



## **AUSTRALIA**

### **Land Use, Land-Use Change and Forestry (LULUCF)**

#### **Submission to the AWG-KP and AWG-LCA March 2009**

Australia welcomes the opportunity to submit our views and proposals for further elaboration of the options, elements and issues contained in annex III to the report of the AWG-KP at its sixth session and annex IV to the report of the AWG-KP at its resumed fifth session, including views on how and which proposals could address cross-cutting issues. Australia will be providing additional views and proposals as the negotiations progress.

The full mitigation potential of the land sector has not been realised under the land use, land-use change and forestry (LULUCF) rules for the first commitment period. The Parties have an important opportunity when negotiating a post-2012 outcome to improve upon the current LULUCF rules to provide a stronger, long-term basis for an international climate change response.

Australia's aim in the negotiations is to improve the treatment of the land sector in the long-term, rather than develop short-term solutions to problems generated by the current rules. Our proposals build on the core considerations outlined in Australia's November 2008 LULUCF submission.

This submission is relevant to both the AWG-KP and AWG-LCA negotiating streams. A post-2012 outcome should treat the land sector in a comprehensive and integrated way that is comparable for all Parties taking on economy-wide mitigation targets.

### **ESSENTIAL ELEMENTS**

In the negotiations on LULUCF post-2012, the Parties need to decide:

- How land-based emissions and removals are included towards Parties' mitigation commitments and associated baselines. This is closely linked to the broader negotiations on the contribution of Annex I Parties, individually or jointly, to the scale of emission reductions to be achieved by Annex I Parties in aggregate; and
- Which land-based anthropogenic emissions and removals are covered in the post-2012 outcome, and which parts of the land sector are mandatory or elective.

There is a strong preference for the coverage of the land sector to be known prior to final agreement on mitigation commitments, that is, 'rules' need to be agreed before 'targets'. This reduces the uncertainties that Parties take and gives them greater confidence when setting the level of national ambition for the next commitment period.

Note that in this submission, 'the Parties' refers to the Parties collectively. 'Parties' refers to the sub-set of these Parties that take on economy-wide mitigation targets.

## MITIGATION COMMITMENTS AND BASELINES

In the first commitment period, LULUCF is included towards Parties' mitigation commitments as an addition (net removals) or subtraction (net emissions) from their initial assigned amount. This is illustrated in Figure 1. Figure 2 illustrates how the amount by which LULUCF adjusts the initial assigned amount is derived<sup>1</sup>.

This approach was a consequence of the manner in which the rules for LULUCF were negotiated in the first commitment period, and matched the Parties' knowledge and capabilities at the time. However, it lacks appropriate transparency. Parties' first commitment period mitigation commitments (targets) alone do not express the comparable efforts taken by Parties to mitigate climate change. Comparable effort is also made up of the LULUCF rules and Parties' differentiated forest management caps.

The Parties need to decide whether the same approach should apply to a second commitment period. A decision on this issue should be made under the AWG-KP agenda item on the 'contribution of Annex I Parties, individually or jointly, to the scale of emission reductions to be achieved by Annex I Parties in aggregate', in consultation with the LULUCF negotiators.

This decision needs to be made in conjunction with a decision on baselines for LULUCF (including gross-net versus net-net accounting). This is because the decision on how and to what extent LULUCF is incorporated into Parties' mitigation commitments will greatly affect the choices that the Parties need to make on LULUCF baselines. The forest management cap should also be considered in this context.

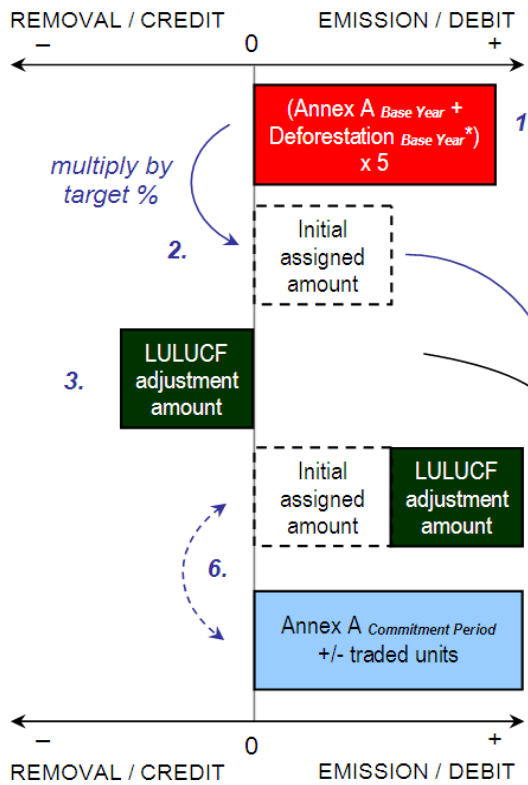
To illustrate this point, the effect of three different approaches for expressing mitigation commitments on LULUCF baseline options is outlined in Table 1.

**Table 1.** *Effect on LULUCF baselines of different expressions of mitigation commitments*

Possible approach	How mitigation commitment is expressed	Options for LULUCF baselines
Absolute amount	An absolute amount (megatonnes CO <sub>2</sub> -e) to be emitted in the second commitment period.	No baselines needed. Parties would include LULUCF in this absolute amount.
First commitment period initial Assigned Amount	Percentage change relative to a Party's first commitment period initial Assigned Amount	Lands subject to Article 3.3 and elected Article 3.4 activities contribute to a Party's compliance in the first commitment period. They may require a different treatment to activities that a Party elects for the first time post-2012.
Other base year	Percentage change relative to a Party's net emissions in a base year	All LULUCF activities would need to be considered to determine an appropriate baseline treatment. It may be appropriate for LULUCF to have a comparable but different baseline, for example, a base period rather than a base year.

<sup>1</sup> The examples in Figures 1 and 2 use hypothetical values for illustrative purposes, however LULUCF amounts can equate to either net emissions/debits or removals/credits.

**Figure 1.** Current provisions for how LULUCF emissions/removals adjust Parties' assigned amount after the mitigation commitment (target) is applied



**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.

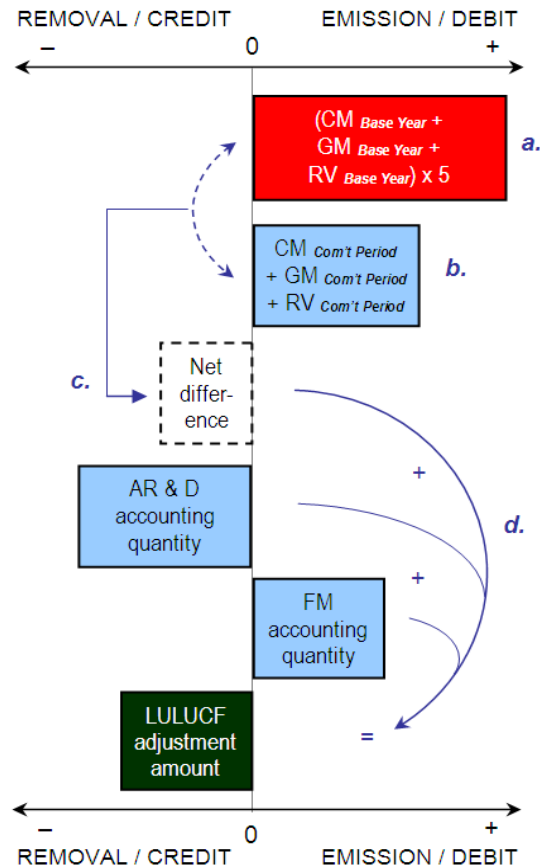
\* Deforestation is included in the baseline for Parties for whom land-use change and forestry (LUCF) was a net source of emissions in the base year. Parties for whom LUCF was a net sink exclude deforestation from the baseline.

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.

**Figure 2.** Current provisions for deriving the LULUCF adjustment amount



**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).

## COVERAGE

The UNFCCC pursues its objective of mitigating climate change by addressing all anthropogenic emissions by sources and removals by sinks of greenhouse gases. However, the current accounting rules and modalities for LULUCF do not provide for complete and consistent coverage of anthropogenic emissions and removals, as outlined in Australia's statement on LULUCF at the fifth meeting of the AWG-KP<sup>2</sup>.

There are several components to determining the coverage of anthropogenic land-based emissions and removals in the post-2012 outcome:

- i) To ensure that only anthropogenic emissions and removals are included towards mitigation commitments, a solution is required for each of the cross-cutting issues of natural disturbance and inter-annual variability. In addition, a solution is needed to adequately manage the legacy effects of the age class structure of forests established prior to 1990.
- ii) A structure for including land sector anthropogenic emissions and removals is required. This could be based on lands subject to the activities under Article 3.3 and Article 3.4 of the Protocol, or it could be based on Convention land-use categories. Coverage under the Clean Development Mechanism (CDM) also needs to be decided.
- iii) Once the structure is decided, the Parties can consider a number of other specific issues, including the treatment of Harvested Wood Products (HWP).
- iv) Finally, the Parties should decide which activities, or categories, are mandatory and which are elective.

### ***Kyoto Protocol first commitment period provisions***

For the first commitment period, the land sector covers emissions and removals from lands where a defined activity has taken place.

These activities are described in Articles 3.3 for compulsory activities (afforestation, reforestation and deforestation) and in Article 3.4 for elective activities (forest management, cropland management, grazing land management and revegetation).

Once a unit of land enters a Party's account, all emissions and removals on that land must be accounted for. No distinction is made as to whether these emissions and removals are anthropogenic or natural.

---

<sup>2</sup> Available on the UNFCCC website at [http://unfccc.int/kyoto\\_protocol/items/4373.php](http://unfccc.int/kyoto_protocol/items/4373.php).

## AUSTRALIA'S VIEWS AND PROPOSALS

We are pleased to provide our views and proposals on:

1. Cross-cutting issues (natural disturbance, inter-annual variability, the legacy effects of age-class structure of forests prior to 1990);
2. The structure for covering the land-sector, including the CDM; and
3. Specific issues of HWP; the forest management cap; and the afforestation/reforestation harvest sub-rule.

To facilitate all Parties' understanding of the proposals, we note in each section where these issues appear in decision 16/CMP.1 and suggest changes that would be required.

### **1. Cross-cutting issues**

Regardless of the structure used for accounting for the land sector (i.e. Convention land-use categories or lands subject to activities under Articles 3.3 and 3.4), appropriate treatment of major natural disturbances and inter-annual variability is essential. In the absence of this treatment Australia would have no possibility of managing land sector emissions and removals to meet our mitigation commitment. For example, in 2003 wildfires in south-eastern Australia resulted in emissions of 190 Mt CO<sub>2</sub>-e<sup>3</sup> from existing forest lands. In addition, in 2002 inter-annual climate variability led to a spike in emissions of around 70 MtCO<sub>2</sub>-e from croplands<sup>4</sup>. This is compared to 591.5 Mt CO<sub>2</sub>-e annual allowable emissions during the first commitment period.

#### **1.1 Natural disturbance**

In our November 2008 LULUCF submission, Australia put forward a proposal to allow Parties to choose to either symmetrically include or exclude non-anthropogenic emissions and subsequent removals from major natural disturbances from their mitigation commitments. This proposal remains our position on major natural disturbances. We have appended Attachment A from Australia's November 2008 LULUCF submission for reference. A key issue not covered in our earlier submission is discriminating major natural disturbance from other disturbance events. We are currently developing an approach to the definition of major natural disturbance that we will be happy to share with all Parties in the coming weeks.

We are pleased to note that since our November 2008 submission other Parties have also come forward with proposals for dealing with natural disturbance. We welcome further discussion on options for addressing this important issue and offer the following observations on the application of some of these proposals to Australia's national circumstances.

A number of the proposals either fully or partially include emissions and removals from major natural disturbances in Parties' accounts. Australia is concerned that these proposals are not consistent with Parties' commitments under the UNFCCC to mitigate anthropogenic emissions and removals.

---

<sup>3</sup> Source of data: 2005 National Greenhouse Gas Inventory, Department of Climate Change. These figures are reported in greater detail in Australia's November 2008 LULUCF submission, available from the UNFCCC website at [http://unfccc.int/kyoto\\_protocol/items/3878.php](http://unfccc.int/kyoto_protocol/items/3878.php).

<sup>4</sup> Source of data: *ibid*.

#### *Caps and discount factors*

Caps and discount factors do not provide a solution to major natural disturbance. This is because Parties would be liable for non-anthropogenic emissions and removals. Incentives to mitigate emissions and enhance removals would be greatly limited by a low cap or high discount factor. However, a cap would need to be very low, or a discount factor very high, to allow Parties to be able to manage major natural disturbances within the accounting framework (see example in Appendix A).

#### *Carry-over provisions*

Carry-over provisions have been suggested, whereby emissions and removals from natural disturbance would remain in Parties' accounts, but Parties would have provisions for carrying over these emissions and removals over several years or commitment periods.

In addition to being inconsistent with the Convention's focus on anthropogenic emissions, these provisions would remove comparability between Parties' mitigation commitments. It would result in the inclusion of non-anthropogenic emissions, from major natural disturbances, in some Parties' commitments but not others'.

This approach could impact Parties' capacity to take on more ambitious commitments in future periods. Parties would be required to take into account the impacts of major natural disturbance in the negotiation of the mitigation commitment for the commitment period following the one in which the disturbance occurred, as the magnitude of the emissions could only be determined after the event.

Using the 2003 wildfires as an example, Australia could be required to carry-over around a third (190 Mt CO<sub>2</sub>-e) of its annual whole-of-economy emissions under this provision, as there would be no opportunity for managing this magnitude of emissions as part of an existing mitigation commitment.

#### *Global insurance mechanisms*

A global insurance mechanism has been proposed, whereby Parties would set aside a part of their removals from forest management to a global pool available to all Parties to compensate for major natural disturbance events. While this seeks to remove liability for natural disturbances from individual Parties, we have concerns with this type of mechanism to manage the impacts of major natural disturbance.

This approach would internalise non-anthropogenic emissions and removals in an accounting system, thereby creating a carbon cost for non-anthropogenic emissions and removals that is commensurate with anthropogenic emissions and removals.

There will also be challenges in how such a mechanism may work in practice. For example, Parties that are not subject to major natural disturbances, and whose existing forests are a sink, may effectively pay the cost (through anthropogenic removals) for compensating the non-anthropogenic emissions in those Parties where natural disturbances occur. This uneven sharing of costs could limit incentives for mitigation action. Broad participation in the mechanism would be needed to ensure the amount of removals necessary to compensate major natural disturbances were available.

#### *Suggested changes to 16/CMP.1*

*E. General: - revise to allow Parties to choose whether to symmetrically include or exclude from their accounts emissions and subsequent removals on lands subject to a major natural disturbance event.*

*(Refer to Australia's November 2008 LULUCF submission for further details)*

## 1.2 Inter-annual variability

In our November 2008 LULUCF submission, Australia outlined a proposal for managing the impacts of inter-annual variability. Our position on this issue remains unchanged. We consider our proposal provides an effective means of addressing inter-annual variability as it requires Parties to account for all anthropogenic emissions and removals and provides a meaningful trend line (see example in Appendix B).

Discount factors and caps have also been proposed as an approach to manage inter-annual variability.

### *Discount factor*

Discount factors only change the amplitude of emissions and removals, not the distribution, and thus a very high discount rate is needed to manage inter-annual variability. See Appendix B for an example based on the 70 Mt CO<sub>2</sub>-e emissions from croplands due to variation in rainfall in 2002 in Australia.

### *Caps*

We do not consider that caps provide a solution for inter-annual variability. Once the cap is exceeded, emissions and removals from anthropogenic actions are treated in the same way as non-anthropogenic emissions and removals and not accounted. In addition, if caps were to be considered, then any cap would have to be Party and activity specific for it to provide an incentive to mitigate. For example, croplands are a net sink in Australia (see Appendix B), so an asymmetric cap (i.e. the cap would be larger for removals than for emissions) would need to be applied.

### *Suggested changes to 16/CMP.1*

*E. General: - revise to allow Parties that estimate emissions and removals using annual climate data to account for these emissions and removals using a rolling average.*

*(Refer to Australia's November 2008 LULUCF submission for further details)*

## 1.3 Legacy effects of age-class structure

Australia considers that the legacy effects of the age class structure of forests established before 1990 is a cross-cutting issue that requires a solution in the land sector accounting rules. We are open to considering all Parties solutions to this problem that are rigorous, robust and policy relevant.

## **2. Structure for the land-sector**

### **2.1 Accounting for relevant lands**

Parties should only account for anthropogenic emissions and removals from lands where there are, or have been since 1990, anthropogenic greenhouse gas emissions and removals. This will ensure a post-2012 accounting framework aligns with the commitment of the Convention to account for anthropogenic emissions and removals alone. Lands where there have not been anthropogenic emissions and removals should not be part of the accounting framework.

To realign the post-2012 accounting framework with this approach, there is a need for the Parties to provide additional rules and guidance. There is a need to address the construct of 'managed lands' as it appears in the 2003 IPCC Good Practice Guidance (GPG) for LULUCF and is reiterated in the 2006 IPCC Guidelines, which is not consistent with this approach.

'Managed lands' is an artificial trigger for the inclusion of lands for the purposes of carbon accounting. While the trigger may be appropriate for Parties that are dominated by intensive land uses (many European countries), it is not likely to be appropriate for Parties with extensive land uses (for example Australia, Canada, Russia) where 'management' (for example, for ecological or social reasons) may not always equate to management which leads to a change in emissions and removals.

## **2.2 Moving to a Convention-style framework**

There are a number of options for improving the current structure for land sector accounting.

Our preferred long-term option is to move to accounting for the land sector using Convention land-use reporting categories, with appropriate rules. This approach was considered in Option 4 of the Annex to the AWG-KP5.2 conclusions<sup>5</sup>. Another option is to improve upon the Article 3.3 and Article 3.4 activity-triggered framework, which was considered in Options 1-3 of the Annex to the AWG-KP5.2 conclusions<sup>6</sup> (see section 2.3 of this submission).

Coverage of anthropogenic emissions and removals from the land sector would be best achieved through inclusion of the sector using Convention land-use categories. This is a comprehensive framework that all Parties use to report emissions and removals under the Convention. In addition, the activities under Article 3.3 and Article 3.4 are a sub-set of Convention land-use categories, which would allow continuity of reporting between the first and subsequent commitment periods. Further, it would increase the comparability of land use accounts for all Parties taking on mitigation commitments in a future climate change outcome.

Although it may not be possible to make the transition to Convention land-use category reporting for a post-2012 outcome, we have considered how such a transition might be made. Moving to accounting using Convention land-use categories should create an enabling environment, whereby Parties are able to move to more complete coverage of anthropogenic emissions and removals over subsequent commitment periods. Parties should remain accountable for the lands covered by Article 3.3 activities and elected Article 3.4 activities. Beyond this, we consider that other land-use categories could be elective while Parties gain experience with this approach. Further, not all land-use categories will be relevant to individual Parties for accounting for anthropogenic emissions and removals.

In addition, we consider that Parties should use robust estimation methods (higher Tier 2 and Tier 3) to ensure confidence in the emissions and removals from the land-use categories. There would be no gain to the global climate from poorly estimated emissions and removals entering Parties' accounts, especially when considering land-use categories not covered by the Article 3.3 and Article 3.4 activity-triggers.

---

<sup>5</sup> FCCC/KP/AWG/2008/L.11

<sup>6</sup> *ibid.*

## 2.3 Retaining an activity-triggered structure

A number of Parties are exploring options to revise the current activity-triggered structure. Given the short negotiating timeframe available for agreeing a post-2012 outcome, we consider that a revised Article 3.3 and Article 3.4 activity-triggered structure may be more feasible for a post-2012 outcome than moving to accounting using Convention land-use categories. However, any changes should allow the possibility of moving to more complete accounting of the land sector, as described in section 2.2, in some future commitment period.

There would need to be appropriate treatment of natural disturbances and inter-annual variability before Australia could accept increasing the activities for which Parties must account (see section 1).

Parties should consider whether:

- the activities currently defined in Article 3.3 and Article 3.4 are sufficient; and
- the need for greater clarification and comparability around the inclusion of lands under the Article 3.4 activities.

Australia is open to the consideration of new activities, such as wetland/peatland management, which seeks to include lands where there are anthropogenic emissions and removals which are not covered by existing activities.

There is also a need for the Parties to provide additional guidance with respect to which lands are covered by Article 3.4 activities. Covered lands, for the purposes of accounting, should be lands where anthropogenic activities since 1990 have led to greenhouse gas emissions or removals. This can differ from the 2003 IPCC GPG for LULUCF concept of 'managed lands', as noted under section 2.1 of this submission. There may also be differences in the way individual Parties have applied the concept of managed lands. Additional guidance will help harmonise treatment across Parties' inventories.

### *Suggested changes to 16/CMP.1*

- |                        |   |
|------------------------|---|
| <i>A. Definitions:</i> | <i>possible additions of new Article 3.4 activities;</i>  |
| <i>B.</i>              | <i>possible guidance on how to interpret definitions.</i> |
| <i>C. Article 3.4:</i> | <i>possible additions of new activities.</i>              |

## 2.5 Clean Development Mechanism

Australia is open to considering changes to the treatment of the land sector in the CDM.

These changes should align with the core considerations outlined in Australia's November 2008 LULUCF submission. That is, the response must be rigorous and robust, account for anthropogenic emissions and removals at the time they occur, and be policy relevant.

Australia's views on emissions trading and the project-based mechanisms more broadly are provided in a separate submission.

### *Suggested changes to 16/CMP.1*

- |                       |   |
|-----------------------|---|
| <i>D. Article 12:</i> | <i>revise to extend eligible activities or land-use categories.</i> |
|-----------------------|---|

### **3. Specific issues**

#### **3.1 Harvested Wood Products**

The current approach to accounting for the carbon stored in HWP under the Kyoto Protocol is to assume that the carbon is instantly oxidised in the year of harvest. The problem with this approach is that it is not an accurate reflection of the anthropogenic emissions at the time they occur. It does not recognise that a proportion of the carbon in the forest at harvest is not released into the atmosphere until the wood product decays or is burnt. It also deviates from how accounting is done for all other emissions and removals under the Kyoto Protocol. The accounting rules for HWP should be changed and provide incentives for maximising the time in which carbon is stored in HWP.

New Zealand's 'Emissions to Atmosphere' proposal provides a practical approach which accounts for emissions when they occur and where liability for emissions remains with the producing country. This proposal has potential as a viable accounting treatment for HWP for the post-2012 outcome. We would need to ensure it can be instituted in a manner that does not create a perverse incentive for deforestation in countries not subject to emissions limitations, or reduce incentives for reducing emissions from deforestation and forest degradation in developing countries (REDD).

Australia supports New Zealand's proposal that the approach only be applied to wood products harvested from 1 January 2013 from lands that are covered by a given Party in a post-2012 outcome.

Using an approach such as 'Emissions to Atmosphere' is likely to create an incentive to produce longer lived wood products. It will be necessary to ensure that this does not at the same time create leakage for production of short lived wood products to countries not subject to emissions limitations.

The IPCC should be tasked with developing an appropriate methodology for the Emissions to Atmosphere approach which could be incorporated into IPCC guidelines. Tier 2 country specific data should be used as the input when data is available.

The Parties will need to consider whether HWP should apply to all lands covered by individual Parties after 2012, or an alternative approach.

#### *Suggested changes to 16/CMP.1*

*E. General:                    revise paragraph 21 to include HWP as an additional carbon pool which must be accounted for if appropriate data is available.*

#### **3.2 Afforestation/reforestation harvest sub-rule**

The afforestation/reforestation harvest sub-rule has allowed Parties to manage the risk of higher net emissions resulting from units of land afforested or reforested since 1990 and harvested during the commitment period.

The need for and application of the sub-rule post-2012 will be influenced by decisions on other issues, such as natural disturbance and HWP. The application of the rule post-2012 will need to be reviewed in light of these decisions. We are supportive of the sub-rule continuing, but consider it should not be applied to a unit of A/R land more than once. We consider that Parties who are able to discriminate which lands the sub-rule has applied to should have provision to continue the use of the sub rule in this manner.

If the sub-rule does not continue, then countries who intend to harvest in the second commitment period will be at a disadvantage compared to those who harvest during the first commitment period. At a national scale, this could create a perverse incentive to harvest before the end of the first commitment period.

### **3.3 Soil carbon**

There is broad interest internationally to better explore the role that soil carbon might play in a post-2012 outcome on LULUCF. The current rules provide for accounting for changes in soil organic carbon for all lands subject to Article 3.3 activities and elected Article 3.4 activities.

There remain significant information gaps about the potential to achieve and sustain increases in soil carbon in Australian agricultural systems.

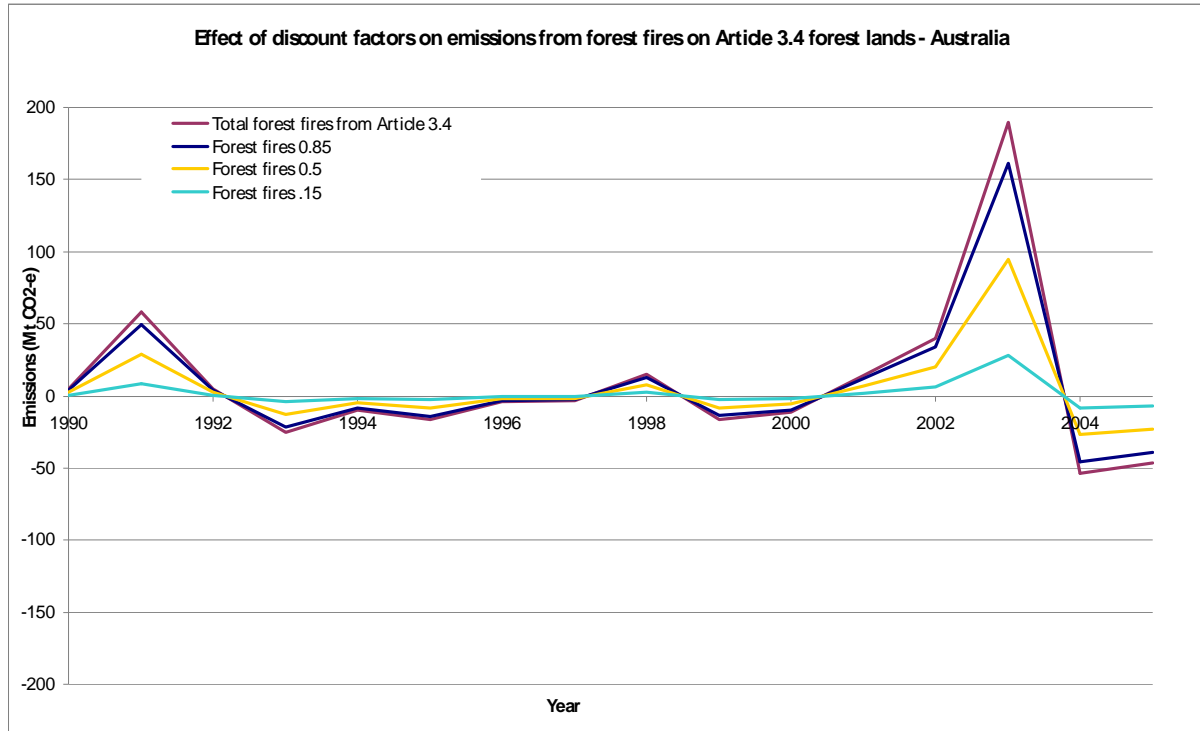
Management strategies such as conservation tillage in cropping systems and establishing perennial pastures in grazing systems could offer soil carbon sequestration benefits under certain circumstances.

Australia's experience shows there is evidence that gradual soil carbon increases could be achieved in high rainfall regions. Research to date indicates that in low rainfall grazing regions and cropping systems, sustained increases are unlikely. There are also risks that gains in any land systems could be rapidly lost through change in land use and management (e.g. a change from pasture to crop) and due to drought.

Australia has committed to improving our understanding soil carbon fluxes, particularly measuring carbon levels in agricultural systems, understanding the impacts of management practices in soil carbon, and the role Australian soils could play in sequestering carbon dioxide from the atmosphere.

## Appendix A – Example application of caps and discount factors (referred to in Section 1.1 Natural disturbance)

**Figure 3.** The effect of discount factors on fire disturbances from forest lands in Australia (uses same data as figure 1 as Australia's November 2008 LULUCF submission). This is presented for illustrative purposes only.



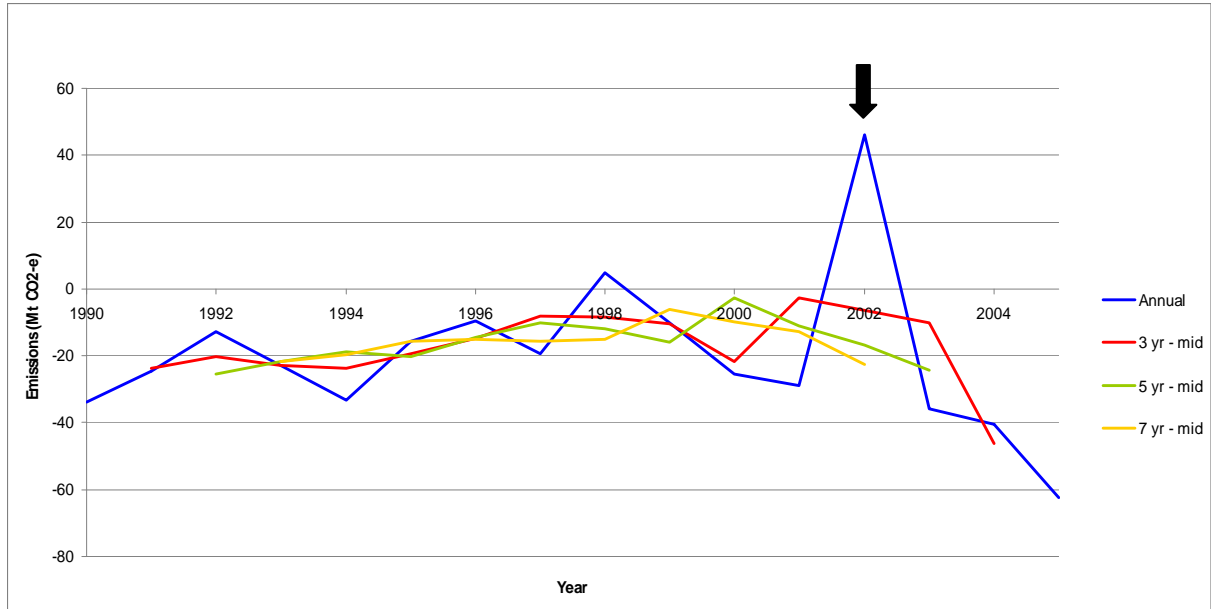
Source: 2005 National Greenhouse Gas Inventory, Department of Climate Change

**Table 2:** Emissions 2001-2005 from forest fires with an arbitrary cap applied annually and at end of commitment period. This table is for illustrative purposes only.

Year	No cap Actual MtCO <sub>2</sub>	Annual cap +/- 20 Mt CO <sub>2</sub>	Commitment period cap +/- 100 Mt CO <sub>2</sub>
2001	14	14	-
2002	40	20	-
2003	190	20	-
2004	-54	-20	-
2005	-46	-20	-
<b>Total</b>	<b>144</b>	<b>14</b>	<b>100</b>

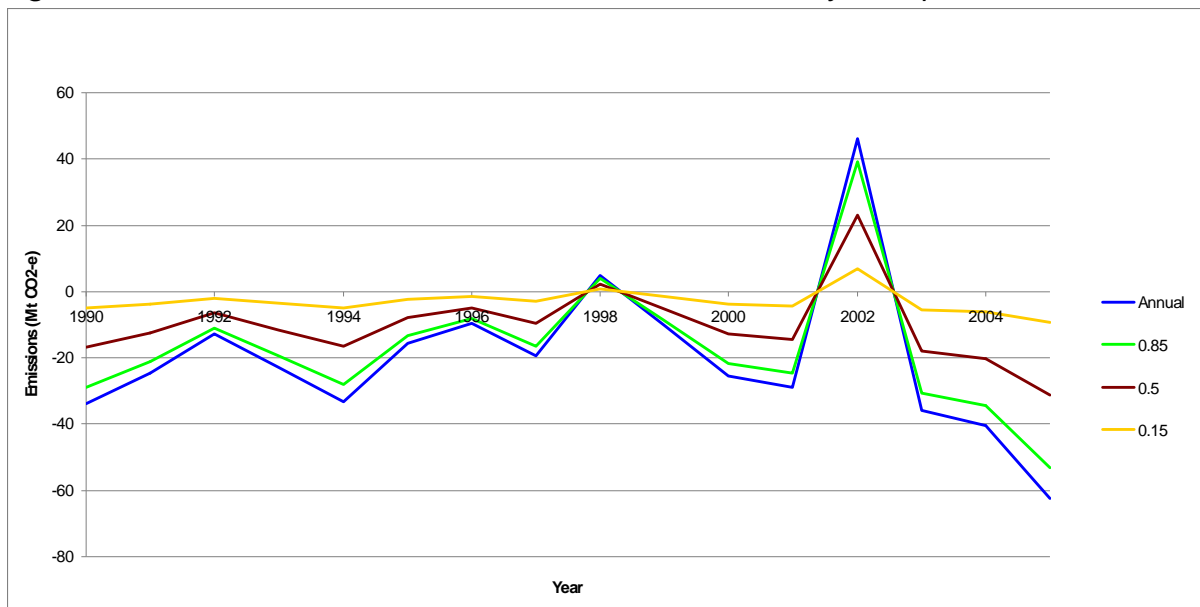
## Appendix B – Example of applying discount factors to address inter-annual variability (referred to in Section 1.2 Inter-annual variability)

**Figure 4.** Carbon stock changes in cropland (1990-2005), showing both annual estimates and rolling averages (mid-point averages of 3-, 5- and 7-year periods)  
(This is a repeat of figure 4 in Australia's November 2008 LULUCF submission)



Source: 2005 National Greenhouse Gas Inventory, Department of Climate Change

**Figure 5.** The effect of discount factors on inter-annual variability in croplands in Australia



Source: 2005 National Greenhouse Gas Inventory, Department of Climate Change



**AUSTRALIA**

**Land Use, Land-Use Change and Forestry (LULUCF) Sector**

**Submission to the AWG-KP and AWG-LCA**

**November 2008**

**Extract from Australia's November 2008 LULUCF submission.**

**A. Major natural disturbance: symmetrical exclusion of emissions and removals from national accounts**

Parties that report using robust, spatially-explicit estimation methodologies are able to clearly identify units of land subject to major natural disturbance events and the changes in carbon-stocks associated with such an event.

Given this capability, Australia submits that Parties using appropriate estimation methods should be able to choose whether to symmetrically include or exclude from their national accounts carbon dioxide emissions and removals from major natural disturbance on all Article 3.4 lands within their accounts. It may also be appropriate for Parties to be able to choose to symmetrically include or exclude emissions and removals from major natural disturbance on Article 3.3 lands, especially if the afforestation/reforestation credit/debit sub-rule is not continued post-2012. A similar approach is currently agreed for UNFCCC inventory reporting in the 2003 GPG for LULUCF<sup>7</sup>.

Clarification would need to be provided around when Parties could appropriately exclude emissions and removals from national accounts. The following issues could be considered in developing an approach:

1. Parties using estimation methodologies with the capability to identify major natural disturbances on units of land could choose to access this provision.
2. Carbon stock changes on the unit of land could continue to be reported to enable transparent monitoring.
3. Credits for removals on a unit of land prior to a loss due to major natural disturbance could be maintained in the Party's national accounts.
4. The unit of land could re-enter a Party's national accounts once the carbon dioxide removals equalled the carbon stock losses from the disturbance event.
5. The provision may apply only to units of land which do not undergo a land-use change from a forest to a non-forest land use. Where a forest to non-forest land-use change occurs as a result of major natural disturbance or following major natural disturbance, the Party could account for the full amount of emissions and removals associated with the disturbance event.
6. The trigger for a reduction in carbon stocks due to a major natural disturbance could be the sum of all carbon pools for that unit of land, specifically:

---

<sup>7</sup> IPCC (2003) Good Practice Guidance for Land Use, Land-Use Change and Forestry, Chapter 3 LUCF Sector Good Practice Guidance, Section 3.2.1.4.2

- If carbon moved from the above-ground biomass pool to the dead wood pool without a change in total carbon stocks (e.g. due to a windthrow event in a forest) the temporary removal of the unit of land may not be triggered.
  - If subsequent decay in the dead wood pool reduced the total carbon stock on that unit of land, and this change was attributed to a major disturbance event, then a Party could exclude the carbon dioxide emissions and subsequent removals.
7. The provision could continue across commitment periods. Parties would need to agree on a year of disturbance before which these provisions would not apply.