

# Garnaut Review Issues Paper 1

## Climate Change: Land use – Agriculture and Forestry

Comments by Heather Kenway

**‘The atmosphere does not discriminate: a tonne of carbon dioxide is bad news whatever the source.’ *New Scientist* editorial, 1 December 2007**

**‘Forests are an essential natural mechanism for stabilising atmospheric concentrations of carbon dioxide in the short and long term.... We must not forget that the laws of science apply universally and do not recognise political boundaries. Whether a natural forest is in Tasmania, Victoria or Papua, it performs the same kind of role in the global carbon cycle and in helping to regulate atmospheric levels of carbon dioxide.’ Professor Brendan Mackey, article in the *Age*, 7 August 2007**

- In the end it will be the cuts in total carbon emissions that count in addressing climate change, not just the cuts in emissions from fossil fuels.
- And the outcome will be determined as much by what we do to our carbon sinks as by how much we reduce emissions.
- Native forests are our major terrestrial carbon sinks. Australia’s native forests, especially old growth forests, but also maturing regrowth forests, sequester more carbon per hectare than European forests, Australian hardwood and softwood plantations, and agricultural lands. If we are serious about addressing climate change, and getting good (and early) outcomes, we should recognise that protecting and improving them is urgent and just as important as protecting the tropical forests in Asia or South America.
- The latest (not yet complete) reputable scientific research indicates that logging native forests is responsible for at least 10% of total Australian annual CO<sub>2</sub> emissions, perhaps significantly more. Over 80% of those emissions result from logging for the export woodchip industry. Significant early reductions are environmentally and economically sound and achievable, including through the substitution of plantation supplies for native forest supplies for export woodchips.
- Australia needs a comprehensive climate change strategy, and needs to have detailed work done on all major sectors now, not just on fossil fuels and the emissions trading system (ETS). Both agriculture and forestry produce significant greenhouse gas emissions, and also absorb CO<sub>2</sub> from the atmosphere.
- The apparent preference of the Garnaut Review for postponing work on agriculture and forestry until the ETS has been developed and bedded down is misplaced and unnecessary. Now that the Review is a national as well as a States’ exercise, it can draw on wider expertise inside and outside the bureaucracy and develop a sound policy basis, including for setting a 2020 emissions target for Australia.
- Because it may be desirable for Governments to adjust priorities in the work of the Review, I have written to the Prime Minister and Ministers raising this issue (Attachment A).
- Reputable forest scientists measuring carbon storage and emissions say that the Australian Greenhouse Office accounts for forests are incomplete, seriously underestimate the

emissions from logging because more research is needed on different forest types and carbon in soils, fail to account for emissions from plantations once logging rotations begin, and take inadequate account of the current and potential carbon carrying capacity of native forests if logging ceased and protection and rehabilitation measures were put in place. The AGO needs to be resourced to fill these gaps, so that Australia can be confident in making specific domestic and international commitments in regard to its total emissions reductions.

- The review paper needs to disaggregate agriculture from forestry and the sectors within forestry. Native forests, both old growth and regrowth, are very different from agricultural crops and from softwood and hardwood plantations. They have economic and environmental values and uses beyond the commercial value of the timber that is logged and sold.
- They are likely to need different policy solutions from crops and plantations.
- In a world of carbon, biodiversity and water trading, native forests are far more valuable left in the ground than intensively logged primarily for low-grade purposes, and sold at below-cost prices. They will become even more valuable as more strenuous efforts are required to implement climate change mitigation strategies.
- Work on forest policies is particularly urgent because postponing consideration of the role of native forests in climate mitigation strategies has three effects:
  - We close off the option to make maximum use of forests' capacity to take up CO<sub>2</sub> from the atmosphere now and in the future;
  - Greater reductions in fossil fuel use will be needed to reach reductions targets if logging continues at its current rate, because the carbon carrying capacity of the forests is continually degrading; and
  - We also compromise/diminish other forest ecosystem values (e.g. water, biodiversity) that are crucial to the health of forests, and that will aggravate the impact of climate change and contribute to an even hotter, drier southern Australia.
- New climate change and water policies for native forests can yield positive outcomes more quickly than are likely in the fossil fuels sectors. And they can provide vastly better environmental outcomes, more rational economic outcomes, at modest short term cost to the community, and with the benefit of creating new income and employment streams for the future.
- With new policies to rationalise the forestry sectors, reductions in Australia's annual CO<sub>2</sub> emissions of up to 10%, perhaps more, could be achieved quickly – far more quickly than reductions are likely to be achieved in fossil fuel use.
- New policies would involve a clear statement of the intention of the Commonwealth and State Governments to achieve the transition out of native forest timber for export woodchips and other low grade uses for which substitutes are available, removal of impediments in the way of doing so, introduction of measures to put realistic (and likely increasing) values on carbon, biodiversity and water values in forests, and addressing public misconceptions about the nature, value and impacts of the native forest timber sector that make forestry policy so politically contentious.

## **Removing impediments**

### ***Subsidies***

- Subsidised by States and the Commonwealth, the publicly owned native forest timbers are intensively logged and traded at prices significantly below the cost of developing and maintaining hardwood plantation timber. The plantations are now sufficient to displace supplies for the export woodchip market. These subsidies need to be removed, and replaced by measures to value the ecological services native forests provide in stabilising the climate. This might mean a carbon or more general environmental tax on logging native forests.
- We recognise these services provided by forests in developing countries; we need to do the same for Australia's native forests.

### ***Taxation Concessions***

- At the same time substantial taxation concessions have fostered heavy (arguably excessive) private investment in plantations through managed investment schemes, often involving destruction of native forest and sub-optimal use of scarce prime agricultural lands and using much more water than mature forest or many alternative agricultural uses. This also is becoming a contentious issue. It is time to end the taxation concessions, which are distorting investment decisions, and to encourage the use of plantation timber to displace native forest timber for low grade uses (woodchips, pallets, fence posts and palings, and firewood).

### ***Protecting and enhancing ecological service values***

- The task of protecting and where possible enhancing these climate related values is urgent because they have been seriously degraded over the last four decades. Achieving ecological and economic sustainability through regional forest agreements (RFAs) has failed on both scores, and is impossible under current industry policies and practices. Fine tuning at the margins through operating instructions is not the answer.
- The timeframes required for recovery of ecological service values are many decades longer than those in which we seek to slow/halt climate change. In forests in SE NSW 50 year old regrowth had 75% carrying capacity, full carbon carrying capacity is at 200+ years. Further intensive logging means closing off options for both the present and the future.
- Markets that are now developing in these ecological service values are increasingly putting prices on them far beyond what are being received for current uses. The impediments to an early market-based transition to ecological service uses need to be urgently addressed by Commonwealth and State Governments as essential elements of climate change and water policies.

### ***Addressing public misconceptions***

- A further impediment to encouraging this transition is the state of public opinion on the forestry industry, and climate change policies for forests will have to come to grips with various misconceptions, most of which are actively promoted by industry interests and associations: that native forestry is the greater part of the forest industries; that we need a forestry industry for building materials and most logging is to supply that market; that only waste wood is woodchipped for export to the Japanese paper mills; that thousands of

jobs would be lost if logging native forests were to be severely restricted, and regional economies would be ruined; and that the forest ecosystems regenerate as they originally were. These misconceptions are at the heart of political controversies over forestry.

- Much of the confusion arises from official and industry secrecy around the detail of data relating to the timber industry, especially lack of disaggregation across States, between softwood and hardwood sectors across States and between plantation and native forest hardwood. ABARE or, preferably, the ABS should be charged with providing a more comprehensive set of statistics as an essential tool of good policy development.

### *Emissions, costs and returns from native forestry*

Public misconceptions and the political positions they encourage are not a good basis for policy development. In the following section some SE NSW material is included to add some specific detail to the broader national situation.

- In fact the native timber sector is a small part of the total timber industry in value and employment terms. Structural changes in the timber industry have seen the displacement of hardwoods by softwoods and metals for most building construction materials, composite products and veneers for solid timber and other secondary processing that favours softwoods.
- ABARE statistics indicate that the value of turnover in Australia's woodchipping sector was \$677 million in 2004-05, around 3.7% of the value of turnover in the total timber industry, and the sector's value adding was around 4% of the total.
- Within the native forest sector, most woodchipping is not using forest waste as the public was initially led to believe. The export mills use only whole logs, and it is woodchipping and not sawlogging that drives the industry.
- Most of the native forest logs (over 80% Australia wide, 93% in SE NSW) are woodchipped for export to the Japanese paper manufacturers. Only a small percentage is used for higher grade building construction and furniture; most sawlogs are turned into low grade products like pallets and fence palings and posts (and devalued accordingly). The logging is not selective; few trees are required to be retained; the forests and understorey plants are virtually clear-felled. Carbon retention as a proportion of original carbon carrying capacity is minimal and mostly of short duration.
- In SE NSW, as well as the 93% that goes to the chipmill, around 4% goes to mills for low- grade uses, and around 3% is waste, some of which is sold as firewood. During autumn and winter the remainder (understorey, tree roots, bark, remaining crowns and branches) are burned. Respiratory illnesses increase throughout the region. Good wood craftsmen complain that they are not able to buy high quality timber.
- Preliminary estimates suggest that logging Australia's native forests produce 38 million tonnes of carbon dioxide emissions a year – equivalent to emissions from over 8 million cars, and with a social cost estimated by researchers, based on Stern Report calculations, of \$3,682 million a year. These figures are an underestimate, because research has not yet been done to quantify the significant emissions from forest soils as a result of logging.
- Emissions from logging native forest in SE NSW (excluding emissions from the soils) were calculated to be 5.104 million tonnes of CO<sub>2</sub>, equivalent to emissions from 1.3 million cars a year. The lost opportunity costs of carbon and water from logged native forests in NSW have been estimated at nearly \$800 million a year, of which \$561 million

is for carbon loss alone. The financial return from the woodchip mill to Forests NSW is \$5 million to \$6 million a year.

- There is a clear need for the Garnaut Review to apply Australian parameters to the kinds of calculations made by the Stern Review, in order to come up with a clearer picture of the actual costs, direct and social.
- Reliable employment figures for the native forest sector are not available publicly. Technological change over recent decades in logging equipment (subsidised by the Commonwealth) has led to fewer jobs in that sector. Currently some 200 people are employed in logging and woodchipping in the Eden RFA, including 50 Forests NSW staff with responsibilities also for the softwood operations in the region.
- Industry associations combine softwood and native forestry figures in their publicity material, including the figures for further processing of softwoods, which provide the great majority of jobs. Publicly available ABARE figures do not give a clear picture. One indication of the scale of employment in the native forest sector is wages and salaries for processing woodchips: wages and salaries in this sector in 2004-05 were \$55 million, 1.7% of \$3005 million in the total forest production industry, and this would include a component for processing plantation supplies.
- As employment numbers in the native forest sector have declined and regional economies have diversified, native forestry has long since ceased to be the backbone of the regions. Growth and employment opportunities in the regions are in other industry sectors like tourism and specialised food production and in the timber industry's much larger, more efficient and faster-growing softwood sectors.
- In SE NSW, State forest available for logging is roughly the same area as forest in reserves. Forests NSW is logging the available forest at a rate of 3 percent a year. In the 11 years that the contract with the Eden woodchip mill has to run, this means that one third of all available forest (one sixth of the total forest estate) will be near clear-felled – including old growth with 100% carbon sequestration, 50+ year old regrowth with 75% or more of carbon sequestration capacity, and younger (under 50 year old) regrowth that is sequestering more than mature 15 year old plantation timber.
- These timeframes indicate that plantations cannot replace carbon sequestration lost in logging native forests unless they are established on a vast scale, which would require water resources the nation can not afford.
- The final misconception is that native forests regenerate as they were, and that in any case younger trees are better for absorbing CO<sub>2</sub>. In fact multi-aged, complex ecosystems are being changed into single-age, less biodiverse, more water-hungry and more fire-prone regrowth. Australia had poor soils to start with. Intensive logging of old growth and repeat harvesting of regrowth has meant more degraded soils, loss of stream flow, siltation of water courses, and poorer water quality.
- This is a high price to pay in environmental terms for an industry that does not even pay its own way in economic terms. In terms of climate change mitigation and protection of scarce water supplies it is short-sighted in the extreme.

### **Policy issues**

It is not clear that incorporation into the ETS is the most suitable means of bringing the forestry sector into climate change and water strategies, because the issues go far wider than current deficiencies in the measurement of forest carbon. They encompass concerns for water

and biodiversity, which have their own separate markets developing, and other economic and social values. Broader work on forest policy would seem to be a preferable approach. There are various ways the policy work could be approached. The following proposal includes some key elements.

### **A proposed initiative for forests**

Australia's is the world's largest supplier of hardwood chips for the global paper industry. With a sufficiently large, and rapidly increasing and rapidly maturing plantation sector, Australian governments are now in a position where they could decide to supply only plantation chips into that market. Without a decision to withdraw native forest supplies from an already over-supplied global market the future viability of the Australian plantation sector is put at risk, and the capacity to use native forests for climate change mitigation and water supply protection is reduced. In recent years other countries that, like Australia, have invested heavily in plantations have already made the transition out of native forest supplies. Using native forest timber for future pulp mills and/or production of biofuels has the same negative consequences as using it for export woodchips.

Reducing emissions and improving the capacity of forests to sequester carbon, water and biodiversity could involve a mix of market and non-market measures in the short to medium term. While this would pose some political difficulties, especially with Tasmania, it is not nearly as large a task as some earlier industry restructurings. It should cover the following:

- Immediately ending the State and Commonwealth subsidies and Commonwealth taxation concessions for native forest logging and hardwood plantations. This would reduce both demand for native forest logging by the States and excessive extension of plantations (often by clearing native forest or on unsuitable agricultural land) through managed investment schemes.
- Announcing that plantation supplies will be substituted for native forest chip exports over a short transitional period (or pulp if a pulp mill is built). With subsidies removed the incentive for native forest suppliers and chip mills to go for broke with increased supplies in the interim period would be limited. The hardwood plantations would still face international competition, but removal of Australia's native forest chip portion of the over-supplied global hardwood chip market would leave plantation suppliers in a stronger bargaining position.
- A related restructuring/retraining/compensation package for the native forest industry and its workers. This should not involve huge costs – native forest sector contributes a very small part of the value of the total forest industry (around 3.7% of turnover), it has few workers (woodchipping provides 1.7% of total wages and salaries), and workers now have alternative employment opportunities in the regions, including in the much larger softwood sectors of the timber industry.
  - Any compensation for the export mills should be tempered by the fact that they have made huge profits over many years as a result of non-commercial log prices charged by the States. The mill owners were and are well aware of the risks of policy change as a result of strong public opposition to native forest logging, here and internationally, and public pressure for substitution of plantation supplies. NSW has little plantation timber, so that the Japanese-owned Eden mill will likely be the most affected, but it is old, and the Japanese owners have ready access to plentiful global supplies to cover any short-term Australian shortfall.

- Research funding made available immediately to complete clarification of carbon values in the various forest types that are currently available for logging, and to support work on the biodiversity and water values of native forests.
- A clear statement of intention to impose a tax on native forest logging in 2010 (i.e. concurrently with introduction of the ETS), fixed for, say, five years. It could be specifically a carbon tax or a broader environmental tax to reflect biodiversity and water protection values also.
- Provision to use the part of the tax to cover payments to the States and private forest landowners for protection and restoration of forests for a set period, after which the outcomes would be assessed and if appropriate the carbon values of the forest sector be incorporated into the ETS. (The payments and supervision could be handled through an expansion of Landcare and/or the Catchment Management Authorities, with stronger safeguards.) Part of the tax could also be put to improving bushfire management, including clarifying issues around insurance.
- Early discussions with the Japanese Government on Australia's intentions.
- An information campaign addressing public misconceptions about native forestry that have impeded restructuring the industry for far too long.

Attached are:

A. Letter to the Prime Minister and Ministers seeking a higher priority for work on forestry in the Garnaut Review.

B. Paper prepared for the South East Region Conservation Alliance before the election (and updated slightly in December 2007) with policy proposals for making forests part of the solution to global warming and improving water supplies, not part of the problem. It includes some of the material covered above.

Attachment A

Letter to Prime Minister sent 4 January 2008

I congratulate you and your Ministers on your contributions at the Bali Conference.

You have talked of the hard yards needed over the next two years to develop Australia's climate change responses.

Australia needs a comprehensive climate change mitigation strategy. The Garnaut Review is indicating a preference for postponing detailed work on agriculture and forestry until the work on the fossil fuel sectors is completed and the emissions trading system (ETS) is developed and bedded down. I urge you to make new forest policy a high priority for the Review.

All the major Australian emissions and sinks will need to be accounted for in setting a 2020 emissions target for Australia, and working with other countries on a global target. I urge you to include serious work on forestry policy in those early hard yards, because significant emissions reductions outcomes are achievable far more quickly from changes in forest policy than they will be under a fossil fuels ETS and renewable energies and clean coal programs, and at modest cost.

While more research is needed to provide definitive data, enough research on forests has been done by reputable independent scientists to be certain that inaction now on forests means at least 10% more total annual CO<sub>2</sub> emissions than Australia need have, possibly significantly more, and significantly poorer mitigation outcomes now and in future. Inaction also means serious losses in water supplies from major water catchments.

Early action to reduce logging of Australian native forest is just as important as working to reduce the deforestation of the world's tropical forests. 'Whether a natural forest is in Tasmania, Victoria or Papua, it performs the same kind of role in the global carbon cycle and in helping to regulate atmospheric levels of carbon dioxide' (Professor Brendan Mackey, article in the Age, 7 August 2007).

Australia no longer needs to log its forests intensively. With a large, rapidly expanding plantation estate available to substitute for the greater part of native forest supplies, we have options now to make forests part of the solution to global warming rather than as at present part of the problem. Independent scientists say that substitution of plantation timber for native forest supplies would result in far lower CO<sub>2</sub> emissions.

It is not clear that incorporation into the ETS is the most suitable means of bringing the forestry sector into climate change strategies. The issues encompass concerns for water and biodiversity (each of which have separate markets developing), and other economic and social values.

The very long-term damage that intensive logging causes to forest structures, and the equally long-term mitigation options foreclosed by its continuance suggest that an early policy solution would be preferable, keeping open the option to incorporate some elements into the ETS later if further investigation suggests that is appropriate.

Forest scientists measuring carbon storage and emissions say that the Australian Greenhouse Office accounts for forests are far from complete. The AGO needs to be resourced to fill these gaps, so that Australia can be confident in making future domestic and international commitments in regard to emissions reductions.

Clearly there will be need through COAG to reach a new Commonwealth/State agreement to effect a transition from current forestry policies to new policies that achieve desired climate change and water supply outcomes. Addressing public misconceptions about the state of the industry will also be important.

State and Commonwealth subsidies and Commonwealth taxation concessions currently distort native forest and hardwood plantation usage, and investment decisions, and are incompatible with enhanced protection of carbon, biodiversity or water values. Removal of these distortions would be a responsible first step in developing new national climate change and water policies for forests. New policy proposals are attached below..

I urge you to give developing new forest policies a higher priority in developing your Government's climate change mitigation strategies, and to put in place reforms in the industry that will achieve maximum outcomes.

### **Attachment to letter to PM: A proposed policy initiative for forests**

Australia's is the world's largest supplier of hardwood chips for the global paper industry. Most native forest chips come from public forests managed by State forestry agencies in New South Wales, Victoria and Tasmania. With a sufficiently large, and rapidly increasing and

rapidly maturing plantation sector, Australian governments are now in a position where they could decide to supply only plantation chips into that market. Without a decision to withdraw native forest supplies from an already over-supplied global market the future viability of the Australian plantation sector is put at risk, and the capacity to use native forests for climate change mitigation and water supply protection is reduced. In recent years other countries that, like Australia, have invested heavily in plantations have already made the transition out of native forest supplies. Using native forest timber for future pulp mills and/or production of biofuels has the same negative consequences as using it for export woodchips.

Reducing emissions and improving the capacity of forests to sequester carbon, water and biodiversity could involve a mix of market and non-market measures in the short to medium term. While this would pose some political difficulties, especially with Tasmania, it is not nearly as large a task as some earlier industry restructurings. It should cover the following:

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- A related restructuring/retraining/compensation package for the native forest industry and its workers. This should not involve huge costs – the native forest sector contributes a very small part of the value of the total forest industry (around 3.7% of turnover), it has few workers (woodchipping provides 1.7% of total wages and salaries), and workers now have alternative employment opportunities in the regions, including in the much larger softwood sectors of the timber industry.
- Any compensation for the export mills should be tempered by the fact that they have made huge profits over many years as a result of non-commercial log prices charged by the States. The mill owners were and are well aware of the risks of policy change as a result of strong public opposition to native forest logging, here and internationally, and public pressure for substitution of plantation supplies. NSW has little plantation timber, so that the Japanese-owned Eden mill will likely be the most affected, but it is old, and the Japanese owners have ready access to plentiful global supplies to cover any short-term Australian shortfall.
- Research funding made available immediately to complete clarification of carbon values in the various forest types that are currently available for logging, and to support work on the biodiversity and water values of native forests.
- A clear statement of intention to impose a tax on native forest logging in 2010 (i.e. concurrently with introduction of the ETS), fixed for, say, five years. It could be specifically a carbon tax or a broader environmental tax to reflect biodiversity and water protection values also.
- Provision to use part of the tax to cover payments to the States and private forest landowners for protection and restoration of forests for a set period, after which the outcomes would be assessed and if appropriate the carbon values of the forest sector be incorporated into the ETS. (The payments and supervision could be handled through an expansion of

Landcare and/or the Catchment Management Authorities, with stronger safeguards.) Part of the tax could also be put to improving bushfire management, including clarifying issues around insurance.

- Early discussions with the Japanese Government on Australia's intentions.
- An information campaign addressing public misconceptions about native forestry that have impeded restructuring the industry for far too long.

## **Attachment B.**

### **A visionary new plan to enhance Australia's climate change policies and improve water supplies in southern Australia: proposed by the South East Region Conservation Alliance (SERCA)**

*(Note: This is a slightly updated version of proposals circulated in October 2007)*

#### **SERCA considers that:**

- Climate change and water issues are matters of urgent public concern in Australia. Our leaders need to adopt new, visionary and rational policies to address these concerns.
- Australia's native forests can and must become part of the solutions to both issues, rather than making a major contribution to current problems. Current forest policies and Regional Forest Agreements are now out of date: they are not designed to take account of what are now pressing climate change and water concerns. And they are barriers to earning significant new income streams from the value of native forests as carbon and water storages – a value that will increase as southern Australia moves into a hotter and drier future.
- Intensively logging Australia's native forests - unnecessarily now given the availability of plantation timber - means foregoing the opportunity to reduce national carbon dioxide emissions by storing the carbon in the trees and soils of unlogged forests.
- Because so many of our water catchments are in forests, policies to improve the sequestration capacity of carbon in native forests will also improve the quantity and quality of our water supplies.

#### **Recommendation 1: that carbon sequestration in Australia's native forests be adopted immediately as a major strategy for climate change mitigation, and to improve the quantity and quality of water supplies.**

- Logging Australia's native forests is producing 33,490,967 million tonnes of carbon dioxide emissions a year – the equivalent of emissions from 8.2 million cars – and with a social cost estimated by researchers, using Stern Report calculations, of \$3,682 million a year.
- The lost opportunity costs of both carbon and water from logged native forests in NSW alone have been estimated by researchers at nearly \$800 million per year. The social cost, estimated using Stern Report calculations, is \$561 million for carbon loss alone. To put these figures in perspective, Forests NSW receives \$5 to \$6 million annually for its sales of pulplogs, which are over 90% of all logs taken from its native forests in the Eden Regional Forest Agreement area.
- If we are serious about addressing climate change, we can't afford to focus solely on fossil fuels, while continuing to overlook the importance of the carbon carrying capacity in native forests, especially in mature forests but also in regrowth. It is time to add the protection and remediation of native forests to Australian strategies for mitigating climate change. We don't have to wait for new sequestration technology to be developed, as is needed for coal. We can achieve immediate results.
- Maximum density of carbon is reached in Australian forests at 200+ years. Regrowth forests and plantations store significantly less carbon than mature forests. In SE NSW regrowth takes over 50 years to recover 75% of the carbon carrying capacity of mature forest, 150 years to get to 90% - far greater time-scales than allowed for in logging rotations. Plantations absorb CO2 while

growing, but short rotation periods mean minimal carbon storage overall once rotations commence.

- Intensive logging of native forest also has adverse effects on stream-flow, flow duration, especially in summer and going into drought, soil water content, and water quality. For example, soils in 14 year old regrowth forest lose water at a rate of 2.2mm a day, in 45 year old forest at 1.4mm a day, in 160 year old forest at 0.8 mm a day. As with carbon sequestration, recovery rates are generally many decades longer than logging cycles allow for. In Victorian forests supplying Melbourne's water it takes 150 years after logging for water run-off to return to pre-logging levels.
- As for carbon, calculations of lost opportunity costs can be done for water. The annual cost of water loss in logged forests in SE NSW has been calculated at \$18.56 million. And the water will increase in value as scarcity and quality issues bite harder in a hotter and drier southern Australia.
- In a carbon credit scheme the social cost can be recovered through investments in forest protection and remediation.

**Recommendation 2: that Australia include investment in native forest protection and habitat restoration in Australia's climate change mitigation strategies, and specifically to supplement its carbon trading scheme and Australian involvement in global trading schemes.**

- Investments in the protection and remediation of native forests and thus indirectly in improvements in water supply and quality are essential elements of climate change mitigation strategies. For example, through carbon credit trading schemes, in Australia and globally, these investments will provide revenue streams for the States and Territories and private forest owners that far outweigh what they now earn from logging predominantly for the woodchip sector, or could conceivably earn in the foreseeable future.
- Nearly 90% of all native forest logs chipped in SE NSW, Victoria and Tasmania are exported. Australia is the world's largest supplier of hardwood chips with around one-third of the global market. Thanks to generous taxpayer subsidies for hardwood plantations, Australia now has quantities of plantation hardwood available to process as woodchips for the global market very close to its global market share.
- The quantities of available plantation supplies will triple over the next two to three years, a matter of concern to the financial sector. Building a Tasmanian pulp mill will not alter the fundamental over-supply in the resource base. Australia's forestry agencies have not succeeded in attempts to sell the much larger total of native forest plus plantation chips into an oversupplied international market and/or to find significant alternative markets for surplus supplies. Nor does the foreseeable future look brighter for them.
- These market circumstances provide the Commonwealth with the opportunity to insist on substitution of plantation chips for native forest chips in order to free up native forests for carbon sequestration. The market barrier to such a substitution is pricing of public native forest supplies by the State forest agencies at levels that are a fraction of the price levels required to cover costs of plantation supplies. Without substitution Australian suppliers will be even more squeezed on price in an oversupplied market, discouraging repeat rotations of plantation crops.

**Recommendation 3: that the Commonwealth require an end to all broad-scale native forest logging, while making special provision for a limited amount of logging for sawlog extraction and tree removal essential for restoration of critical animal habitat.**

**Recommendation 4: that the Commonwealth require that only plantation timber be used for the export hardwood chip industry, for further processing as pulp in Australia, and for biomass fuel production.**

- Restructuring the native timber industry is long overdue. It is not a large or complex task. Native forestry is a small proportion of the total timber industry at around 3.7% of turnover. Reliable employment figures are not available, but as an indication, wages and salaries in the woodchipping sector were \$55 million in 2004-05, compared with \$3005 million in the total forest production industry. Employment has declined drastically with technological change, and the industry's significance within regional economies is much smaller than it was. Growth opportunities in the regions are in other industry sectors like tourism and specialised food production and in the timber industry's much larger, more efficient and faster-growing softwood sectors.

- Developing policies for our public native forests that are relevant to new public concerns and new economic realities is straightforward enough. Agreement with the States is necessary, and a structural adjustment package developed for workers and contractors, and presumably compensation for contracted owners of private forest, some regional economic initiatives, and some compensation for the export chip mills with current contracts still to run.

**Recommendation 5: that the Commonwealth negotiate with the States and Territories a structural adjustment package for the native forest timber industry, that will underpin new, visionary Australian climate change mitigation strategies for native forests.**

- The recommendations above relate to water issues as they are affected by native forestry logging. However it would also be timely for the Commonwealth, as part of its water initiatives, to reconsider problems around water uptake for large hardwood plantations. CSIRO research has found that large hardwood plantations use a lot more water than the agricultural production or pasture they are replacing. (There is a similar problem with tree planting, rather than other revegetation, as part of measures to address salinity due to past land clearance.) There is escalating public disquiet, especially in Tasmania and Western Australia, about the fact that under existing taxation arrangements farmers can't compete with timber plantation investment schemes. There is a looming glut of hardwood plantation resource, planted for the woodchip/paper pulp industry, and it will exist even after native forest supplies are taken out of the market.

**Recommendation 6: that the Commonwealth, as part of the new water initiative with the States, remove taxation concessions for plantations.**

*December 2007*