Submission in regards Issues Paper 1 – Climate Change: Land Use - Agriculture and Forestry

Dr Alastair Woodard
Wood Products Victoria

Wood Products Victoria welcomes the opportunity to provide this submission to the Garnaut Climate Change Review, *Issues Paper 1 – Climate Change: Land Use – Agriculture and Forestry*.

It is acknowledged that the aim of the review is to:

> *"examine the impacts of climate change on the Australian economy, and recommend medium to long-term policies and policy frameworks to improve prospects for sustainable prosperity*"[1].

Wood Products Victoria also endorses the Review's recognition of the "importance of the forestry and forest products sector in the Australian context of climate change and the need for appropriate incentives for participating in the mitigation effort". Accordingly, we offer the following submission in support of this position.

Submission Focus

The focus of this submission is not on the detail and mechanics of forests as carbon sinks (other submissions from Australian Forest Industry associations, ie A3P, NAFI, etc will cover these specific forestry issues in detail); rather, the focus of this submission is to highlight in the development of future medium to long term policies and policy frameworks the important issues of:

- embracing in any future emissions trading scheme a full Life Cycle Assessment (LCA) approach to sector impact (all sectors: agriculture, forestry, mining, manufacturing, water, transport, energy, etc) in terms of carbon emissions (and other environmentally critical outputs), and
- in regards mitigation options, recognition of the storage of carbon in wood based products.

Fit to Issues Paper 1

The information provided in this submission is focussed on the 'Mitigation Challenge and Policy Options' section of Issues Paper 1 (pages 4-6), and particularly the option of the pursuit of a suitable Australian emissions trading scheme (ETS), where it is agreed that extreme care must certainly be taken to ensure the process produces environmentally positive solutions not perverse environmental outcomes. Policy and regulation must be holistic and based on solid science and in terms of processes and outputs should embrace a full LCA approach.

14th January 2008

[1] Issues Paper 1 - Climate Change: Land use - Agriculture and forestry, http://www.garnautreview.org.au

Life Cycle Assessment (LCA)

An emissions trading scheme (ETS) is going to be one of the major mitigation policy options. Putting aside for the moment the 'governance, financial and social' questions/issues of implementing an appropriate ETS, the fundamental issue is 'how do you fairly, scientifically and objectively measure the environmental impact of any product, industry or service; not just CO_2 emissions, but all environmental impact; not just at one point in time, but over the full impact life. This can only be done using a full life cycle assessment (LCA) approach. LCA must ultimately be the basis for any future national ETS, mandated government environmental regulatory scheme or green-specification / eco-labelling process.

Professor Garnaut recently identified[2] the conditions under which international trade in emissions rights might help to reduce the cost of Australian and global mitigation. Two of the four conditions were that:

- all countries have a similar definition of a carbon unit, and
- all countries have a monitoring and enforcement mechanism of a minimum standard.

A robust and scientifically based LCA approach addresses both of these issues as it provides the basis for agreement on specific definitions for environmental impact measurement (including CO_2 and CO_2e) and the framework for delivering consistent international assessment and monitoring. LCA provides the only true consistent, scientific methodology of measuring environmental outputs and impact.

An environmental life cycle assessment (LCA) is a "detailed, extensive tool used to systematically evaluate the environmental impacts of a product or system" (ISO 2006). LCA provides a formal process of quantifying the environmental effects of any product/system (including the determination of the full extent of direct and indirect CO_2 emissions caused) throughout individual discrete processes (gates) or over its entire life (cradle to grave), it accounts for all the:

- material and energy usage *(inputs),* and
- subsequent environmental impacts *(outputs)*.

Put simply, for all sectors LCA is a tool for assessing the total environmental impact of a product or service, from the start (birth, planting, extraction of raw materials, etc) through processing, transport, use, reuse, recycling and finally disposal. For each stage, the impact is measured in terms of resources used and environmental impacts caused.

Though the details of an Australian ETS are still to be sorted, clearly any scheme will require company disclosure and/or some sort of independent calculation/verification/auditing of environmental impact. To ensure a fair and level playing field there will need to be clear national and international procedures and protocols covering this assessment/impact process. LCA should be embraced by government and industry nationally to provide this.

At a unit process (single company) or sector level (aggregation of similar companies) LCA also provides the tool for identifying and targeting the 'most effective mitigation opportunities' in a process - as the systematic analysis breaks the process down into its individual elements and assesses the impact of each. Major impact areas can quickly be targeted for improvement or focussed R&D activity. Therefore if an LCA approach is utilised, accelerated improvements can be expected in cleaning up industry sectors. In a business promotional sense, LCA can also be a powerful tool for comparing the environmental credentials of similar products and services for the marketing of 'green goods'.

[2] Garnaut, R., 2007, "Will Climate Change Bring an End to the Platinum Age?", Paper presented at the inaugural S.T. Lee Lecture on Asia and the Pacific, ANU, 29 Nov 2007.

Virtually all industry sectors, cognizant of the issues around current and potential environmental regulation, now support a full life cycle approach to assessment and accounting. A recent submission from the Australian Dairy Farmers to the AGO on the *National Greenhouse and Energy Reporting System* discussion paper suggested the following[3].

> *"The treatment of agriculture in terms of Lifecycle Assessment (LCA) and subsequent emissions accounting at the farm, company and industry at national and international levels must be improved. Australian agriculture is incredibly diverse in its climate, soil types and farm practices. We emit and sequester greenhouse gases. There are too many assumptions in current models and agriculture cannot accept a one-size-fits-all approach. This also relates to the way agriculture is eventually brought into an ETS and how the agricultural businesses are assessed in terms of emissions reduction. "*

The Australian Building and Construction sector, where a high proportion of sawn forest products are used, is also solidly behind a full LCA approach to building material assessment. The Building Products Innovation Council (BPIC) who represents all the major building product sectors (concrete, steel, timber, masonry, etc,) also fully supports the need for a consistent, scientifically based, objective and agreed level playing field in regards product impact assessment; each member sector recognising that their products have benefits at some point in the life-cycle: during the manufacture of the individual products, during the operational phase of the building or at end-of-life where the de-constructed products can be reused, recycled, burnt as biomass to recover energy or disposed of (see Fig 1).

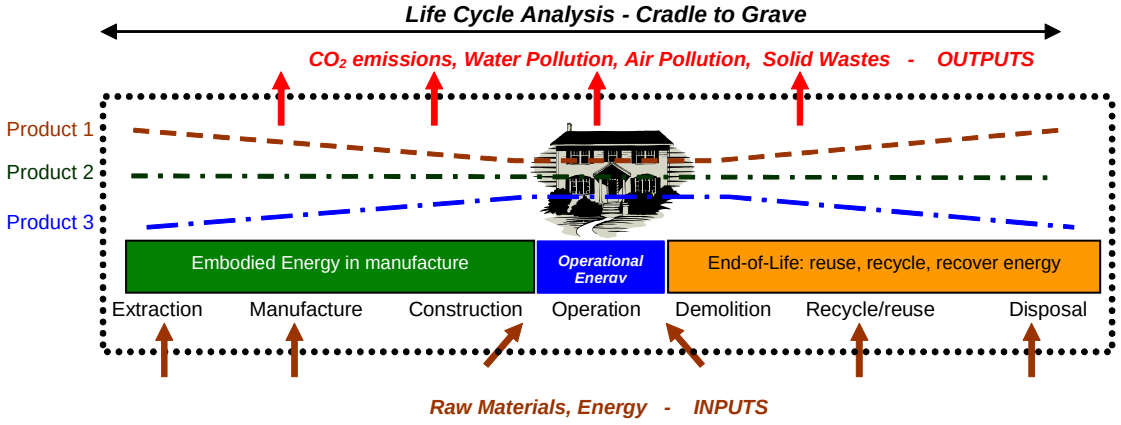


Fig 1: Environmental assessment of building products - Life Cycle Analysis.

For instance in terms of individual building products:

- aluminium is very high in energy in manufacture (embodied energy) but is highly recyclable at end of life;
- timber uses a low amount of energy in manufacturing, but these CO_2 emissions are offset by the carbon dioxide from the atmosphere stored in the timber during growth; at end-of-life timber can also be reused, recycled or burnt as biomass thereby offsetting the use of non-renewable fossil fuels.

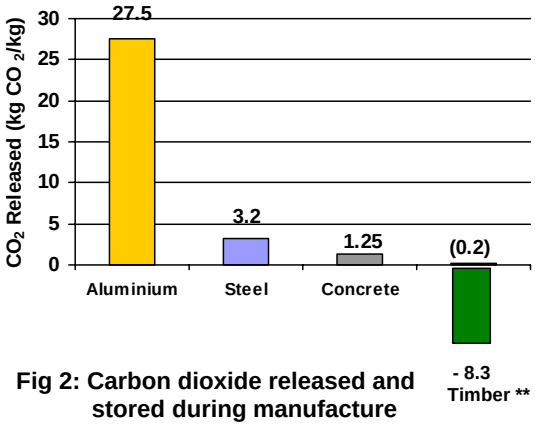


Fig 2: Carbon dioxide released and stored during manufacture

[3] ADF, 2007, "Submission: National Greenhouse and Energy Reporting System discussion paper " Australian Dairy Farmers Ltd, 16 Nov 2007 http://www.greenhouse.gov.au/reporting/pubs/16australiandairyfarmers.pdf

Accurate life cycle assessment is totally dependant on having robust, detailed and consistent local life cycle inventory data for all of the processes involved.

To facilitate this in Australia a national publicly accessible life cycle inventory database is being developed under the *AusLCI Database Initiative.* This project is being spearheaded by the Australian Life Cycle Assessment Society (ALCAS) and CSIRO Sustainable Ecosystems, in partnership with a range of other research institutions, government departments and industry participants.

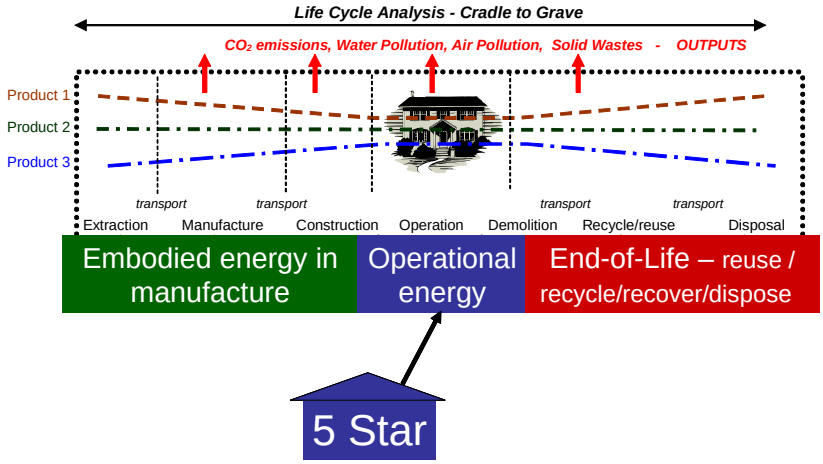
The project has enthusiastic support from both government and industry:

- four state government departments have committed to assist with funding the development of a long term Business Plan: Sustainability Victoria, Zero Waste SA, Queensland EPA and NSW Dept of Environment and Climate Change, as has the Federal Department of Environment and Water Resources;
- the Building & Construction sector through BPIC have secured a $1.6M AusIndustry grant ($800k from Govt, $800k from industry) to assist with fast-tracking this national, public LCI database (additional funding from other sectors is however still needed); and
- a number of individual industry sectors have already commenced the process of gathering specific, current, Australian sector LCI data for inclusion in the database.

More detailed information on the AusLCI vision, benefits and delivery frameworks is supplied in Appendix A, but the important outtake for this submission is that an agreed LCA approach and a national public LCI database supported by both industry & government is critical to any fair and objective assessment of environmental impact. The fact that environmental regulations have already started to be introduced that do not take a full LCA approach are already causing perverse environmental outcomes for some sectors as illustrated in the following section.

Government Thermal Regulations – Perverse Environmental Outcomes

In the Building & Construction sector, current regulations focus almost solely on the operational energy phase. Mandated Australian Energy Regulations (such as Victoria's 5 Star residential energy regulations and the Energy Efficiency requirements of the Building Code of Australia) are currently only focussed on improving the 'operational energy efficiency' of new homes.



These regulations are highly restrictive and are providing some perverse environmental outcomes one key reason being because of the fact they do not take a broader life cycle approach that includes the 'embodied energy' impacts of the materials used to build the homes.

The Productivity Commission Report on Energy Efficiency (August 2005) acknowledged this inconsistency, noting:

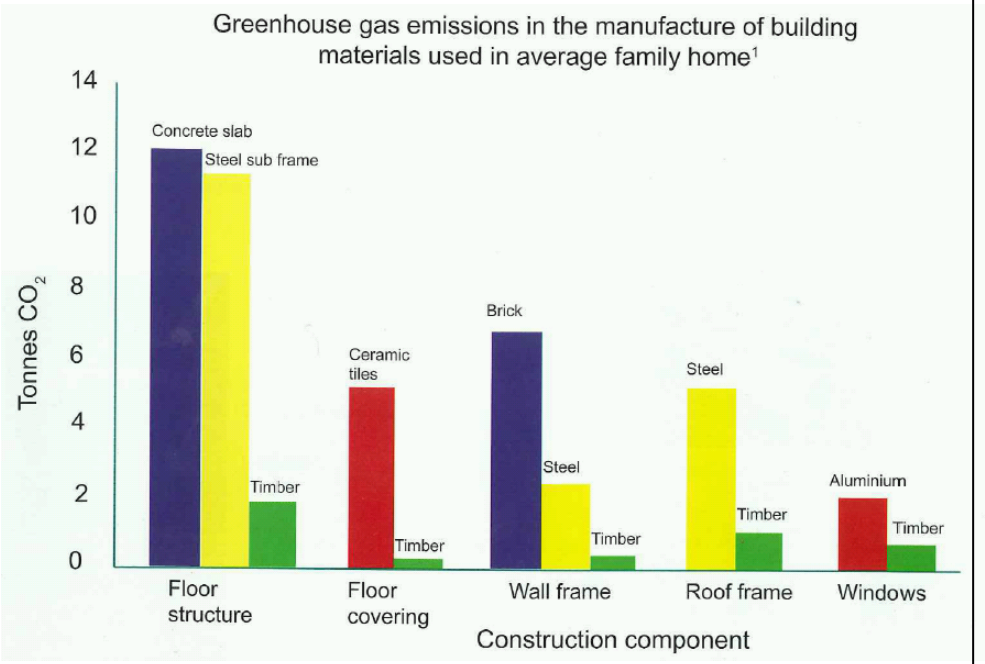
> *"An additional concern is that current standards do not target many building-related emissions, such as those from manufacturing building components, and from constructing and demolishing buildings. As a result, the standards may not be as*

effective in reducing emissions as anticipated, particularly if they encourage the use of components that require more energy to manufacture.[4] *"*

The importance of embodied energy is illustrated in the Productivity Commission's report which cites an Australian Greenhouse Office (AGO) case study[5] that compared concrete slabs versus timber floors for a given house design:

> *"The study found that a concrete floor would reduce emissions from occupants' operational energy use, but it would take 62 years for this benefit to outweigh the higher embodied emissions of a concrete floor"*.

The introduction of 5 Star in Victoria has resulted in many builders converting from raised timber sub-floors to concrete slab on ground as this provides one of the simplest ways of meeting the 5 Star requirements when using the available energy rating software packages which give preference to mass type construction over light-weight construction.



The CRC for Greenhouse Accounting has found that for an average size house, each conversion away from timber to a tiled concrete slab results in an additional 15tonnes of CO_2 effectively emitted[6] *– the opposite effect for which the regulations were introduced*.

The recent IPCC Fourth Assessment Report, (Working Group 3 Report, "Mitigation of Climate Change") also noted a similar finding reporting:

> *Wood products can displace more fossil-fuel intensive construction materials such as concrete, steel, aluminium, and plastics, which can result in significant emission reductions (Petersen and Solberg, 2002). Research from Sweden and Finland suggests that constructing apartment buildings with wooden frames instead of concrete frames reduces lifecycle net carbon emissions by 110 to 470 kg CO_2 per square metre of floor area (Gustavsson and Sathre, 2006). The mitigation benefit is greater if wood is first used to replace concrete building material and then after disposal, as biofuel. (p.551)*

Clearly, just focussing on one part of the life cycle picture is inappropriate. For all future environmental regulations a full life cycle approach must be taken.

[4] 2005, "The Private Cost Effectiveness of Improving Energy Efficiency", Productivity Commission Inquiry Report, No 36 31 Aug 2005.

[5] 1999, "Australian Residential Building Sector Greenhouse Gas Emissions 1990-2010", a project for the Australian Greenhouse Office undertaken by Energy Efficient Strategies

[6] NAFI, 2007, "Forest Industries and Climate Change", National Association of Forest Industries

Wood Products Store Carbon

Much has been done in investigating the potential for forest mitigation initiatives in the last decade since Kyoto's limited response to the recognition of the obvious benefits of forestry.

The new position is most clearly set out in the latest IPCC Working Group reports released 17th of November 2007. Working Group III's report, "*Mitigation of Climate Change*"[7], clearly states that: "*Forestry can make a very significant contribution to a low-cost global mitigation portfolio that provides synergies with adaptation and sustainable development*".

The authors of the report, while recognising the critical importance of addressing deforestation globally, also clearly appreciate the reality that 'wood products store carbon' and that this should be recognised. They state:

> *"Mitigation options by the forestry sector include extending carbon retention in harvested wood products, product substitution, and producing biomass for bio-energy. This carbon is removed from the atmosphere and is available to meet society's needs for timber, fibre, and energy."*
>
> *"In the long term, a sustainable forest management strategy aimed at maintaining or increasing forest carbon stocks, while producing an annual sustained yield of timber, fibre or energy from the forest, will generate the largest sustained mitigation benefit."* (p543)

The authors also clearly understand that supporting sustainable forestry provides a range of benefits socially, economically and environmentally:

> *"Globally, hundreds of millions of households depend on goods and services provided by forests. This underlines the importance of assessing forest sector activities aimed at mitigating climate change in the broader context of sustainable development and community impact. Forestry mitigation activities can be designed to be compatible with adapting to climate change, maintaining biodiversity, and promoting sustainable development. Comparing environmental and social co-benefits and costs with the carbon benefit will highlight tradeoffs and synergies, and help promote sustainable development (low agreement, medium evidence)."* (p543)

The authors are also direct in their views as to why more hasn't been made in regards the obvious benefits forests make in assisting with CO_2 reductions:

> *"However, this opportunity is being lost in the current institutional context and lack of political will to implement and has resulted in only a small portion of this potential being realized at present (high agreement, much evidence)."* (p543)

It is the political will to implement that is lacking, not the science.

The Science

It is a fact that growing forests absorb carbon dioxide from the air and 'sequester' (store or fix) it in woody tissue. Trees are the most powerful concentrators of carbon on earth. The atmosphere contains around 360 parts per million of CO_2, or 0.177grams per cubic metre.

[7] Nabuurs, G.J., O. Masera, K. Andrasko, P. Benitez-Ponce, R. Boer, M. Dutschke, E. Elsiddig, J. Ford-Robertson, P. Frumhoff, T. Karjalainen, O. Krankina, W.A. Kurz, M. Matsumoto, W. Oyhantcabal, N.H. Ravindranath, M.J. Sanz Sanchez, X. Zhang, 2007: Forestry. In Climate Change 2007: Mitigation. Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [B. Metz, O.R. Davidson, P.R. Bosch, R. Dave, L.A. Meyer (eds)], Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA. http://www.ipcc.ch/ipccreports/ar4-wg3.htm

Through photosynthesis, trees concentrate carbon, in:

- hardwood trees (densities 650 - 900 kg/m^3), around 1.8 - 2.6 million times producing wood that contains 325 – 450 kg of carbon per cubic metre;
- softwood trees (density approx 500 kg/m^3), around 1.4 million times, producing wood that contains about 250 kilograms of carbon per cubic metre[8].

A hectare of pine forest, growing at a rate of 10 cubic metres per hectare per year will absorb the carbon from a column of air 1.4 kilometres high above that hectare every year. Over the forests growth cycle, it can absorb and store the carbon from a volume of air over 1,000 times the volume taken up by the forest itself [8].

The CRC for Greenhouse Accounting have estimated[9] that In Australia, forests store an estimated 10.5 billion tonnes of carbon (excluding that in the soil) which is equivalent to the removal from the atmosphere of around 38.5 billion tonnes of carbon dioxide. Additionally, Australian commercial native forests and plantations (hardwood & softwood) store around 323 million tonnes of carbon, of which wood products store more than 230 million tonnes of carbon.

When a forest is harvested the carbon in the wood continues to be stored - for the life of the product, through its next service life if it is recycled, or for the period of time it is sequestered in landfill. When sustainable forest management regimes are in place, replacing the harvested trees with new actively growing trees ensures that the net sequestration of carbon dioxide continues.

The IPCC Working Group III authors also recognise this, stating[10]:

> *"Wood products derived from sustainably managed forests address the issue of saturation of forest carbon stocks. The annual harvest can be set equal to or below the annual forest increment, thus allowing forest carbon stocks to be maintained or to increase while providing an annual carbon flow to meet society's needs of fibre, timber and energy. The duration of carbon storage in wood products ranges from days (biofuels) to centuries (e.g., houses and furniture). Large accumulations of wood products have occurred in landfills (Micales and Skog, 1997). When used to displace fossil fuels, woodfuels can provide sustained carbon benefits, and constitute a large mitigation option.*
>
> *Wood products can displace more fossil-fuel intensive construction materials such as concrete, steel, aluminium, and plastics, which can result in significant emission reductions (Petersen and Solberg, 2002)."* (p551)

The Australian greenhouse inventory uses the 'stock change' approach, which allocates wood products to different product pools, based on assumed service life of the products, and assumes oxidation during service life (Australian Greenhouse Office 2004). Thus, carbon storage in wood products is considered to be transient and a function of the service life of the products. This method considers carbon storage in both short and long-lived products but does not consider the long-term carbon storage that will occur if wood products are placed in landfill or used as fuel for energy.

Recent research from the Australian Cooperative Research Centre (CRC) for Greenhouse Accounting strongly supports the position that recognition is required of both a) the long term

[8] Moore, P., 2000, "Green Spirit, Trees are the Answer", Greenspirit Enterprises Limited, Canada

[9] Robinson, M., 2007, "Forests, Wood and Australia's Carbon Balance", produced by the Cooperative research Centre for Greenhouse Accounting on behalf of the Forest & Wood Products Research and Development Council

[10] Nabuurs, G.J., etal, 2007, "Forestry. In Climate Change 2007: Mitigation". Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, November 2007

storage of carbon, due to sequestration in wood products in landfill, and b) recognition of avoided fossil carbon use when wood products or residues are used for energy.

In regards a), previous IPCC (1997) estimate methods for greenhouse gasses from wood in landfills assumed that:

- between 15 – 30% of the carbon in the wood would be decomposed in landfill, and
- 50% of the carbon would be emitted as methane.

The CRC for Greenhouse Accounting research has found that:

- no more than 4% of the carbon in wood products had decomposed in landfill after 49 years, and
- only 0 – 3% of the carbon from wood products is ever emitted as landfill gas.[11]

	IPCC Assumption 1997	*CRC for Greenhouse 2006*
Estimated decomposition in landfill	15-30%	4%
Landfill gas emitted from wood products	50%	0-3%

They concluded that "*rather than constituting a significant source of greenhouse gas emissions, wood products in landfill are in fact a significant long-term store of carbon."*

In regards b), the CRC for Greenhouse Accounting strongly suggested that *"reductions in the use of carbon from the fossil fuel carbon pool, due to the use of residues and redundant wood products, should be estimated to determine the contribution to greenhouse gas mitigation attributable to the forest sector."*

The CRC proposed a formula for calculation of the long term storage of carbon (CLS) that acknowledges[11]:

a) the contribution of residues
b) low rates of decomposition in landfill, and
c) attribution for avoidance of fossil fuel emissions.

$$CLS, (\%) = \underbrace{[DF(CRxRF + CPxPF)]/100}_{\text{Displaced fossil fuel carbon}} + \underbrace{[LF(CRxRL + CPxPL)]/100}_{\text{Carbon storage in landfill}}$$

The CRC suggested that this method could be applied to estimate long term carbon storage attributable to wood products at both the project and national level for any nation, where adequate data on processing, use and disposal of wood products and their residues are available; and had application for projects within carbon trading schemes, and as a component of life cycle assessment.

Research in this area continues with more sophisticated carbon stocks sand flow models being developed to more accurately account for carbon stored[12].

The Political Will

As mentioned earlier it is not the science holding forestry recognition back it's what we do with what we know. The IPCC authors have suggested the following.

[11] Gardner, W.D., Ximenes, F.A., Cowie, A.L., 2006, "A Method for Estimating Long-Term Carbon Storage Attributable to Wood Products that Considers the Fate of Residues and Redundant Products and Use of Wood Products for Energy". CRC for Greenhouse Accounting

[12] Richards, G.P. et al, 2007 "Developing a carbon stocks and flows model for Australian wood products", Australian Forestry 2007, Vol 70, No2 pp 108-119

"Realization of the mitigation potential requires institutional capacity, investment capital, technology RD and transfer, as well as appropriate policies and incentives, and international cooperation. In many regions, their absence has been a barrier to implementation of forestry mitigation activities. Notable exceptions exist, however, such as regional successes in reducing deforestation rates and implementing large-scale afforestation programmes. Considerable progress has been made in technology development for implementation, monitoring and reporting of carbon benefits but barriers to technology transfer remain (high agreement, much evidence).

Forestry mitigation activities implemented under the Kyoto Protocol, including the Clean Development Mechanism (CDM), have to date been limited. Opportunities to increase activities include:

- *simplifying procedures,*
- *developing certainty over future commitments,*
- *reducing transaction costs, and*
- *building confidence and capacity among potential buyers, investors and project participants.*

(high agreement, medium evidence)."

Whilst Australia has already committed to assisting with deforestation issues overseas, a real opportunity exists now for Australia to take the running in regards forestry recognition and mitigation frameworks - to show leadership in this area that others countries can then emulate.

Whilst to tackle this globally may seem daunting, it is a far more straight forward issue on a local level, as in Australia:

- our forests are highly regulated and closely managed,
- forest certification is well underway, and
- forestry professionals with an excellent knowledge of the issues abound.

Difficult issues will still need to be worked through, but it is also this challenge that should provide the motivation to find the right answers. The main catalyst needed however is the political will and leadership to put in place supportive policies, settings and incentives.

Recommendations

This submission proposes that medium and long term policies and policy frameworks must support:

- a full Life Cycle Assessment (LCA) as the basis for all sector impact assessments for carbon emissions (and other environmentally critical outputs);
- the current development of a national public LCI database (AusLCI) and that this be strongly supported by both government and industry;
- in the development of all future environmental regulations a full Life Cycle Assessment (LCA) approach, just focussing on one part of the life cycle picture is inappropriate;
- and acknowledge the storage of carbon in wood based products, during their life and at end-of-life, and that this should be fully recognised in any future Australian carbon emissions trading scheme.

Thank you for the opportunity to provide this submission. Further discussion on these important issues and how they might be pursued would be welcomed. If you have any questions please contact Alastair Woodard on 03 9611 9058 or woodard@wpv.org.au.

Appendix A

The Australian Life Cycle Inventory (AusLCI) Database Initiative, launched publicly in November 2006, is Australia's contribution to a global initiative to promote sustainable consumption and production. This initiative has been spearheaded by the United Nations Environmental Programme (UNEP) and the Society of Environmental Toxicology and Chemistry (SETAC), who joined together to work towards the development of globally accessible national LCI databases. Many countries have taken up the challenge. The AusLCI Database Initiative project was initiated by the Australian Life Cycle Assessment Society (ALCAS) and CSIRO and is currently being administered by an AusLCI Interim Steering Committee which is comprised of members of ALCAS, CSIRO, state and federal government organisations, research bodies and industry.

The AusLCI database will provide information on a product's environmental attributes – from its raw materials and production to the end of its productive use – based on widely accepted life cycle assessment (LCA) methodology. This will be a critical tool to inform business, government and consumer decision making, and facilitate life cycle thinking and management.

In terms of its 'Value proposition': AusLCI will provide …
Australia's credible and reliable source of national LCI data that supports Australian industry in remaining competitive internationally and domestically, given momentous changes in:

- *International tightening of environmental impact regulations*
- *Environmental ethics as a key consideration to public investment and staff attraction and retention*
- *Australia's recent ratification of the Kyoto Protocol*
- *Australia's pending introduction of a carbon trading scheme.*

The Benefits: A single comprehensive, universally accepted database of LCI data…

- Levels the playing field for product comparison
- Sets the common denominator for comparing the environmental impact of products and services
- Represents a reliable rating system based on whole LCA (current tools focus on particular parts of the life cycle, not cradle to gate)
- Fosters innovation in design and manufacturing
- Promotes education and consensus building process
- Integrates with existing tools and applications
- Promotes improved access and utilisation and is publicly available

Application: These benefits and the characteristics of the data enable...
Industry to:

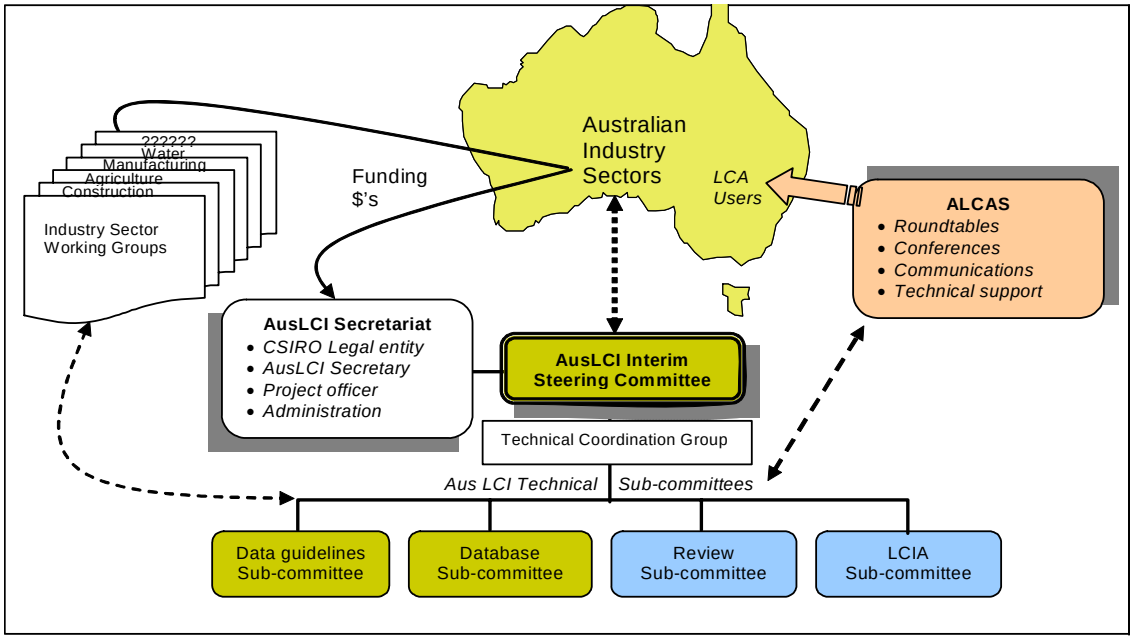
- Proactively assess, mitigate and quantity efforts required to offset CO_2 emissions
- Make informed decisions, either in driving process efficiencies, making purchases, furthering their environmental goals and quantifying impacts
- Benchmark process and product performance against industry standard
- Demonstrate product credentials and increase sales
- Provide enhanced disclosure to consumers and ability to respond to public criticism of products
- Obtain market advantage in the anticipated low impacts and carbon sequestering benefits for individual products over competitors

Government to:

- Guide policy direction and promote sustainable practices within the Australian economy
- Provide a strong platform for government for funding, education, policy and legislation
- Assist in decision making i.e. Analysis of investment/purchasing decisions
- Provide enhanced educational resources

AusLCI Delivery Structures
The overall strategic leadership and management of the AusLCI initiative is currently being undertaken by the *AusLCI Interim Steering Committee*, supported by an AusLCI Secretariat. The Interim Steering Committee is the first and primary point of contact for enquiries or information requests about AusLCI, it is also responsible for managing budget and financial matters, coordinating information and committee activities, and assisting in organising external events, among others.

The AusLCI Interim Steering Committee has also initiated the development of an AusLCI Phase 2 Business Plan – which will describe the future operating structure and governance requirements of the AusLCI database. Four state government departments have now committed to assist with funding for the development of the Plan: Sustainability Victoria, Zero Waste SA, Queensland EPA and NSW Dept of Environment and Climate Change, as has the Federal Department of Environment and Water Resources. The tender for the Business Plan development was awarded to Deloitte in Dec 07 and the findings are expected in Feb 08.



Convened by, and reporting to, the Interim Steering Committee are six *AusLCI Technical Development Sub-committees*. These sub-committees Committees are responsible for all specific technical development issues. Participation in any of the committees is voluntary and new members are most welcome to nominate. The committees currently established include:

- Data guidelines
- Allocation
- Quality assurance and documentation
- Inventory review
- Database and user interface
- Impact assessment

A number *Industry Sector Working Groups* (ISWGs) have also been established. Whereas the Technical Committees are responsible for the overall generic technical and methodological aspects of the AusLCI database, the ISWGs are responsible for the collation of specific sector inventory information. This information will be used to populate the inventory which will allow the development of environmental profiles of the Australian products and services included within the initiative.

There are 10 ISWGs at present:

- Agriculture
- Chemical Industries

- Construction (sub-groups: wood products, cement/concrete/aggregates, masonry products)
- Energy
- Metals (sub-groups: ferrous, non-ferrous)
- Mining & Quarrying
- Plastics
- Transport
- Waste Management
- Water Services

Current Activities
Thee next twelve months will see a number of key activities completed before AusLCI goes live and becomes fully operational. This includes engaging a broader range of stakeholders including data users and data providers, development and agreement on data guidelines and technical specifications, and development of a business model for the long term and sustained operation of AusLCI.

Ultimately, it is envisaged that an appropriately convened and constituted organisation will manage AusLCI, operating a transparent business process and reporting to a Board. The nature and form of this organisation and business plan is currently being developed, alongside the technical development of the database itself.

AusLCI Contacts

AusLCI Interim Steering Committee

Chairman:	Dr Greg Foliente	03 9252 6000	greg.foliente@csiro.au
Secretary:	Dr Alastair Woodard	03 9611 9058	woodard@tpcsolutions.com.au

Technical Sub-Committee Chairs

Data Guidelines	Mr Tim Grant	0408 104 977	tim@lifecycles.com.au
Allocation	Mr Rob Rouwette	03 9925 9082	rob.rouwette@rmit.edu.au
Quality Assurance	Dr Rajah Tharumarajah	03 9252 6000	rajah.tharumarajah@csiro.au
Database Development	Dr Rajah Tharumarajah	03 9252 6000	rajah.tharumarajah@csiro.au
Inventory Review	Dr Paul Koltun	03 9252 6000	paul.koltun@csiro.au
Life Cycle Impact	Dr Greg Peters	02 9385-5097	g.peters@unsw.edu.au

Industry Sector Working Groups

Secretary:	Dr Sean Shiels	03 9695 2930	sean.shiels@epa.vic.gov.au