

Better data and capacity building to reach the INDCs

Lutz Merbold

ILRI

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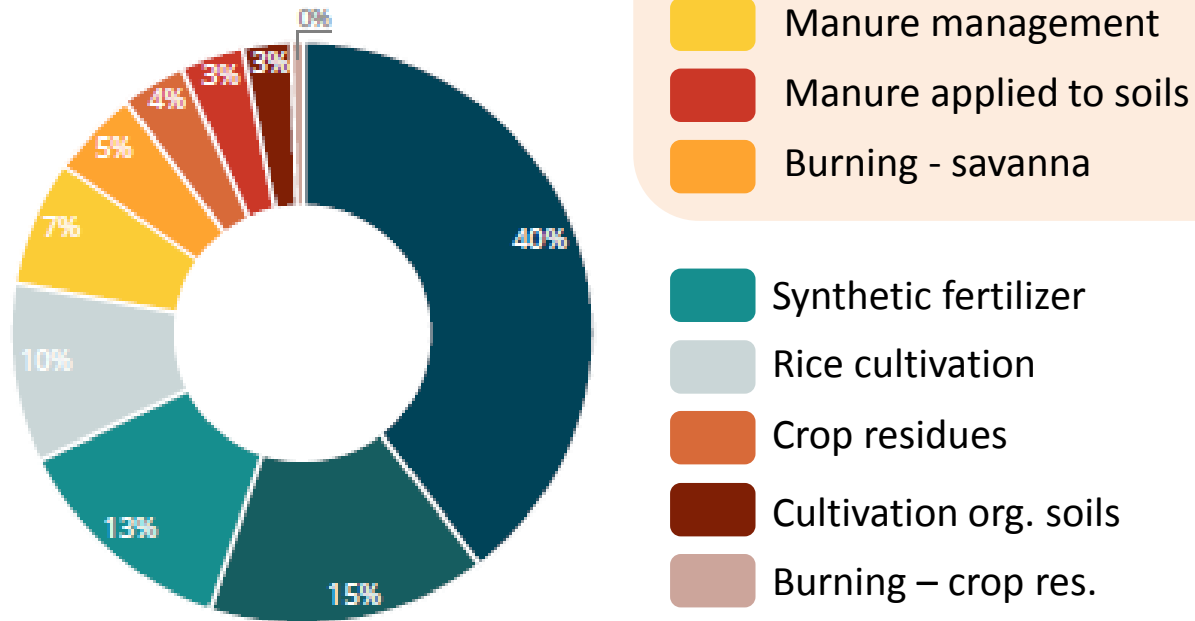


RESEARCH PROGRAM ON
Climate Change,
Agriculture and
Food Security



AFOLU and GHG emissions

GHG-emissions by source



FAO, Tubiello et al. 2014

Approx. 70% of emissions related to livestock production

Livestock GHG emissions, why do we even care?

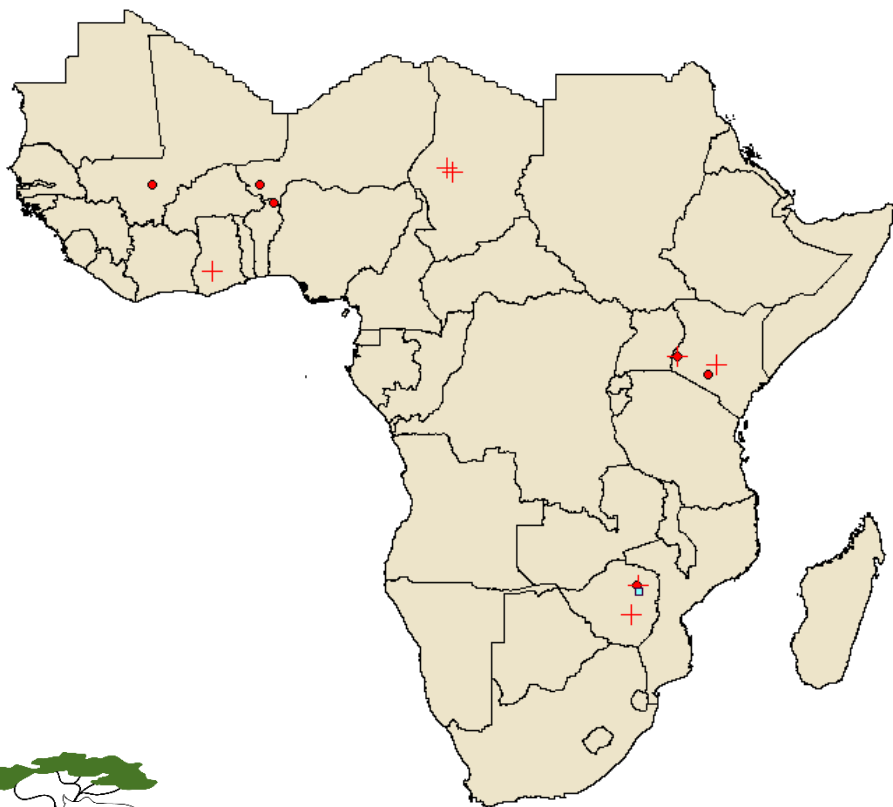
- Agriculture: 30% of anthropogenic GHG emissions in SSA.
- Livestock: > 70% of agricultural GHG emissions.
- So what? Why do the poorest farmers in the world care about their animals' GHG emissions? **➡ They Don't!**
- but they care about their animals and their livelihoods

➡ Key

Why do we need empirical studies?

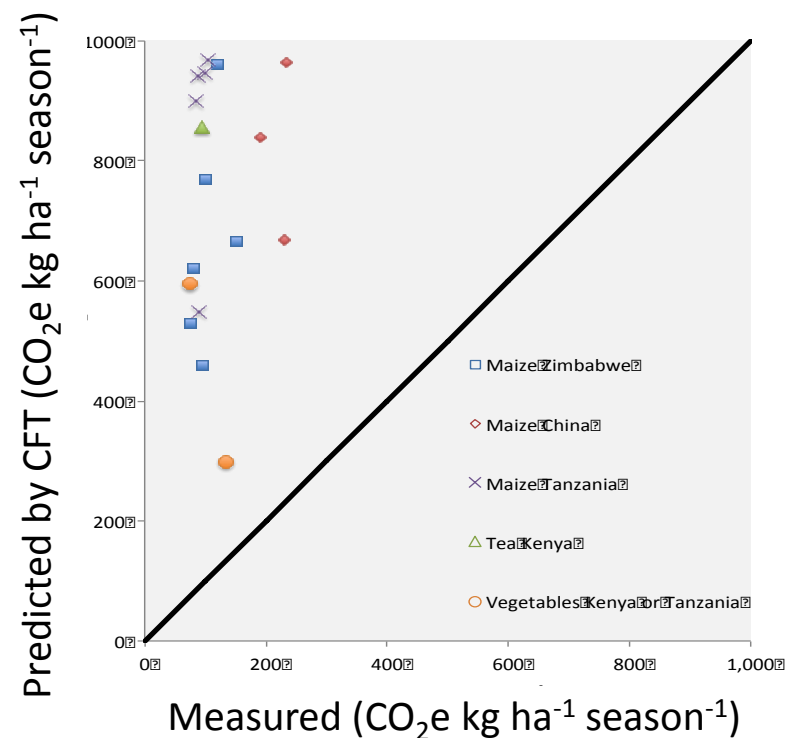
Why are the emission factors incorrect?

- limited dataset
 - models use emission factors from other regions
 - other regions have different climate / soils / management / animal breeds, etc.



Hickman et al. 2014

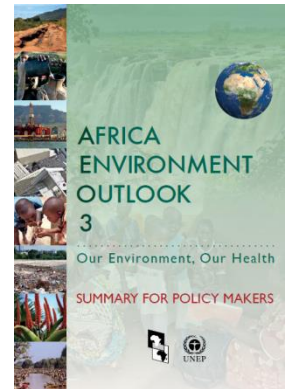
Prediction error for smallholder cropping systems



Richards et al. in prep

Why an Environmental Research Centre for East Africa?

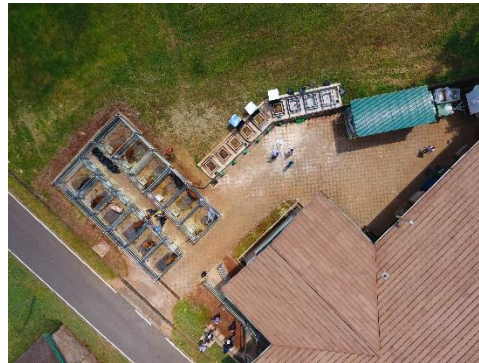
- East Africa
 - Economic growth
 - High population density and growth
 - Biodiversity hotspots
 - Rapid environmental degradation and environmental changes
 - Hub for many international organizations
 - Commitment of Ethiopian, Kenyan and Ugandan Ministries of Environment and agriculture for joined work on emission factors and inventoring
- Poor capacity to target, measure, report, verify (MRV) and manage environmental problems
 - Identifying hot spots
 - Derive a GHG emission baseline and monitoring the state of the environment
 - Identifying the drivers of environmental change
 - Identify appropriate, cost effective methods
 - Integrate knowledge



UNEP 2013, Africa Environment Outlook
“Making promising policies work”

Mazingira Centre (Nairobi, Kenya)

(fully operational since summer 2015, strongly supported by KIT, Germany)



Scale

- Soil
- Plant
- Animal
- System (ecosystem, livestock system etc.)

Environmental issues

- GHG emissions
- meteorological stations
- Soil and plant nutrients
- Water quality and water availability – resilience

Productivity analysis:

- quantity and quality

What do the preliminary data look like?

From livestock manure:

- N_2O
 - Preliminary data: between 10 and 40% of IPCC emission factors (EFs)
- CH_4
 - between 4 and 14% of IPCC emission factors

From cropping systems:

- N_2O
 - between 0.01 and 0.1% (Hickman et al. 2015); or and/or low fertilizer application rates resulted in no noticeable increase in N_2O emissions

(GBC Rosenstock et al. 2016; BGD Pelster et al. 2016, JEQ Pelster et al. 2016)



Way forward?

REAL-EF (Real emission factors) Proposal

- MRV system for four East African countries towards Tier 2 quality by building scientific & administrative capacity
- To measure, analyze and synthesize GHG emissions data for AFOLU sector – specifically the livestock sector
- To fill capacity gaps in data collection and analysis, calculation of EFs, data sharing and archiving systems through hand-on training of administrators, researchers and technicians
- To support implementation of low emissions development (LED) strategies and CSA practices and thereby attract investment from the private sector & international financing

Way forward?

REALEF Proposal

- To create a replicable and adaptable framework to move developing countries toward Tier 2 MRV of GHG emissions for livestock systems via creation of an East African South-South partnership

Link to what is already in place:

- Nationally Appropriate Mitigation Actions (NAMA)

Organizes LED in a sector – qualifies for climate finance (GCF, IFAD), Kenya dairy NAMA is in advanced stage already

- Climate finance requires

Financial delivery mechanisms across sector, connection between LED action and MRV for GHG emissions

Way forward?



Funders:
IFAD &
CCAFS

