

GHG emission in agriculture in Vietnam

Assessing Low Carbon Potentials for the Viet Nam
Green Growth Strategy

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GHG emission in Vietnam

The first (1994) and the second (2000) GHG inventories results from agricultural sector (thousand tonnes years⁻¹)

Subsector	Greenhouse gases				Total	
	CH ₄	N ₂ O	CO	NO _x	In CO ₂ equivalent	%
1994*						
Enteric Fermentation	336.6	0.001			7070	13.5
Manure Management	129.0				2710	5.2
Rice Cultivation	1,559.7				32750	62.4
Agricultural Soil		26.0			8060	15.4
Prescribed Burning of Savannas	15.9	0.2	417.5	7.1	400	0.7
Field Burning of Agricultural Residues	51.7	1.2	1,086.1	43.2	1460	2.8
Total 1994	2,092.9	27.4	1,503.6	50.3	52450	100
2000**						
Enteric Fermentation	368.12				7,730.54	11.9
Manure Management	164.16				3,447.30	5.3
Rice Cultivation	1,782.37				37,429.77	57.5
Agricultural Soil		45.87			14,219.70	21.8
Prescribed Burning of Savannas	9.97	1.23	261.71	4.46	590.67	0.9
Field Burning of Agricultural Residues	59.13	1.39	1,214.68	50.28	1672.63	2.6
Total 2000	2,383.75	48.49	1,476.39	54.74	65,090.61	100

Sources: * VINC (2003); ** VNSNC (2010)

Viet Nam Green Growth Strategy (9/2012)

1. Reduce the intensity of green house gas emissions and promote the use of clean and renewable energies

Reduce the intensity of GHG emissions by 8-10% compared to 2010, 10% - 20% for energy sector

○ Greening production :

Key indicators: value of high-tech and green-tech products will make a share of 42-45% in GDP

○ Greening lifestyle and promoting sustainable consumption

Key indicators: waste water meet regulated standards, low grade cities and craft villages environment quality improved 40-60%

→ National Action Plan on Green Growth in Vietnam

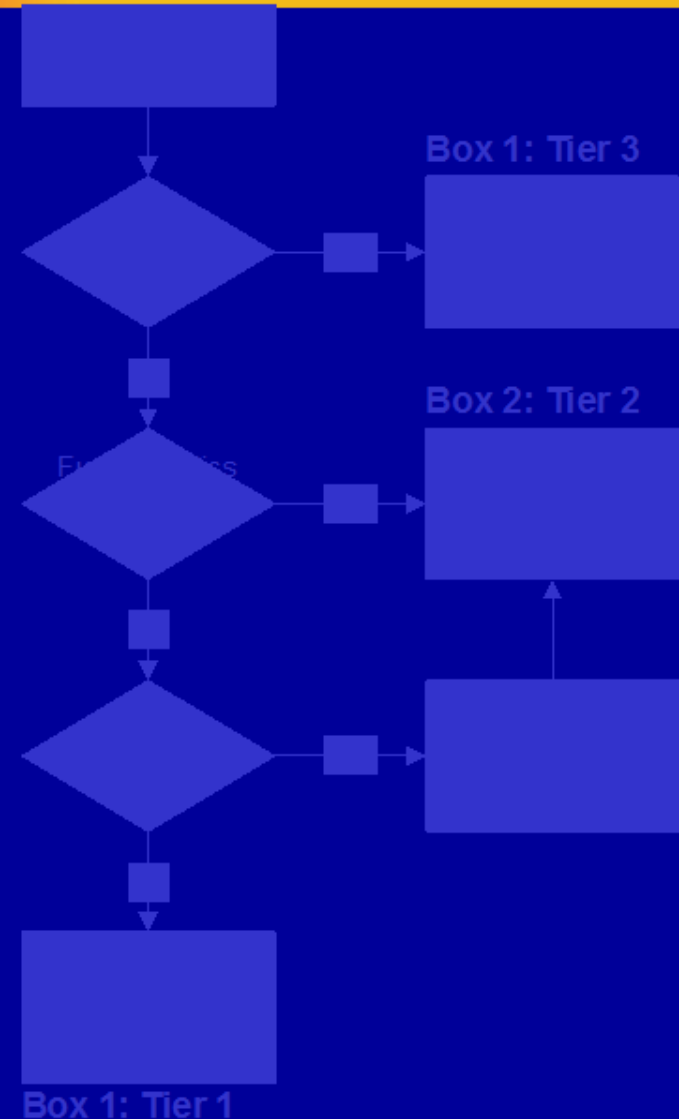
March 2014

GHG reduction plan by Ministry of Agriculture (20%)

- Crop production: SRI, 3R3G, 1M5R, residue reuse
- Livestock: feed dosage change; MUB, biogas, compost
- Fishery/aquaculture: change in fishing vessel (more energy efficient engines) , technical-improvement; aquaculture feed supply and aqua-cultural practice;
- Irrigation: saving energy, improved capacity
- Rural environmental management: waste management; fuel change, saving energy, cleaner production

Methodological Choice

- Guided by Key source analysis
- Decision trees in GPG 2000 and 2003
 - ✓ Tier 1 are simple methods with default values
 - ✓ Tier 2 are similar but with country specific emission factors and other data
 - ✓ Tier 3 are more complex approaches, possibly models. However should be compatible with lower tiers.



Sources: Simon Eggleston

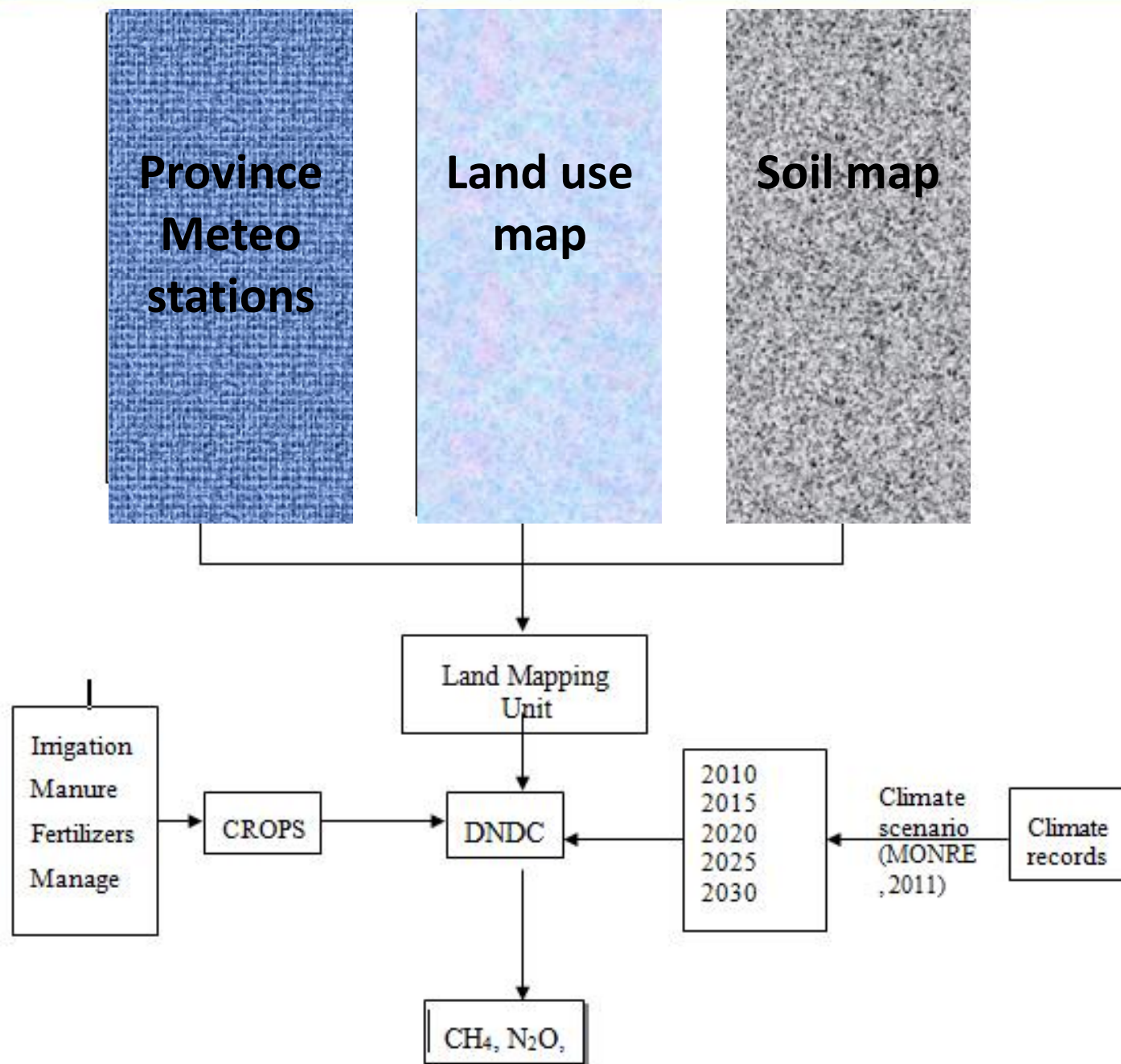
Methodology for GHG quantifying

Method to calculate GHG emission

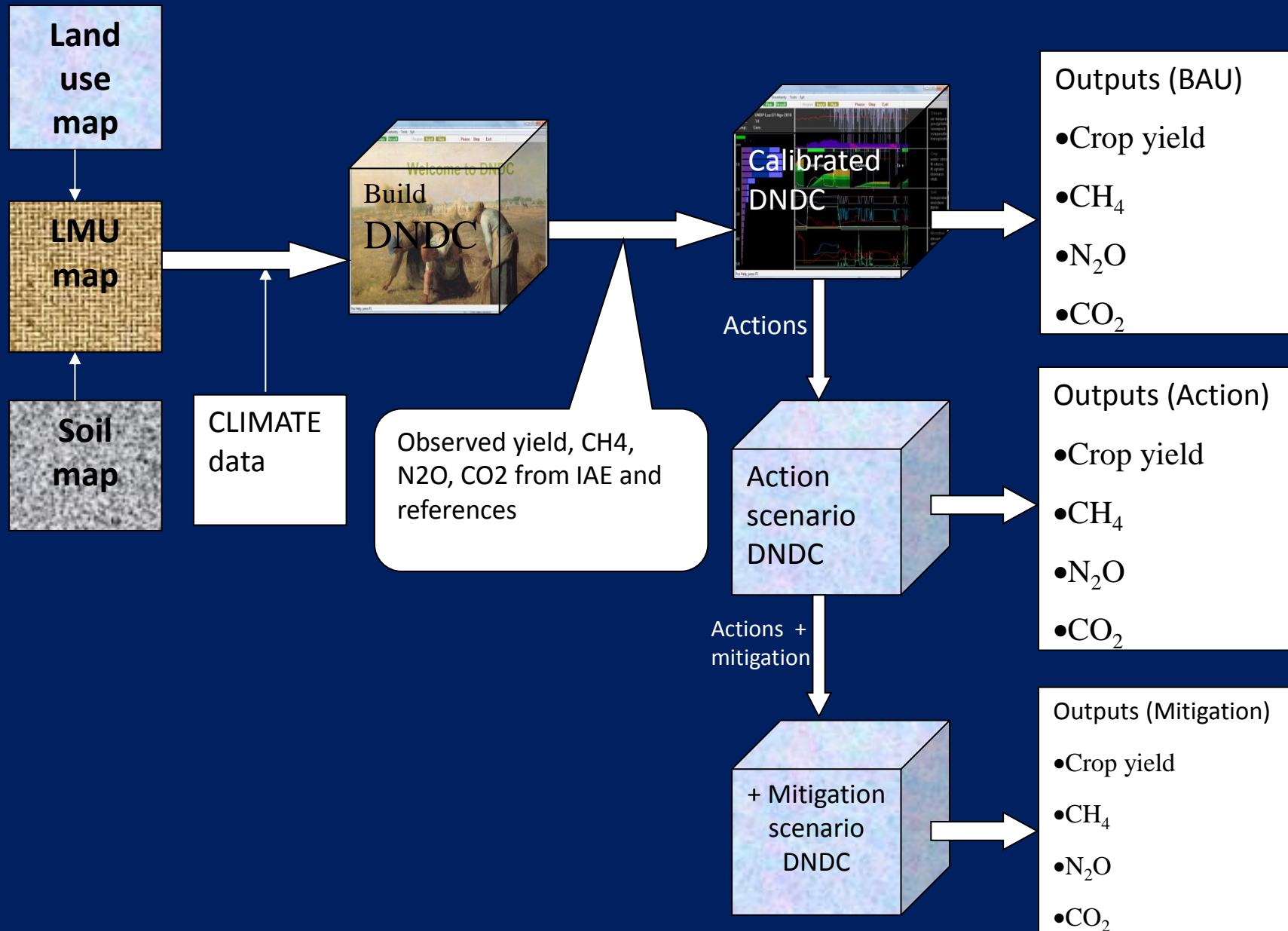
- GHG emission from Enteric fermentation calculated by IPCC1996 (Tear1)
 - GHG emission from Manure management calculated by IPCC1996 (Tear 1)
 - GHG emission from prescribed burning of savannas was calculated by IPCC1996 (Tear 1)
 - GHG emission from field burning of agricultural residues calculated by IPCC1996 (Tear 1)
 - GHG emission from rice cultivation and agricultural soils were calculated by GIS based DNDC with overlaying of Land use map in 2005, soil map and provincial climate data (2010, scenario of 2015, 2020, 2025 and 2030 following climate change scenario of MONRE, 2011 – Tear 2)
- MACC curve is developed based on an “expert based approach”

Methodology

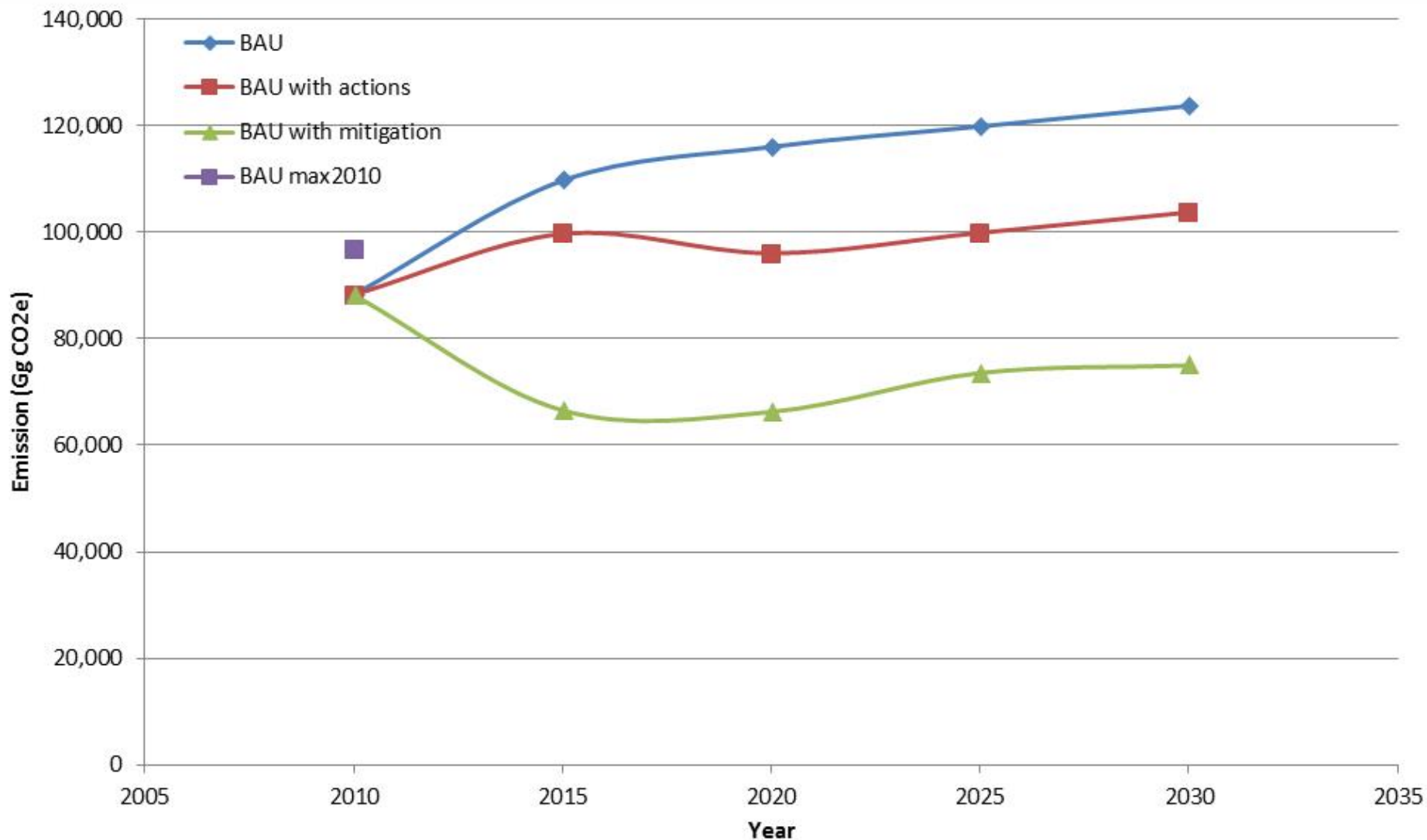
Total GHG
emission
from crop
production



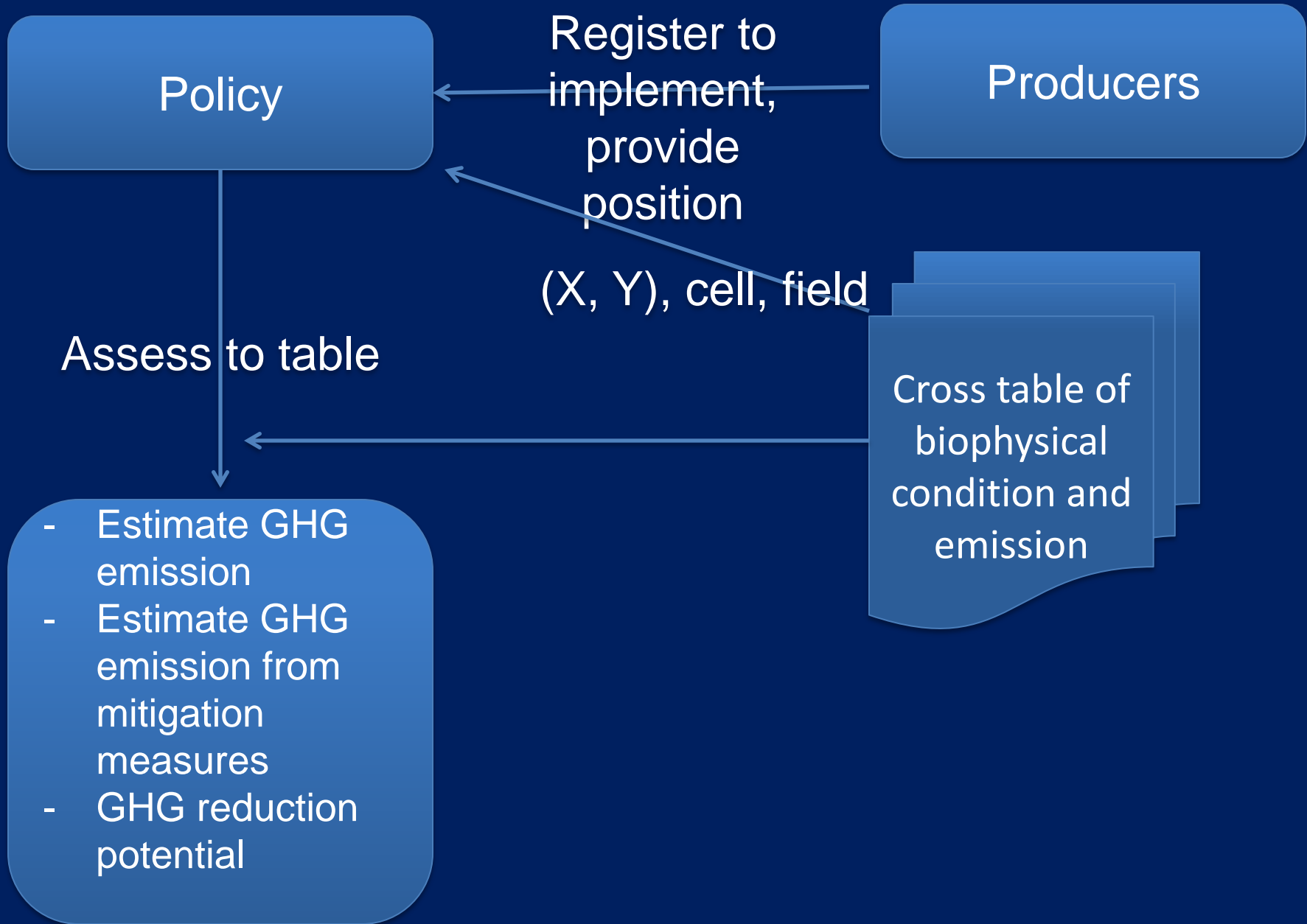
Methodology - mitigation



Results and Findings: Total GHG emission for scenarios



Innovations



Thank you for your attention!