



## Submission to the Garnaut Climate Change Review Issues Paper 1 - Agriculture and Forestry

Our group welcomes the opportunity to have input on the issue of forests and climate. However, we are of the opinion that this process of community submission writing is ultimately compromised by government moves. The fact that the logging lobby group, **NAFI**, were officially invited along by Kevin Rudd to be part of the Australian delegation to the United Nations Convention on Climate Change in Bali in December speaks volumes. We understand that the CFMEU was there as well. The logging lobby spruiked the wonders of logging as a positive contribution to global warming. The basic message put over was that Aussie loggers knock down our forests in a much nicer way than those other bad countries. Our forests' carbon, when turned into palls of CO<sub>2</sub>, is no different to the CO<sub>2</sub> produced in Indonesia or elsewhere. The new Rudd Government must do more than put up a veneer of worrying about our climate crisis; it must cut ties with the forestry union and not accept political donations from it, logging lobby groups or woodchip companies, regardless of the vector used. Native forest logging has been shown to be a negative in every way - whether as an employer or economically, whether environmentally or as an 'essential service' - there is no reason to be destroying forests in 2008.

The below points were hastily written. This short time line during the summer holiday period is another reason why we fear the outcome has already been pre-determined.

We can only hope that after 200 years of 'forest wars' and at this time of catastrophic global climate chaos, there is a compelling reason for governments to take the finger off the chainsaws throttle.

There is no longer time left for niceties and polite requests. Urgent action is needed right now. Forests hold the key to CO<sub>2</sub> stabilisation. You are welcome to contact our group for further information on any of the information below

A handwritten signature in black ink, appearing to read "J Redwood".

Jill Redwood  
Coordinator  
15/1/08

**If we stop all burning of fossil fuels right this moment, CO<sub>2</sub> levels will accelerate.** This is unavoidable as the natural lag effect from previous CO<sub>2</sub> releases from the 1970s until now means we are still to see an increase in ppm over the next several decades (1).

**Forests are the only means left by which we can begin to sequester the excessive CO<sub>2</sub> levels** already in the atmosphere. Oceans are becoming acidic and beginning to slow down their capacity to absorb carbon.

**Our oceans are already 30% more acidic** than they were at the beginning of the Industrial Revolution. They absorb 22 tons of carbon dioxide a day. By the end of the century, they could be 150 percent more acidic. This limits their ability to perform air quality services (2). **Forests are all that we have left to help turn the heat down.**

**Man-made greenhouse gases have increase by about 30% since pre-industrial times. Just under half of this increase has come from forest clearing and logging.**

Forgotten in the climate debate is the **critical role played by forests in absorbing and storing CO<sub>2</sub> pollution.** Also unrecognised is the part that forest logging still plays in increasing Australia's CO<sub>2</sub> output. Nothing has changed in this regard since civilisations first started stripping land masses back to grass for their agricultural pursuits.

Governments are significantly underestimating the carbon storage capacity of native forests. **Up to 1,600 tonnes of CO<sub>2</sub> per ha can be stored in the biomass rich ash forests in high rainfall areas.** Detailed studies have shown that Australia's intact Eucalypt forests store **on average around 650 tonnes** of carbon per hectare – while the Intergovernmental Panel on Climate Change (IPCC) assumes temperate forests store 60 tonnes of carbon/ha (4).

**Forests are vitally important in Australia's overall carbon equation.**

The **logging industry argument** that logging forests is a positive for carbon storage assumes that the bulk of what is logged and lost is stored away in tables and chairs or even paper. See attachment 1 (The economy of waste) and 2. To understand how wrong this piece of propaganda is we have to realise that roughly **only 2-3% of an entire forest's biomass is turned into timber.** The average **lifespan of these products is estimated to be 15-20 years,** a time period much less than the lifespan of wood in living trees (3).

On average, **90% of native forest wood removed from Australia's forests (not left there as discarded trees and understorey) ends up in paper products,** which release CO<sub>2</sub> into the atmosphere **within 3 years** (8). So about **95% of our declining original forests end up in the atmosphere** helping to warm and dry our planet.

According to Australian Bureau of Agriculture and Resource Economics statistics, **less than one in ten native forest trees end up being sawn for timber, and only one quarter of the tree is used.** Some of the other trees are woodchipped for low-value,

short-lived paper products. The **remainder of the forest is deliberately burnt** in post logging management burns (to clear the logging mess and prepare the public land for commercial intensive tree cropping).

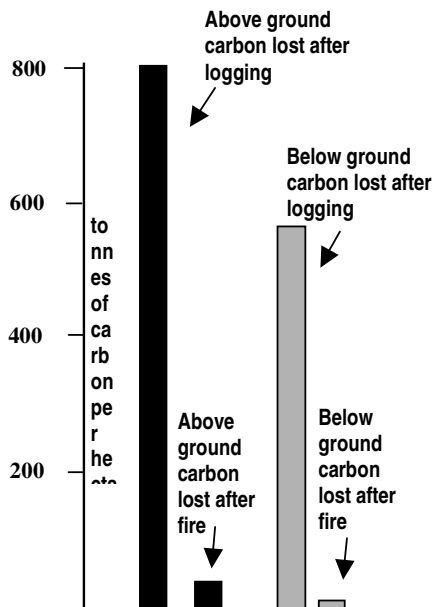
A NSW logging **industry group dug up part of a rubbish tip**. This gave them the 'research' to show paper can last for donkey's years once buried. But even **Jaakko Poyry** (logging industry analysts) released a document "*Analysis of Wood Product Accounting Options for the National Carbon Accounting System*" which showed the carbon in **paper and packaging was released after three years** on average.

**In Victoria** almost 9,000 hectares of *forests are logged* annually (4). This results in 9,506,567 tonnes of carbon being released into the atmosphere (7) which is the same as 2.3 million cars on the road, and according to the Stern Review this equals **\$1,045 million in social costs each year**.

We would like to clear the smoke on the claim that fire is as damaging as logging.

Carbon is stored both above and below ground. **Forest parts above ground lose roughly 800 tonnes per ha when logged and burnt**. Using figures both Federal and State governments have been quoting in parliament, the 2006-07 fires sent less than **40 tonne/ha** into the sky.

Forests store about 670 tonnes of carbon per ha **under the soil** as roots, fungi, mulch, invertebrates and so on (it's a jungle down there!). A fire burns only **16 tonnes per hectare of stored** underground carbon, but logging reduces this by a massive **573 tonnes/ha**.



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*.  
 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, Wallford, U.K.  
 Media release - Dept Ag. Fisheries and Forestry, Eric Abetz, 7/2/07

## Plantations

A recent study found that whilst plantation forests do sequester carbon they also **contribute to climate change because soil disturbance generates methane** (which occurs regularly in plantations due to them being cut down for wood). This gas generates 23 times the global warming potential of CO<sub>2</sub> (10).

**Plantation forests are much less resistant to disturbances** such as pest outbreaks and fires than native old growth forests and therefore much more at risk to invasion and subsequently carbon releases (9).

1155  
Carbon  
sequestration  
potential

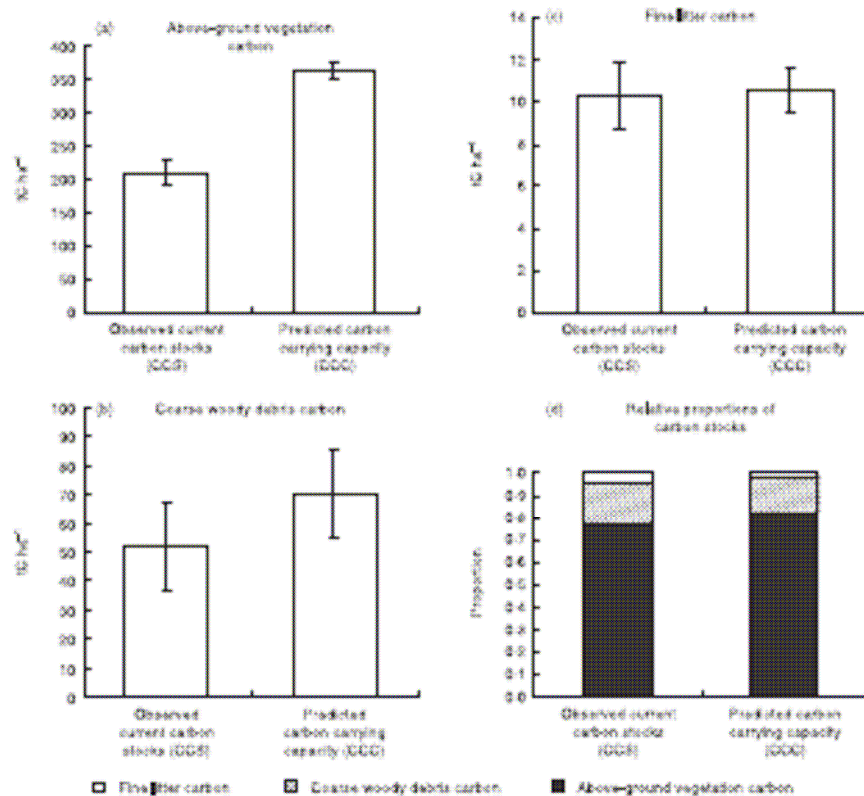


Fig. 3. Comparison of current carbon stocks (CCS) and predicted carbon carrying capacity (CCC). Error bars are standard errors and reflect between-site variability in carbon stock as determined by field survey (Table 2). (a) Above-ground vegetation carbon (*t*-test for difference in means,  $P < 0.001$ ), (b) Coarse woody debris carbon (*t*-test for difference in means,  $P = 0.234$ ), (c) Fine litter carbon (*t*-test for difference in means,  $P = 0.654$ ), (d) Relative proportions of each carbon component.

Assessing the carbon sequestration potential of managed forests: a case study from temperate Australia

S. H. ROXBURGH, S. W. WOOD, B. G. MACKEY, G. WOLDENDORP and P. GIBBONS

Journal of Applied Ecology 2006

Ending logging is the fastest and cheapest solution to climate change. **Logging and forest destruction is now recognised as one of the main causes of climate change. In the next 24 hours, world deforestation will release as much CO<sub>2</sub> into the atmosphere as 8 million people flying from London to New York.**

According to a report published in mid May 2007 by an alliance of leading rainforest scientists known as the Global Canopy Programme (GCP), **deforestation accounts for up to 25% of greenhouse gases, while transport and industry account for 14% each, and aviation contributes only 3% of the total.**

**But, as Sir Nicholas Stern stated, the destruction of those forests over the next four years alone will pump more CO<sub>2</sub> into the atmosphere than every flight in the history of aviation to at least 2025.**

Standing forests were not included in the original Kyoto protocols until Mr Howard wanted to use our own to score carbon storage points. That helped him insist that Australia be allowed to increase its emissions, while land clearing continues but at a reduced rate

The landmark **Stern Report** in 2006, and the influential **McKinsey Report** in January 2007, agreed that **forests offer the "single largest opportunity for cost-effective and immediate reductions of carbon emissions"**.

**If we lose forests, we lose the fight against climate change.**

**GCP 14.5.07**

**Deforestation far outstrips carbon emissions caused by planes, automobiles and factories.**

**Logging Australia's old growth forests is accounting for 20% of our annual greenhouse gas emissions.**

**Even if the forest isn't logged again, we don't have 300 years to wait for that carbon to be reabsorbed.**

### **Employment arguments**

Please see graphs attached in ppt file "EG trends".

A recent industry report given to the Victorian Government used extremely inaccurate figures and guesses in an attempt to show that employment in East Gippsland is 50% reliant on logging. Nothing could be further from the truth.

They have not used accurate up to date figures, inflated job numbers by using part time workers, seasonal jobs, jobs from interstate, private forestry and fire fighters etc. The report roughly estimates that there are **268** jobs in the industry (excluding departmental staff). 2006 Census figures tell a very different story.

There is a population of 8299 people in the East Gippsland FMA (equivalent to the Orbost Statistical Local Area). Total jobs in this region are 3231 (both full and part time). 554 jobs (or only **16%**) are in *Agriculture*, Forestry and Fishing and 140 (**4%**) in Transport, postal and warehousing. Add in all Manufacturing jobs of 233 (**7%**) and the total employment in all these industries is **27%**. Using statistics from the East Gippsland Regional Forest Agreement, and removing the farming, fishing, postal,

warehousing and other manufacturing jobs from these figures, **the total forestry jobs is estimated at less than 5% of all jobs, and about 2% of the total population. Compare this with the 50% of jobs reported in the pro-industry EGFIP report.**

The attached charts highlight the trends in East Gippsland between logging and jobs. The signing of the Regional Forest Agreement promised to create over 400 new jobs in the region, adding to the 555 jobs that existed in 1995. Today less than **25%** of jobs promised by the RFA remain.

In 2002, when there were more jobs in the East Gippsland logging industry, an NCS Pearson poll was conducted in this region. The polls found overwhelming support for the protection of old growth forests and for increased tourism infrastructure.

- When asked which would provide greater long term security – logging or tourism, **59%** of those polled said tourism, 29% logging.
- When asked whether old growth forests should be clearfelled – **67%** said no, only 23% said yes. Interestingly, **64%** of those in the logging industry also said no to old growth logging.
- When asked whether logging should be phased out of native forests if plantations were available, **70%** said yes, 24% said no.

These figures show that there is clear support in East Gippsland for protection of old growth forests. We strongly encourage you to undertake independent analysis to determine the true employment figures relating to logging in East Gippsland, and to determine the true sentiment to native forest protection.

### **Old Growth**

**Forest eco-systems contain up to 80% of all aboveground terrestrial carbon and approximately 40% of all below ground terrestrial carbon**, and account for 90% of the annual carbon flux between the atmosphere and the earth's land surface (4).

Old-growth forests possess considerable inertia and strength in the face of climate change, and **mature trees can survive for long periods**, even after bushfires. They remain for “several centuries after climatic deterioration makes local conditions unsuitable for seedling establishment” (5).

Old growth forests that left undisturbed are powerfully resistant to the effects of global warming, and therefore if preserved have the potential not only to maintain biodiversity, but also keep masses of carbon from being released into the atmosphere (5). They are also **climate cooling mechanisms, water production and filtering factories, and fire resistant**. The multi-layered vegetation in most old growth forests means they retain a moist micro-climate under the tree canopy, thereby suppressing the drying effects of sun and wind, creating moist conditions for soil micro invertebrates and micro-organisms to properly function. This in turn allows for healthy soil and a healthy forest.

### **In the land of just CO<sup>2</sup>Z**

Even though Australia's target emissions were a *rise* on 1990 levels we were not even able to adhere to this. **Between 1990 and 2004, emissions from the Australian**

**energy sector grew by 38%.** Globally we are seen as selfish, reckless and crafty. Our then government claimed that a reduction in the past high levels of land clearing (mostly in Qld.) would be reduced and thereby reduce our CO<sub>2</sub> outputs.

**The longer we avoid reducing our CO<sub>2</sub> pollution by various means of figure tweaking, the greater the effort we'll need later on.** We can't escape it, even if the logging and fuel industries want to live in fairyland. We're currently on track to see emissions at least 27% higher than 1990 levels by 2050 instead of 60% lower.

New research as reported in the British journal *Energy Policy* has found that **meeting targets to reduce greenhouse gas emissions may rely less on renewable energy and more on protecting forests.** Pekka Kaupi, Professor of Environmental Science and Policy University of Helsinki, authored the study which found that forests in the European Union are actually expanding surprisingly fast and are absorbing more than twice the amount of CO<sub>2</sub> saved by the use of renewables in the EU. This again reinforces the obvious.

Today's global atmospheric carbon emissions average around 1.27 tonnes per person; **in Australia the rate is 5.63 tonnes. In comparison the Earth's current capacity to absorb carbon is 0.62 tonnes per capita,** estimated to decrease to 0.32 tonnes by 2030. That means Australia's present per capita emissions are 18 times the Earth's carbon-sink capacity of 2030 (11).

### **Carbon horse-trading**

**Carbon trading is a shallow exercise in carbon-shifting and guilt abatement.**

We have to be very careful of applauding carbon-trading schemes as the solution to reducing emissions. The NSW government's greenhouse gas emissions trading scheme is so flawed some participants are rewarded for 'cutting pollution' when their emissions have in fact increased.

Researchers at the University of NSW showed two Queensland coal-fired power stations earned millions of dollars under the scheme, even though they spewed forth an extra 9 million tonnes of pollution a year.

This highlights how **a poorly designed trading scheme could not only let the polluters off the hook but reward them as well, while claiming that action is being taken.**

NSW's Morris lemma has been approving new coal mines and power stations regardless of the impacts on climate. He seems to be hoping that he can find a crack in the ground somewhere, down which to pump the gases for safekeeping (geosequestration). Industry experts and the IPCC both say the technology is in its infancy and could be 40 years away. The Federal Government likewise cannot rely on this untested pie-in-the-sky solution.

### **The history of forests and carbon**

The **planet once supported 8 billion hectares of forest.** These were vast, healthy carbon soaks and storehouses, rain makers, weather moderators and, of course, mega-rich biological systems. Since that time, **humans have destroyed 6.3 billion**

**hectares of original forest since the advent of agriculture.** This has vastly reduced the earth's water cycles, weather patterns and ecological systems. But most importantly, this destruction has dramatically reduced the earth's 'lung capacity' to process CO<sub>2</sub>.

The **degradation of forests and the soils they grow in could easily account for the increase in carbon dioxide (CO<sub>2</sub>) levels after 1750.** In the past, increases in CO<sub>2</sub> have been absorbed in the atmosphere fairly readily (for instance, emissions from volcanic activity), as shown by the Vostock ice-core samples.

The forest-stripping habit of developing civilisations goes way back to pre-Christian times. Burning forest biomass for agriculture, building war ships and fuelling metal and glass furnaces put large amounts of carbon into the atmosphere while taking away the planet's ability to absorb even more carbon. **When forests ran out, the 'civilised people' began burning other carbon, the fossilised living matter, now known as fossil fuels.**

Such **mega industries have developed around the carbon economy that despite choking to death, we still pilfer and burn these ancient carbon stores to increase our comfort, expand industries and consequently increase our numbers, creating a momentum that will be hard to slow down let alone stop.** Over thousands of years, we have **built up a serious debt** to the planet's natural carbon stores.

To put it simply, **we can't pay back this debt simply by slowing down our burning of oil and coal by using alternate technologies and biofuels. We need to immediately start soaking up the CO<sub>2</sub> that we've put into the air above us** over the centuries and transform it back into solid carbon-storage vessels called forests and trees.

The critical 450 ppm of atmospheric CO<sub>2</sub> as the estimated tipping point is expected to start a rollercoaster ride of unstoppable carbon release. But if you **take into account methane and other greenhouse gases, we are already at 430 ppm. So no amount of wind turbines, nuclear plants, fancy light bulbs or bicycles will stop this latent load of carbon dioxide whacking the planet for a sixer.**

Humanity cannot avoid the CO<sub>2</sub> levels of 450 ppm that will land us in serious environmental, social and economic jeopardy within a couple of decades. But if we start restoring forests like our lives depend on it, there is hope.

**Cutting down forests has put more than 2,000 billion tonnes of CO<sub>2</sub> up above us since we first began wielding axes and digging up soils.** Since we started burning fossil fuels for smelting iron to making jet fuel, it is estimated that **we've sent some 300 billion tonnes of land-based carbon up in smoke. Compare the two figures.**

**The world's original forests biosequestered carbon at about 300 billion tonnes a year. If we replaced just 5% of the original biosequestration ability of the world's forests (ie 15 billion tonnes of carbon a year) it should soak up the seven billion tonnes of carbon we currently burn up each year, with some to spare for**

**absorbing our past emissions. This would go a long way towards calming the global climate chaos we are seeing. Practical and profitable options for doing this already exist.**

The earth's original heat balance also depended largely on forests and their cloud-making talents. To a large degree, **clouds and rain are a result of the transpiration of water from forests. If clouds don't form, less of the sun's heat is reflected back, causing the ground to heat and less rain to fall. This forest-cloud-rain process can govern more than 50% of the earth's heat balance.** Temperature differences of 10°C can show up between adjacent forested and cleared areas, because of the cooling effect of clouds and rain. **Past forest clearing could have played a large part in global water-dynamics, upsetting the earth's heat balance and triggering regional and global warming. (The Mediterranean, Middle East and Central America used to have a healthy cover of forests.)** Add to this the greenhouse effect of increased CO<sub>2</sub> and we have some serious human-induced climate chaos.

Letting large areas of cleared land regrow into natural forests should give us a fast-acting remedy for restoring natural water and heat processes, while locking away loads of CO<sub>2</sub>. But just slowing down our burning of carbon fuels might take decades, or even a century, to have an effect. That's assuming the population doesn't keep growing. If cloud densities were increased by 3% globally as a result of growing areas of forest, and solar radiation reflected back to space increased by about 1%, this should theoretically cool the planet and reduce CO<sub>2</sub> levels back to pre-industrial levels.

The solution is fairly simple and cost effective. Forests are the major tool for reducing climate chaos. The only area of resistance to this solution is a tiny lobby group who still make easy profits through their destruction primarily for woodchips and paper/packaging.

### **Forest based biofuels - a farce**

A team of UK-based scientists suggested that reforestation and habitat protection was a better option. Writing in the September 07 issue of the magazine *Science*, they said **that, given the same area of land, forests could absorb up to nine times more CO<sub>2</sub> than the production of biofuels could save.** The increasing demand for land to grow biofuels was also leading to more deforestation.

Dr Righelato, co-author of the study and chairman of the World Land Trust, said that developing countries may be encouraged to cut down their forests to plant biofuel crops in order to meet the growing demand for renewable fuels. The study compared the amount of carbon absorbed by a forested area over a 30-year period with the total emissions avoided by using biofuels instead of fossil fuels during this time. They calculated that forests store 100–300 tonnes per hectare (however, Australian research estimates forests can store up to 1,500 tonnes per hectare).

Various talks and treaties on global warming so far only look at giving carbon credits for planting new trees where forests have been destroyed, not preventing the destruction of existing forests. Under the Kyoto Protocol, there isn't a profitable reason for the countries with 20% of earth's intact tropical forest to keep them.

### **Current-day land clearing**

***“Curbing deforestation (land clearing) is a highly cost-effective way of reducing greenhouse gas emissions and has the potential to offer significant reductions fairly quickly.”***

***Stern Review into Climate Change, October 2006.***

Land clearing needs to be stopped immediately and very generous resources given to enforcement of new Federal laws.

Vast areas of bushland are still being cleared in some Australian states. The latest figures indicate that land clearing in Queensland and NSW alone is about equal to the pollution from 7.4 and 2.8 million cars respectively.

In Queensland there are comprehensive controls on clearing using a phase-out mechanism of large scale land clearing. The phase-out left in place pre-existing clearing rights which could result in half a million hectares of bush land still being cleared in the future. There is also illegal clearing going on as ever.

The Howard government acknowledged that ending broad scale tree clearing in Queensland contributed an overall reduction of 5% to Australia's greenhouse gas emissions. This allowed the Government to tweak greenhouse figures and claim special consideration in the country's overall carbon equations.

The NSW government promised to end land clearing by the end of 2005 but in 2006, the NSW Auditor General found that 740 square kilometres of bushland (74,000 hectares) was cleared the year before. The AG cited the reason for this was poor monitoring and compliance by the NSW Government. About 40 % of the clearing (around 30,000 hectares) was illegal. This shows that any regulations or laws brought in to further halt land clearing will only be effective if it is accompanied by very well resourced enforcement.

Other states have lesser amounts of clearing but Tasmania and the Northern Territory are of particular concern. Proportionally, Tasmania continues to have very high rates of clearing and a government happy to collude with any form of forest destruction. In the Northern Territory proposals for large scale land clearing operations are increasing.

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Recent studies estimate that at least 150 tonnes of carbon is released per hectare following logging operations in mixed age Australian forests. The research takes into account the carbon taken away as logs and stored in the timber and paper products that are produced. The figures are much higher for logging in wet, old growth forests. For instance, the net loss from converting 'old growth' forest in the Styx Valley, Tasmania to regularly logged re-growth is 1200 tonnes of carbon per hectare (equal to 4,404 tonnes of CO<sub>2</sub>).

The young trees that are left after logging operations, or are planted if a forest is converted to a tree plantation, will absorb carbon dioxide as they grow. However, the research found that forests are expected to take more than 50 years to recover only

75% of their full carbon carrying capacity. But when they become part of the intensive management for woodchip markets, they are thinned again after 20-30 years, creating soil disturbance and vast quantities of slash and waste per hectare. The extracted regrowth trees are mostly processed into paper that is turned into CO<sub>2</sub> within a few years. It would take at least 150 years for a forest's carbon carrying capacity to return to greater than 90% of its pre-logged levels. And this is if they are not managed for wood production by foresters.

Most intensive logging of native forests occurs in NSW, Victoria and Tasmania.

**We believe the targets set of reducing greenhouse pollution by 80% by 2050 and 30% by 2020 are pointless if there is not simultaneous targets set on forest protection and restoration.**

#### References

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Other references - April–May issue of *Nature and Society*, ABC's 'Science Show' 4.8.07.

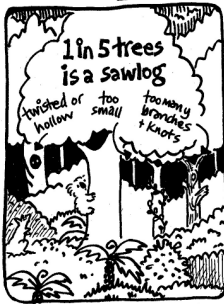


**UNSUSTAINABLE STUPIDITY**

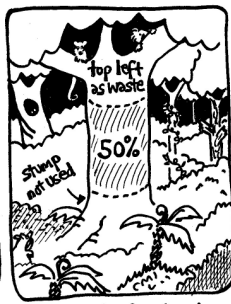
# The economy of waste



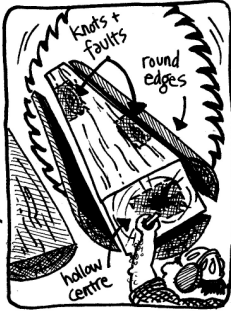
Half of a forest is classed as "waste", even before logging starts



That means only 10% of a forest's total parts are chosen for sawlogs



only half of a tree's bulk is taken, which bumps the "waste" up to 95%

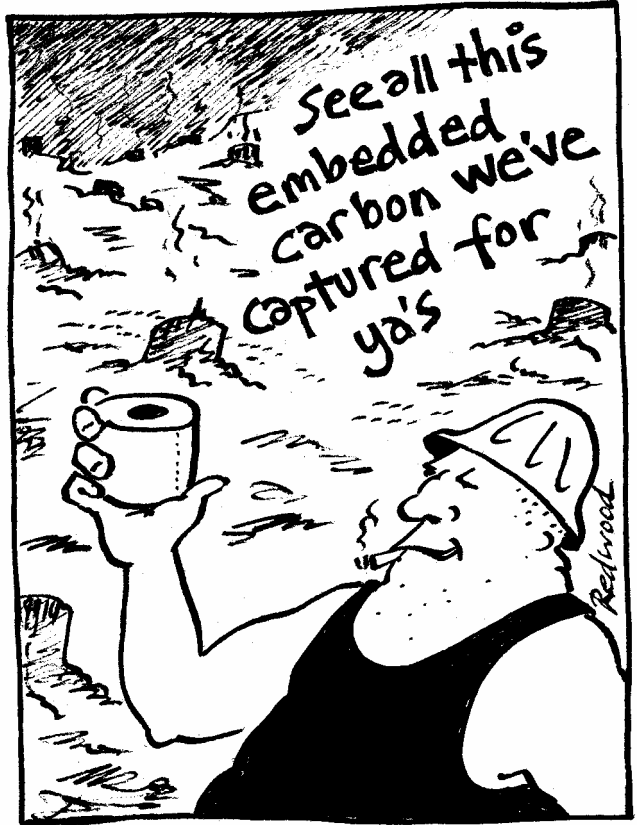


on average, about 1/3 of a log is useable

(all percentages are arrived at using government documents + figures)



final sum - 98% of a forest is "waste" and is burnt or woodchipped



INDONESIA



AUSTRALIA

