

# TREES AND CARBON TRADING

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## INTRODUCTION

I am an environmentalist who has spent many years trying to protect trees and get more planted to assist recovery of the landscape. Of course this has not been the only issue and while many trees have been saved as a result of tortuous campaigns, new issues have come to the fore or been current at the same time as the forest conservation efforts. Urban air pollution, salinity, catchment improvement, coastal development, endangered species and the sustainable city – to name a few. Many of the response policies have had trees – protection or reestablishment – as a component.

The tree has been an enduring feature in the policy, rhetoric and symbolism of the environmental fight. It appears in logos, brochure covers and website graphics denoting something right and treasured; unlike during the nineteenth and early twentieth century period of agricultural development when trees were seen as giant weeds.

Now we have climate change – the most momentous and threatening environmental problem ever. We need a broad range of actions – abatement, adaptation and sequestration. The tree has strong advocates promoting a leading role in these measures. They are also leveraging off the last thirty years of environmental campaigning that made the tree so popular with the community.

It must come as a surprise then, to many, that there are environmental groups which are not so keen on the role of the tree. It was surprise to me and the Total Environment Centre. We should all be passionate about the tree, especially native ones, but that passion can lead to you to exaggerated or distorted perspectives.

If you want to be part of the solution, instead of just pointing to problems and demanding action, you have to develop an ability to investigate and propose effective and strategic policies – that is, have the capacity to also be dispassionate. In fact over the years I've found that you often get better and more sustainable policy packages if you involve yourself in their development, instead of leaving it to the traditional bureaucrats and politicians.

This is what the Total Environment Centre and other environment groups have been doing in recent years. This year we turned our attention to carbon offsets and were surprised and somewhat shocked at what we found – about our own reactions and the state of the industry.

## BIOSEQUESTRATION

There are three types of tree policies in relation to global warming and each has its own useful or suspect characteristics. They are all sequestration – they hold CO<sub>2</sub> and either prevent its release to the environment or soak up CO<sub>2</sub> - for different periods of time:

1. Avoided deforestation where existing native vegetation that is under imminent or likely threat of being cleared, is saved. Thus the CO<sub>2</sub> is not released.
2. Agricultural practices that foster soil carbon and a greater and more enduring extent for grasslands. These practices take in CO<sub>2</sub>.
3. Tree plantations – either as permanent plantings or over short or long term rotations, but with a claimed consistent storage level of CO<sub>2</sub> uptake.

Sounds alright in theory but once they become part of a policy mix in reality, problems emerge.

Let's look at the recent adverts for the *Grrrrrrrn Saab* that graced newspapers, websites and magazines, in recent weeks.

Following a recent conversation with a Saab representative, and a survey of print media advertising, it is our understanding that Saab's claim that 'carbon emissions are neutral across the entire Saab range', is based upon the planting of 17 trees through Greenfleet to 'offset' the 4.36 tonnes of CO<sub>2</sub> emissions that are released when 1,650 litres of petrol are combusted over a distance of 14,100 kms.

There exists a range of issues with claiming that such a strategy renders 'carbon emissions neutral across the entire Saab range.' Any credible approach to 'neutralising' the emissions profile of Saab cars would require the following attributes:

### ***Life cycle carbon footprinting***

A credible approach to neutralising the emissions of the Saab product range would require addressing the 'life cycle' emissions of the product. Life cycle analysis measures all emissions associated with the production, use, and ultimate disposal of a product. This is the accepted standard. The Australian Greenhouse Office's *Greenhouse Friendly* program requires lifecycle analysis of emissions. Currently, Saab's claim of carbon neutrality is based only on the emissions that are produced during the combustion of fuel.

### ***'Offsetting' should be the last resort***

The use of carbon offsets should be the last measure implemented by organisations seeking to reduce the emissions profile of their products or operations. In the case of the Saab range, the first steps taken should be to significantly increase the fuel efficiency of the product through the use of hybrid technology and to provide for the use of alternative low emissions fuels.

### ***Tree plantations are the least credible carbon offset***

Tree plantation offset projects are subject to a range of issues that undermine their integrity as a carbon offset. We understand that the 17 trees to be planted by Greenfleet for each car sold will take place within the next calendar year. This fact alone will result in an inherent mismatch between the release of emissions and the ultimate sequestration of those emissions. Whilst the emissions arising from the first year of driving will be released immediately, the emissions sequestered by planted trees will take several decades to achieve.

When we consider the warnings of climate scientists that we have 10-15 years to move on climate change, such long lead times render these offsets irrelevant.

## **KEY CONCERNS ABOUT TREES**

The planting of a tree has prompted the growth of a vigorous carbon offset industry. TEC felt it necessary to take a long, hard look at this industry in its recent report, 'Carbon Neutral Watch, corporates, consultants, credibility.' (2007)

In Australia, the majority of companies offering offset schemes promise to plant a certain number of trees that will 'soak' up the equivalent CO<sub>2</sub> emitted from specific activities. They often promote their services by emphasising other environmental benefits such as improvements in soil salinity and increased biodiversity.

However, the science of forestry plantings is considerably uncertain. A recent study undertaken by the Planck Institute found that whilst trees do sequester carbon they may also contribute to climate change simply because 'the earth's vegetation is churning out vast quantities of methane' which carries with it a global warming potential 23 times that of CO<sub>2</sub>. In addition, the extent to which the carbon released from the disturbance of soil, implicit in forestry plantings, negates the benefit offered by the sequestering of carbon by the trees, has been questioned. It is also suggested that the significant amounts of water required by eucalyptus trees, favoured by forestry planting operations, can lead to the die-off of existing vegetation forced to compete for water resources.

Even if we accept that forestry plantings, on balance, sequester a significant amount of CO<sub>2</sub>, a remaining question is what happens to the sequestered carbon once the trees die. In the case that a plantation turns into a self sustaining forest then one could argue that the growth of new trees would simply take the place of old trees and sequester the carbon subsequently released.

However, the exact mechanics of such carbon cycling are highly uncertain. In addition, the presence of fire as a reality of the Australian landscape and the potential that the manifestation of climate change will bring lower levels of rainfall in some areas further queries the permanence, certainty, and reliability of forestry plantings as offsets. Such permanence issues underlie the statement from Cambridge University botanist, Oliver Rackham that, 'Telling people to plant trees (to address climate change) is like telling them to drink more water to keep down rising sea levels.'

One of the greatest concerns relating to carbon offset operations is their use of future value accounting in which future emissions reductions are reported as current emissions reductions. FVA was made notorious by the now defunct US energy company Enron which inflated reported revenues by including forecast revenues in current revenue statements.

For example, carbon offset companies that sell 'x' amount of trees to negate 'y' tonnes of emissions associated with an airlight give the impression that such emissions offsetting will occur immediately. However, a recent study undertaken by scientists at the University of East Anglia and Sweden's Lund University found that an offset bought through the British company, Climate Care, would take about 100 years to recapture the carbon emitted by a flight.<sup>21</sup> As noted above we need act faster and more permanently.

In Australia there is the potential to plant up to one million ha of forests. Even if this was carried out over a short time frame, this would lead to the sequestration of only between 2.5-5% of total Australia's total GHG emissions. Whilst useful, it should not be overstated to the detriment of other more environmentally effective offsets that would reduce GHG emissions at source.

Price discrepancies also often exist in offset schemes that offer tree planting services. The apparent simplicity and price attractiveness can be misleading to the consumer who does not know or understand the inherent variability, difficulties and often unavoidable failures that are involved in tree planting.

There are many providers that undertake their programs cheaply for several reasons: they do not have accreditation; they calculate relatively low levels of emissions as associated with particular activities; they don't employ sufficient professional staff; or they don't insure against future carbon stock loss.

So we are not keen on tree planting as a first order action.

There is also a need to differentiate between tree planting to absorb emissions and avoided deforestation.

The importance of the flexibility mechanisms under the Kyoto Protocol reductions from 'avoided deforestation' are 'based on protecting the carbon that is already stored in vegetation' whereas projects for 'reforestation are based on absorption of atmospheric carbon over time.' There is the significant additionality issue of proving the trees would have been cleared in the first place, especially given the opportunity for 'gaming' of the land clearing approvals system in several states.

If this test is passed, however, and the vegetation is to be preserved in perpetuity, the prevention of carbon emissions provides greater attraction than new tree plantings, because the impact is more immediate.

The use of carbon sinks arising from changed agricultural practices should also initially be treated cautiously due to problems of persistence of the practice in the face of economic pressures and drought; and objectively benchmarking the practice. For example, a farmer may change a grazing practice in a way that increases carbon stored in the soil; however new market demands or changes in financial needs or a new owner could result in reversion to the previous practice. Thus it is difficult to suggest that the carbon offset has a long lasting effect and a purchaser of the carbon credits will have to ensure payments are retrospective, rather than a lump sum upfront; and that adequate monitoring is in place.

What about sequestration via commercial forest harvesting and plantation programs? Passey et al have assessed biosequestration activities created as NGACs under the NSW greenhouse credits legislation.<sup>1</sup> The carbon sequestration rule came into operation for the first time for the 2004 compliance period. They were created by Forests NSW and contributed 2.2% of the 2004 total (166,005 NGACs), and 5.3% of the 2005 total (538,471 NGACs).

Although the auditing requirements are very rigorous, they do not necessarily ensure a high level of additionality. The authors point out that assessing additionality of biosequestration is complex, both in terms of measurement uncertainty and in verifying that there are reasonable grounds for believing the project would not have happened anyway.

Leakage may occur because the figures don't incorporate other activities of the organisation that may offset the sequestration abatement eg. increased logging in other areas because the GGAS project area is no longer available for logging. Non-permanence is also an issue for all biosequestration projects since carbon stored in biomass is at continuous risk of being emitted to the atmosphere.

While measuring the abatement of biosequestration projects is difficult, it is also a problem to measure their impact on Australia's net sink inventory because projects below a certain size are indistinguishable from the 'background noise' due to the limit of accuracy of the national database. In its Fourth Communication to the IPCC, the Australian Government acknowledged that its LULUCF inventory estimates have an uncertainty of 20-60% (Australian Government, 2005 cited by Passey et al).

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<sup>1</sup> Passey, Rob, Iain MacGill, Hugh Outhred (2007) 'The NSW Greenhouse Gas Abatement Scheme: An analysis of the NGAC Registry for the 2003, 2004 and 2005 Compliance Periods – draft for discussion'. CEEM

## CONCLUSION

I am aware that the offset industry is looking at all these issues. The recent charge of media coverage has put the spotlight on them. Stories point to embarrassing failures and unprofessional quotes from some offset providers – that do not engender confidence.

The industry does need a clean out and minimum standards of behaviour. It is noticeable that some offset traders that were previously exclusively tree planters are now diversifying into energy efficiency at the site of the client and renewable energy credits.

And consumers in the marketplace are also making their views known. One of the biggest is News Ltd which has not adopted tree planting as its central strategy. After investing in energy efficiency and renewable energy at its sites; it is looking to buy wind energy credits in India.

There is an important rebalancing and reprioritising process underway. Inevitably tree planting will be less highlighted. The risk factors involved in sequestration more appreciated.

Offsetting has a role to play in attacking climate change. Individuals and families want to take personal responsibility and action. Companies want to improve their environmental reputation and contribution.

As a final observation - do we need to worry about these things if we have a national emission trading scheme?

Yes. A national scheme especially in its early stages won't make big cuts to CO<sub>2</sub> emissions, nor will it cover all sectors of the economy. Action by individuals and companies towards carbon neutrality are a very important supplement. It helps us respond quickly to an alarming problem – but we need to make sure our actions and money are devoted to effective and enduring contributions.