

Task Force on Inventories

WMO


INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE

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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

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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

Nalin Srivastava
IPCC NGGIP TSU
June 9, 2008

HWP

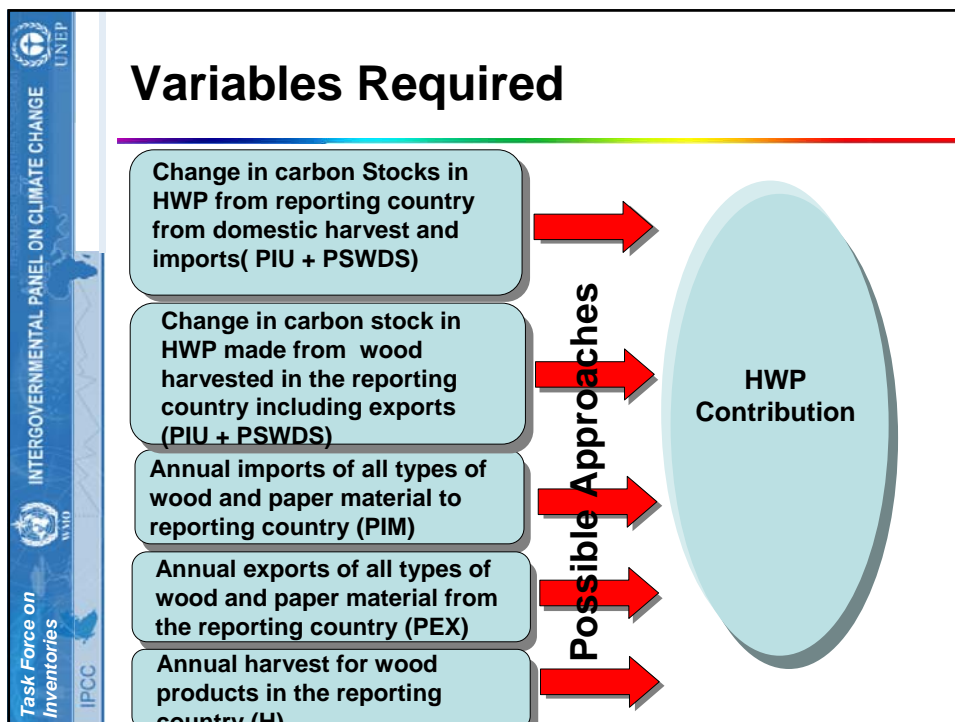
- All wood material (including bark) that leaves forest site
- Time carbon is held in products may vary depending on the products and its uses
- Discarded wood products can be deposited in solid waste disposal sites (SWDS)



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.**

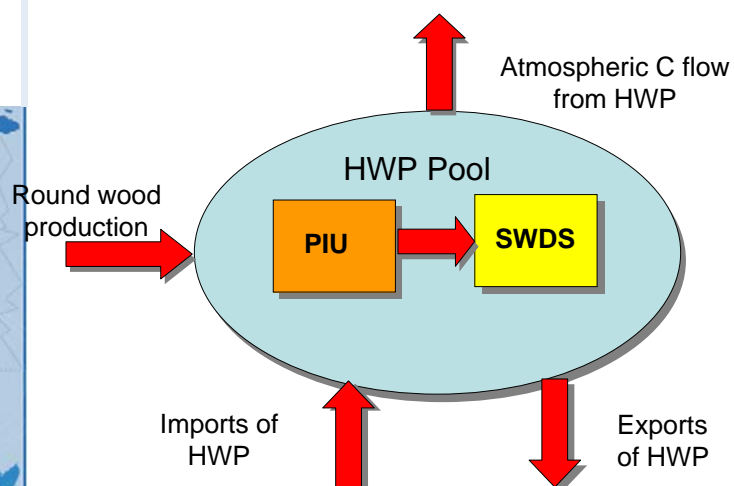


- HWP Spreadsheet Model**
- Tool to estimate the C stock in HWP and their changes to estimate the *HWP contribution* to AFOLU emissions using tier 1 methods
 - Input Data
 - FAO forest products production and trade data since 1961
 - Data back to 1900 estimated by assuming annual rate of change from 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

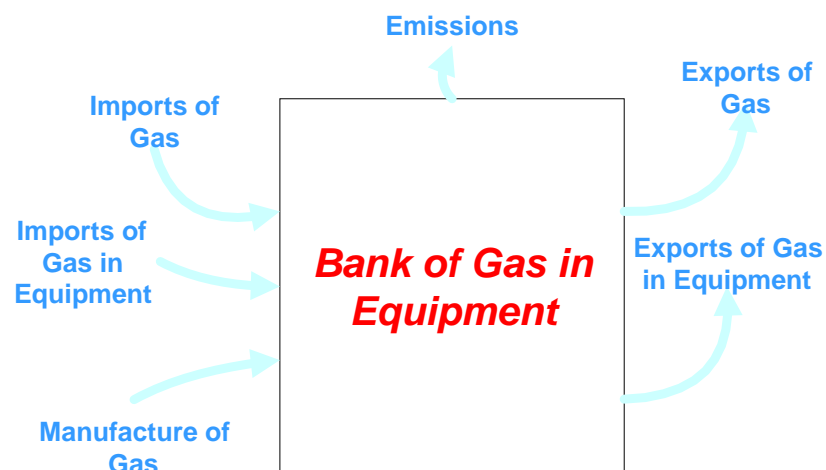
Kiyoto Tanabe
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June 9, 2008

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.)