

**Comments from CSIRO Forest Biosciences  
on Garnaut Climate Change Review Issues Paper 1  
Climate Change: Land Use – Agriculture and Forestry**

**Submitter**

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a) It is critical to define exactly what is meant by the 'forestry sector'. Does this mean only planted forests and land clearing (Kyoto Protocol Articles 3.3 and 3.7) or does it include native forests and managements options (Article 3.4)?

b) With an estimated 10.5 billion tonnes of carbon, excluding soil carbon (BRS 2003), Australia's forests are a major terrestrial store of carbon in Australia. So, protecting them from threats posed by climate change, such as increased risks from bushfires, should be a major priority. This should include consideration of non-CO<sub>2</sub>, as well as CO<sub>2</sub>, greenhouse gas emissions.

c) There is great potential for major expansion of tree planting into low-medium rainfall zones (<700 mm annual rainfall) for carbon sinks and also for biofuels (Consortium 2001, O'Connell et al. 2007). For example, in November 2007 Woodside Burrup Pty Ltd announced it had entered into a \$100 million program with CO<sub>2</sub> Australia Ltd to plant mallee trees to help offset carbon emissions from Woodside's Pluto natural gas project, near Karratha in Western Australia. There is a need for more scientific research to identify similar opportunities.

d) Section 2 should consider atmospheric change as well as climatic change, as the increased levels of atmospheric CO<sub>2</sub> will have important interactive effects on plant growth. Steffen and Canadell (2005) have produced a useful general summary, while Raison et al. (2007) have described the particular needs for improved information for forests.

e) Section 3 – Adaptation - CSIRO is developing a major review of climate change adaptation options for agriculture and forestry for Land and Water Australia. This is a major update of a previous 2002 review for the Australian Greenhouse Office (Howden et al. 2002).

f) Throughout, greenhouse gas emissions are considered in isolation or at the most are poorly linked to on-farm production. There should be stronger links to other very significant and relevant policy initiatives, such as the National Water Initiative ([www.nwc.gov.au/nwi/index.cfm](http://www.nwc.gov.au/nwi/index.cfm)) and the Natural Heritage Trust ([www.nht.gov.au](http://www.nht.gov.au)). Mention should be made of net impacts, and of the positive benefits forests offer for provision of ecosystem services, and potential trade-offs with water for planted forests.

g) In the section on "Diffuse sources and sinks" (last dot point on page 4) it is said that agricultural and forestry emissions are often diffuse and small. There are exceptions, such as major bushfires and large areas of new forests.

h) Page 5 does not list new plantations, storage in products and energy substitution in its list of forestry mitigation options – although these are referenced later.

i) Throughout, mention is made of the costs of measurement and verification and that at times these may be so high as to prohibit entry into an emissions trading system. This may well be true in many cases, as it is essential to estimate greenhouse gas balances using well calibrated and tested models, based on high quality data. Australia's National Carbon Accounting System (NCAS) provides an excellent basis for assessing afforestation and reforestation (A/R) activities, as it tracks land use change at 25 m resolution. However, the practicalities of tracking A/R activities for trading or offsets may well depend on their scale and also the price of carbon.

j) The last dot point on page 7 refers to using a mixture of satellite imagery and age/species knowledge to calculate carbon stored in forests. These assessments would need to be complemented by some on-ground measurements using sample plots and tools for spatial extrapolation, in order to estimate annual carbon storage. The NCAS does not claim to be able to make precise estimates of C change at specific sites, but aims to avoid systematic bias. Carbon sequestration estimates for particular plantations would need to be backed up by some simple site specific information.

k) Pages 8 and 9 ask what mitigation measures should be eligible in an emissions trading system and issues of phasing and timing are discussed. In Section 6.2.2 of their report the PMTG (2007) commented that “undertaking low-cost measures to reduce deforestation and promote carbon sinks, both within Australia and internationally, should be an immediate priority. Early development of carbon sink forests would also provide a means to assist firms to build familiarity with offset mechanisms and assist in achieving least-cost abatement if emissions trading is introduced.” New forests should be eligible in the first phase of implementation on the basis that they are simplest to verify (AGO 2006) and can fulfill other, multiple, natural resource management objectives (Consortium 2001). Storage in wood products and other off-sets should come later when a verifiable measurement scheme is developed.

l) There is a need to stress the importance of sustainable forest utilization to provide on-going benefits of fossil fuel substitution (via either bioenergy, or the provision of materials with low embodied energy). This allows the benefits of C sequestration on a particular piece of land to be repeated and to continue in perpetuity. At the scale of the forest estate, a significant on-going C stock can be maintained whilst a portion of the forest is harvested annually.

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