AUSTRALIA

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

Submission to the AWG-KP and AWG-LCA

This submission represents Australia's initial views on the treatment of land-use, land-use change and forestry (LULUCF). Australia welcomes the opportunity to submit views on proposals for effectively accounting for greenhouse gas emissions and removals from the land sector toward mitigation commitments in a post-2012 international climate change outcome.

The potential of the land sector to contribute to mitigating climate change is well recognised. However, this potential is not fully realised due to limitations of current rules under the Kyoto Protocol. Parties have an important opportunity in negotiations on a post-2012 outcome to improve upon the current rules and provide a stronger, long-term basis for an international climate change response.

Importantly, the land sector needs to support the objective of the UNFCCC to mitigate climate change by addressing *anthropogenic* emissions by sources and removals by sinks of greenhouse gases. Current accounting rules and modalities for LULUCF do not match commitments under the UNFCCC and Kyoto Protocol to account for only anthropogenic emissions and removals.

Considerations for the treatment of the land sector post-2012

It is necessary to make changes to the current rules so that only human activities that can practicably be influenced are included in the LULUCF sector, as is the case for all other sectors. Otherwise, large variations in Parties' accounts from natural events, over which they have no control, can dictate whether a Party fulfils its commitment.

Methods exist to exclude non-anthropogenic emissions from accounts, and Australia submits that these should be made explicit in the LULUCF accounting rules adopted post-2012.

Accordingly, the treatment of the LULUCF sector in a post-2012 outcome should be based on the following set of core considerations.

1. Emissions and removals from anthropogenic sources only, consistent with the UNFCCC objectives and treatment of other sectors. LULUCF is the only sector with accounting rules that extend to non-anthropogenic emissions (for example, from wildfires and drought).

2. Emissions and removals reported and accounted for at the time and place that they occur: reflecting 'what the atmosphere sees'.

3. A rigorous, robust and comprehensive approach, which strikes a balance between scientific precision, practicality and policy relevance.

4. Cost-effectiveness of policy responses: recognising the need for a comprehensive suite of measures to support mitigation action.

5. Consistency across Parties, while reflecting Parties' national circumstances, and consistent, mutually supportive treatment of land sector issues across the AWG-KP and AWG-LCA.

6. Avoidance of perverse incentives that would lead to negative environmental outcomes in developed or developing countries.

Key issues for Australia

A number of factors, in addition to direct human-induced activities, can affect the changes in carbon stocks in the land sector. These factors can be categorised as: natural disturbance events; inter-annual climatic variability; indirect effects, including CO_2-fertilisation and nitrogen deposition; and legacy effects of pre-1990 activities, particularly age structure of forests.

Each of these factors is materially different, and different responses are needed to manage their implications. This submission elaborates Australia's views on major natural disturbance events (see (A) below) and inter-annual variability (see (B) below), which are of primary importance to Australia. Australia understands that indirect effects and age class structure will also form part of negotiations on a post-2012 outcome.

A more complete and balanced treatment for harvested wood products is also of importance (see (C) below). In addition, Australia would like to work with other Parties to consider improvements to the treatment of LULUCF in the flexibility mechanisms (see (D) below).

A. Major natural disturbance

Major natural disturbances are episodic events that can lead to massive variations in emissions and removals from the land sector. Examples include large wildfires, extensive windthrow and pest outbreaks.

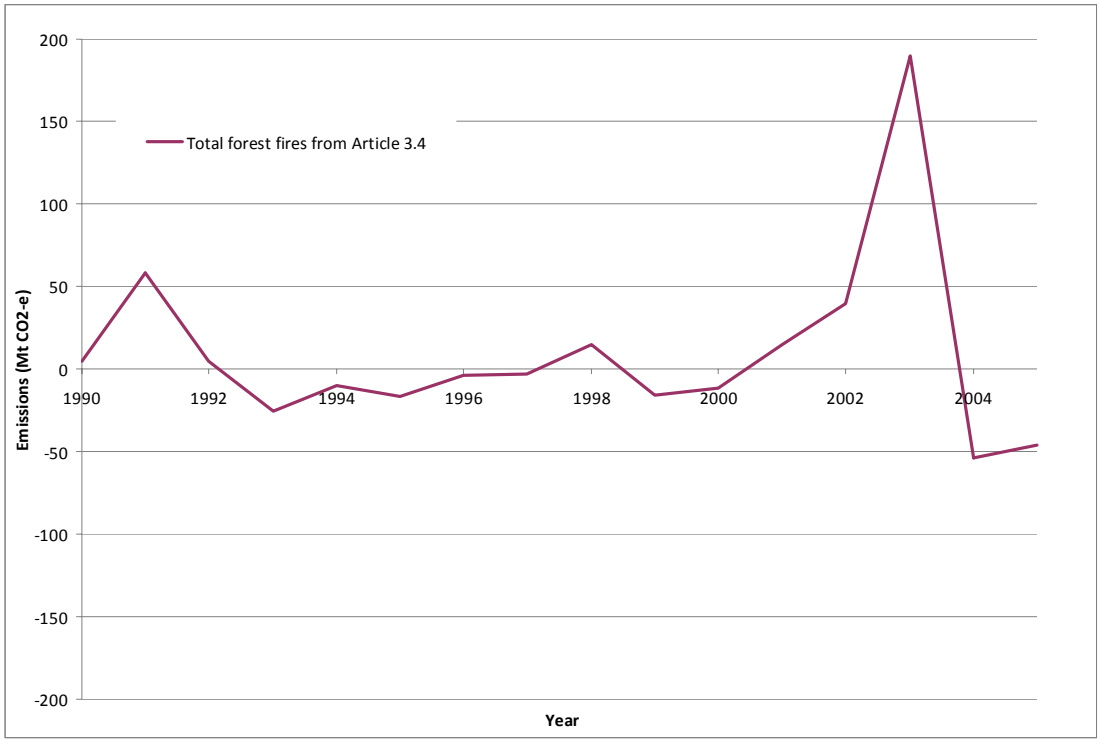
Major natural disturbance events differ from inter-annual climatic variability and require a different accounting approach. Inter-annual climatic variability, discussed later in this submission, is the variation in climatic conditions, such as rainfall, from year-to-year that leads to variations in the rate of net carbon emissions and removals. In addition, natural disturbances which form part of Parties' usual levels of variability, such as minor fires and pest activity should be accounted for and should be a part of Parties' emissions projections.

If the impacts of major natural disturbance events count towards Parties' emissions commitments, then Parties subject to such events may have no control over meeting or exceeding their commitments. The impacts of major natural disturbances can overwhelm emissions reduction efforts from all Annex A sectors, and Parties cannot create a policy response to address or ameliorate these impacts.

Major wildfires in Australia in 2003 caused 190 Mt CO_2-e emissions on Article 3.4 forest lands, overwhelming emissions reductions from all other sectors (Figures 1 and 2). The risk of a large wildfire event during 2008-2012 is why Australia did not elect Article 3.4 activities in the first commitment period. The impacts of natural disturbance and inter-annual variability are particularly evident on Australia's millions of hectares of lands that are subject to Article 3.4 activities (Figure 2).

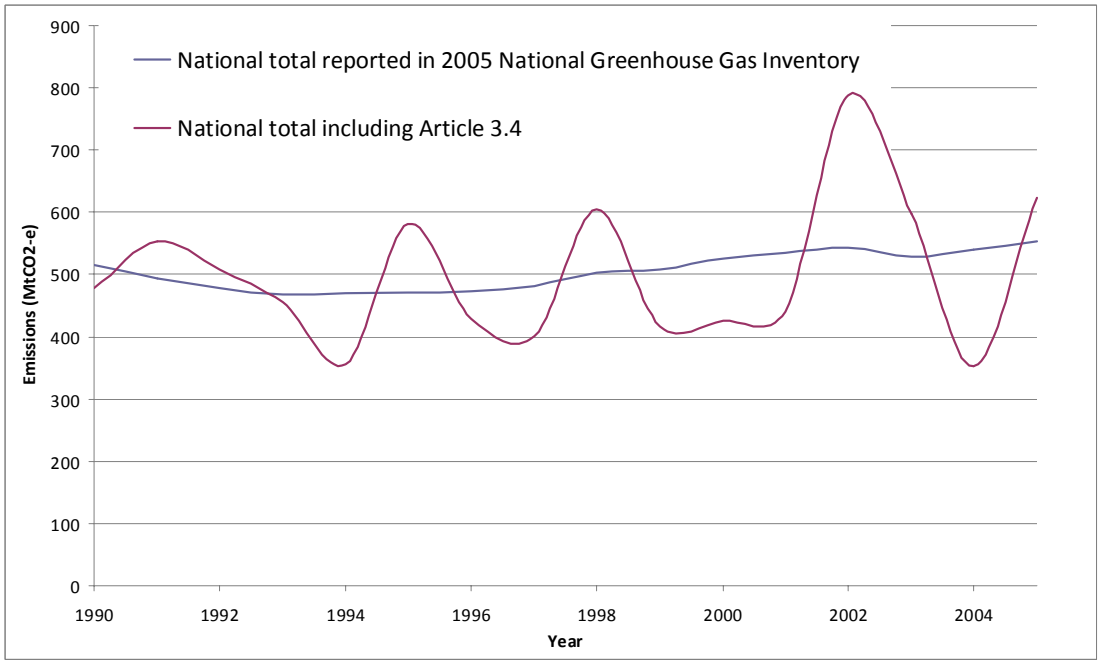
In the absence of approaches to address major natural disturbance in a post-2012 outcome, Australia would be in the same position as for the first commitment period. Australia would be unable to elect any activities under the current Article 3.4, including forest management, due to risk from emissions due to non-anthropogenic events. This would limit the mitigation potential available from Article 3.4 activities. Major natural disturbance effects would also be an issue for Article 3.3 afforestation and reforestation activities under a post-2012 outcome in the absence of continuation of the sub-rule on debits not being greater than credits on a unit of such land.

Figure 1. Carbon stock changes from wildfires on Article 3.4 forest lands in Australia



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

Figure 2. Comparative national emissions of total greenhouse gases for Australia, with and without Article 3.4 emissions. Article 3.4 emissions include the impacts of major natural disturbance (from Figure 1) and inter-annual variability. Most of the variation in the line 'National total including Article 3.4' is from carbon stock changes.



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

Rules under the first commitment period of the Kyoto Protocol require that we include all emissions and removals from natural disturbances in our national accounts. However, current inventory reporting under the UNFCCC allows Parties to choose to symmetrically include or exclude

carbon dioxide removals and emissions from natural disturbances, as per the 2003 Good Practice Guidance (GPG) for LULUCF[1].

We could address this discrepancy and address the impacts of major natural disturbance by applying the UNFCCC inventory reporting approach to national accounts in a post-2012 outcome. This would bring accounting for the LULUCF sector closer to the objectives of the UNFCCC and Kyoto Protocol, as carbon stock changes that are part of a natural cycle should not be credited or debited. In addition, over time, carbon stock losses are replaced by gains through regrowth. However, this cycle of major disturbance and recovery does not occur within a 5- to 10-year commitment period. The attachment provides further detail.

Furthermore, inter-annual averaging of emissions estimates is not an appropriate policy treatment for major natural disturbance events. The scale of such events would require the averaging period to extend over a number of decades, which would impact upon the policy relevance of the approach.

B. Inter-annual variability

Inter-annual climatic variability can significantly affect the rate of greenhouse gas emissions and removals from year to year. Examples include deviations from average temperature and rainfall.

Unless variability is addressed appropriately in national accounts, this can lead to estimates of emissions and removals during a commitment period that do not reflect the trend and over which Parties have no control. This would again undermine the policy relevance of the LULUCF sector.

The overall objective of the UNFCCC is stabilisation of atmospheric concentrations of greenhouse gases. It is therefore important that reporting reflects whether Parties are trending towards or away from such stabilisation, independent of inter-annual climatic variations.

Rules should be agreed to allow Parties to report emissions estimates in a manner that more clearly reflects anthropogenic trends in LULUCF activities. There may be a number of solutions for this.

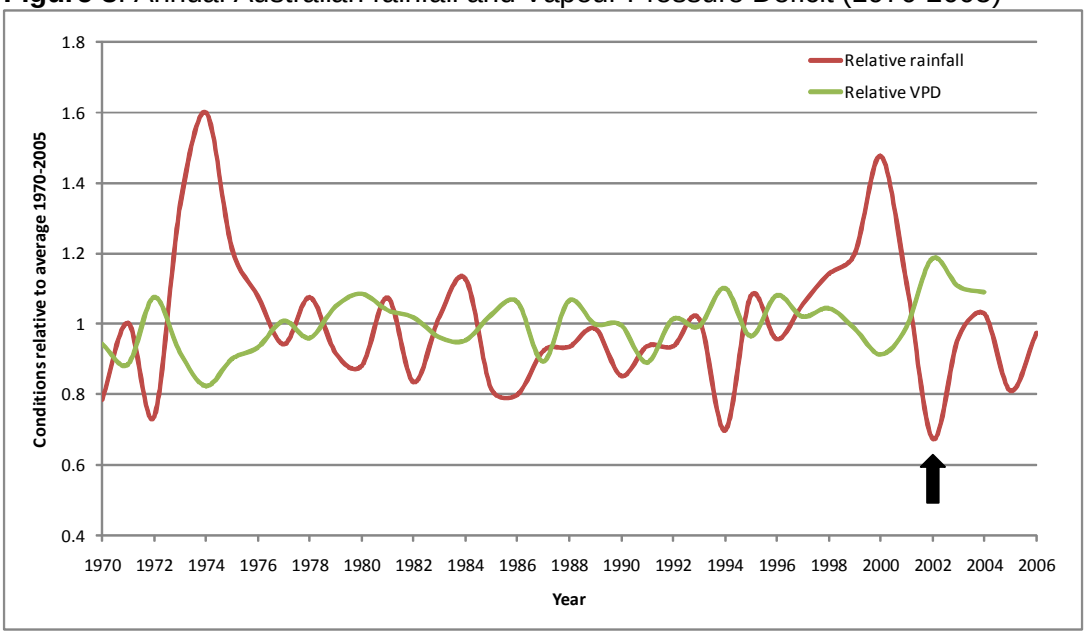
One option would be to allow Parties to report using a rolling average of annual greenhouse gas emissions estimates for the LULUCF sector where Parties use annual climatic data to produce such estimates. This approach would increase comparability between Parties reporting using annual climatic data and those using longer-term averages, as

[1] 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.

elaborated in the attachment. This would provide a solution for inter-annual climatic variability, as the impacts are able to be managed over a policy relevant period.

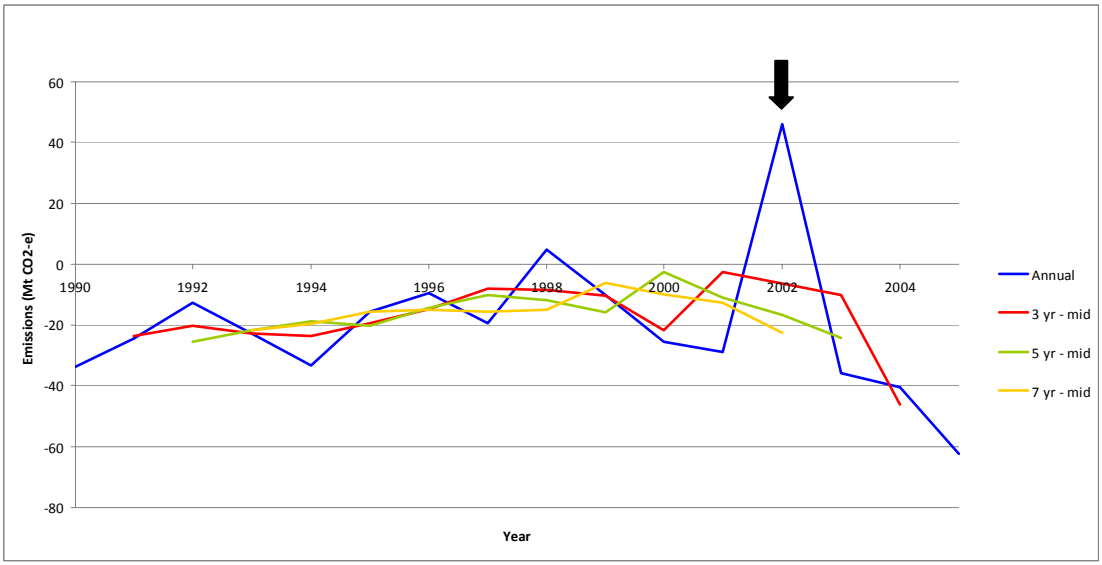
The potential impact of inter-annual variation on Australia's national accounts is another reason for Australia's decision not to elect Article 3.4 activities in the first commitment period. Figure 3 below shows the variation in Australia's annual rainfall from 1970-2005 compared to the mean for that period.

Figure 3. Annual Australian rainfall and Vapour Pressure Deficit (1970-2005)



Source: Department of Climate Change

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)



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

The change in rainfall alone led to around a 70 Mt CO_2-e spike in cropland emissions in 2002, which was recovered in 2003 (see Figures 3 and 4). This spike is significant – roughly 12 per cent of Australia's base-year emissions.

The effect of reporting using a 3-year, 5-year and 7-year rolling average is shown in Figure 4 to illustrate this approach. All averaging flattens the spike in 2002 by spreading its impact across a number of reporting years.

C. Harvested Wood Products

The current approach to harvested wood products assumes instant oxidation in the year of harvest. As part of the stepwise process we are taking in considering LULUCF issues, Australia will be seeking to review this current approach to better reflect the potential contribution harvested wood products can make in Parties' accounting.

Emissions and removals should be reported and accounted for at the time and place they occur. In addition, the presence of existing carbon stocks which store carbon but do not impact upon the atmosphere should be excluded from accounting. Accounting methodologies also need to be practical and avoid the potential to create incentives for deforestation in developed or developing countries.

Australia will be actively seeking a post-2012 outcome that includes a more complete and balanced accounting approach for harvested wood products. The driver for an improved accounting treatment is to ensure national inventories more accurately reflect *what the atmosphere sees*. Australia considers that changes to the approach to harvested wood products must be soundly based in science, support national policies that promote continuous improvements in forest management, and provide appropriate incentives to reduce emissions.

D. LULUCF in the flexibility mechanisms

The uptake of LULUCF activities in the clean development mechanism could be promoted through reviewing the restrictions on the permanence of Kyoto units related to the LULUCF sector. The use of robust, spatially-explicit estimation methodologies would deliver greater confidence in the measuring, verifying and monitoring of emissions reductions and potentially allow for greater equivalence among Kyoto unit types.

Australia's views on the flexibility mechanisms more broadly are provided in a separate submission.

ATTACHMENT

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[2].

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.

[2] 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

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:
   - If carbon moved from the above-ground biomass pool to the dead wood pool without a change in total carbon stocks (eg. 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.

B. Inter-annual variability: increasing comparability between inventories

Australia suggests that one approach to create greater comparability between Parties' national accounts is to allow those Parties that use annual climatic data to estimate emissions and removals on units of land, to report using a rolling average.

The IPCC 2003 GPG for LULUCF states that it is good practice for Parties to report estimates based on either annual climatic data or longer-term averages, such as average environmental conditions or growth functions[3]. These two good practice methods have very different impacts on the influence of climatic variations on Parties' accounts. Parties using an annual approach will have accounts with larger fluctuations from inter-annual climatic variability than Parties using longer-term averages. Not all estimation methods can use longer-term averages in climatic data. For example, spatially explicit, process-based models require at least annual climatic data.

Rules should be adopted to allow Parties to report estimates of emissions and removals using rolling averages over a period appropriate to ensure that a Party can establish a trend reflecting anthropogenic changes. In this way, Parties' national accounts would more comparably reflect changes in activity data and some of the artefacts of choosing different good practice estimation methods would be removed. Reporting using an average is provided for in the Revised 1996 IPCC Guidelines[4] for the Agriculture and Land-Use Change/Forestry categories.

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[3] IPCC (2003) Good Practice Guidance for Land Use, Land-Use Change and Forestry, Chapter 4 Supplementary methods and good practice guidance arising from the Kyoto Protocol, Section 4.2.3.7.

[4] IPCC (1996) Revised IPCC Guidelines for National Greenhouse Gas Inventories. Volume 1 Greenhouse Gas Inventory Reporting Instructions, Chapter 2, Reporting the National Inventory, Table 2-1, page 2.3