Annex I Emitters for Enteric Fermentation

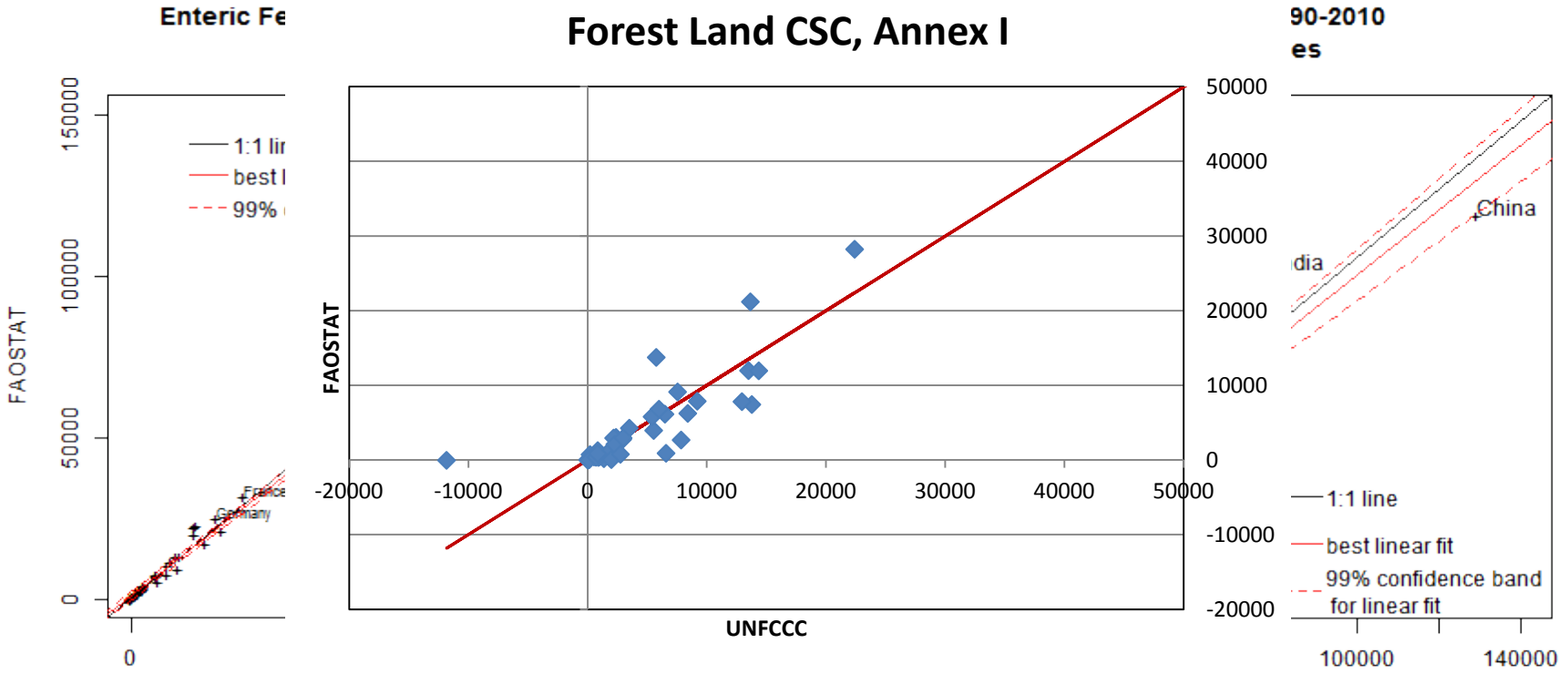
UNFCC National Communications

	A	B	C	D	E	F	G	H	E
1990		176,799			57,376		38,803		25,946
1991		1							
1992		1							
1993		1							
1994	188,412	1							
1995		1							
1996		1							
1997		1							
1998		1							
1999		1							
2000		2							
2001		2							
2002		2							
2003		2							
2004		2							
2005		2							
2006									
2007									
2008									
2009									
2010									

FAOSTAT GHG Emissions

	A	B	C	D	E	F	G	H	E
1990	246,450	188,093	141,675	41,106	67,689	21,742	44,041	28,071	31,523
1991	249,275	194,457	143,960	41,928	66,986	22,782	43,359	28,229	31,552
1992	253,058	197,107	145,539	42,770	67,470	25,916	41,902	28,987	32,091
1993	254,170	197,699	149,119	43,637	66,362	28,651	42,500	23,944	32,791
1994	255,644	201,563	155,786	44,530	66,852	30,949	42,476	24,232	33,257
1995	256,993	205,399	168,819	45,448	66,046	31,949	41,866	24,160	33,270
1996	258,404	198,450	171,884	47,596	63,773	33,110	40,736	25,261	34,045
1997	258,921	202,406	155,716	48,710	62,792	34,494	42,423	26,306	33,560
1998	259,181	204,584	168,031	49,865	60,497	35,907	42,740	28,533	33,695
1999	259,415	206,482	172,516	51,196	61,782	37,527	41,774	28,148	32,103
2000	259,328	213,002	176,259	52,314	61,310	39,132	42,213	26,460	32,255
2001	260,434	220,798	172,511	53,612	61,500	40,653	42,397	28,431	32,484
2002	261,129	231,523	166,840	54,960	65,067	41,128	43,336	32,675	32,828
2003	262,269	243,718	165,427	56,414	69,603	43,059	43,453	31,742	32,933
2004	267,000	254,599	165,799	57,804	70,851	43,627	43,230	32,235	33,116
2005	272,048	258,066	165,890	59,324	71,220	44,698	42,887	33,854	34,087
2006	276,763	256,721	163,496	64,387	72,879	45,526	43,122	36,330	34,099
2007	282,726	249,409	156,475	66,385	73,368	45,807	43,443	40,194	34,404
2008	287,997	252,600	157,501	68,470	72,060	45,847	43,922	42,008	34,535
2009	292,914	256,324	157,724	70,624	68,426	46,168	44,649	42,871	35,562
2010	300,981	261,675	159,814	72,931	61,953	46,557	45,070	43,052	35,846

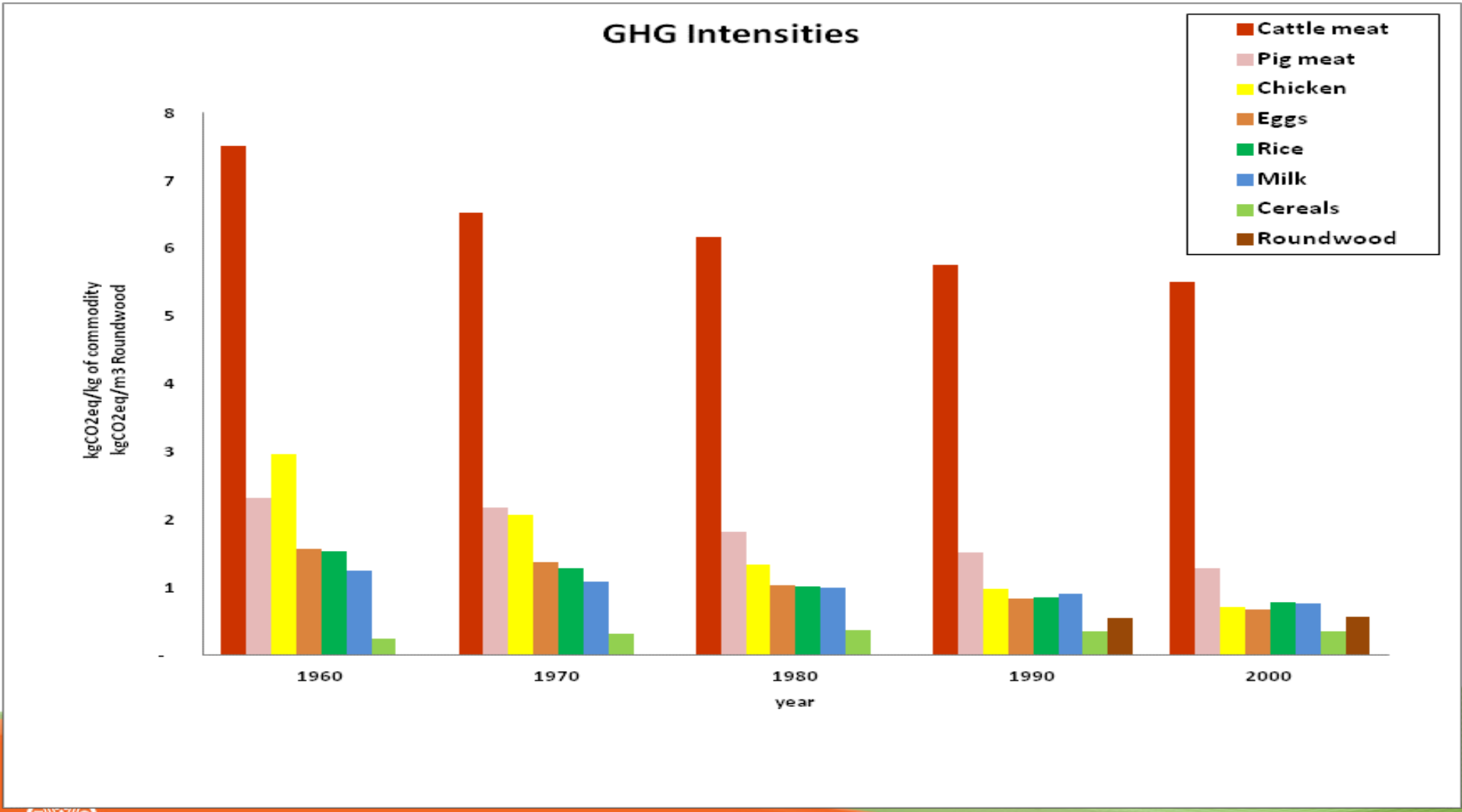
3. QA/QC Analysis



UNFCCC
pval intercept= 0.0202 pval slope= 0.000145 Q= 0.684

UNFCCC
pval intercept= 0.929 pval slope= 0.059 Q= 0.957

4. Developing Indicators



Summary 1
FAOSTAT Emissions Database

- The FAOSTAT Emission database makes available a global GHG emission by country, using official country data reported by countries to FAO.
- The FAOSTAT Emissions database can support the strengthening of national statistics processes.
- The FAOSTAT Emissions database offers support to develop robust greenhouse gases inventories, in support of BURs and NAMAs processes.

FAO GHG Statistics Capacity Development

- **Technical capacities, in support of Member Countries to**:
  - assess and report GHG emissions from agriculture, including land use activities (Biennial Update Report, BUR)
  - identify mitigation options, including Nationally appropriate mitigation actions (NAMAs).

- **Institutional capacities, to strengthen gaps in coordination and cooperation:**
  - capacities to access, generate, manage and exchange information and knowledge towards robust GHG inventory, BUR, NAMA (national data systems).
  - capacities to engage with relevant national and international agencies and institutions for efficient support to countries.

Regional level – CD activities

Casablanca Workshop Attendance

Forty-five participants from twenty-one countries.

Ministries of Environment, Ministries of Agriculture and NSOs; IPCC; FAO

Morocco, Algeria, Egypt, Mali, Mauritania, Ghana, Gabon, Cote D'Ivoire, Nigeria, Central African Republic, Democratic Republic of Congo, South Africa, Lesotho, Kenya, Uganda, Madagascar, Ethiopia, Senegal, Rwanda, Tanzania, Zambia

Workshop Objectives:

•Raise awareness on the importance of agricultural and forestry statistics for preparing national greenhouse gas (GHG) inventories and for planning national mitigation actions that link long term agricultural productivity, food security and sustainability

•Explore the need for increased capacity in view of Nationally Appropriate Mitigation Action (NAMA) preparation and new UNFCCC requirements to prepare and submit Biennial Update Reports (BUR), detailing national emissions and mitigation strategies by the end of 2014

•Facilitate communication and exchange of relevant knowledge, at national and regional level, identifying challenges, gaps, and opportunities for improving national data systems and analysis tools.

Key Findings:
Data and Institutional Gaps

- Role of FAO towards support for Data Gaps Capacity: Development along the four key dimensions of the FAOSTAT database:
  - Improved collection, maintenance and update of relevant activity data, Q/A and Q/C data analysis functions

- Role of FAO towards Institutional Capacity Development:
  - Enhanced national and regional institutional coordination of statistical data for GHG Emissions
  - Enhanced coordination of international agency work

Summary 2:
Casablanca Workshop

- Participants welcomed the use of FAOSTAT Emissions database as a platform for achieving coherency in national reporting and support international climate policy

- Encouraged the role of FAO for capacity development to fill gaps, and develop methods for improving agriculture and land use change statistics and GHG estimations

- Expressed interests in follow-up regional activities, with proposals to develop work plans for Member Countries in Africa, to meet challenges of current climate policy requirements and develop robust national data systems

Thank you

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