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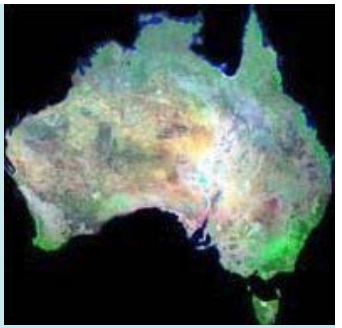
Australian Government Data submission

Informal session discussion
4 October, 2009

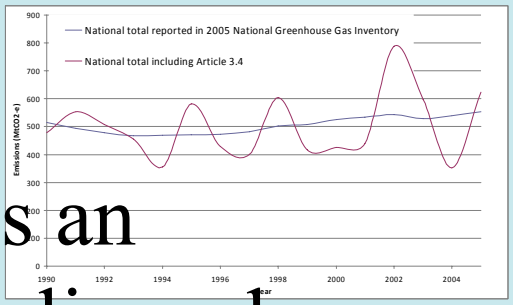
Australian context

- Land area of 769 million hectares
  - (7,692,024 km² or 2,969,907 mi²)
- 106.8 million hectares of forest land (2007)
  - All forest is defined as Managed Land
- 26.0 million hectares of cropland
- No estimate for grazing land
  - grazing occurs on:
    - cropland (26.0 million ha),
    - grassland (448.4 million ha), and
    - forest land (106.8 million ha)

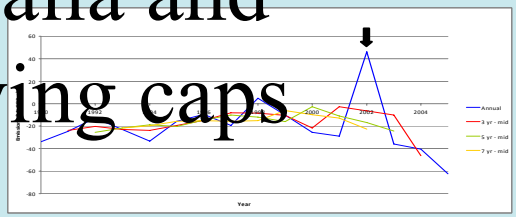
Previous submissions



- Our November 2008 submission provides data on natural disturbance, inter-annual variability and other issues for Australia



- Our March 2009 submission provides an evaluation of the proposals for Australia and data examples of the impact of applying caps on the sector



Information provided

1. Data on LULUCF emissions and removals from 1990 to 2007 (2009 NGGI)
2. Projections to 2020 (August 2009)
3. Worked data - treatment of natural disturbance
4. Worked data – inclusive in target

1: Emissions and removals
By category 1990-2007

- 3.4 activities were translated from Convention land-use categories
- Impacts of inter-annual variability and natural disturbance conceal underlying patterns of human activities
- Uncertainties for the data are high, estimated at up to ±40% for CO_2 for 2007

1: Emissions (+) and removals (-) By category 1990-2007

Category	1990 Mt $C0_2$-e	...2007 Mt $C0_2$-e
Land-Use Change (deforestation)	132.159	77.128
Forest land	-47.343	-18.916
Cropland	-0.256	23.565
Grassland	89.088	282.703

1: Emissions (+) and removals (-)
Net removals 1990-2007

- net removals estimated for the KP activities of :
  - Afforestation and
  - Reforestation
- to track their contribution in the commitment period

1: Emissions (+) and removals (-)
Net removals 1990-2007

1990	...1995	...2000	...2005	...2007
-2.046	-9.359	-15.001	-22.960	-21.150

Projections - Forests

- Uses the subset of categories that cover anthropogenic e and r
- Does not include inter-annual variability due to climate or fires.
- Projections rely on estimates of the amount of carbon stored in biomass, which differ by tree species and for different climatic and geographical conditions

Projections - Forests

42 Mt CO_2-e of net removals in 2010,

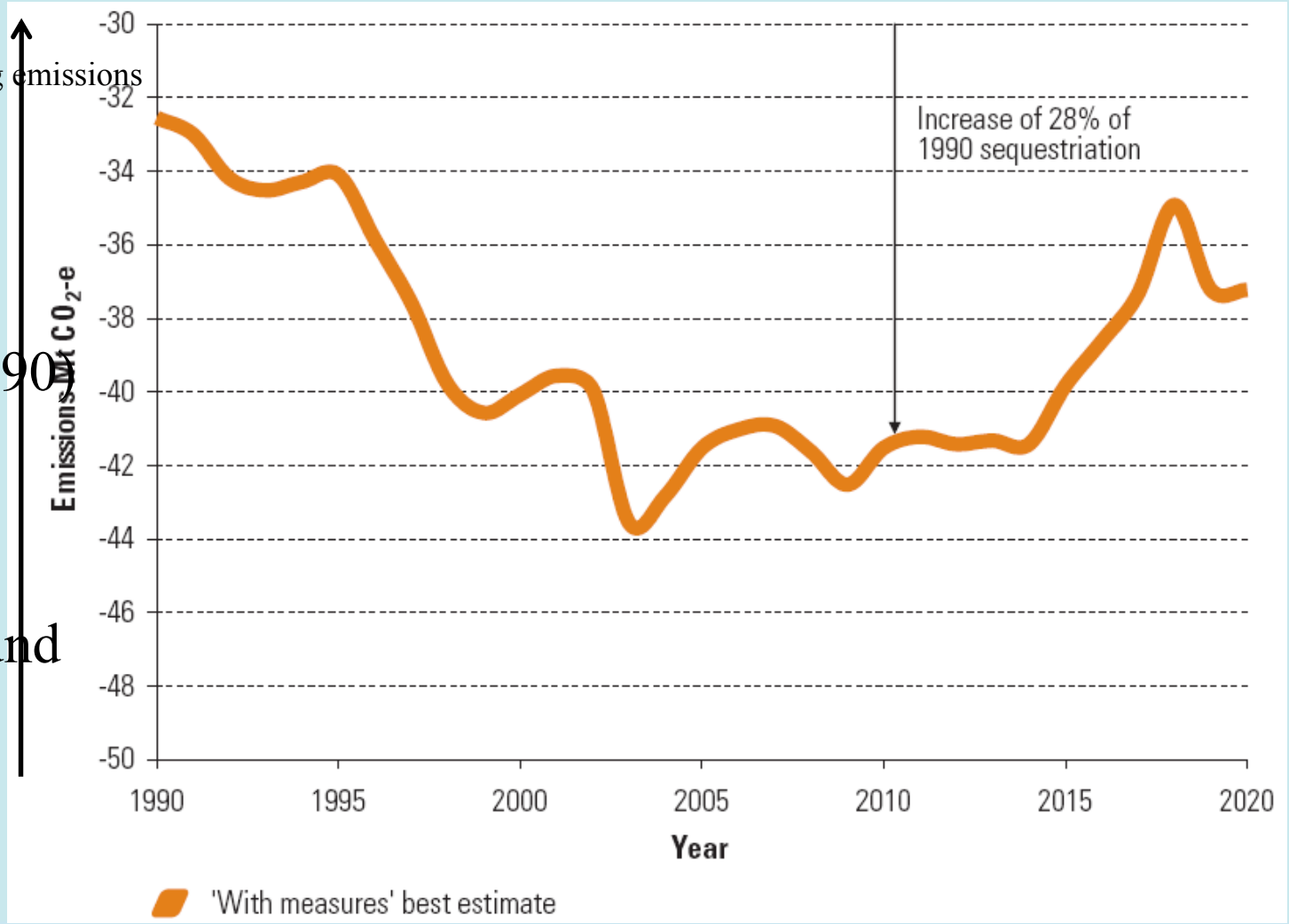
Represents an increase of approximately 9 Mt CO_2-e net removals compared to 1990 levels

- actual or planned forestry plantings data and includes the impact of measures to increase environmental plantings by 2010.

Projections - Forests

-increase of removals from ~ 33 Mt CO2 1990 to ~42 MtCO2 (2010)

- represents around 28%



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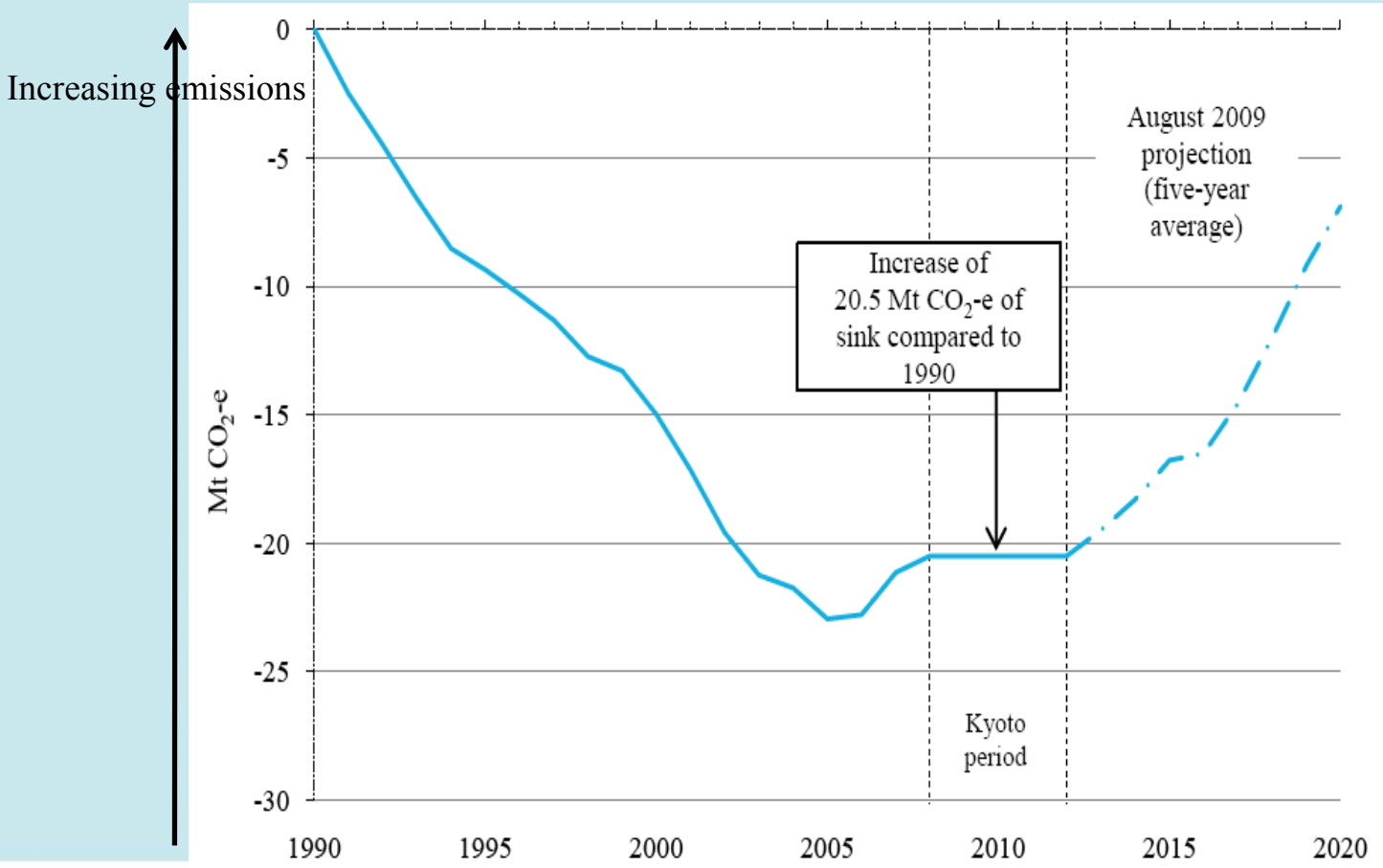
Projections – A and R

- Only Afforestation and Reforestation occurring since 1 January 1990 is credited
- Reported on a five year rolling average of the annual modelled data, which reflects the likely actual commercial harvesting behaviour
- 20.5 Mt CO_2-e removals during 2008-2012
  - includes a buffer of 1.8 Mt CO_2-e to allow for potential fire and climate effects.

Projections – A and R



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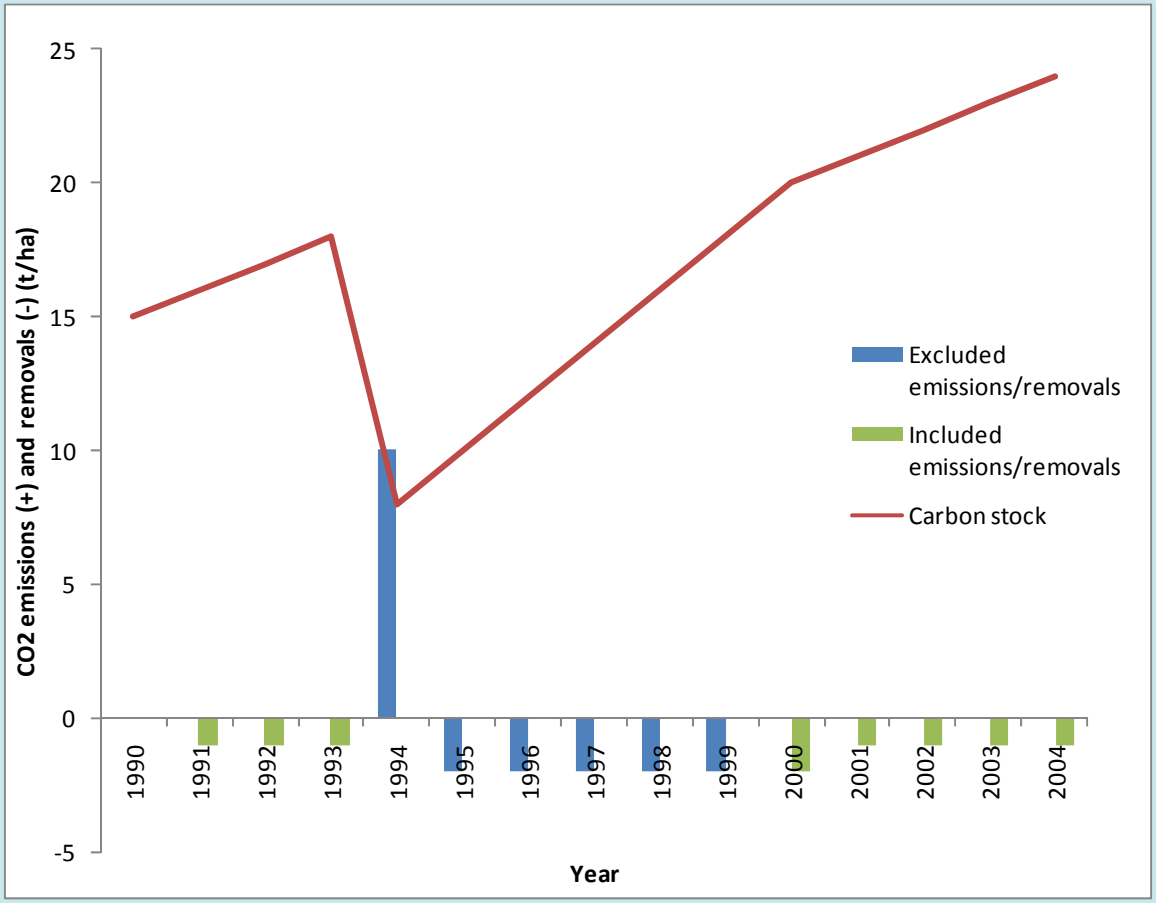
Examples – Natural disturbance

- Application of symmetrical exclusion under a number of scenarios

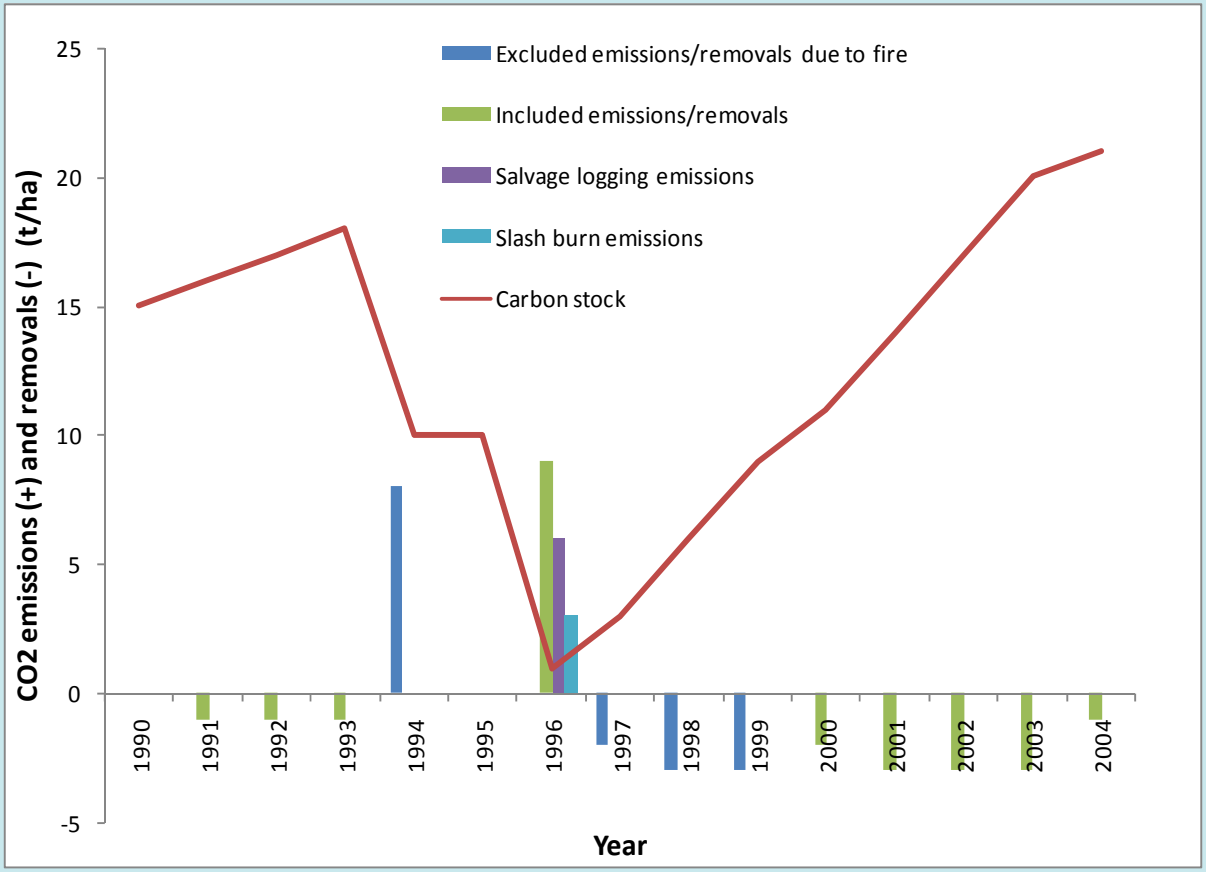
Examples - Natural disturbance



- example land unit subject to a 'major natural disturbance' fire in 1994 and then recovered the carbon linearly over 5 years.

- based on symmetrical exclusion, the accountable emissions and removals on this unit of land would be held to zero from 1994 when the fire occurred until the year 1999 when the carbon stock emitted in the fire has been recovered to its pre-fire level.

Examples - Natural disturbance

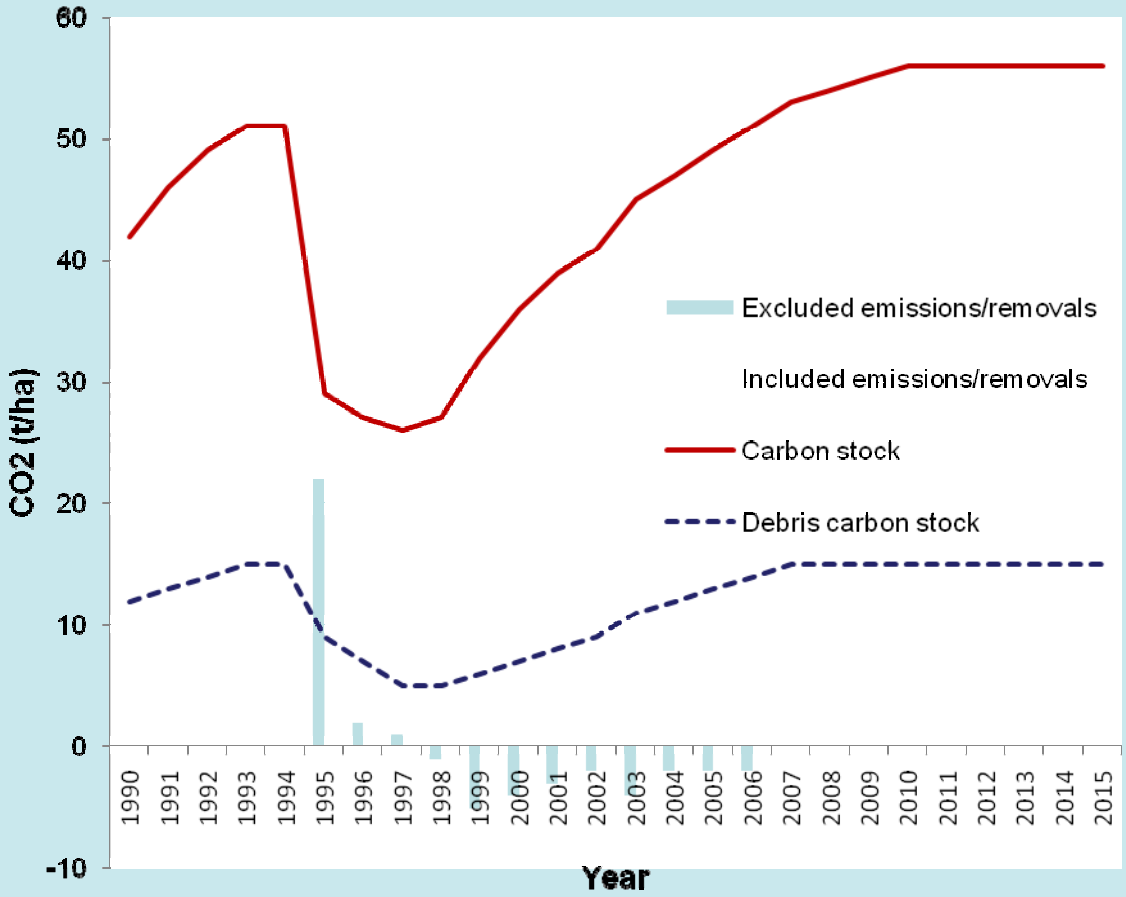


- fire occurs in 1994, which is then followed by a salvage logging and slash burn both in 1996.

- due to the logging and slash burn the carbon stock losses from the fire do not begin to be recovered until 1997.

- as the logging and slash burn are anthropogenic, the emissions from these actions are included in the accountable emissions.

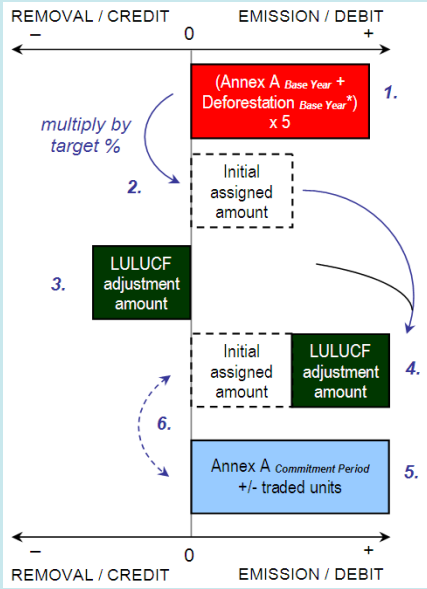
Examples – Natural disturbance



- a fire occurs in 1995 but due to the delayed decay of debris, the land unit has a net emission for a following two years.

- the emissions from the delayed decay are excluded from accounting as they are non-anthropogenic in origin.

Examples - Inclusive in target



***Before* the commitment period:**

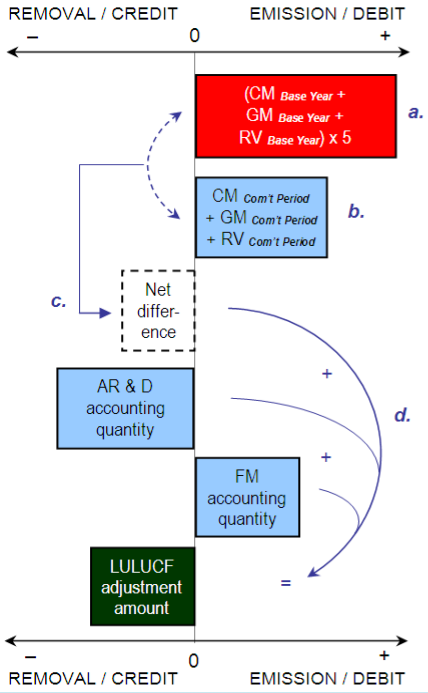
1. Take base year emissions for Annex A sectors, and deforestation if included*, times five for the number of years in commitment period.

** Deforestation is included in the baseline for Parties for whom land-use change and forestry (LUCF) was a net source of emissions in the base year. Parties for whom LUCF was a net sink exclude deforestation from the baseline.*

2. Multiply this baseline value by the Party's percentage mitigation target as per Annex B. The result is the ***initial*** assigned amount.

***After* the commitment period:**

3. Calculate the 'LULUCF adjustment amount' as per the Marrakesh Accords (refer Figure 2).
4. Adjust the initial assigned amount by the LULUCF adjustment amount (***'2'*** minus ***'3'***). The result is the ***adjusted*** assigned amount.
5. Take commitment period emissions for Annex A sectors only, plus units transferred or acquired under flexibility mechanisms.
6. Calculate the difference between ***'4'*** and ***'5'*** to assess whether the target is met.



***Before* the commitment period:**

a. Take base year net emissions/removals from lands subject to elected Article 3.4 activities Cropland Management (CM), Grazing Land Management (GM) and/or Revegetation (RV), time fives for the number of years in the commitment period.

***After* the commitment period:**

b. Take commitment period net emissions/removals for CM, GM and/or RV.

c. Calculate the difference between ***'a'*** and ***'b'*** (***without*** multiplying by the percentage mitigation target). The result is the 'net-net' accounting quantity for CM,GM and RV.

d. Add to ***'c'*** the following amounts from the commitment period:

- the accounting quantity for lands subject to afforestation and reforestation (AR) with application of the credit/debit rule, and lands subject to deforestation (D); and
- the accounting quantity for lands subject to forest management (FM), with application of the FM cap provisions.

The result is the LULUCF adjustment amount (which equates to ***'3'*** in Figure 1).

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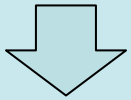
Example – Inclusive in target

LULUCF baseline amount	**+42** Mt CO_2e
Comprising: *Article 3.3 activities (ARD)* + *Article 3.4 elected activities*	 *-12 Mt CO_2e* *+54 Mt CO_2e*
+ Baseline amount from other sectors	500 Mt CO_2e
= **Total baseline amount**	**542 Mt CO_2e**



Total baseline amount	542 Mt CO_2e
x Parties target	x%
x number of years of commitment period	**y**
= **Parties assigned amount**	**z Mt CO_2e**