



The Wilderness Society Inc

Submission to the Garnaut Review Issues Paper 1 Climate Change: Land Use – Agriculture and Forestry

Preamble

This submission is a response to Issues Paper 1 on Land Use, Agriculture and Forestry released by the Garnaut Climate Change Review. The submission focuses on major opportunities for climate mitigation activities in this sector. It also raises a number of matters not covered in the Issues Paper and canvasses proposed climate mitigation activities which may have serious perverse carbon outcomes and or cause serious damage to other environmental values such as biodiversity.

The Wilderness Society is a not for profit environmental organisation whose purpose is to protect, promote and restore wilderness and natural processes across Australia for the survival and ongoing evolution of life on Earth.

The Wilderness Society supports scientific research in the conservation field and has given research grants to the Australian National University to assist research into the role of natural ecosystems in the carbon cycle.

This research is ongoing. Results of the first phase are outlined in “*The Role of Natural Ecosystems in Carbon Storage: the Green Carbon Accounting Problem: Summary of Results from a case Study of Australia’s South East Eucalypt Forests and Policy Implications*” 2008 (in press) by Brendan Mackey, Heather Keith and Sandy Berry, Research Report ANU Enterprise Pty Ltd.

Summary recommendations from this submission can be found on pages 20 - 24.

Contact:

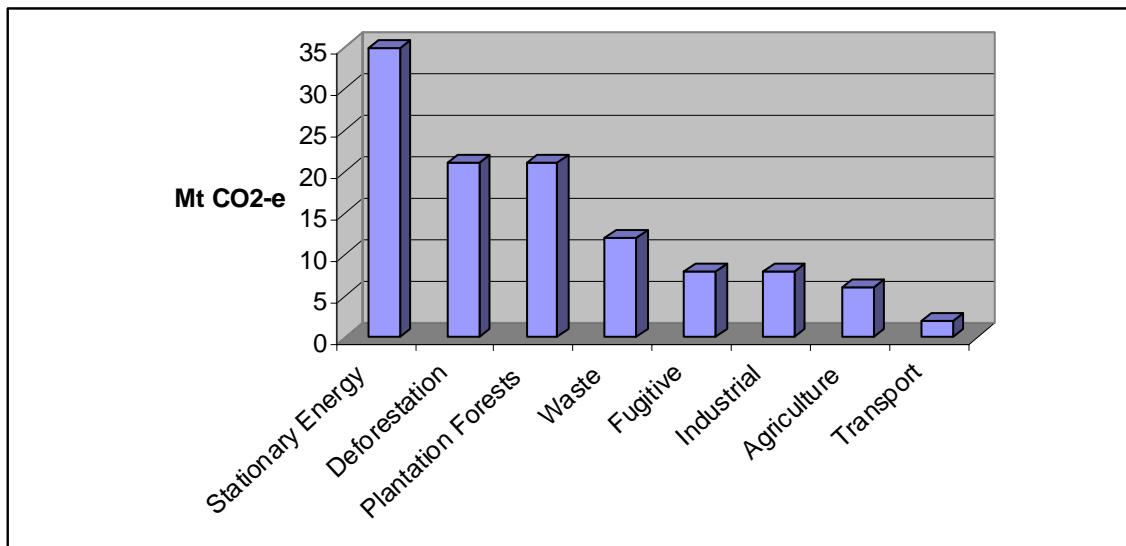
Alec Marr
Executive Director
The Wilderness Society Inc
alec.marr@wilderness.org.au
PO Box 188, Civic Square, ACT, 2608

1. Mitigation, Carbon Sinks and Offsets – Opportunities.

a) Prevention of Land Clearing and Conversion

As the Issues Paper notes, it is assumed that by ending broadscale landclearing (notably in Queensland but also in NSW) the Kyoto target negotiated for Australia by the previous government of 108% of 1990 levels by 2012 will be met.

Figure 1



Predicted emissions reductions below business as usual by 2008-2012 - Australia. (Tracking the Kyoto Target, AGO)

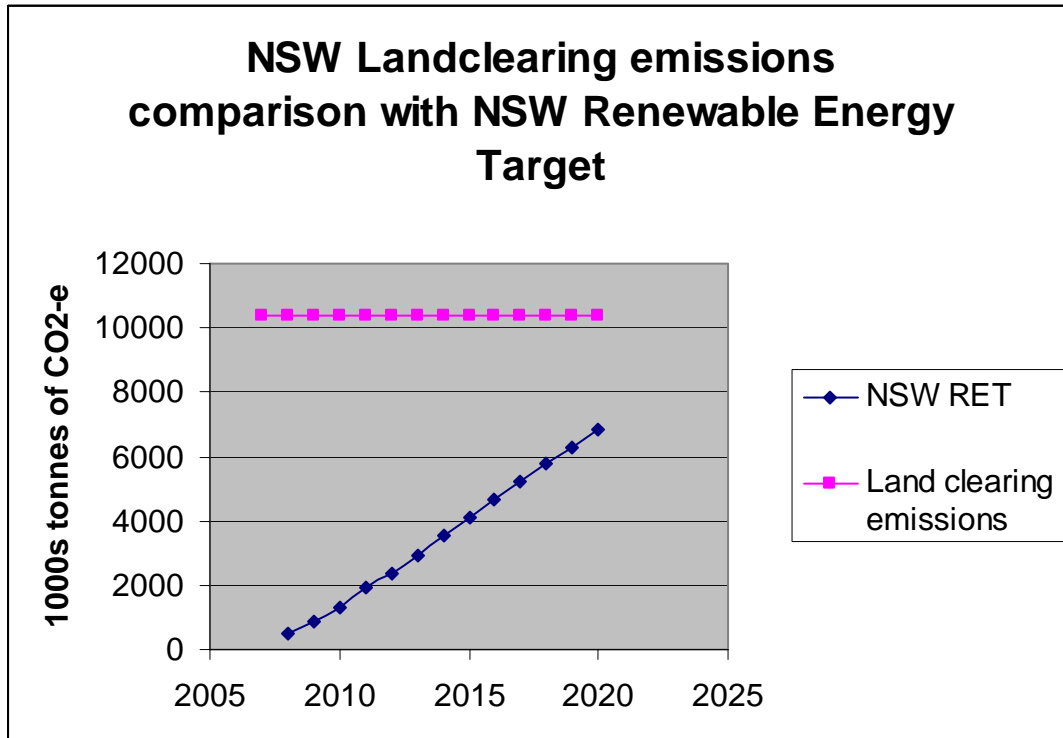
Land use and agriculture are important components of any efficient greenhouse mitigation strategy. Figure 1 illustrates the predicted results of measures undertaken by federal and state governments in reducing greenhouse gas emissions.

However, significant emissions from land clearing are still occurring due to a poor regulatory framework and inadequate enforcement of land clearing regulations by the NSW Government; an inappropriate legal framework to protect regrowth and ongoing illegal clearing, in QLD; and unaccounted for emissions from converting native forests to plantations.

Land clearing in NSW accounts for nearly 2% of Australia's emissions and over 6% of NSW emissions. However, in NSW the regulatory and administrative framework required to control these emissions appears to have collapsed. Given the time lag between a land clearing event and the greenhouse gas emissions that result, it is likely that uncontrolled landclearing will result in

emissions well into the Kyoto commitment period 2008-2012. This may well jeopardize Australia's chance of meeting its Kyoto Target.

Figure 2



NSW Landclearing Emissions

Source. <http://www.deus.nsw.gov.au/Publications/NRET%20Explanatory%20Paper%20FINAL.pdf> and State and Territory Greenhouse Gas Inventories 2005.

As can be seen in Figure 2, if landclearing emissions in NSW continue at current rates they will far outstrip the emissions reductions promised by the NSW Government through its state based renewable energy target. This is the NSW Government's biggest climate change initiative to date.

The NSW Auditor General estimates that between 1998 and 2005 inclusively, the NSW Government approved 639,930 hectares for clearing under the native vegetation legislation. These estimates are highly conservative and the true rate of clearing is likely to be substantially higher (see Attachment A). Due to inadequate or uncertain public data, this figure does not include the number of hectares cleared as a result of illegal clearing that occurred from 1998 to 2005, or as a result of exemptions from clearing (ie legally permitted clearing that does not need an approval)¹.

¹

http://www.audit.nsw.gov.au/publications/reports/performance/2006/native_vegetation/native_vegetatio

Clearing is also occurring in NSW under the banner of 'Private Native Forestry. There are currently 319 existing logging approvals on private land, covering an area of 188,000 hectares under the NVC Act 1997 that will not be required to abide by the new Code of Practice for Private Native Forestry. Landholders are able to clear under these approvals. The new Code of Practice for Private Native Forestry also has serious flaws.²

As well, the issue of clearing so called Invasive Native Scrub (INS) needs to be re-examined. Approval is not required when clearing INS that has regrown since 1 January 1990 in the Eastern or Central Division, or since 1983 in the Western Division. There are over forty native plant species listed as INS in NSW.³

We were unable to obtain figures for this submission on the level of illegal clearing in QLD for which 20-80 reports are received each year. Although clearing remnant forests and woodlands officially ceased in Queensland on the 1st of January 2007, extensive clearing of 'regrowth' forests and woodlands is still permitted under the terms of the Vegetation Management Act 1999 (Qld).

The latest figures produced by the Queensland Department of Natural Resources and Water through the *Statewide Landcover and Trees Study (SLATS)* indicates that during the reporting period of 2004/5 approximately 179,000 hectares of 'regrowth' vegetation was cleared throughout Queensland⁴.

Verbal advice provided by the Queensland Herbarium indicates that as much as 14 million hectares of vegetation in Queensland (two times the size of Tasmania) is classed as 'regrowth' and is nominally available for landclearing. The clearing of this vegetation would lead to significant and ongoing release of greenhouse gasses.

The Queensland Government through its *Climate Smart 2050* initiative is presently developing a Queensland Carbon Offsets Policy which will "*position Queensland to benefit from all possible offset opportunities that will be available through a proposed national emissions trading scheme..... As part of this policy, the government will investigate the potential for regrowth vegetation on freehold and leasehold land to be utilised as a carbon offset.*"⁵

The Wilderness Society welcomed the voluntary purchase by Carbon Pooling Inc. in 2006 of the clearing rights to 13,000 hectares of bush in Queensland to protect the carbon stored in this vegetation. The Australian Greenhouse Office 'credited' 1 million tonnes of CO₂ emissions saved. The landowner was paid \$9.00 per tonne to protect the carbon stock.

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² Question asked on 25 October 2007 (session 541) and published in Questions & Answers Paper No. 24. Answer received on 29 November 2007 and published in Questions & Answers Paper No. 33.

³ http://www.nativevegetation.nsw.gov.au/fs/fs_09.shtml

⁴ http://www.nrw.qld.gov.au/slats/pdf/slats_0405.pdf

⁵ *Climate Smart 2050: Queensland Climate Change Strategy 2007: a low carbon future*, QLD Government, 2007, page 22.

http://www.thepremier.qld.gov.au/library/pdf/climate/ClimateSmart_2050_2.pdf

Broadscale clearing of carbon dense forests in Tasmania continued well past the time projected by the Federal government for it to end. Emissions from this clearing, which averaged at least 10,000 hectares per year between 1997 and 2006, have never been accounted for. On average, emissions would not have been less than 160 tonnes per hectare and for converted, wet, old growth forests would have been as high as 1,200 tonnes of carbon per hectare. Highly productive, resilient, natural carbon stores were replaced by low carbon storage, short rotation plantations resulting in a serious permanent carbon loss. Up to 80% of the vegetation destroyed in clearing operations was windrowed and burnt, significant soil carbon stores were lost and the predominant wood product was woodchip for paper production with an expected carbon storage life of three years⁶.

Similarly on the Tiwi Islands, no attempt was made to account for the carbon impacts of replacing the significant carbon stores held in old growth forests with short rotation pulp plantations. Some 26,000 ha has been cleared since 2001 and converted to plantations with CO₂ emissions in the order of 13 million tonnes⁷. It is proposed to clear another 40,000 ha on Tiwi and Bathurst Islands. Unless this policy failing is addressed (and inappropriate taxation incentives removed) there is potential to release millions of tonnes of CO₂ into the atmosphere from similar broadscale clearing across the 144 million hectares of the most intact tropical savannah woodland left on Earth, in Northern Australia.

See Mackey, *et al* 'Green Carbon: the Role of Natural Ecosystems in Carbon Storage', 2008 for an analysis of the carbon carrying capacity of natural versus industrial forests (see footnote 12).

A fresh look at the contribution to CO₂ emissions from land clearing (including from conversion of native forests and woodlands to plantations) is required. Broad scale clearing and conversion of native forests and woodlands should be banned or otherwise actively discouraged.

Currently, there is no incentive for farmers to conserve regrowth forests and woodlands which are themselves significant carbon stores and have significant carbon sequestration potential. The New Zealand approach which aims to encourage farmers to protect and restore remnant and re-growth natural vegetation is worth examining. Encouraging restoration of biodiverse and therefore more resilient long term, natural carbon stores is a preferable option to encouraging further plantation establishment for wood production (especially as Australia already has enough plantation wood supply to meet all its timber needs⁸).

Any move to introduce broadscale tree clearing to currently intact landscapes, such as the tropical savannah forests and woodlands of Northern Australia, should be vigorously opposed and policy settings developed to maximize protection and restoration of native vegetation carbon stores.

It is also important to note that vegetation loss has a direct impact on local climate. Research by

⁶ Jaako Poyry Consulting: Technical Report no. 24. Date not available. Analysis of wood product accounting options for the National Carbon Accounting System. Report for the Australian Greenhouse Office.

⁷ ABC Radio Background Briefing: Timber, *Tax and the Tiwis*, 16 September 2007.

⁸ Ajani, J, 2007, *The Forest Wars*, Melbourne University Press.

McAlpine and his team from Queensland University⁹, clearly establishes that land clearing has increased the severity of regional droughts. “Policy needs to recognise that ... broad scale clearing of native vegetation cover has a strong influence on climate in addition to (releasing) greenhouse gases. Protecting and restoring Australia's native vegetation therefore needs to be a critical policy and management consideration in mitigating the effects of climate change.”¹⁰

It may be desirable to include regrowth vegetation as an offset in any future National Emissions Trading Scheme to encourage further reductions in emissions from land clearing and to facilitate improvements in overall ecological services and biodiversity protection.

However, there is a lack of reliable information outlining the carbon characteristics of different vegetation communities. A proposal to undertake detailed carbon analysis of vegetation types is presently under consideration by the Queensland Minister for Sustainability, Climate Change and Innovation.

We strongly encourage the Queensland Government and other governments to fund this invaluable research to determine the carbon storage and sequestration capacity of Australia's vegetation types including remnant and regrowth vegetation.

b) Managing Fire

Few formal assessments of the impacts of changing fire regimes on carbon storage and emissions have been conducted.

Assessments of the impact of the intense 2003 fires in South Eastern Australia suggest that recovery time for the carbon lost could be in the order of two to three years. This surprisingly short time is because soil carbon is not significantly disturbed and any trees killed are likely to remain as carbon stores (either as dead standing timber or charcoal). Too frequent, high intensity burns would no doubt change the composition of forests, making them drier, more fire prone and over time less carbon dense.

It is noteworthy that in 2003 Dean *et al*¹¹ found that in mountain ash forests (which unlogged can store between 1,200 and 2,500 tonnes of carbon per hectare^{10, 12}) soil carbon was on average: 670 tonnes per hectare in unlogged forest; 654 tonnes per hectare after a stand replacement fire; and 97 tonnes per hectare after logging.

⁹ McAlpine, C, Syktus, J, Deo, R *et al*, 2007, Modeling the Impact of Anthropogenic Land Cover Change on Australia's Regional Climate, *Geophysical Research Letters*, accepted September 2007.

¹⁰ *Ibid*, executive summary page i.

¹¹ Dean C, Roxburgh S, Mackey B, 2003, Growth modeling of *Eucalyptus regnans* for carbon accounting at the landscape scale, in *Modelling Forest Ecosystems*, eds A Amaro, D Reed, P Soares, CAB International.

¹² Mackey B, Keith H, Berry, S, 2008 (in press), The Role of Natural Ecosystems in Carbon Storage: the Green Carbon Accounting Problem: Summary of Results from a case Study of Australia's South East Eucalypt Forests and Policy Implications”, *Research Report ANU Enterprise Pty Ltd*.

Active, ecologically appropriate, fire suppression may be a desirable policy option as would minimizing activities which dry out the forest and make them more fire prone. Industrial-scale logging has just such a drying out impact. Fire histories in regrowth forests indicate that fires are markedly more frequent and intense than fires in old growth forests. Mature forest systems hold more moisture in the soil and therefore have an increased likelihood of suppressing fire. Old growth, wet forests are naturally fire suppressing.

The tropical savannas of northern Australia are subject to frequent and extensive fire.

These fires produce substantial emissions of greenhouse gases. At the national level it is estimated that savanna burning contributes about 3% of Australia's total greenhouse gas emissions. At the regional level it is estimated that fire in the savannas contribute 50% of the Northern Territory's countable emissions¹³.

Using fire as a land management tool has an important ecological function and also brings important cultural and subsistence benefits to Indigenous communities and should continue into the future.

However the application of fire can have significantly different greenhouse gas implications dependent on the timing of the fire event. For example, fire in the late dry season will be more intense and will release significantly more greenhouse gases than fire applied in the early dry season.

At present the Australian Greenhouse Office contends that savanna burning is carbon neutral, however recent research in northern Australia suggests that the tropical savannas become carbon sinks if fire regimes are transferred from the late dry season to the early dry season⁸.

The recognition that changed fire regimes will reduce emissions, in turn provides economic and commercial opportunities to landowners in northern Australia, particularly indigenous landowners who are desperately in search of new economic development and income generation opportunities.

An important example of these commercial benefits is the West Arnhem Land Fire Abatement initiative. This initiative involves the re-introduction of early dry season burning practices by traditional owners with the goal of reducing fire-related emissions by an estimated 100,000 metric tonnes of CO₂ equivalents. In return, traditional owners receive \$1 million per annum funding and support to implement changed burning practices through an offsets scheme with Darwin's largest liquefied natural gas facility, Darwin Liquefied Natural Gas, owned by the world's fifth largest oil company, Conoco-Phillips.

This scheme demonstrates the commercial opportunities for local communities and greenhouse emission reductions through changed fire practices in the tropical savannas.

¹³ Woinarski J, Mackey B, Nix H, Traill B, 2007, The Nature of Northern Australia: natural values, ecological processes and future prospects, ANU E-Press.
http://epress.anu.edu.au/nature_na_citation.html

During the 2007 Federal Election, the Australian Labor Party announced as part of its Northern Australia policy, a \$10 million policy to support the establishment of a legal framework for the creation of carbon credits from altered fire management.

This initiative is welcomed.

Any emissions trading scheme should include savanna fire management to encourage fire in the early dry season.

c) Northern Australia and other Intact Landscapes

As the world's largest, intact region of tropical savanna, Northern Australia offers significant opportunity to engage in the emerging carbon economy and to set policies which protect its immense carbon stocks.

Northern Australia is defined to include the regions of the Kimberley, the Top End of the Northern Territory, the Gulf Country and Cape York Peninsula, extending south into north-central Queensland, around and including the Einasleigh Uplands. This covers an area of approximately 1.5 million square kilometres.

The international and national conservation significance of the natural environment of northern Australia has recently been documented in an independent scientific assessment produced by a number of leading Australian ecologists¹⁴. This report has identified the global conservation significance of;

- the extent and health of the northern Australian tropical savannah (including native grasslands);
- the outstanding health and abundance of tropical rivers, waterways and associated hydro-ecological processes such as wetlands and the interface between groundwater and surface water; and
- the abundance of biological diversity.

Measures to combat the impacts of climate change in Australia should ensure the maintenance of the health and resilience of these globally important ecological processes and features of northern Australia.

During the past 18 months, a number of high profile advocates, including senior members of the former Federal Government, have suggested that one response to the projected reduction in agricultural production in southern Australia due to reduced rainfall associated with climate change would be to move agricultural production into those areas of relative rainfall abundance, such as northern Australia.

This strategy should be resoundingly rejected for a range of environmental and economic reasons including the extreme variability of rainfall patterns, negative impacts on ecosystems and

¹⁴ *Ibid*

ecological processes, the low fertility of dominant soil types and the lack of suitable transport infrastructure.

From the perspective of reducing greenhouse gas emissions, the expansion of broad acre agriculture in northern Australia would require substantially increased landclearing of existing tropical forests, woodlands and grasslands with significant CO₂ impacts.

Developing a policy framework and economic incentives to protect intact landscapes should form a critical part of any strategy to minimize future emissions.

As a first principle the review should recommend strongly against the expansion of broad acre landclearing throughout remnant forests, woodlands and grasslands across northern Australia and other intact landscapes, including for the establishment of forestry plantations and biofuels initiatives involving the clearing of native forests, woodlands and grasslands.

d) Plantation Forestry

While net carbon benefits may accrue from the establishment of plantations for wood production on already cleared land, full carbon accounting needs to apply to this sector if it is included in an emissions trading scheme.

As the carbon in natural forests has longer residence times and natural systems are more resilient to environmental perturbations, there would be a far greater sequestration/climate mitigation benefit from encouraging restoration of carbon stocks in natural forests and woodlands than in encouraging further plantation establishment for wood production.

Plantations store much less Carbon per hectare at around 122 tonnes per hectare¹⁵ than natural forests where values can be as high as 1,200 – 2,500 tonnes per hectare^{16, 17}.

Plantations are included within the Kyoto Protocol and there is considerable political momentum to include them as offsets in Australia's Emissions Trading System. However, greater climate benefits would come from protecting existing forests.

As noted in the Stern Review:

“Depending on the species, a tree may take 100 years to reach maturity, and much more land would have to be allocated for new forests to obtain the same amount of carbon absorption as would be released from burning an existing forest of mature trees. The

¹⁵ National Carbon Accounting System Technical Report 17, AGO 2000.

¹⁶ Dean C, Roxburgh S, Mackey B, 2003, Growth modeling of *Eucalyptus regnans* for carbon accounting at the landscape scale, in *Modelling Forest Ecosystems*, eds A Amaro, D Reed, P Soares, CAB International.

¹⁷ Mackey B, Keith H, Berry, S, 2008 (in press), The Role of Natural Ecosystems in Carbon Storage: the Green Carbon Accounting Problem: Summary of Results from a case Study of Australia's South East Eucalypt Forests and Policy Implications”, *Research Report ANU Enterprise Pty Ltd*.

biodiversity and other co-benefits of new forests are also likely to be much lower than those for natural forests. For these reasons, international support for action to protect existing forests should be kept distinct from the creation of new forest, though the latter is also important.”

The opportunity to focus climate mitigation strategies on the restoration and protection of natural forests is provided by Australia’s extensive plantation estate.

Plantations now produce 80% of Australia’s processed wood products. Native forest sawmilling has been reduced to a remnant market-share. We have enough plantation wood supply to meet almost all our domestic timber needs and to develop a strong export oriented timber industry¹⁸. Hardwood plantations could entirely replace native forest woodchip exports.

Because processing is the richest source of employment in the forest industry most current timber worker jobs are generated by the plantation processing industry.

While Australia has a trade deficit in timber products arising mostly from imports of pulp and paper¹⁸, a trade deficit on an individual commodity is not an issue for employment or economic growth because Australia’s comparative advantage lies in other products and commodities. Appropriate investment in processing in the plantation sector could eliminate Australia’s entire forest products trade deficit.

e) Protection and Restoration of Native Forests

Globally, around 2,000 Gt of carbon is estimated to reside in terrestrial ecosystems, with around 75% of this stored in natural forests. However, at least 50% of the world’s forests have been cleared and much of the remaining natural forest estate has been damaged. The carbon carrying capacity of the Earth’s forests is therefore substantially below their natural carbon carrying capacity.

The role of forests in helping to regulate CO₂ in the atmosphere will become increasingly important (and potentially critical) as concentrations in the atmosphere increase over the next century. Forests provide us with the predominant regulatory mechanism available in the short to medium term.

Preventing carbon emissions from deforestation and forest degradation will have the added benefit of maximising the potential of forests to store “green carbon” – both crucial elements in the global response to climate change.

To understand the role that natural forests could play it is necessary to have a much more accurate picture of the carbon carrying capacity of natural forests. The results of recent research

¹⁸ Ajani, J, 2007, The Forest Wars, Melbourne University Press.

into the carbon carrying capacity of Australia's eastern forests¹⁹ demonstrate that current estimates (which are based on mensuration plots in plantation and young regrowth forests) significantly underestimate the potential for these forests to sequester and store carbon.

For example, using the IPCC default figures for temperate forests of 60 tonnes per hectare, the carbon carrying capacity of the 15 million hectares covered in the study would be around 1 billion tonnes, whereas the recent field-based assessment by Mackey *et al* establishes the average carbon carrying capacity at 670 tonnes per hectare (10 times the IPCC default figure) or a total of 10 billion tonnes²⁰.

Research is continuing into the sequestration potential of these forests but preliminary, indicative results suggest it is substantial.

Global research has established that when previously unlogged forests are brought into commercial production there is a 'permanent' loss of 40-60% of the carbon previously stored in those forests (depending on the intensity of logging)^{21, 22}. It is important to note that it typically takes at least 150 years to recapture 90% of all the lost carbon.

From a climate change perspective, forest degradation needs to be defined as any land use activity that reduces the carbon stock below its natural carbon carrying capacity. The impact of commercial logging must therefore be considered a 'degrading' process and be fully accounted for in national carbon accounts and in any emissions trading scheme. Clearly there is a substantial opportunity cost associated with continuing to log natural forests.

It is important that the market receives signals which reflect the carbon storage value of the forests. Establishing a carbon tax or, alternatively, carbon property rights which could be purchased should be considered. Policies which encourage a transition out of industrial scale logging should be developed.

When a forest is logged much more carbon is released than just the logs that are removed. The branches the roots and other trees are left to be burned or rot, emitting substantial amounts of CO₂. Forestry Tasmania research showed that just the post logging regeneration burns release over 200 tonnes of Carbon per hectare.

¹⁹ Mackey B, Keith H, Berry, S, 2008 (in press), The Role of Natural Ecosystems in Carbon Storage: the Green Carbon Accounting Problem: Summary of Results from a case Study of Australia's South East Eucalypt Forests and Policy Implications", *Research Report ANU Enterprise Pty Ltd*.

²⁰ Mackey B, Keith H, Berry, S, 2008 (in press), The Role of Natural Ecosystems in Carbon Storage: the Green Carbon Accounting Problem: Summary of Results from a case Study of Australia's South East Eucalypt Forests and Policy Implications", *Research Report ANU Enterprise Pty Ltd*.

²¹ Brown, S, Schroeder, P, Birdsey, R, 1997, Aboveground biomass distribution of US eastern hardwood forests and the use of large trees as an indicator of forest development, *Forest Ecology and Management*, 96, 37-47.

²² Roxburgh, S, Wood S, Mackey B, Woldendorp, G, Gibbons, P, 2006, Assessing the carbon sequestration potential of managed forests: a case study from temperate Australia, *J Appl Ecology*, 43, 1149-1159.

2. Forest and Wood Products.

The issue of long term storage of carbon in wood products is vexed and crediting carbon stored in such products would result in distorted and/or perverse outcomes while ever current approaches to carbon accounting in forests prevail.

The proportion of any logged natural forest which ends up in medium or long term wood products is very small. 80-90% of native forests logged end up exported as woodchips for paper production. Industry analysts acknowledge that on average, carbon stored in paper is returned to the atmosphere within three years²³.

Recent FOI requests in Victoria reveal that more than 85% of the 1.59 million cubic metres of the state's native forest logged last financial year was turned into woodchips, sawdust and waste. The sale of wood products earned the state government a \$17,000 net loss with woodchips fetching about \$10 a metric tonne for the state's coffers.

Tasmania remains the native forest woodchip mecca of Australia and this situation will deteriorate if the proposed pulp mill by Gunns Limited goes ahead.

At full capacity, Gunns' proposed pulp mill in Tasmania would consume 4.5 million tonnes of wood per year, 4 million tonnes²⁴ for pulping and 0.5 million tonnes for burning to generate electricity in a wood fired power station²⁵. At start-up Gunns' has indicated that 80% of this wood will be sourced from Tasmania's native forests²⁶. These figures are on top of the 3 million tonnes of woodchips already exported from Tasmania.

Highly conservative estimates indicate that the pulp mill will cause emissions of 10 Mt CO₂ per annum, equivalent to 2% of Australia's total.²⁷ If native forest wood is used for longer or in higher proportion than currently proposed, total emissions will be much higher. The older the forests are, the worse the problem in terms of carbon release.

It is important that all proposed major forest based industries be assessed for their net carbon impact including the CO₂ opportunity costs associated with any development. At a minimum the EPBC Act should be amended to require assessment of major projects for their greenhouse implications.

Apart from the fact that paper is by far the predominant wood product from Australia's native forests, much of a tree, including the branches, stump and roots is left in the forest to rot or to be burned and is thus released quite quickly into the atmosphere.

²³ Jaako Poyry Consulting: Technical Report no. 24. Date not available. Analysis of wood product accounting options for the National Carbon Accounting System. Report for the Australian Greenhouse Office.

²⁴ Gunns Ltd (2006) Bell Bay Pulp Mill, Integrated Impact Statement, Executive Summary.

²⁵ Gunns Ltd (2006) Bell Bay Pulp Mill, Integrated Impact Statement. Transport and Traffic Assessment, p.69.

²⁶ Gunns Ltd (2006) Bell Bay Pulp Mill, Integrated Impact Statement. Volume 1b: 6-243.

²⁷ Blakers, M, 2007, www.greeninstitute.com.au

The inclusion of harvested wood products without the inclusion of the loss of carbon in the forest would be a case of partial accounting that would give incentives to create more emissions “off-book”. Any such approach would substantially increase Australia’s CO₂ emissions.

The Prime Minister’s Task Group Report discussed incentives for Harvested Wood Products but only in the context of plantation offsets. With plantation offsets the effects of emissions from logging is not an issue because in a Kyoto eligible plantation there was not a pre-existing store of carbon before the plantation was established.

However, with native forest there is currently no accounting for the emissions from logging. Thus a perverse incentive would be created to destroy an immense store of carbon while claiming emissions credits for a much smaller amount of sequestration in long term wood products. It would be perverse to give credit to offsets that actually increase carbon emissions. Therefore no credits should be given for wood products from native forests.

3. Biofuels.

Nowhere has the failure to properly measure and account for the carbon in natural forests been more damaging than the perverse incentives created under the current Kyoto Rules to convert rainforest to biofuel plantations.

Neither the carbon emissions nor the opportunity cost from destroying resilient and large carbon stores have been counted. Moreover, the water, biodiversity and other ecosystem services provided by natural forests have been ignored.

It has been suggested that biofuels be established in the northern savanna to help meet Australia’s future energy needs. For the same reasons as outlined above, this is not a suitable policy response as the clearing of forests and grasslands for biofuels would not only have significant environmental and biodiversity impacts, but would also lead to the release of greenhouse gases through landclearing and the release of carbon from soil.

Any proposal in Australia to promote biofuels should ensure that crops are established only on already cleared agricultural land and that there are no adverse impacts on other ecosystem services.

Imported biofuels such as Palm Oil for biodiesel should be charged the same excise and carbon levies as petroleum-based fuels unless it can be proven conclusively that the production of the fuel did not contribute in any way to deforestation.

The promotion of electricity generation using wood waste from natural forests would also result in perverse outcomes and increase the incentive (by providing a new economic return) to increase the rate of logging in natural forests. The way in which Australia’s native forests have been logged has always been driven by markets for wood products²⁸. Sustainability is defined in terms

²⁸ Dargarvel, J, 1995, Fashioning Australia’s Forests, Oxford University Press, Melbourne.

of sustaining wood supply for particular products. (I refer you to our arguments on wood waste from native forest in our Submission to the Review of MRET:
<http://www.mretreview.gov.au/pubs/mret-submission208.pdf>)

The promised successor to Mandatory Renewable Energy Target (MRET) should exclude bio-energy from native forests as an eligible renewable energy source.

4. Forests and Carbon Measurement and Accounting Rules.

Emissions from Forests and Forests management are currently accounted for by Annex 1 countries through rules established under LULUCF (Land Use, Land Use Change and Forestry) This mechanism is supposed to deal with Forestry and Agriculture. These rules are all currently under review in the context of post 2012 arrangements.

The Wilderness Society in common with most ENGOs believes that the rules need to be broadened to account for ALL land uses.

Specifically in relation to the Forest sector which is the remit of the Garnaut Review and the subject of this submission, TWS would like to raise the following points:

- a) Currently, accounting for emissions from forest management is not mandatory for Annex 1 countries. However, countries like Canada who believed that they could gain an accounting advantage by accounting for emissions (or sequestrations) from forest management started reporting but as the science resolved against this self interest, they withdrew. Australia has never reported emissions from forest management and current accounting domestically for native forest management is based on very poor input data. As there is significant pressure to tighten up all the accounting rules under LULUCF Australia should begin to properly account for all the emissions from forest management and report them under its Kyoto commitments.
- b) The current rules in relation to the treatment of deforestation have been particularly perverse. Australia has been able to claim massive credits through avoided deforestation largely as the result of policies to halt land clearing in the low carbon density woodlands of Queensland at the same time (as noted earlier in this submission) similar forests in the Tiwi Islands are being cleared and replaced by short rotation Acacia plantations with net losses simply not being accounted for. The situation has been even worse in Tasmania where some of the most carbon dense forests in the world have been converted to short rotation eucalypt plantations. The net losses of carbon to the atmosphere are huge. None of these losses are captured in current accounting systems. If these losses had been accounted for at the same time the agricultural sector was shouldering the responsibility for meeting Australia's Kyoto emissions growth target, the picture would have been considerably worse.
- c) Accounting rules will always prompt 'accountants' to look for advantages and loop holes. In the absence of very clear governance principles, domestically and internationally

fraudulent schemes will continue to proliferate. In these circumstances the potential benefits of carbon taxation or trading will not be realized and perverse outcomes will continue. In the context of developed countries like Australia there is no excuse for the proliferation of dubious sequestration schemes often based on the premise of false or misleading carbon accounting. Governance mechanisms must be transparent and guaranteed by an independent and incorruptible regulatory authority and in the context of voluntary market based initiatives, use a certification system that is open and fully participatory. A possible model, while not perfect, is the FSC (Forest Stewardship Council) model for timber certification. Governments should not be prepared to accept lower standards and guarantees than those offered by the FSC Governance approach.

Recently, emissions from logging in Victoria were conservatively estimated at close to 10 million tonnes of CO₂ (the same as the annual emissions from 2.4 million cars)²⁹ – see attachment C. Detailed, peer reviewed research and analysis should be conducted.

Forests are currently inadequately measured and accounted for within the Kyoto Protocol and the National Carbon Accounting System (NCAS). It would be possible to re-calibrate the Australian model (Fullcam) being developed by the AGO to fully account for carbon in natural forests. Fullcam has not yet been used for National or State Greenhouse Gas Inventory reporting. We recommend that NCAS be re-calibrated by including data from unlogged forests.

For communities in intact landscapes such as northern Australia to benefit from any future National Emissions Trading Scheme it is imperative that proper carbon accounting systems are in place. To achieve this requires a decision on which vegetation types would be considered 'Kyoto Forests' and a proper understanding of the carbon carrying capacity of vegetation communities.

It is recommended that the Federal Government, in concert with relevant State and Territory Governments, rapidly commence detailed carbon measurement, accounting and inventory schemes to establish the contribution of native vegetation in northern Australia and other intact landscapes as potential carbon sinks in any future National Emissions Trading Scheme.

5. Reducing Emissions from Deforestation and Degradation in Developing Countries.

The Wilderness Society supports initiatives, such as the \$200 million committed by the previous federal government and the \$10 billion initiative of the Norwegian Government, aimed at reducing deforestation and degradation in developing countries. Australia's commitment is tiny compared to the funding needs identified by the Stern Review and should be massively increased.

Australia should assist accurate measurement of the carbon carrying capacity of forests in our region and help develop measures which demonstrably reduce permanent carbon loss through

²⁹ Analysis by Dr James Watson, Research Fellow, ANU and Oxford University, National WildCountry Program Coordinator, The Wilderness Society; reviewed by Professor Brendan Mackey, Professor Ralph MacNally, Dr Stephen Roxburgh and Professor Mark Burgman. The research findings were outlined in a 2006 letter to then Victorian Premier Steve Bracks – see Attachment C.

clearing or logging. Australia's National Carbon Accounting system could be re-calibrated to assist with carbon accounting in our region's tropical forests. Measures which clearly encourage long term forest protection and restoration should be encouraged.

It is imperative that any initiatives supported by the Australian Government avoid perverse outcomes. In particular, conversion of forests to palm oil plantations should be opposed and the impacts of palm oil projects on cleared land for food production should be carefully examined.

Imports of all rainforest timber, unless FSC certified, should be banned.

6. Adaptation.

The well being of all life, including human life, will depend on restoring the health of ecological systems that underpin and support life on Earth.

Not only is it important to protect and restore the natural world to help combat climate change but specific policies will need to be developed to maximize the chances of vegetation and wildlife surviving the impacts of climate change.

Australia is home to nearly 10% of the Earth's animal and plant species. This rich biodiversity is unique and already under threat from human disturbances such as land-clearing, logging, invasive species, disease and changed fire regimes. Climate change will make matters worse because increased temperatures and changed rainfall patterns combined with damaged and fragmented landscapes can leave species stranded, without water, food, or in conditions which do not enable them to survive.

If we look at the last, relatively rapid, rise in Earth's temperature (some 14,000 years ago) which every plant and animal species alive on Earth today survived, we can see that in many cases survival was made possible because populations of species were more abundant, covered much wider areas, could easily move to more climatically favourable locations or survived in refugia.

For species and ecosystems to cope with the effects of climate change, it is vital that ecological connections and permeability of the landscape is maintained and/or restored. To achieve this several key steps will be required:

- a) The protected area network must be strengthened and extended, and connectivity between protected areas radically improved;
- b) The ecological integrity of all intact landscapes such as northern Australia, must be maintained and strengthened. (See Attachment B);
- c) Conservation planning frameworks should be developed which integrate protected area design and natural resource management to maximise biodiversity and other ecosystem services outcomes at a regional and continental scale; and,

- d) A system to underpin off-reserve management should be developed and implemented by local communities, with the support of government at state and national levels.

Plans and actions should be informed by the best science, encompassing a sound understanding of ecological processes and combined with Indigenous traditional knowledge and the knowledge and experience of other land managers such as farmers, and community groups.

Planning for agricultural production and forestry should not occur in an isolated bubble. The resilience and health of native ecosystems, and their ability to continue to provide benefits and services to people and agriculture will depend upon a whole of landscape planning approach under climate change scenarios. This means that production landscapes and natural landscapes, and expected implications of climate change must be considered together as an integrated whole. For example, planning for horticulture and aquatic ecosystem viability must be undertaken for whole catchments rather than in isolation.

Activities such as environmental restoration plantings which return the original vegetation to the landscape, repair the land and reduce greenhouse gases should be supported by climate policy and market mechanisms.

As a guiding principle the Review should actively look for and encourage synergies between climate mitigation activities; biodiversity protection and the provision of ecological services like water. If such an approach is adopted the benefits for climate mitigation will be maximized. Thus any emissions trading scheme should give preference to carbon offsets and investments which provide a range of long term ecological benefits.

7. Potential Market and Policy Solutions to reduce emissions from ‘deforestation and degradation’.

One reason often advanced for not including Land Use and Forestry in an emissions trading scheme or other market mechanism is ‘the diffuse nature of the sources and sinks within highly diverse entities that comprise this sector’³⁰.

However, the domination of native forest logging by a small number of State Forest agencies makes it relatively easy to report emissions from their activities, whether for emissions trading or basis for a carbon levy. State Forestry agencies are large organizations that control millions of hectares of forest. Their activities involve the emission of millions of tonnes of greenhouse gases.

Plantations are also predominantly owned by large state forest agencies or major wood products producers.

Administratively it would be relatively easy to require accurate emissions figures from state forest agency and large private owners of commercially logged forest. These figures could be

³⁰ Issues Paper 1, Climate Change: Landuse – Agriculture and Forestry, Garnault Climate Change Review, 2007.

based on transparent peer reviewed methodologies. No methodologies for carbon accounting in Australia's forests used to provide timber, currently meets these standards.

Not establishing a value for the carbon stored in forests while establishing a price for carbon from other sectors would cause a distortion in the market. Without establishing a value, property right or other price signal for this stored carbon, investment will continue to degrade these carbon stocks. This will not only reduce the efficiency with which the market helps deliver mitigation activities but will also act as barrier to the development of appropriate policy approaches and incentives by government.

Forest management is excluded from Australia's Kyoto target up to 2012. This reduces its compatibility with an emissions trading scheme that is aligned to Australia's target. However a carbon tax would perform the same purpose but not interfere with a Kyoto compatible emissions trading system.

A range of policy and market mechanisms which minimize distortions and deliver synergistic benefits needs to be fully explored. See Attachments D and E for an analysis of the positions of the Climate Action Network Australia (CANA) and the Climate Action Network (CAN International) respectively - which The Wilderness Society supports.

New Zealand is also looking for ways to send price signals to its forest owners. It is proposing a system where deforestation requires the owner to buy an emissions permit (MAF). A carbon tax on logging would send the same price signal.

Land will, by and large, be allocated to its highest economic use, so it is imperative that the value of carbon stocks be recognised if they are to be maintained. The value of forest carbon should be equivalent to the price of carbon in the rest of the economy, otherwise leakage of carbon producing activities into the forests would start to occur.

A detailed assessment should be made of the appropriate means by which native vegetation could be incorporated into any emissions trading scheme or of taxing carbon released from forest and other native vegetation sources.

8. Conclusions.

Climate change is the largest and most pervasive negative externality the world is yet to face. If we are to succeed in the challenge of avoiding dangerous climate change by keeping temperature rise below two degrees, we will need every tool available to us.

It will be critically important to protect existing carbon stocks and to maximise the resilience and long term storage potential of any restoration programs aimed at sequestering additional carbon from the atmosphere.

Thus, ending all broad-scale clearing; preventing conversion of native forests and woodlands to agricultural and short rotation tree crops; and making a transition out of industrial scale logging

of native forests, thereby restoring the carbon carrying capacity of our native forests, will be important tools to help significantly reduce CO₂ emissions and to facilitate long term sequestration from the atmosphere.

Building synergies between climate mitigation activities; biodiversity protection; and restoration and protection of other ecological services such as water should be a critical guiding principle for the recommendations from the Review. Such principles should be used to help frame policy and market approaches to the agriculture, land use and forestry sectors.

Many of the actions the global community can take to reduce greenhouse gas emissions will benefit the environment and society but some actions risk causing immense harm to biodiversity and other environmental values. And, if poorly designed and executed, some actions undertaken to combat climate change could result in increased emissions of greenhouse gases to the atmosphere.

It is essential that the mitigation efforts needed to combat climate change do not result in other major negative externalities that will leave the rest of our environment in worse condition. In this regard, great caution needs to apply to support for biofuels – any source with the potential to increase clearing or logging of native forests and woodlands should be ruled out.

Inadequate carbon measurement and accounting can send inappropriate market signals with consequent perverse increases in greenhouse gas emissions. Similarly, crediting carbon stored in wood products while not accounting for the accompanying loss of carbon from the forest would result in significant “off book” greenhouse gas emissions.

9. Summary Recommendations.

1(a) Land Clearing

The contribution to CO₂ emissions from ongoing clearing in NSW and QLD and of conversion in Tasmania and the Northern Territory needs to be fully assessed.

Broad scale clearing and/or conversion of native forests and woodlands should be banned or otherwise actively discouraged.

Restoration of re-growth forests and woodlands should be encouraged in preference to support for further plantation establishment for wood production.

Restoration of biodiverse, long term, resilient carbon stores should be encouraged by ensuring policy and market settings support ecologically sound restoration activities.

A comprehensive research programme should be undertaken to determine the carbon storage and sequestration potential of Australia's native vegetation (including remnant and re growth vegetation).

1(b) Fire Management

Encourage ecologically appropriate fire suppression, including by reducing activities which make forests and woodlands more fire prone.

Support the establishment of a legal framework for the creation of carbon credits from altered fire management in savanna woodlands and other intact landscapes where appropriate.

Include savanna fire management which encourages fire in the early dry season in any future national emissions trading scheme.

1(c) Northern Australia and Intact Landscapes

Developing a policy framework and economic incentives to protect intact landscapes should form a critical part of any strategy to minimize future emissions.

As a first principle the review should recommend strongly against the expansion of broad acre landclearing throughout remnant forests, woodlands and grasslands across northern Australia and other intact landscapes, including for the establishment of forestry plantations and biofuels initiatives involving the clearing of native forests, woodlands and grasslands.

1(d) Plantation Forestry

Full carbon accounting should apply to this sector if it is included in an emissions trading scheme.

Financial incentives should give preference to the restoration of the carbon carrying capacity of natural forests and woodlands over plantation establishment for wood supply.

1(e) Protection and Restoration of Native Forests

Forest degradation should be defined as any land use activity that reduces the carbon stock of a forest below its natural carbon carrying capacity. The impact of commercial logging must therefore be considered a ‘degrading’ process and be fully accounted for in national carbon accounts and in any emissions trading scheme. The opportunity cost associated with continuing to log natural forests should be recognised.

It is important that the market receives signals which reflect the carbon storage value of the forests. Establishing a carbon tax or, alternatively, carbon property rights which could be purchased should be considered.

Policies which encourage a transition out of industrial scale logging of native forests should be developed.

2. Forests and Wood Products

All proposed major forest based industries should be assessed for their net carbon impact including the CO₂ opportunity costs associated with any development. At a minimum the EPBC Act should be amended to require assessment of major projects for their greenhouse implications.

No credits should be given for wood products from native forests as there is very little long term storage with 80%-90% of native forest logged ending up as paper or waste which is burned; and such credits would provide an increased incentive to continue to degrade the carbon carrying capacity of native forests.

3 Biofuels

Any proposal to promote biofuels in Australia should ensure that crops are established only on already cleared agricultural land and that there are no adverse impacts on other ecosystem services.

Imported biofuels such as Palm Oil for biodiesel, should be charged the same excise and carbon levies as petroleum-based fuels unless it can be proven conclusively that the production of the fuel did not contribute in any way to deforestation.

The promised successor to the Mandatory Renewable Energy Target (MRET) should exclude bio-energy from native forests as an eligible renewable energy source.

4. Forests and Carbon Measurement and Accounting Rules

The rules developed for LULUCF should be revised to account for **all** land uses.

In line with pressure to tighten up all the accounting rules under LULUCF, Australia should begin to properly account for all the emissions from forest management and report them under its Kyoto commitments.

Governance mechanisms under LULUCF must be transparent and guaranteed by an independent and incorruptible regulatory authority and in the context of voluntary market based initiatives, use a certification system that is open and fully participatory. A possible model, while not perfect, is the FSC (Forest Stewardship Council) model for timber certification. Governments should not be prepared to accept lower standards and guarantees than those offered by the FSC Governance approach.

Detailed, peer reviewed research and analysis should be conducted to assess fully carbon emissions from logging each year.

Degradation should be defined as any activity which reduces the carbon stored in a forest or woodland below its natural carbon carrying capacity.

NCAS should be re-calibrated by including data, from unlogged forests.

A comprehensive, transparent and verifiable carbon accounting system for native forests and woodlands should be established based on comprehensive field measurements of the carbon stored in, carbon carrying capacity of, and sequestration potential of Australia's native forests and woodlands.

5. Reducing Emissions from Deforestation and Degradation in Developing Countries

Australia should assist accurate measurement of the carbon carrying capacity of forests in our region and help develop measures which demonstrably reduce permanent carbon loss through clearing or logging.

Australia's National Carbon Accounting system should be re-calibrated to assist with carbon accounting in our region's tropical forests.

Measures which clearly encourage long term forest protection and restoration should be encouraged. Australia's investment in measures to increase regional protection of tropical forests should be massively increased.

Conversion of forests to palm oil plantations should be opposed and the impacts of palm oil projects on cleared land for food production should be carefully examined.

Imports of all rainforest timber, unless FSC certified, should be banned.

6. Adaptation

Ecological connections and permeability of the landscape should be maintained and/or restored, by ensuring:

- The protected area network is extended and connectivity between protected areas radically improved;
- The ecological integrity of all intact landscapes such as northern Australia, is maintained and strengthened;
- Conservation planning frameworks are developed which integrate protected area design and natural resource management to maximise biodiversity and other ecosystem services outcomes at a regional and continental scale; and,
- A system to underpin off-reserve management is developed and implemented by local communities, with the support of government at state and national levels.

Production landscapes and natural landscapes, and expected implications of climate change must be considered together as an integrated whole.

Activities such as environmental restoration plantings which return the original vegetation to the landscape, repair the land and reduce greenhouse gases should be supported by climate policy and market mechanisms.

A guiding principle of the Review should be to actively promote synergies between climate mitigation activities; biodiversity protection and the provision of ecological services like water.

Any emissions trading scheme should give preference to carbon offsets and investments which provide a range of long term ecological benefits.

7. Market and Policy Solutions to Reduce Emissions from Deforestation and Degradation

Recognise the value of forest and woodland carbon stocks. The value of forest and woodland carbon should be equivalent to the price of carbon in the rest of the economy.

A mechanism should be established which recognizes the cost associated with reductions in carbon stocks equivalent to the price of carbon in other sectors of the economy.

A range of policy and market mechanisms which deliver synergistic benefits for climate, biodiversity, water and other ecosystem services needs to be fully explored.

A detailed assessment should be made of the appropriate means by which native vegetation could be incorporated into any emissions trading scheme or of taxing carbon released from forest and other native vegetation sources.

ATTACHMENT A

NSW Landclearing

The NSW Auditor General estimates that between 1998 and 2005 inclusively, the NSW Government approved 639,930 hectares for clearing under the native vegetation legislation. These estimates are highly conservative and the true rate of clearing is likely to be substantially higher.

There are many exemptions of the Native Vegetation Act 2003 that allow clearing without the need for NSW Government or Catchment Management Authority approval, such as routine agricultural management activities (RAMA's). These clearings are not accounted for.

In addition, due to inadequate or uncertain public data, this figure does not include the number of hectares cleared as a result of illegal clearing that occurred from 1998 to 2005.

Illegal landclearing in NSW

Since the Native Vegetation Act 2003 came into force in 2005, there have been no prosecutions of alleged illegal land clearing in NSW. This is while there is ample proof that illegal land clearing has occurred.

The Wilderness Society has information that there are about 500 complaints of alleged illegal land clearing in NSW per annum, plus hundreds of cases previously detected by the pro-active HOSPPTS satellite monitoring.

The Hotspots program, a SPOT 5 satellite program was instigated to pro-actively detect cases of illegal clearing in 20 % of the state where threat to clear was high. This program has recently been cancelled, and the NSW Government is planning to redirect these funds to boost longer-term mapping and reporting rather than preventing land clearing and enforcing the native vegetation laws.

No public record of illegal land clearing reports is being maintained in NSW and it is therefore impossible for the community to gain accurate figures, or a comprehensive picture of clearing in NSW.

By comparison, we have received information that in Queensland the yearly number of prosecutions is between 20-80.

Clearing of Invasive Native Shrub

Over the past 15 years, there has been debate about clearing rates in NSW because there has been no statewide monitoring program that detects the clearing of all types of native vegetation.

Recent figures released by the NSW Government to show a commitment to ending land clearing in their NSW Woody Vegetation Change 2004-2006 Report are at odds with other Government and independent reports.

The NSW Woody Vegetation Change 2004-2006 Report claims that only 16,090 hectares of bush land were cleared for agriculture per annum in the three years period. This report is based on SLATS and does not measure clearing in vegetation <20% canopy cover, so it excludes clearing of scrublands, grasslands, regrowth etc, there are also other issues with this methodology.

The figure of 16,090 per annum contradicts a NSW government report leaked in February 2006. The 'SPOT 5' Report based on accurate satellite imagery showed that over 20,000 hectares of bush land was illegally cleared in an area only 5% of the state in 2005. If this ratio was in operation state wide some 100,000 hectares of bush land could have been cleared in NSW in that year.

Both the above figures are again contradicted by an independent investigation published by the NSW Auditor General in July 2006, which concluded that 74,000 hectares were cleared in one year alone.

It will be important to investigate which statistics have informed Australian National Greenhouse accounting and to question whether these figures are accurate and adequate.

An Analysis of Actual Rather than Reported Land Clearing Rates in NSW
John Benson, Senior Plant Ecologist at the Royal Botanic Gardens Sydney

“Until we can detect all three types of vegetation structure it will not be possible to produce accurate figures of total clearing of native vegetation.

In March 2001 the Minister for Land and Water Conservation, Mr Amery, announced the results of a study of land clearing in NSW between the years 1997 and 2000. This is known as the ERIC (2001) report. This shows 14,000 hectares of woody vegetation with greater than 20% canopy cover was being cleared annually in NSW.

The Minister emphasised that clearing in NSW had apparently halved from 1997 (32,000 ha) to present day (14,000 ha), ie since the inception of the Native Vegetation Conservation Act in January 1998.

ERIC was probably reasonably accurate for detecting most clearing in eastern NSW (except for some wetlands, grasslands and open woodlands in valleys).

However, it failed to detect most of the clearing where tree cover is naturally sparser.

Two recently-published scientific reports, compiled by NPWS researchers, on clearing in the NSW wheatbelt cast more light on the level of vegetation clearing in NSW. These studies detected clearing to 5% canopy cover — a category which is 15% lower than the ERIC studies.

A paper by Cox *et al.* (2001), published in the Royal Botanic Gardens ecology journal *Cunninghamia*, provides an analysis of clearing rates in the northern-most section of the NSW wheatbelt around Moree between 1985 to 2000. This has been followed by a report to the Natural Heritage Trust by Bedward *et al.* (2001) that detects clearing over a larger section of the wheatbelt from the Queensland border to Forbes in central NSW (excluding a band through Walgett and Narrabri).

A major finding of the NPWS research is that by detecting clearing to 5% canopy cover, they found 10 times the amount of clearing detected by the ERIC methodology in the northern wheatbelt.

The NPWS methodology excluded areas less than 10 ha in size and did not include vegetation with a natural canopy cover of less than 5% (grasslands, sparse shrublands). The results, therefore, are conservative.

Of the 14,000 ha of clearing detected in NSW in the ERIC (2001) report, it appears that about 4000 ha occurred on the western plains where open vegetation prevails.

Multiplying 4000 ha by 10 (based on Bedward) yields 40,000 ha. Add the remaining 10,000 ha of clearing detected by ERIC (2001) from eastern NSW and the result equals 50,000 ha.

Therefore, it can be stated that at least 50,000 ha of woody vegetation with a canopy cover of greater than 5% are being cleared annually in NSW. To gain an estimate of total clearing of native vegetation in NSW, I have estimated the annual rate of clearing of vegetation types with <5% woody canopies. I would estimate this (based on clearing applications approved on DLWC website) to be at least 10,000 ha per year.

‘This delivers an overall estimate of clearing of all vegetation types in NSW of at least 60,000 ha per year.’

What is of great concern from the NPWS analyses is that most of the wheatbelt vegetation is becoming highly fragmented. This will lead to further species extinction over time – about 70 woodland birds are on the brink now!

‘Many of the plant communities being cleared in the wheatbelt are among the most threatened ecological communities in NSW.’

It cannot be stated with surety that clearing has decreased since the inception of the Native Vegetation Conservation Act in January 1998. While ERIC (1998, 2001) found that there has been a reduction of clearing of dense vegetation on the coast and tablelands, the NPWS wheatbelt clearing data shows opposite trends.

The NPWS data reveals that, overall, clearing has increased in its wheatbelt study area — from 20,180 ha/year from the mid-1980s to 1997, to 28,475 ha/year from 1998 to 2000. Clearing has quadrupled in the Nyngan region from 2,142 ha/year before 1998 to 9,014 ha/year since 1998.

Many of the plant communities being cleared in the wheatbelt are among the most threatened ecological communities in NSW. They have been reduced to less than 25% of their pre-clearing extent and are highly fragmented. Some have been reduced to less than 10% of their pre-clearing extent, yet clearing continues.

The NPWS studies have demonstrated that most of the clearing in NSW is happening in open woodlands with a canopy cover of less than 20%. It will be necessary to use methodologies that include all relevant vegetation types if managers are to have reliable figures on which to base land use decisions.

NSW is some way off meeting the no-net-loss position as agreed under the NHT Bushcare Agreement with the Commonwealth Government. At least 60,000 ha are still being cleared, including in regions where very little vegetation remains and where many ecological communities and species are highly endangered.

This article has been modified from an article first published in issue 6 of Hunter Flora by the Hunter Catchment Management Trust

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Environmental Research and Information Consortium Pty. Ltd. (2001) Rates of Clearing of Native Woody Vegetation 1997-2000. Report for the NSW Department of Land and Water Conservation (ERIC: Canberra).

John Benson
Senior Plant Ecologist at the Royal Botanic Gardens Sydney.

ATTACHMENT B

Environmental implications and impacts of climate change in Northern Australia

As in all regions of Australia, projected impacts of climate change will have a significant negative impact on the people and the natural environment of northern Australia.

A recent report to determine the impacts of climate change upon the natural environment of northern Australia prepared for the World Wildlife Fund, *Assessment of the Direct and Indirect Risks from Human Induced Climate Change to Key Ecosystems in Northern Australia* (Lawrence, Ridley & Luntz 2007) outlined the serious threats to the following ecosystems;

- Coastal low lying wetlands (sea level rise and increased cyclones);
- Coral Reefs (increase in ocean surface temperature, increase in ocean acidity, sea level rise and increased cyclones);
- Tropical rainforest (increased cyclones, sea level rise, increase in temperature and rainfall variability, more intense and frequent fire events);
- Tropical savannas, including grasslands (more intense and frequent fire events, increase in atmospheric CO₂, increase in rainfall variability, drought frequency and duration);
- Tropical rivers (sea level rise, more extreme rainfall events, increase in temperature, drought frequency and duration); and,
- Small islands (more intense and frequent cyclones, sea level rise).

Furthermore, the authors of this assessment concluded that the capacity of these ecosystems to adapt to a changing climate is assessed as low or medium for all ecosystems.

In order to maintain and protect these nationally and internationally significance conservation values it will be crucial to ensure additional threats and changes to the health of northern ecosystems and ecological processes (through activities such as broad acre landclearing and agricultural development) are not pursued. This step will maximise the opportunities for northern ecosystems to adapt to unavoidable climate change.

Endnote: Investigations by the ABC's *Background Briefing* program claim that land clearing of 26,000 hectares of forest and woodland on Tiwi Island for the establishment of timber plantations has already released an estimated 13 million tonnes of greenhouse gases. (Background Briefing 16 September 2007 'Timber, Tax and the Tiwis')

ATTACHMENT C



The Honourable Steve Bracks
Premier of Victoria
1 Treasury Place, GPO Box 4912 W
Melbourne, 3002

30th March 2006

Dear Mr Bracks,

Consideration of native forest logging is an essential component of any climate change action plan

I am writing to provide a summary of two seminal studies that have examined the effects logging has on native forest carbon storage in the temperate forests of southeastern Australia. These peer-reviewed studies provide solid evidence that:

- the ecosystem services provided by Australia's native forests play an essential role in the battle to combat climate change, and
- protecting these forests from industrial logging should be a core component of any plan that aims to ameliorate the impacts of future climate change on Victorians and Victoria's biodiversity.

In the Department of Sustainability and Environment's recently released action statement, *Our Environment, Our Future*,¹ it is clear that the Victorian Labor government acknowledges that rapid climate change is occurring, and this is caused primarily by the emission of carbon dioxide from the burning of fossil fuels and deforestation. This is a significant step forward and it is encouraging that the Bracks government acknowledges what the likely impacts of future climate change are going to be for the people of Victoria. I strongly encourage the Victorian government to significantly reduce industrial greenhouse gas emission and to continue to pursue renewable energy solutions.

¹ Victorian Government Department of Sustainability and Environment (2006), *Our Environment, Our Future*, Sustainability Action Statement.

A focus on energy use is insufficient on its own to solve the problem of global warming. Government policies must reflect the scientific reality of the global carbon cycle and the critical role played by terrestrial ecosystems. Moreover, energy policies must be coupled to land management policies to achieve sustainable solutions to the global warming problem. We need an alignment of adaptation and mitigation strategies across sectors and ecosystems.

In this letter, I demonstrate that measures to protect and restore Victoria's native forests offer significant opportunities for climate change mitigation. There are three strategies which the government should implement:

1. Protecting the current stocks of carbon in forests, and avoiding depletion of these stocks through emissions associated with forest logging, soil disturbance and regeneration burning;
2. Allowing forests to reach their optimum carbon carrying capacity by the cessation of logging that removes large old trees that store most of the above ground carbon and thus restoring the forest's current carbon stocks; and
3. Further increasing the stock of carbon stored in Victoria's ecosystems by promoting permanent native vegetation restoration, including commercially focused re-forestation, especially on already cleared marginal agricultural land

These actions would complement the policy framework which emphasizes individual choice with regard to the form of energy and transport used and provides opportunities for policies and programmes that can be readily achieved by the government.

The Issues

Water

As you acknowledge in *Our Environment, Our Future*, climate change will lead to a much drier Victorian climate with serious water supply challenges, more frequent bush fires, floods and storms of greater intensity. Victoria's forests play an important role in buffering against these threats. For example, there is now irrefutable evidence from long-term CSIRO research that logging mature *Eucalyptus* forests in water catchment areas leads to significant reduction in yield of water available through the supply system. The fundamental reason why logging in water catchments is extremely detrimental to water yield is simple. After a mature age forest is logged, it is replaced by a suite of younger trees which transpire more water due to their vigorous rate of growth.

If the government wishes to address the serious water production and supply issues which the Report identifies then an obvious first step is to optimize water yield by retaining and protecting mature forests in all of Victoria's forested water supply catchments.

Carbon

Water yield arguments aside, Victoria's forests act as climate change buffers due to the fact that they are extremely significant stores of carbon. A seminal paper recently published in the international journal, *Journal of Applied Ecology*, Roxburgh et al.² examined the effects of logging in a mixed *Eucalyptus* forest reserve in southern NSW. The study also included data from the forests of East Gippsland, typical of the mixed *Eucalyptus* forests which dominate eastern Victoria.

The researchers found that when logging occurred with just selective harvesting techniques the average carbon storing capacity in the trees, stems, branches, litter and woody debris was reduced from 350 to less than 200 tonnes per hectare. The reason for this loss of carbon was found to be obvious. When selective logging occurs within a mature *Eucalyptus* forest the age, and therefore the average diameter, of trees found retained within the plot is reduced. Even though there is often significant regrowth within a logging coupe, these young trees do not account for the amount of carbon which was stored in the larger, older, removed trees. The role of the big trees in these forests cannot be understated in their capacity to store carbon.

In unlogged forests, this research found that trees with a diameter greater than 100 cm can contain up to 54% of the carbon in all living vegetation explaining why selective removal of tall trees has a large impact. An appropriate question to ask is, "How long does it take for a logged forest to return to pre-logged carbon storing potential?" In this study the authors were able to evaluate the time frame and found that forests are expected to recover 75% of their full carbon carrying capacity in no less than 53 years. It would take at least 152 years for a forest's carbon carrying capacity to return to greater than 90% of its pre-logged levels.

Another study, published in an internationally refereed publication *Modelling Forest Systems*, Dean et al. (2003)³, examined the effects of logging Mountain Ash (*Eucalyptus regnans*) forests in Victoria and Tasmania. Mountain Ash is

² Roxburgh, S.H., Wood, S.W., Mackey, B.G., Woldendorp, G. and Gibbons, P. (in press), Assessing the carbon sequestration potential of managed forests: a case study from temperate Australia, *Journal of Applied Ecology*.

³ Dean, C., Mackey, B.G., and Roxburgh, S.H. (2003), Growth Modelling of *Eucalyptus regnans* for carbon accounting at the landscape scale, In: Amaro, A., Reed, D., Soares, P. (eds.), *Modelling Forest systems*, CABI Publishing, Wallingford, U.K.

an important tree for pulpwood, sawlogs, and urban water supplies, and is extensively logged in Victoria. Mountain Ash forests differ from the mixed species forests described above as they are often of similar age and contain (normally) one dominant species. They are also a much more 'productive forest' than mixed species because they can store more carbon within them over relatively shorter periods of time. This study showed that Mountain Ash forests can store up to 1,200 tonnes of carbon per hectare when fully mature. The authors examined the effects of 80 year logging rotation on carbon storage within Mountain Ash and reported that re-growth forests on such rotations contain on average around 400 tonnes of carbon per hectare. This compares with 1,200 tonnes per ha when not logged. The study went on to determine the impact if all logged wood was made into a suitable carbon store product (eg., a kitchen table). This most generous model still found that there is a differentiation of 200 tonnes per hectare, when comparing logged to unlogged forests.

So how detrimental is the logging of natural forests on a policy that tries to mitigate against climate change? Based on your government's report, *Monitoring Annual Harvesting Performance (2004-05)*⁴, 3,741 ha of mixed forests, 1,913 ha of ash forests and 3,341 ha of redgum and other forests were logged in 2004-2005. Using the results from the above reports, the carbon dioxide emissions from this logging is almost 10 million tonnes. This is the equivalent to the emissions generated by adding almost 2.4 million cars onto Victoria's roads each year⁵. The contribution that Victoria's native forest ecosystems play in reducing carbon emissions is compelling and can no longer be ignored.

I conclude by noting that the debate about the actual role *Eucalyptus* forests play in storing carbon, and hence buffering against the impacts of climate change and helping to mitigate climate change, has been complicated by a confusion of terms. As I have briefly described in these studies, *Eucalyptus* forests contain stocks of carbon. This can be seen as a human having a large sum of money in a bank. The forests accrue carbon at a slow rate (i.e. have a low interest return) when compared to young regenerating forests (i.e. which have a higher interest return). But when you log a forest, it is important to realize that you lose most of the money saved in the bank and the time taken to return to the initial sum of money in the bank, regardless of the interest rate, will be hundreds of years. There is a fundamental difference between the *rate* at which carbon is sequestered by a forest and the *amount* of carbon stored within a forest. The research we have described above shows that when a forest is logged, it will take hundreds of year to return your initial stock of carbon. Arguments that claim climate change can be better mitigated by logging and then regenerating (rather than preserving and restoring) intact forests are a nonsense. When a native forest is logged there is a huge immediate loss of carbon. For climate arguments, it is obviously sensible to replant trees on already cleared land. The biggest carbon impact occurs with long term ecological restoration. A smaller contribution may be made by plantations but the significance for carbon sequestration and storage depends on the species planted and rotation length. As a general rule, 15-30 year

⁴ Victorian Government Department of Sustainability and Environment (2006), *Monitoring Annual Harvesting Performance : statewide wide summary report (2004-2005)*.

⁵ Using conversion figures developed by *greenfleet*, <http://www.greenfleet.com.au/transport/technical.asp>.

logging rotations will not produce anything like the carbon sequestration and storage achieved from restoring native ecosystems, which still sequester significant amounts of carbon for hundreds of years. Hence, while native plantations make a contribution to solving to climate change challenges, long term restoration of native forests has produces the most significant greenhouse impact.

Yours sincerely,

Original signed

Dr James Watson

Research Fellow, Australian National University and The University of Oxford
National WildCountry Coordinator, The Wilderness Society.

Analysis reviewed by

Professor Brendan Mackey

Director, WildCountry Research and Policy Hub, Australian National University.

Professor Ralph Mac Nally

Centre for Conservation Biology, Monash University

Dr Stephen Roxburgh

Senior Research Fellow, Bushfire CRC (Highfire Project), School of Biological, Earth & Environmental Sciences, The University of New South Wales

Professor Mark Burgman

Director, Australian Centre of Excellence for Risk Analysis, School of Botany, University of Melbourne

ATTACHMENT D

Extract From:

Climate Action Network Australia:

Turning Down the Heat: A Climate Action Agenda for Australia

Reducing Emissions From Deforestation In Developing Countries

Stopping the destruction of forests globally is a vital step in avoiding dangerous climate change. About 20% of global greenhouse gas emissions come from the clearing of forests, mainly in developing countries. This is roughly comparable to the fossil fuel emissions of the United States. Forests also play a vital role in reducing the effects of climate change by providing a natural buffer against extreme weather events, reducing rainfall and protecting carbon stocks in the soil⁶. Furthermore, protecting these forests helps conserve biodiversity because tropical forests are habitat for over 50% of the world's species.

Most importantly, intact forests have supported the livelihoods and cultures of millions of people in developing countries. Deforestation will lead to worsening poverty and lead to conflicts and unrest within countries and across regions.

Forests absorb carbon dioxide from the atmosphere as they grow over decades and centuries. When forests are destroyed by clearing for agriculture or are degraded by processes such as logging, much of this stored carbon is released as the soil is disturbed and the vegetation rots and burns.

The Stern Review on the Economics of Climate Change put the argument for avoiding deforestation succinctly, by concluding that: "Curbing deforestation is a highly cost-effective way of reducing greenhouse gas emissions and has the potential to offer significant reductions fairly quickly. It also helps preserve biodiversity and protect soil and water quality."⁷

Australia is the only developed country that is still clearing large areas of its forest⁸. It should take the lead and act swiftly to bring an end to broad-scale land clearing and logging. Industrialised countries and emerging economies should also take responsibility to end the demand for cheap timber and wood products, as well as a whole range of raw materials, including palm oil, which lead to deforestation in developing nations.

Developing countries need assistance to overcome the external pressure and internal social, as well as economic forces which drive deforestation. Forests should be protected and recognised as a valuable asset and buffer against poverty, natural disasters and political instability. Most developing countries lack the capacity and often, political will to monitor deforestation and forest degradation. Currently, 50 to 70% of the logging in developing countries is illegal. The logging industry is synonymous with bribery and corruption.

The international community can and should first stop the consumption of timber and wood products from illegal sources. They should also avoid consumption of products which lead to

forest depletion and degradation. Developing countries should be supported to build their capacity to protect their forests as well as to monitor and manage their forest carbon. A development paradigm shift is urgently needed to ensure viable economic alternatives are available through more appropriate development assistance programs to protect forests.

The inclusion of avoided deforestation in the global effort to reduce greenhouse gas emissions will require a serious review of development assistance and foreign policy in the context of climate change. Further work is needed to determine the most appropriate mechanisms. It is crucial however, that any approaches ensure environmental integrity of genuine emissions reduction, provision of 'permanence' and leakage prevention measures.

Considerations include:

- Driving forces for the on-going and increasing demand for, and the underlying causes of, deforestation should be identified and understood
- Fundamental problems of governance failure from inappropriate development focus and assistance, which in turn leads to deforestation, must be understood and addressed effectively
- Consistent and sufficient financial resourcing is provided to participating countries especially through civil society to ensure long-term forest protection is viable
- Step-wise approaches are used that build capacity and effectiveness appropriate for each participating country
- Programs should ideally be focused at a national level to greatly reduce the risk of deforestation being displaced to new areas (leakage)
- The rights of Indigenous people whose forest areas are under consideration are recognised, respected and represented
- Mechanisms are put in place for the equitable distribution of funds to regions and communities affected by avoided deforestation
- There is accurate and transparent accounting of carbon stocks to enable verifiable emission reductions from avoided deforestation
- There is independent monitoring to ensure implementation reduces deforestation, preserves natural habitat and provides a carbon benefit to the atmosphere
- Perverse incentives which might encourage increased deforestation to elicit greater access to funds must be avoided
- The importance of and focus on reducing emissions from fossil fuels is not eroded through avoided deforestation programs.

It should be noted that the Australian Government's recent announcement of a Global Initiative on Forests and Climate does not appear to meet these criteria.

Mechanisms already under discussion for raising sufficient funds to reduce deforestation in developing countries through the UNFCCC include:

- An avoided deforestation fund to which governments contribute, to fund activities in a manner similar to the Overseas Development Assistance (ADO) model.
- A mix of capacity fund and certified trading of avoided deforestation emissions to be included in the second commitment period of the Kyoto Protocol (post 2012).

CANA supports the negotiation of a targeted, strategic and effective international regime to reduce emissions from deforestation in efforts to prevent dangerous climate change. Ample justification exists for placing additional levies on proceeds from the Kyoto Protocol mechanisms to establish, for example, a better resourced Adaptation Fund.

At present the Adaptation Fund under the Protocol is to be funded from 2% of proceeds of the Clean Development Mechanism (CDM). CANA supports the idea that there should be a levy on all the mechanisms and it would be logical that this is generalized in the second commitment period and a fraction hypothecated for tropical deforestation emissions reductions.

Recommendations

Australia should ratify the Kyoto Protocol so Australia can fully contribute to the global effort to reduce emissions from deforestation in developing countries.

Australia should legislate to impose an import ban on timber and wood products and review our consumption of raw materials which may contribute to forest depletion and degradation in developing countries

Australia should review its foreign policy and development assistance program to address challenges posed by climate change including those related to forests

Australia should particularly focus on forest management through its good governance program and its 'whole-of-government' approach in forested fragile countries in view of the role forests play in climate change, and governance failure

Australia should urge the creation of an international fund under the UNFCCC to finance avoided deforestation activities and pledge significant funding contributions

Australia should support a levy on all the Protocol mechanisms for the Adaptation Fund and that a fraction of the funds raised is hypothecated for tropical deforestation emissions reductions

Australia should continue to expand its technical support to developing countries on monitoring emissions from deforestation and forest degradation

Australia should support genuine efforts of developing countries to protect their forests, heeding lessons learnt from decades of reforms in this sector, to reduce greenhouse gas emissions.

ATTACHMENT E

Position of the Climate Action Network International

Reducing Emissions from Deforestation and Degradation: Action in Bali and beyond

The Climate Action Network International (CAN) is a coalition of over 400 environment and development non-governmental organizations in 85 countries worldwide, committed to limiting human-induced climate change to ecologically sustainable levels. This position statement gives CAN's recommendations for the negotiations on reducing emissions from deforestation in developing countries at COP13 in Bali 2007 and beyond.

CAN's objective is to ensure that mechanisms are developed that will reduce greenhouse gas emissions, from deforestation and all other sources, fast enough to prevent dangerous climate change. Reducing emissions from deforestation and forest degradation must enhance the environmental effectiveness and improve the integrity of the UN Convention on Climate Change and its Kyoto Protocol. Thus any mechanism to reduce emissions from deforestation must be additional commitments to deeper cuts in fossil fuel emissions by developed countries after 2012.

Key Recommendations

- A flexible, step-wise approach that accommodates differing national circumstances and capacities likely offers the highest potential for consensus and broad participation.
- Developing country participation in the REDD regime should incorporate rules that define creditability of actions.
- Developing countries should have a broad and comprehensive set of policy options available to encourage maximum participation in the REDD regime, including market and non-market instruments.
- Annex I countries should support positive incentives for increasing capacity to monitor, measure and verify the success of greenhouse reduction policies and measures.
- The objectives of both climate and biodiversity protection should form the basis of any mechanism to reduce emissions from deforestation to secure the environmental integrity of the Convention.

Forests in a Global Climate Framework

To avoid the worst impacts of human-induced climate change, average global surface temperature rise needs to be stabilized as far below 2⁰C above pre-industrial levels as possible. Limiting warming to this level is likely to be critical to the protection of tropical forests. To achieve this, global emissions must peak and begin to decline in the coming decade. Reducing emissions from deforestation has a key role to play in achieving this goal.

Tropical deforestation accounts for about 20% of global emissions every year and has huge negative impacts on biodiversity, local communities and indigenous peoples, sustainable long-term economic growth, air quality and other environmental and socio-economic goods and services.

Moreover, deforestation removes the protection that natural forests provide against storms, floods and extreme fluctuations in local climate. Thus efforts to combat deforestation, if designed effectively, can achieve mitigation and adaptation benefits, including biodiversity conservation and sustainable development.

In CAN's view, the question is no longer whether deforestation should be addressed as part of the evolving global climate change regime, but rather how this can be done most effectively and rapidly, while ensuring equitable and fair incentives to stewards and countries. An international mechanism to reduce emissions from deforestation is necessary as part of the post-2012 framework on climate change. This mechanism must adopt national based approaches and deliver sufficient resources to negate the drivers of deforestation. Developed countries must provide substantial resources for capacity building and transfer of appropriate technology for effective monitoring and measurement. Interventions must be timely and address all drivers of deforestation, including highly profitable large scale, 'industrial' deforestation/land conversion.

The scope of a deforestation regime

The current mandate for the UNFCCC's work on approaches to reduce emissions from deforestation (RED) is to discuss reducing emissions from deforestation alone. However, as acknowledged by SBSTA, forest degradation is also an important issue when considering a comprehensive approach to mitigating climate change. In some countries, forest degradation is a larger source of greenhouse gas emissions than deforestation. Such degradation is often an important precursor to total deforestation, contributing considerable greenhouse gas emissions. We therefore strongly support SBSTA examining the implications of including degradation within any agreement to reduce forest-based greenhouse gas emissions.

It is also apparent that some provision must be made for countries that currently have low deforestation rates, in part to minimize potential displacement (leakage) of deforestation and degradation from countries that might participate in a REDD mechanism. Several tropical forest-rich countries in Latin America and Africa, for example, are presently experiencing relatively little deforestation. Without some incentive to protect their forest resources, these countries are likely to face increasing pressure to deforest, especially as countries with higher deforestation rates implement REDD mechanisms that may reduce the supply of forest products while having little or no impact on demand.

Baselines and reference levels

Incentives to reduce emissions from deforestation require a baseline or reference level. National reference levels should be employed, so as to minimise domestic leakage, and that they should include historical reference periods. The question of how to set reference levels/baselines and future targets for countries that are not currently experiencing significant deforestation also needs to be addressed.

CAN also recognises that some countries currently may not be able to account at the national level, therefore capacity building and support needs to be undertaken as a priority for countries to implement a national level approach. SBSTA may also wish to examine the potential role and impact of sub-national activities undertaken under a national accounting framework.

Methodological issues

The ability to reliably estimate and verify reduced emissions is clearly essential for any international regime designed to limit emissions from deforestation. CAN supports the use of the IPCC guidelines as a basis for REDD reporting, where these are relevant and applicable, recognising that additional guidance may be needed. CAN also supports using a gross accounting methodology for measuring emissions.

While forest degradation also leads to significant emissions, including degradation within a REDD regime may complicate monitoring, and consequently increase the need for capacity building efforts. While remote sensing methodologies, coupled with ground-based measurements for verification, can be used to monitor forest cover and hence deforestation reliably at a moderately coarse scale, measuring degradation currently requires finer resolution imagery coupled with ground-based measurement and this significantly increases technical demands and cost. CAN therefore recommends that SBSTA examine the implications of including degradation within the mechanism and examine IPCC methodologies on deforestation and degradation to assess whether they are adequate.

Drivers and policy approaches

○ Drivers

To succeed in achieving sustainable emissions reductions from deforestation and degradation at a national scale, each country/region must identify and address the drivers of deforestation and degradation. At the international level, this means that any mechanism must be sufficiently flexible to address different national circumstances of participating countries.

Furthermore, to be effective, an international regime to reduce emissions from deforestation will need to provide sufficient resources to balance the driving forces behind deforestation. To begin to halt tropical deforestation, a mechanism (or combination of mechanisms) that generates resources at a sufficient scale will likely require a variety of mutually reinforcing funding options, including direct incentives, additional official development assistance (ODA) that does not divert ODA from other development sectors, carbon markets, multilateral donor funds, taxes or levies, and other potential revenue sources.

Socio-Economic and Biodiversity Issues

Any international scheme to reduce emissions from deforestation and degradation will have an influence on the livelihoods of forest people. To ensure the rights of indigenous peoples and local communities, any REDD mechanism must respect and build upon the rights and needs of Indigenous People and local communities, including customary rights related to land tenure and the right of indigenous peoples to prior informed consent over activities that affect them and their lands.

Forests not only contain carbon, they also protect water catchments, air quality, soil, biodiversity, and people. The REDD mechanism should therefore include measures to ensure that policies and incentives to reduce deforestation under the UNFCCC are consistent with other international conventions (including the Convention on Biological Diversity).

○ Policy approaches

It is essential to consider a variety of policy options that are linked and mutually reinforced by other international treaties and processes related to addressing emissions from tropical deforestation. Any single approach which reduces emissions from deforestation is unlikely to be suitable for all countries because of different national circumstances and capacities.

CAN considers that:

- A flexible, step-wise approach that accommodates differing national circumstances and capacities likely offers the highest potential for consensus and broad participation.
- Developing country participation in the REDD regime should incorporate rules that define creditability of actions.
- Developing countries should have a broad and comprehensive set of policy options available to encourage maximum participation in the REDD regime, including market and non-market instruments.
- Annex I countries should support positive incentives for increasing capacity to monitor, measure and verify the success of greenhouse reduction policies and measures.
- The objectives of both climate and biodiversity protection should form the basis of any mechanism to reduce emissions from deforestation to secure the environmental integrity of the Convention.

The Bali Mandate

It is critical that the UNFCCC COP13/Kyoto CMP3 in December 2007, deliver a “Bali Mandate” that establishes the ambition, content, process and timetable for negotiation of the next stage of international action on climate change to be concluded by 2009. It is CAN’s view that a strong Bali Mandate is a critical step towards the negotiation of essential agreements that can lead to emissions peaking within the next decade and put the world on a track toward halving global emissions by 2050 compared to 1990 levels. Rapid reductions in deforestation emissions are critical to this task. It is therefore essential that the Bali Mandate includes ambition, content, process and a timetable for negotiation of a mechanism to provide incentives for reducing emissions from deforestation.