

# Malaysia's GHG inventories on AFOLU sector: achievements, gaps and necessary supports

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# Background

- The NC2 started the institutionalising of the GHG inventory
- FRIM is mandated to do the LULUCF sector as well as chair the GHG inventory sector.
- Following the NC2, a series of continuous capacity building activities were conducted both at sector and national levels
- For the BUR and NC3, the NC2 set up will be continued.



# National Decisions

- Submission of BUR
  - December 2015
  - Revised 1996 IPCC GL
  - Time series: 1990-2011
  - Reporting tables: 2000, 2005, 2011
  - Updates NC2
- Submission of NC3
  - December 2017
  - IPCC 2006 GL
  - Time series: 1990-2013
  - Reporting tables: 2000, 2011 and 2013 (?)
  - Updates AD and EF



# BUR - Assumptions

- Changes in forest biomass stocks
  - Only production forest considered. PA and Protection Forest not included
- Plantation Industries
  - Only rubber and oil palm included
- Regeneration in abandoned managed lands
  - No land is abandoned for more than 20 years
- Forest conversion
  - Forest is completely cleared



# BUR - Assumptions

- Fuel wood and shifting cultivation
  - No fuel wood or shifting cultivation
- CO<sub>2</sub> emissions from soil

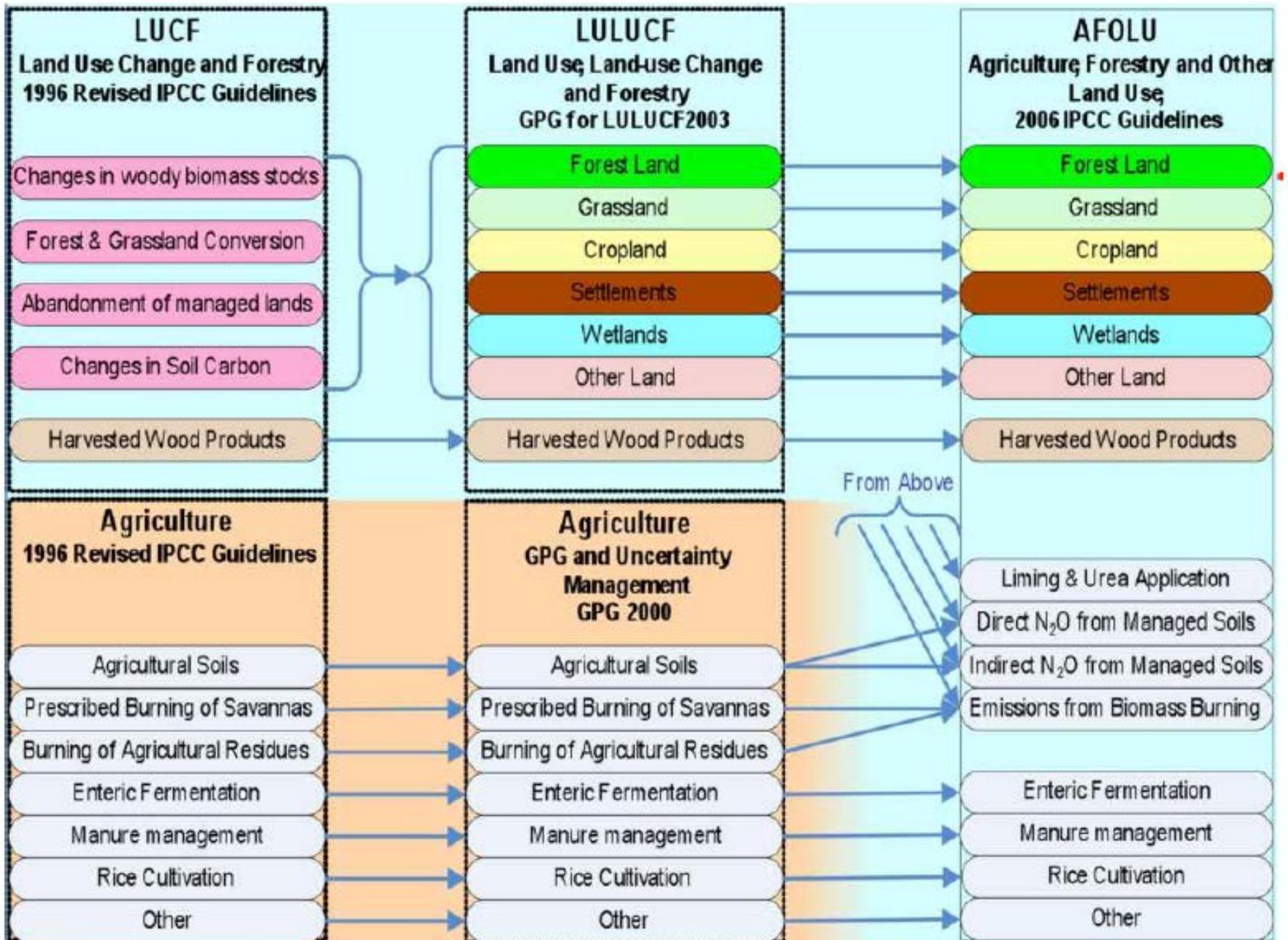
Soil Type	Examples for major FAO soil taxonomic groups	Examples for major USDA soil taxonomic groups
High clay activity mineral soils	Vertisols, Chernozems, Phaeozems, Luvisols	Vertisols, Mollisols, high-base status Alfisols
Low clay activity mineral soils	Acrisols, Nitosols, Ferralsols	Ultisols, Oxisols, acidic Alfisols
soils	Arenosols, sandy Regosols	Psamments
Volcanic soils	Andosols	Andisols
Aquic soils (wet soils)	Gleysols	Aquic suborders
Organic soils	Histosols	Histosols



# Improvements

- AD are developed at regionally level instead at national level
  - Improved QC
  - Capacity building
  - Ownership
- AD is verified against the Land use maps at regional level
  - 1<sup>st</sup> round QA process
- Improved EF
  - Deforestation
  - Regional growth rates
- Agriculture and forestry sector





# Progress

- GHG inventory for BUR
  - Completed GHG inventory for all regions 2005-2010
  - Peninsular Malaysia – 1990-2011
- NC
  - Agreed AD
  - Completed GHG inventory for PM between 2005-2010

# QC

QC Activity	Data	Technical QC
<b>Data Gathering, Input, and Handling Checks</b>		
Check that assumptions and criteria for the selection of activity data and emission factors are documented.	Compiler and Regional WG	QC Manager
Check for errors in data input and reference.	Regional WG	QC Manager
Check that parameter and emission/removal units are correctly recorded and that appropriate conversion factors are used.	Compiler	QC Manager
Check the integrity of database files.	Compiler and Regional WG	QC Manager & AFOLU WG
Check for consistency in data between categories.	Compiler and ARSM	QC Manager & AFOLU WG
Check that the movement of inventory data among processing steps is correct.	Compiler	QC Manager

# QC

QC Activity	Data	Technical QC
<b>Data Documentation</b>		
Review of internal documentation and archiving.	Compiler	DOE & QC Manager
<b>Calculation Checks</b>		
Check methodological and data changes resulting in recalculations.	WG AFOLU	QC Manager
Check time series consistency	Compiler	QC Manager
Check completeness	WG AFOLU	QC Manager
Trend checks	WG AFOLU	QC Manager

# QA

- Independent expert review to suggest improvements on technical issues related to the application of methodologies, selection of activity data, and development and choice of emission factors.
- Standard templates are prepared for comments.
- Compiler and QC manager to ensure comments have been reviewed and addressed, as appropriate.
- QA process will be facilitated by the NCCCC



# Uncertainty Assessment

- Procedures are being developed based on experience gained from NC2
- Focus on AD:
  - Forest area
  - Rice
- EF
  - Deforestation



# Challenges

- Land use data pre 2020 scarce
- Tracking of land use change pre 2020
- Verified land use statistics has a gap of 2.5 years
- Increased uncertainty

# Necessary Support

- EF for agriculture soil
- AD and EF for manure management
- Harvest wood products (?)
- Any experience on achieving system?



- Thank you

