Task Force on Inventories

INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE

IPCC

IPCC National Greenhouse Gas Inventory Programme

IPCC Emission Estimation Spreadsheets

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2006 Guidelines

- Contains 5 Spreadsheet Emission Models
  - Landfill Emissions
  - Harvested Wood Products
  - Fluorinated Gases
    - Refrigeration
    - Foams
    - Fire Protection
- These can be used as stand-alone packages
- They can be used to estimate actual emissions for use inside the 2006 Guidelines structure or elsewhere
  - The potential emissions are not needed in the 2006 Guidelines

Landfills

- This spreadsheet estimates emissions of methane from landfill sites as the waste decays over a number of years.
- The minimum data needed is the disposals waste in the current year and national population.
- Improvements can be made with waste disposals in earlier years or improved proxies for waste growth

- WASTE MODEL

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IPCC Harvested Wood Products Model

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June 9, 2008

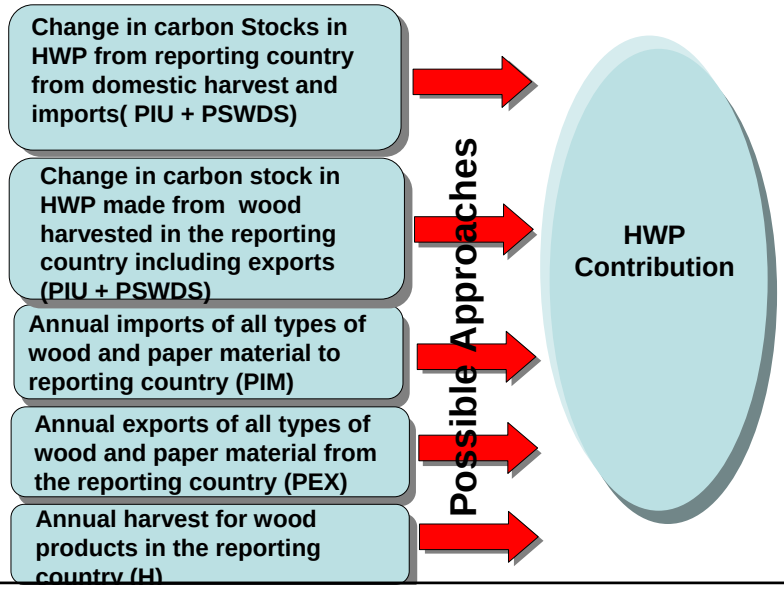
HWP

- All wood material (including bark) that leaves forest site
- Time carbon is held in products may vary depending on the products and its uses
- Discarded wood products can be deposited in solid waste disposal sites (SWDS)

HWP Contribution: Alternative approaches

- Alternative approaches to estimate and report *HWP contribution to* annual AFOLU CO2 emissions
- Differ in how they allocate the *HWP contribution* between wood producing and consuming countries and what process (stock changes or atmospheric fluxes) they focus on
- IPCC guidance focuses on the **variables** needed for using a particular approach for estimating *HWP contribution* and **do not favour a particular approach.**

Variables Required



HWP Spreadsheet Model

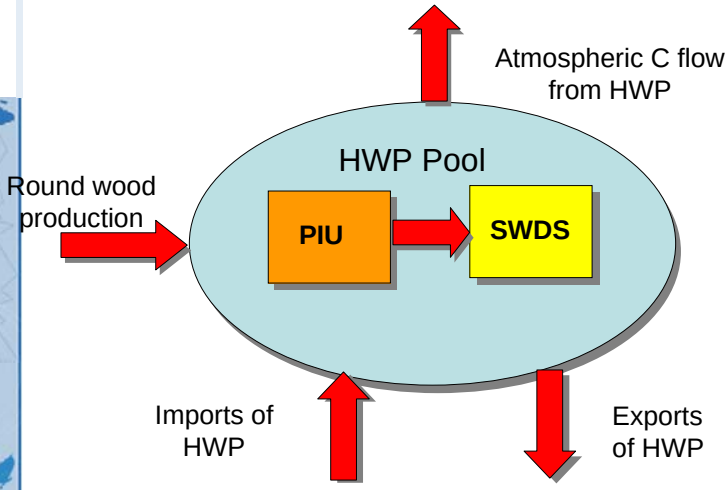
- Tool to estimate the C stock in HWP and their changes to estimate the *HWP contribution* to AFOLU emissions using tier 1 methods

- Input Data
  - FAO forest products production and trade data since 1961
  - Data back to 1900 estimated by assuming annual rate of change from 1900-61 to be the same as rate of change of industrial round wood production
  - Changes in carbon held in SWDS from IPCC Waste Model

HWP Spreadsheet Model (Cont'd.)

- **Other parameters required**:
  - Half lives of solid wood and paper products
  - Conversion factors of sawn wood and other industrial round wood
  - Estimated growth rate of HWP prior to 1961
  - Latest year with complete data
- **Assumptions:**
  - First order decay rate of HWP pools assumed
  - Inflow rate to HWP assumed constant within each year
  - HWP C stocks in 1900 assumed zero, C(1900)=0

Model Structure



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Let us run the model…

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IPCC F-gas spreadsheet models

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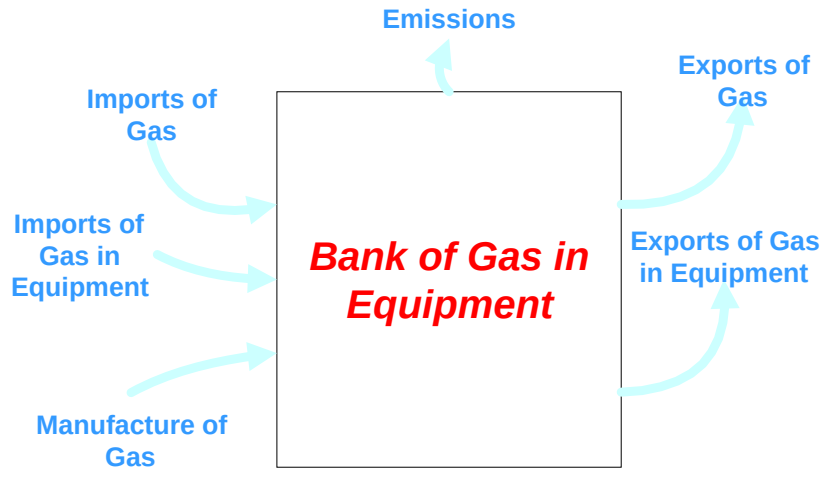
Tier 1 Calculation of Emissions of ODS Substitutes

- For 3 sub-categories on ODS Substitutes under IPPU Sector, you will need to deal with the development and tracking of **banks**:
  - Refrigeration and Air Conditioning (2F1)
  - Foam Blowing Agents (2F2)
  - Fire Protection (2F3)

Total amount of substances contained in existing equipment, chemical stockpiles, foams and other products not yet released to the atmosphere

"Banks"



Example: Refrigeration

- This category covers
  - Commercial and Domestic Refrigeration
  - Commercial and Domestic Air Conditioning
  - Industrial Processes (chillers, cold storage, heat pumps etc.)
  - Vehicular Air Conditioning (cars, buses, trains)
- Emissions occur from:
  - Leakage from equipment in use
  - Retirement – scrapping of old equipment

Data Required

- Emissions depend on sales in previous years – simple default approach possible
- Minimum data required are:
  - Year of introduction of agent (F-gas)
  - Domestic production of agent (tonnes) in current year
  - Imports of agent (tonnes) in current year
  - Exports of agent (tonnes) in current year
  - Growth rate of sales of equipment that uses the agent

  ➔ *Production, etc in previous years will be estimated from these values.*

  ➔ *If you have actual data for previous years, you can directly use them.*
- In addition you need to specify:
  - Emission factor for leakage from bank – default value is 15%
  - Equipment lifetime – default value is 15 years
    - Remaining gas is released UNLESS recovery and reuse/destruction documented. (Destruction rate can be specified, if available.)