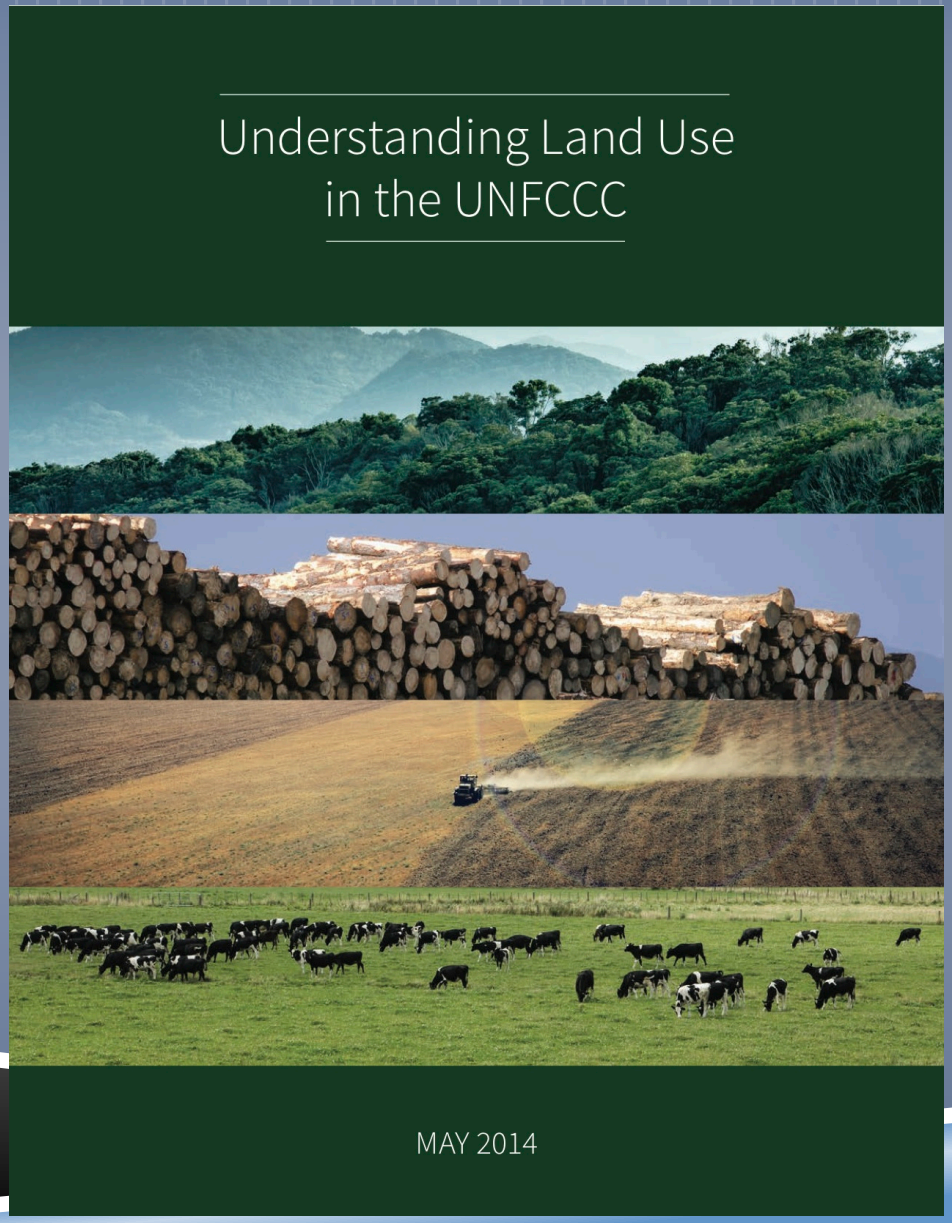
Understanding Land Use in the UNFCCC

Iversen P., Lee D., and Rocha M., (2014)

"Focus Session: Natural disturbances and harvested wood products"



Presented by:

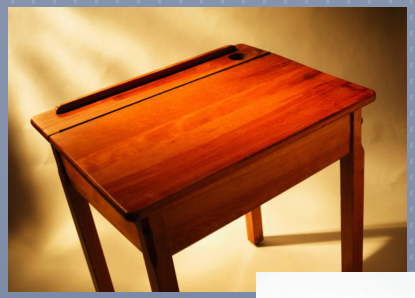
Peter Iversen

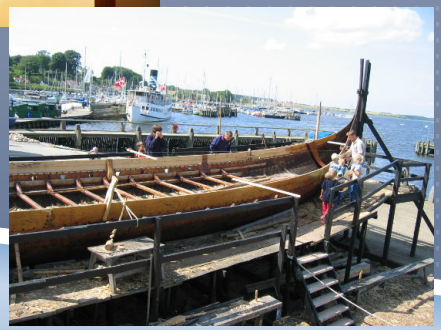
Marcelo T. Rocha

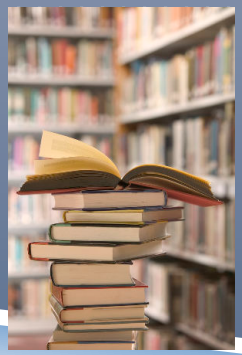
HARVESTED WOOD PRODUCTS

HARVESTED WOOD PRODUCTS

HWP includes all wood material (including bark) that leaves harvest sites (IPCC)

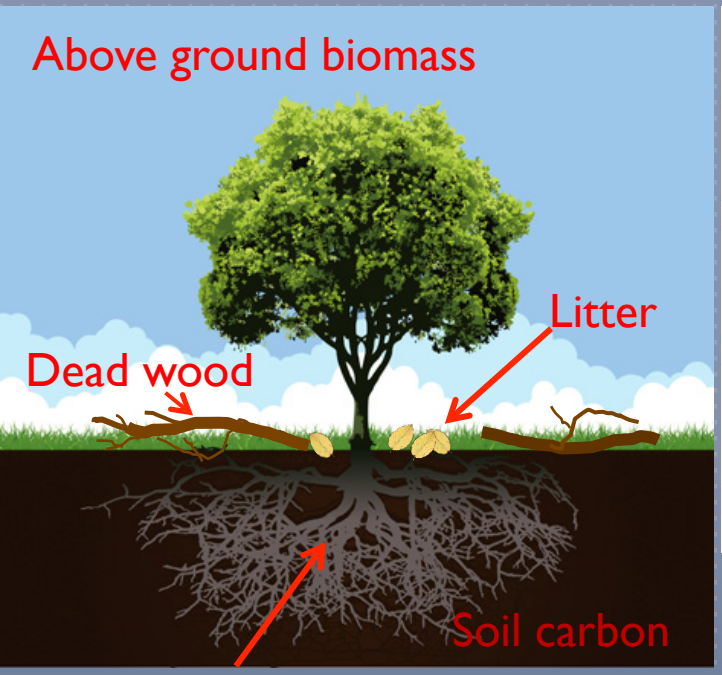




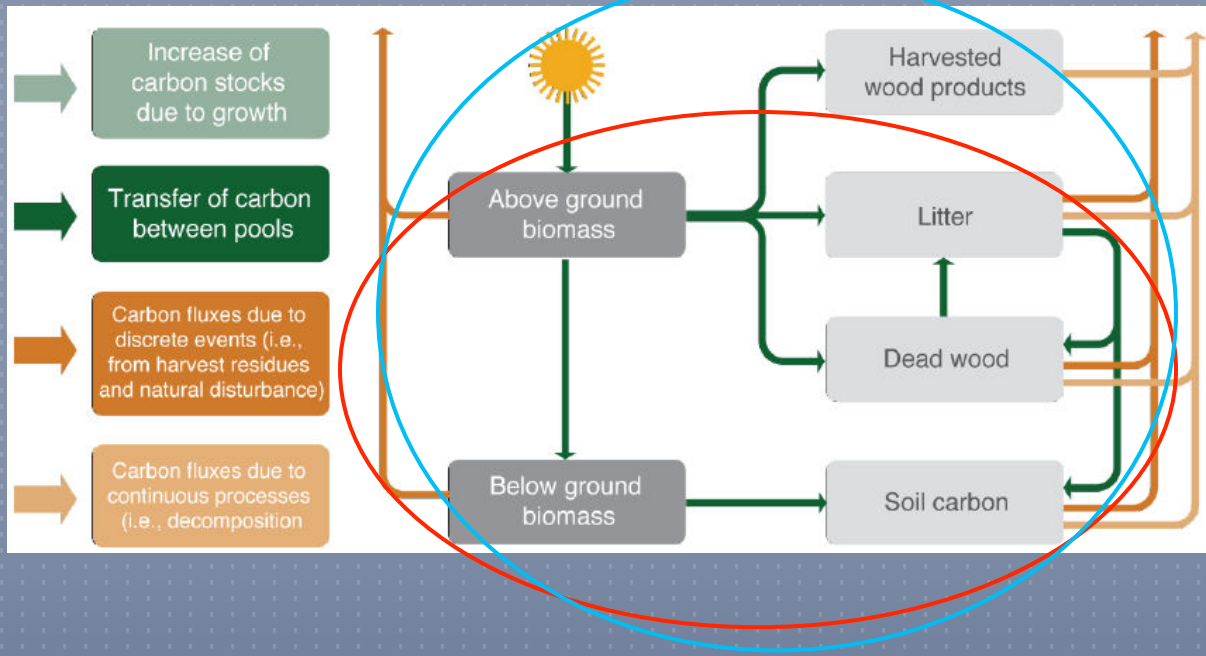


CARBON POOLS

Five carbon pools in the forest

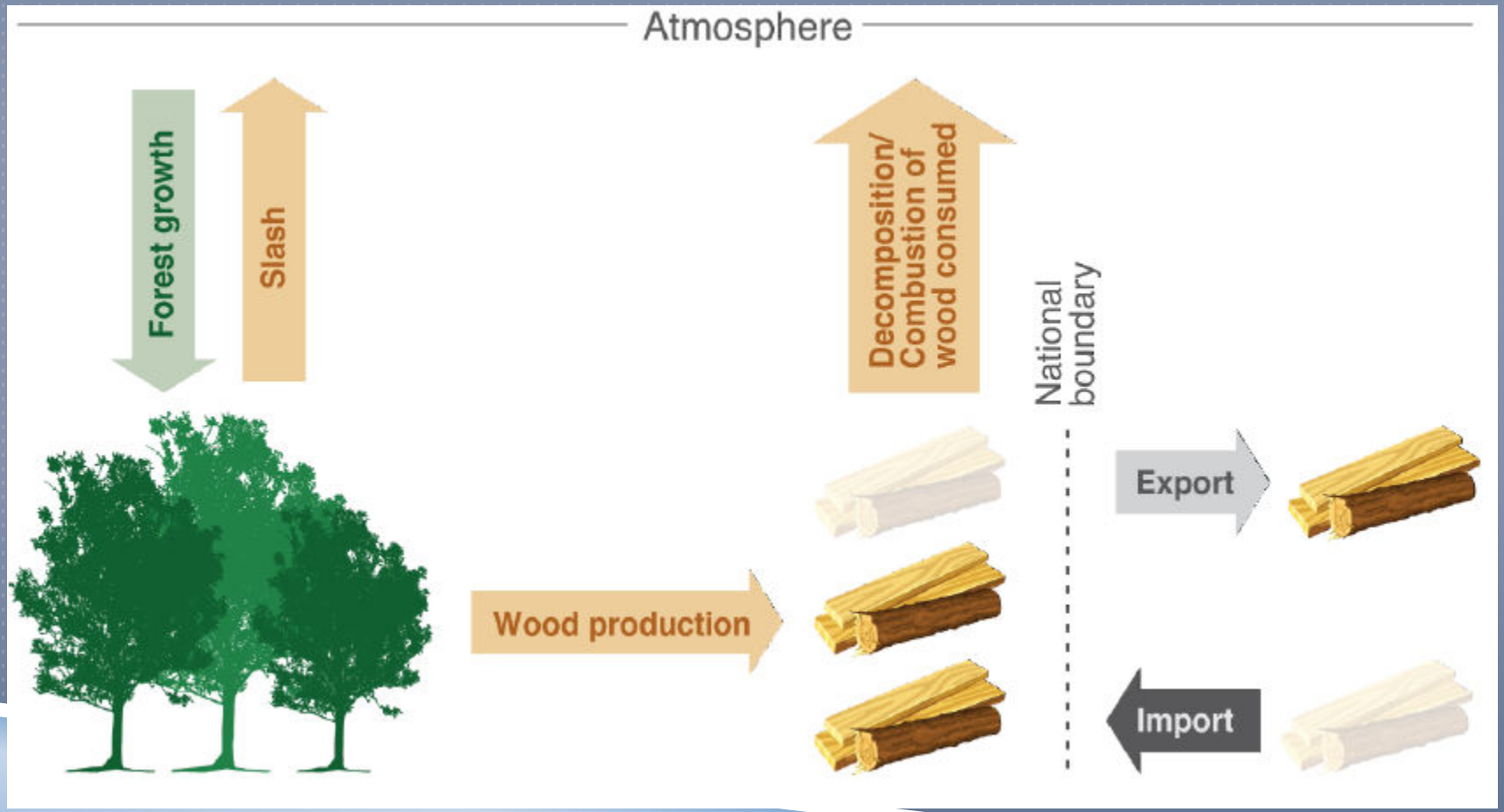


Six carbon pools



Five carbon pools

CARBON FLOW TO AND FROM THE HARVESTED WOOD PRODUCT POOL



APPROACHES TO HARVESTED WOOD PRODUCTS

Approach	Explanation
Stock Change Approach	Include emissions from all wood **consumed** in the country (including imports)
Production Approach	Include emissions from all wood **produced** in the country (including exports)
Atmospheric-flow Approach	Similar to the stock change approach but different calculations
Simple Decay	Similar to the production approach but different calculations
Instantaneous oxidation	Oxidized in the year of removal

KYOTO PROTOCOL
(SECOND COMMITMENT PERIOD)

Emissions from Harvested Wood Products removed from a Party's forests which are accounted for under Article 3.3 and Article 3.4 shall be accounted for by that Party only; imported Harvested Wood Products, irrespective of their origin, shall not be accounted by the importing Party

Accounting of Harvested Wood Products shall be on the basis of instantaneous oxidation, unless other provisions set out in Decision 2/CMP.7 apply

The treatment of Harvested Wood Products in the construction of a projected Forest Management Reference Level shall not be on the basis of instantaneous oxidation

KYOTO PROTOCOL (SECOND COMMITMENT PERIOD)

If transparent and verifiable activity data for the specified categories (paper, wood panels and sawn wood) are available, accounting of HWP shall be on the basis of the change in the HWP pool during the second and subsequent commitment periods, estimated using the first-order decay function with default half-lives provided in the Decision 2/CMP.7.

Parties may use country-specific half-lives as an alternative to those specified in Decision 2/CMP.7, or to account for HWP in accordance with the definitions and estimation methodologies in the most recently adopted IPCC guidelines, and any subsequent clarifications agreed by the COP, if verifiable and transparent activity data are available and the methodologies used are at least as detailed or accurate as those specified in the Decision.

TIER 1, 2 AND 3

- Tier one: Instantaneous oxidation
- Tier two: First-order decay function with default half-lives provided in the Decision 2/CMP.7
- Tier three: Country-specific half-lives and/or methodologies

FOREST MANAGEMENT REFERENCE LEVELS

38 countries developed FMRL

34 countries with projected FMRL are required to account for HWP not using instantaneous oxidation

4 countries without a projected FMRL should account for HWP not using instantaneous oxidation if transparent and verifiable activity data are available

Imported HWP will not be included in the accounting of the importing country

Both domestic consumed and exported HWP are included in the HWP contribution

DEFAULT HALF-LIVES AND DECAY RATES

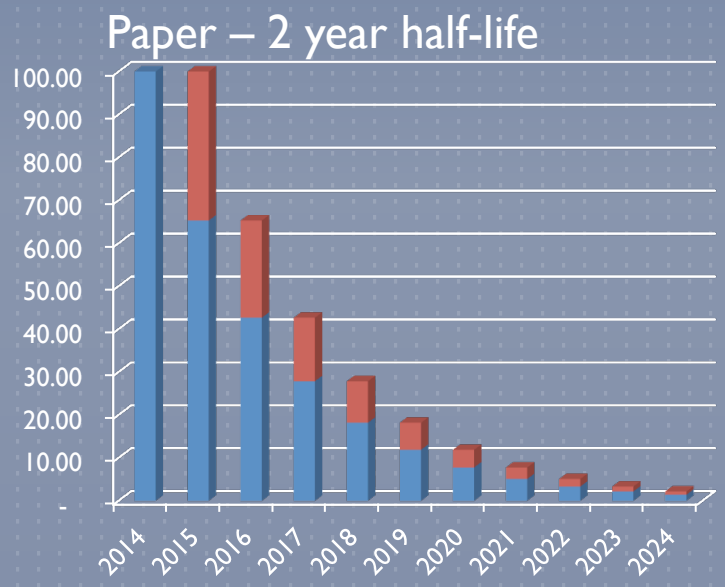
	Half-life (years)	Decay rate (k)
Paper	2	0.347
Wood panels	25	0.028
Sawn wood	35	0.020

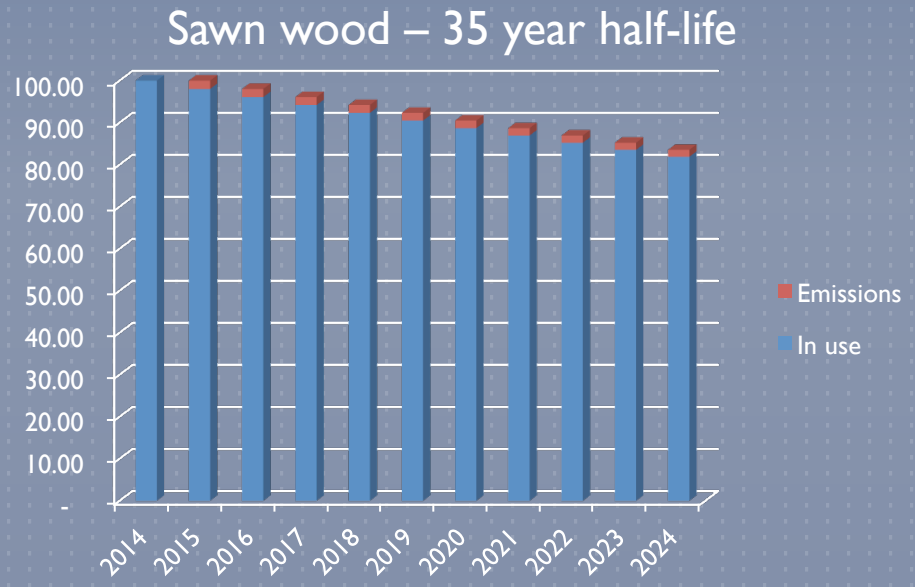
The decay rate can be calculated as: $K=\ln(2)/\text{half-life}$

Country specific half-lives are encouraged (taking into account obsolescence factor, technical properties and application area – the actual service live not the potential service live)

The use of sub-categories are encouraged to reduce uncertainty

EFFECT OF DIFFERENT DECAY RATES





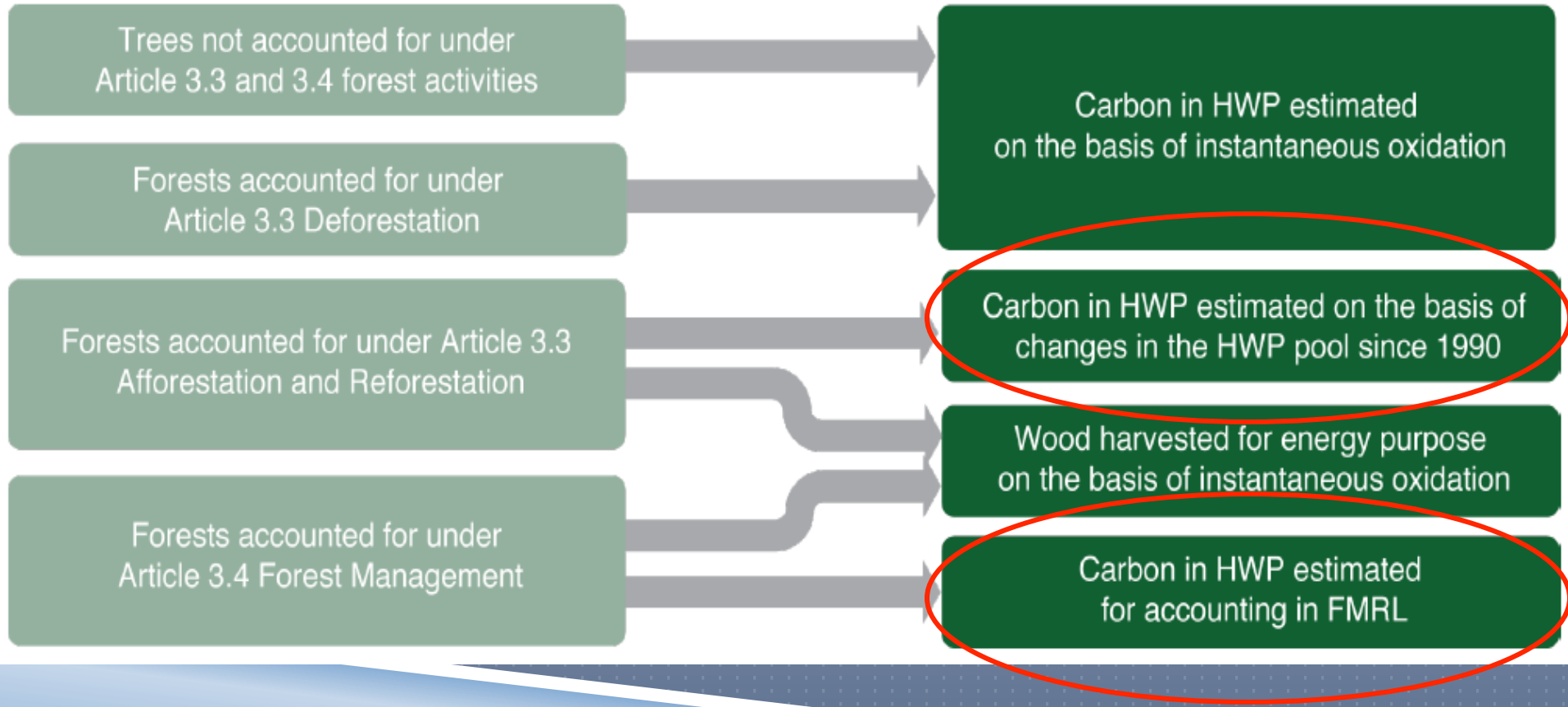
Provides an incentive to produce more long-lived wood products

- Note the substitution effect is recorded in other sectors

KYOTO PROTOCOL (SECOND COMMITMENT PERIOD)

HWP resulting from deforestation; solid waste disposal sites (where carbon dioxide emissions are separately accounted for); and wood harvested for energy purposes shall be accounted for on the basis of instantaneous oxidation

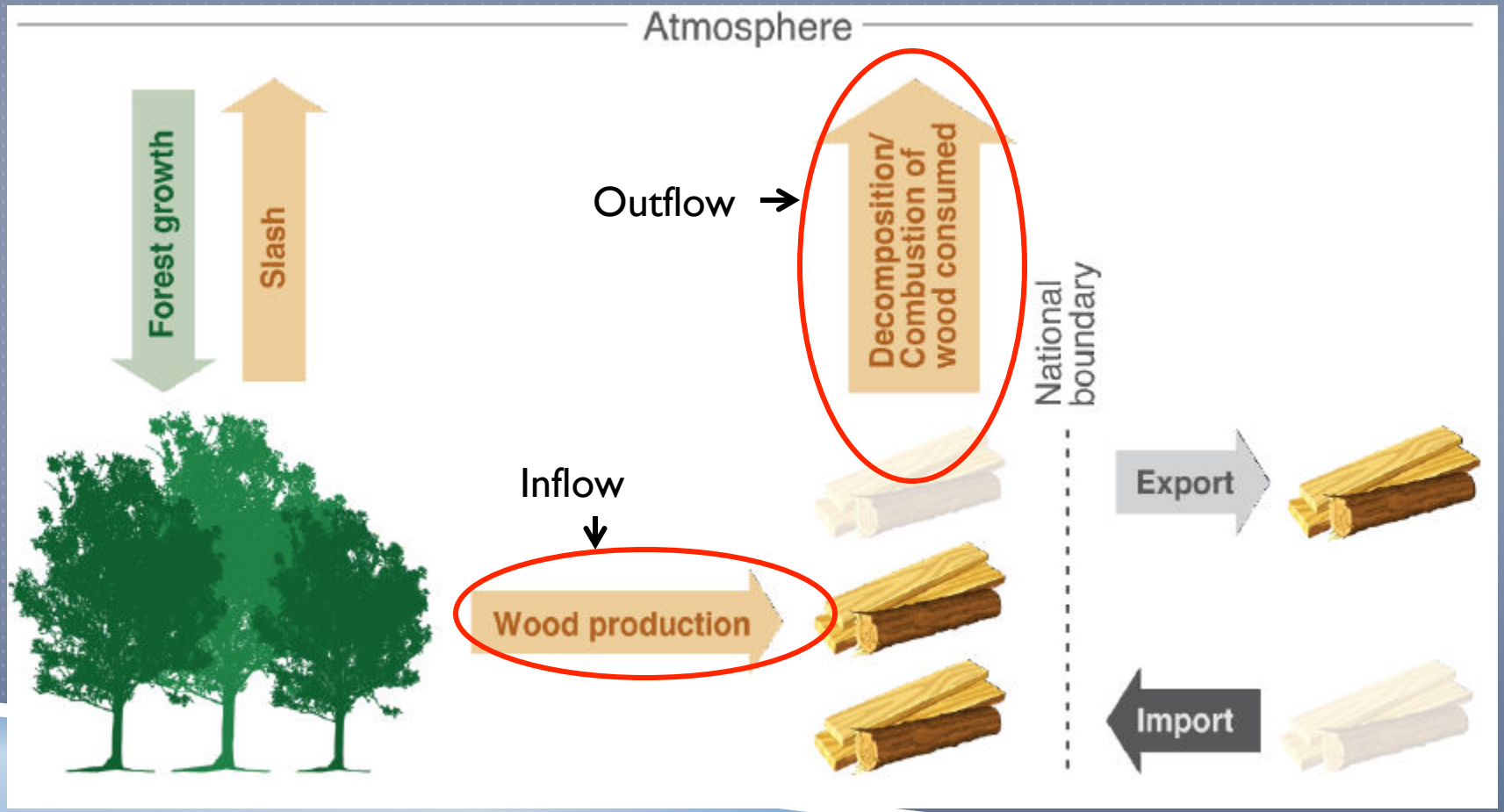
KYOTO PROTOCOL ACCOUNTING



ORIGIN OF FEEDSTOCKS

- Need to track the origin of HWP to at least four different sources:
  - HWP from trees not accounted under article 3.3 or article 3.4
  - HWP from deforestation (art. 3.3)
  - HWP from afforestation and reforestation (art. 3.3)
  - HWP from forest management (art. 3.4)

CARBON FLOW TO AND FROM THE HARVESTED WOOD PRODUCT POOL



KYOTO PROTOCOL (SECOND COMMITMENT PERIOD)

Emissions that occur in the second commitment period from HWP removed from forests prior to the start of the second commitment period shall also be accounted for

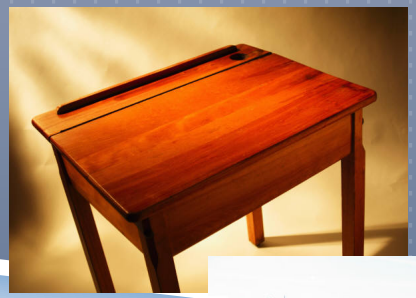
Emissions from HWP already accounted for during the first commitment period on the basis of instantaneous oxidation shall be excluded

HWP CALCULATIONS

The wood product pool is very large and the annual input is relatively small

To estimate the net increase or decrease of the pool countries need to know both the inflow and the outflow and this requires information about the existing wood product pool

$$\Delta HWP = \text{inflow} - \text{outflow}$$






OUTFLOW

- The outflow comes from the existing HWP pool (inherited emissions) and it's therefore necessary to know the size of the existing HWP pool divided into the relevant product categories
- The size of the HWP pool can be estimated as the accumulation of the historic inflow to the HWP pool (or through HWP stock inventories)
- For afforestation and reforestation this include the inflow to the HWP pool produced from areas under A/R since 1990
- For forest management this include the inflow to the HWP pool produced since 1900

ESTIMATING THE EXISTING HWP POOL

- FAO Statistics includes production data provided by countries back to 1961

- Annual inflow before 1961 can be assumed to be equal to the average of the first five years where data is available

PROJECTED INFLOW

- Projections for the different product categories can be projected using the relationship between the harvest and product category for the past five years and then apply the same relationship to the projected harvest rate for the commitment period

slash

timber

Loss through processing

Paper

Wood panels

Sawn wood

KYOTO PROTOCOL (SECOND COMMITMENT PERIOD)

Parties may choose not to account for the emissions from HWP from forests prior to the start of the second commitment period if the Forest Management Reference Level is based on a projection and shall ensure consistency in the treatment of the HWP pool in the second commitment period

KYOTO PROTOCOL (SECOND COMMITMENT PERIOD)

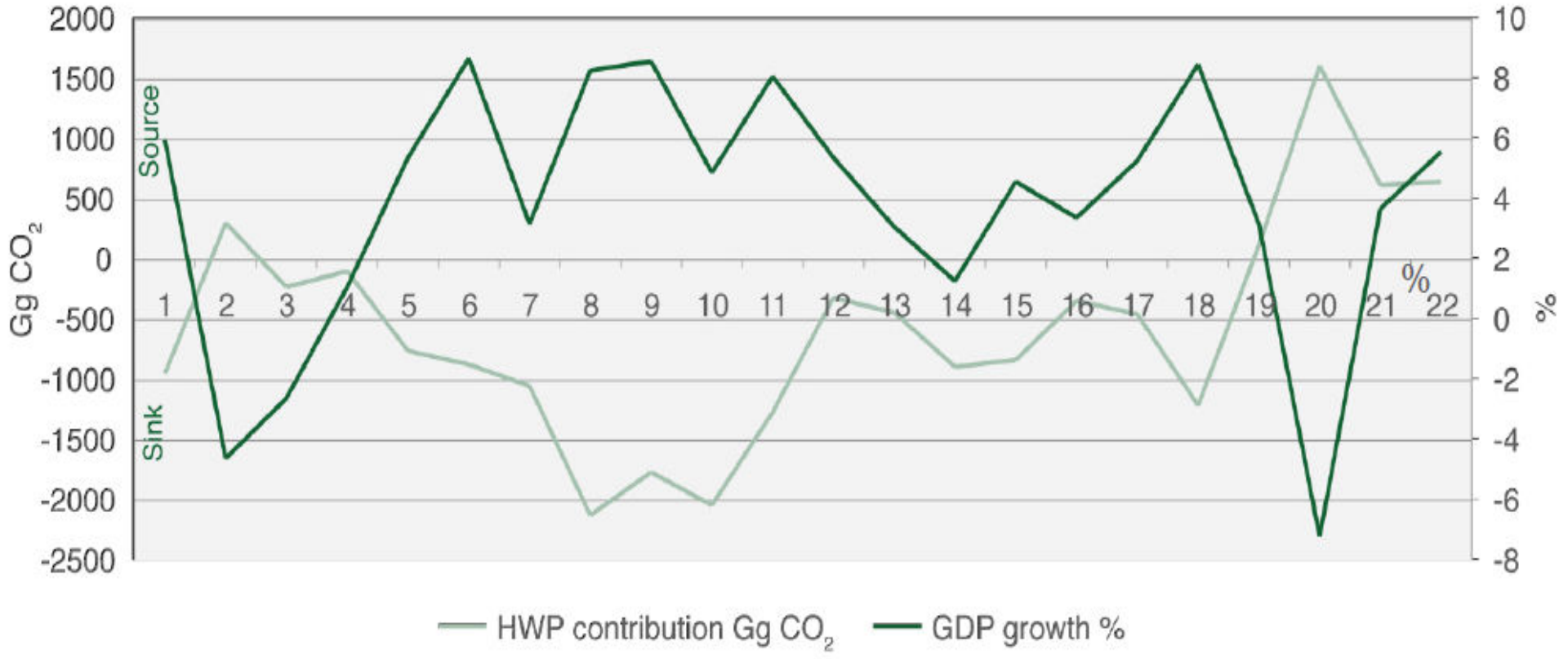
For a projected FMRL the emissions from the historic HWP pool will be included in both the projected FMRL and also during the annual reporting which means they will balance out

Taking the emissions from the historic HWP pool out will not have any effect on the actual accounted result but it will have a visual effect on the FMRL since it will include less emissions without the historic HWP pool emissions

CONTRIBUTION FROM HWP

- While emissions from the historic HWP pool cannot be changed - because the decay factor is a constant factor - the inflow to the pool will vary depending on the domestic HWP production
- This means the contribution will depend on the domestic HWP production during the commitment period which tend to higher in times of stronger economic growth and lower in times of with less economic growth
- This means that the contribution from the HWP pool often will correlate negatively with the economic growth of the country

CORRELATION BETWEEN ECONOMIC GROWTH AND THE HWP POOL

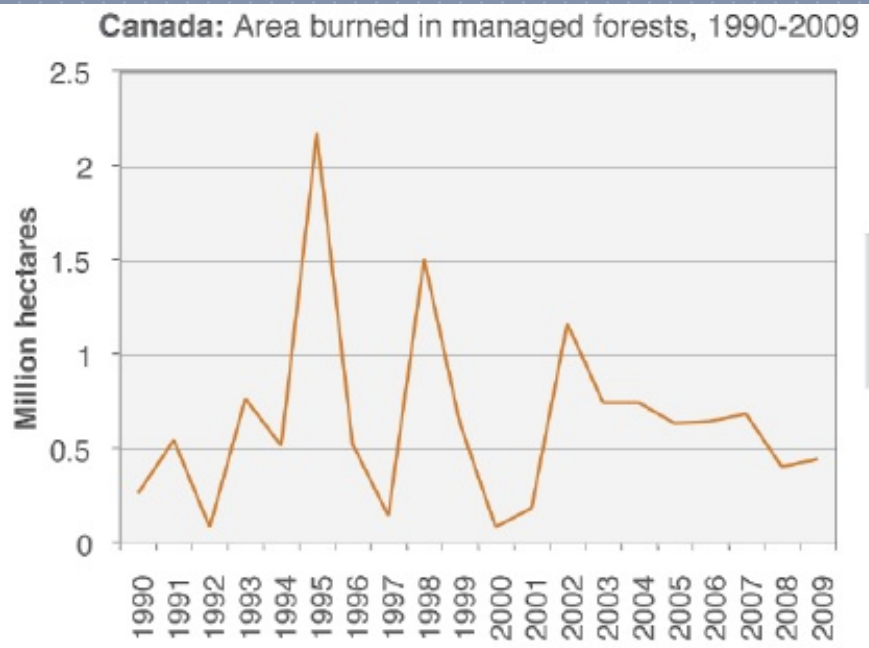


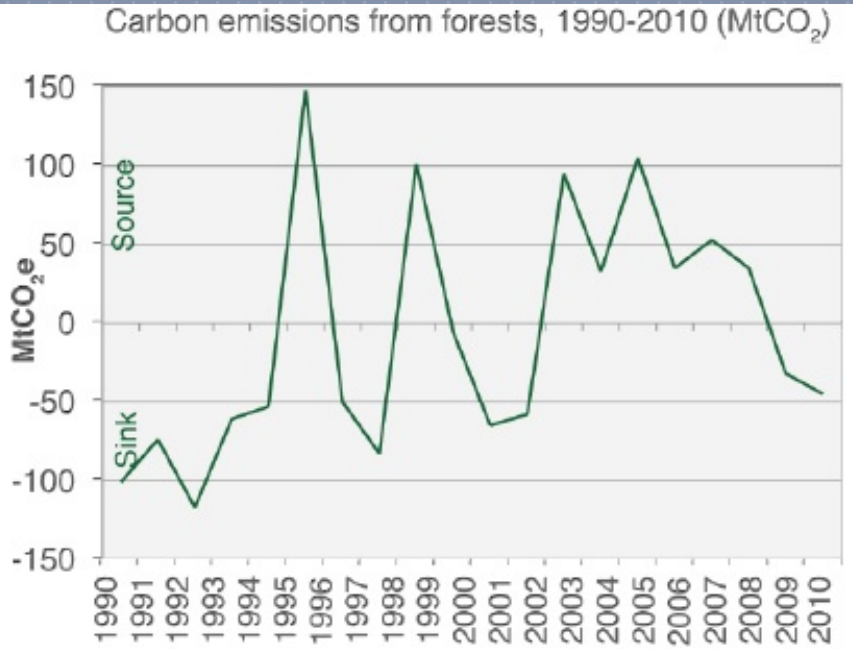
NATURAL DISTURBANCES

NATURAL *VERSUS* ANTHROPOGENIC

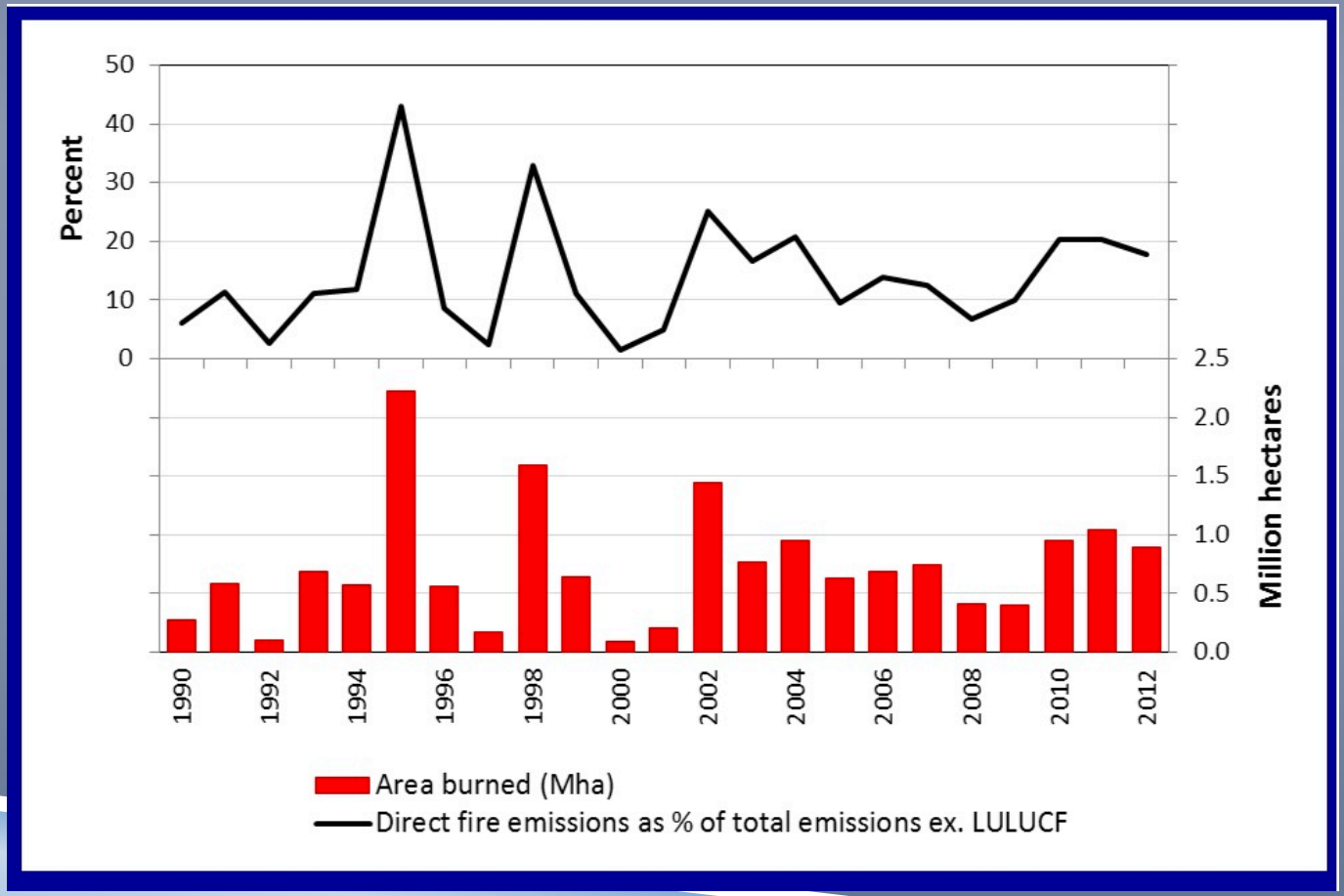
- Article 2 of the Convention states the objective to prevent dangerous anthropogenic interference with the climate system
- Forests are subject to disturbances that can release carbon stocks and non-CO_2 emissions to the atmosphere
- Disturbances can be either natural or human-induced and, for some Parties, can have a significant effect on their overall GHG inventory to the extent of materially affecting the commitment that a country might feasibly sign up to

THE EFFECT OF FIRES ON CANADA'S FOREST LAND REMAINING FOREST LAND EMISSIONS, 1990-2009





THE EFFECT OF FIRES ON CANADA'S FOREST LAND REMAINING FOREST LAND EMISSIONS, 1990-2012



Source: Tony Lemprière - Informal Dialogue for the Land Sector Espoo, 23-25 September 2014

ACCOUNTING FOR NATURAL DISTURBANCES UNDER THE KP

- CP 1:
  - Following the managed land proxy, emissions from natural disturbances on managed land were included in the accounting for mandatory and elected activities
  - Emissions from natural disturbances on unmanaged lands were not included in the accounting
- CP 2:
  - Under certain conditions and if the Party has indicated in its NIR submitted in 2015 that it wishes to do so, emissions and removals that occur on land subject to natural disturbances and reported as Forest Management (FM) or Afforestation and Reforestation (A/R) may be excluded from accounting

NATURAL DISTURBANCE DEFINITION

- Non-anthropogenic events or non-anthropogenic circumstances
- For the purposes of Decision 2/CPM.7, these events or circumstances are those that cause significant emissions in forests and are beyond the control of, and not materially influenced by the Party
- These may include wildfires, insect and disease infestations, extreme weather events and/or geological disturbances
- These exclude harvesting and prescribed burning

2013 KP SUPPLEMENT GPG ON THE IMPLEMENTATION OF ND PROVISION

- Parties are allowed to use the natural disturbances provision when emissions from natural disturbances in any single year exceed a background level plus the margin where a margin is needed
- In these years they may exclude from the accounting of A/R and/or FM (either annually or at the end of second commitment period) the emissions from natural disturbances that exceed the background level
- Any subsequent removals during the commitment period on the lands affected by natural disturbance shall also be excluded from accounting

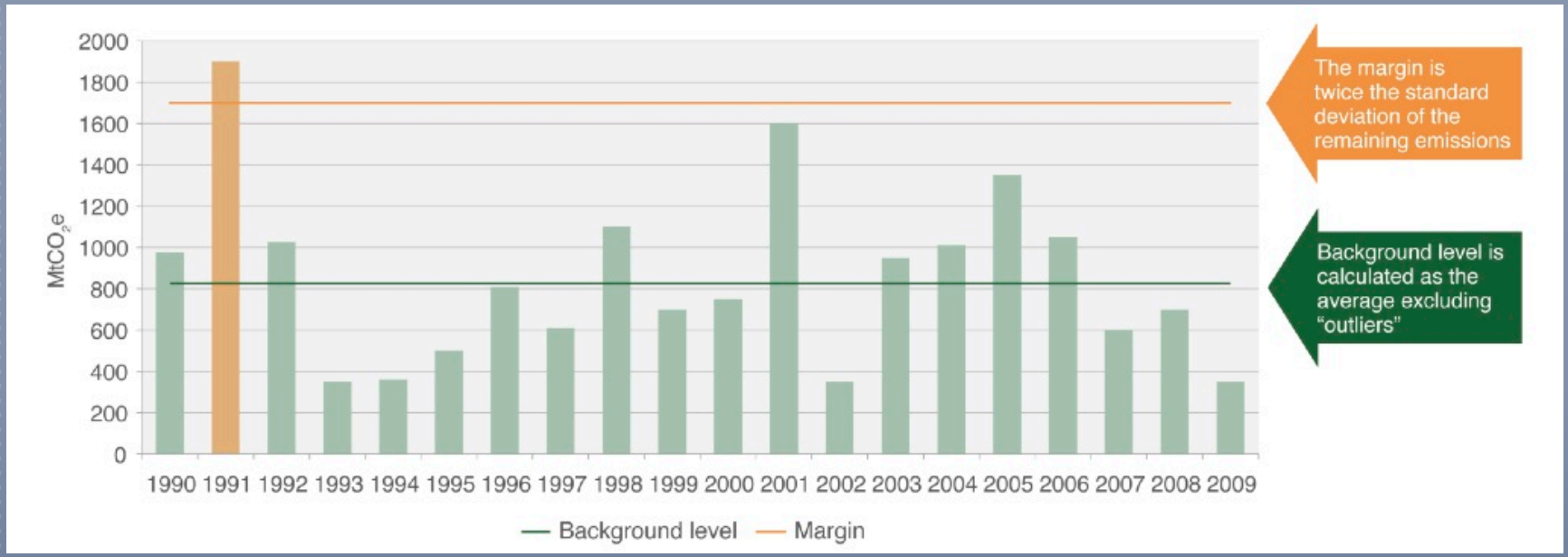
2013 KP SUPPLEMENT GPG ON THE IMPLEMENTATION OF ND PROVISION

- Parties shall provide country-specific information in their national inventory report for 2015 on the background level of emissions associated with natural disturbances that have been included in their Forest Management Reference Level; how the background level and a margin have been estimated; and information on how to avoid the expectation of net credits or net debits during the commitment period
- Parties shall account for emissions associated with salvage logging and shall not exclude from accounting emissions from natural disturbances on those lands that are subject to land-use change following the disturbance

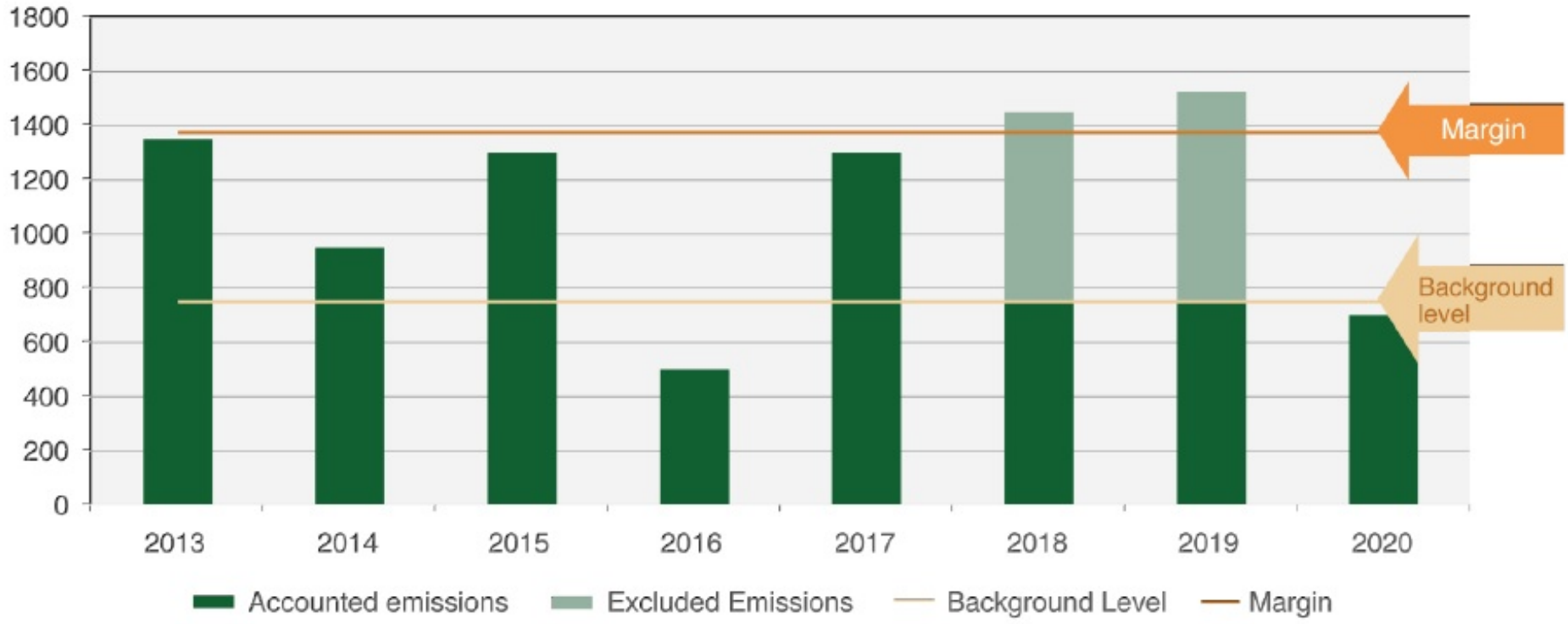
INFORMATION TO BE PROVIDED

- Identification of all lands subject to ND (including their geo-referenced location, year, and types of disturbances);
- How annual emissions resulting from ND and the subsequent removals in those areas are estimated
- Shows that no land-use change has occurred on lands for which the ND provision is applied and explains the methods and criteria for identifying any future land use changes on those land areas during the commitment period
- Demonstrates that occurrences were beyond the control and not materially influenced, by demonstrating practicable efforts to prevent, manage or control the occurrences
- Demonstrates the efforts taken to rehabilitate, where practicable, the land for which the ND provisions are applied;
- Shows that salvage logging emissions were not excluded from accounting

CALCULATING THE BACKGROUND LEVEL AND MARGIN



APPLICATION OF THE NATURAL DISTURBANCE PROVISION



QUESTIONS

- Please submit questions in writing using the IM function. Send messages to @All
- A recording of today's webinar will be available at http://ghginstitute.org shortly. A link will also be emailed to registered participants.
- The GHGMI webpage will contain an interactive comments section if you would like to continue the discussion or ask questions of the presenters.
- For additional questions please email us directly:
  - Marcelo Rocha: marcelo.trocha@fabricaethica.com.br
  - Peter Iversen: peteraai@yahoo.dk
  - Robert O'Sullivan: robert.osullivan@fcmcglobal.org