# Greenhouse Gas (GHG) Inventory of Land Use, Land-Use Change and Forestry (LULUCF) Sector in Malaysia

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- The IPCC (1996) and Good Practice Guidance (2000) used

- Key categories are:
  - Changes in forest and other woody biomass stocks
  - Forest and grassland conversion
  - Abandonment of croplands, pastures, plantation forests or other managed lands
  - $CO_2$ emissions and removal from soils

- ## $CO_2$ Sinks
  - Forest ecosystems
  - Plantation forest
  - Plantation industry (oil palm and rubber)
  - Non-forest trees
  - Abandoned managed lands

- ## $CO_2$ Sources
  - Commercial harvest
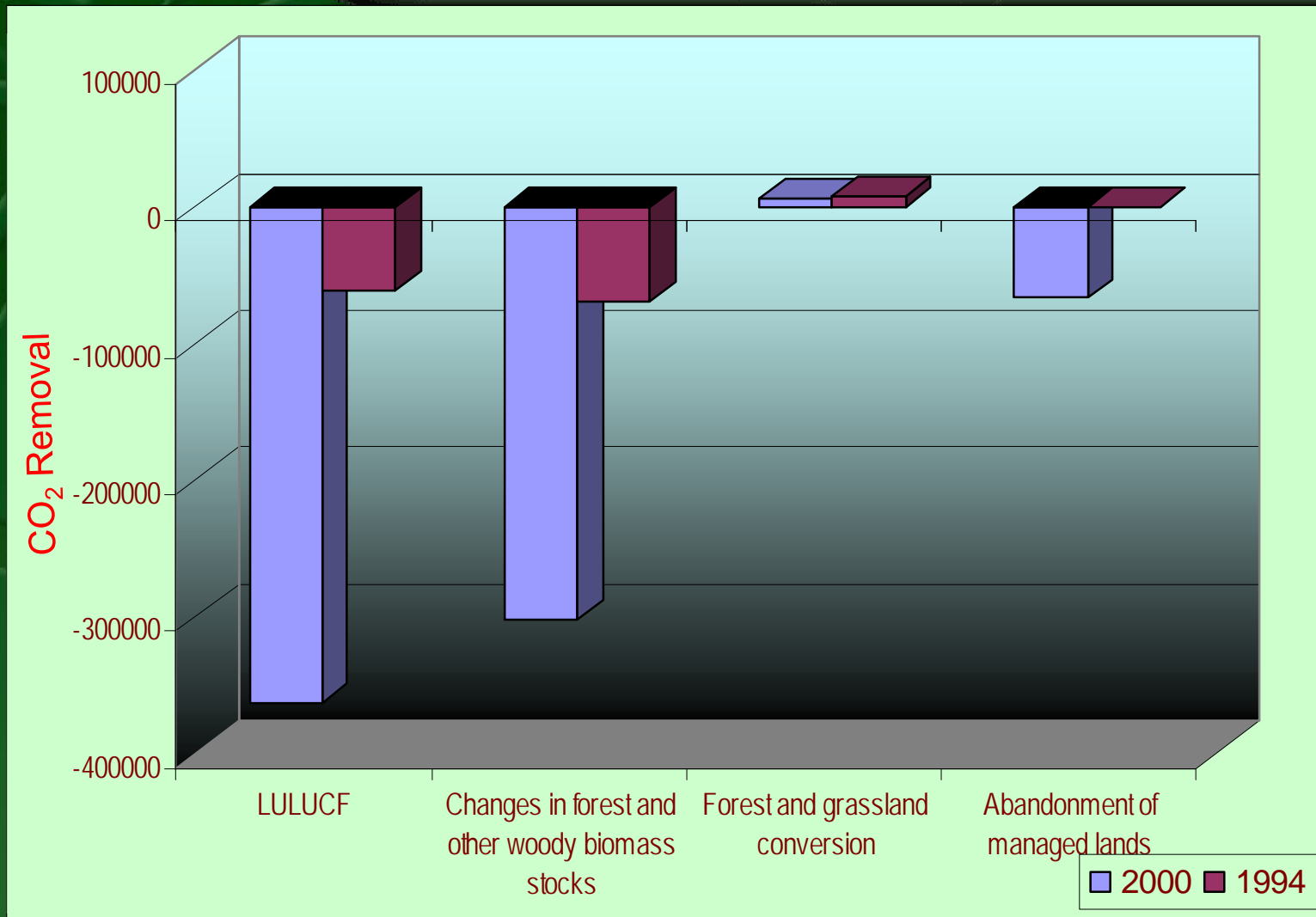  - Forest conversion

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# Development Data Inventory of NC2-Sink

- Key categories
  - Comprehensive classification

- Detailed categories/ sub-categories
  - Forest types/ stratas
  - Plantation species
  - Non-forest trees
  - Abandonment of Managed Lands

- Annual growth rate
  - National data
  - IPCC default data

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# Development Data Inventory of NC2-Source

- Harvest categories of commercial roundwood
  - Heavy hardwood; medium hardwood; light hardwood; other species

- Annual forest conversion
  - Area converted for development  and agricultural purposes

- Accuracy of assumptions

  - ✓ Commercial harvest

  - ✓ Forest conversion

  - ✓ Biomass before/ after conversion

  - ✓ Estimation of biomass burned on site/ off site

  - ✓ Carbon fraction of aboveground biomass

- Consistency

  - ✓ 10 years average

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# Result Comparison between INC and NC2



- Signs for uptake are always (-) and for emissions (+).

# Overestimation?

- ## Data inventory
  - Forest ecosystems
  - Plantation forest
  - Plantation industry (oil palm and rubber)
  - Non-forest trees

- ## Improved estimation and comprehensive approach
  - Tier 1 & 2
  - Good Practice Guidance (GPG) estimation methods

- ## Annual Growth Data
  - National average data (10 years or more)
  - Local/ regional data
  - Default data

- ## Forest conversion
  - Higher conversion estimation (source by Forestry Department)
  - Consistency and accuracy
  - 10 years data availability

- ## Abandoned managed lands
  - Additional inclusion/ increase of $CO_2$ accumulation

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# Sectoral Summary Report

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# Good Practice Guidance (GPG2003) Characteristics

- Adequate approach
  - representing carbon stock changes and GHG emissions and removals
  - Relations between land use and land-use changes
  - Improved key categories
- Consistent
  - Representing management and land-use change consistently over time
- Complete
  - All land area included
- Transparent
  - Data sources, definitions, methodologies, and assumptions clearly described
  - Reduced uncertainty
- Efficiency
  - Quality assurance and control

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- Consultative Workshops
  - Data requirement and identification of key categories
  - Verification and validation of results
- Hands-on training
  - Trained data provider
- Consultative visits

  11 visits to FDs PM, Sabah and Sarawak
- Working Group meetings
  - 9 meetings

- Comprehensive inventory
- Improved methodological approach
- Validation & verification of results
- Continue and further improve on inventory
- Initiate national trend analysis

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