Submission on Issues Paper 1 Land Use -Agriculture and Forestry
By John Newlands

I submit the following key proposals

1. Carbon credits based on trees are administratively unworkable and risk becoming a political sideshow.
Other mechanisms should be used to encourage tree planting and forest preservation.

2 . Methane 'hot spots' could avoid ETS inclusion via EPA type control orders .
Nitrous oxide emissions could be imputed on fertiliser at the factory gate.

The discussion below follows the rationale that an ETS must discourage emissions in the first instance. It should not encourage elaborate ploys to avoid making those cuts by means of deductions which are difficult to verify.

Why disallow carbon sinks?
Controversy of the amounts and timing of carbon flows
The following observations are qualitative. This sidesteps debate over how many grams of carbon are absorbed by five year old mallee trees or whatever. Since forests which are net absorbers of CO2 are

- adolescent trees in good soil and rainfall parts of the temperate zone and
- mature standing forests in the wet tropics (including Indonesia and PNG)

and those which are net carbon emitters are

- forests decayed by old age, drought and disease, releasing both CH4 and CO2
- burning, deliberate or accidental, which create CO2 surges that dwarf absorption rates.

Therefore adolescent temperate forests are a temporary carbon sink only and claims otherwise by the farming lobby are suspect. Mature tropical forests have some ongoing but limited effect. It follows *additional emissions cannot be offset by saving an existing forest.* Barring fertiliser the rainforests will not store any extra carbon. Moreover experts disagree on capture rates. I note that Australia's CSIRO is far more sanguine than the US Carnegie Institute for example.

Other issues are;

- guarantees of tree growth

It may be that for example Tasmania's forests will decline due to unavoidable warming. In the case of forests in Indonesia and PNG can the governments really control or offer adequate alternatives to illegal logging or slash-and-burn farming?

- fossil fuel inputs to forestry

These include vehicles, soil ripping, plastic tree guards and fertiliser, all conveniently overlooked when extravagant claims are made for carbon capture.

- trees vs annual grasses

Some claim that grasses that deposit litter are excellent carbon absorbers. Another administrative headache that will need to be resolved.

In my opinion these uncertainties alone should rule out tree offsets, a conclusion reached by the European Union. However more human factors enter the picture.

The associated moral hazard takes a number of forms

- Relative cheapness and creeping exaggeration

The Stern Review thought CO2 should be priced around $US85 per tonne. In the US tree planting offsets have been offered as low as $5 per ton. If say the CO2 spot price were $A40 per tonne then offsets at a fraction of this cost represent a considerable saving. Thus the temptation is to inflate the worth of a cheap tonic over expensive surgery.

- Relaxation of vigilance

The effort of monitoring and revisiting sites, reviewing satellite images and so forth will tax the resources of the controlling body. The term 'Carbon Cops' comes to mind. Inspectors should verify whether forests used in offset claims have not been burnt in fires or lost vigour due to disease or drought. Then office staff should retrospectively adjust claimed credits, perhaps turning credits into debits, an administrative headache. The costs of monitoring are a deadweight loss to be added to the brokerage fees associated with offset trading.

- Rural pork barrelling

The farming lobby seems poised to catch the gravy train. As seen on ABC Landline some meagre plantings in vulnerable areas are alleged to be on the cusp of absorbing vast tonnages of carbon. This expectation seems to have been created by State based trading schemes. Having started they may now be difficult to retract.

- Playing regional favourites

If credits are granted for forest preservation in the swampy lowlands of Indonesia they must also be granted in the highlands of New Guinea. Who is to adjudicate on the amounts?

- Conflated motives and soft blackmail

By linking forest conservation with saving wildlife (eg the orang utan) forest owners feel morally justified in demanding payment. This is akin to ransom. No blackmailer ever stopped demanding because he or she had received enough. If the forest is subsequently burned perhaps confirmed by satellite surveillance this represents a hefty carbon debit which should earn a sharp rebuke. It has been suggested that threatened 'show forests' are used to manipulate urban sentiments while unseen back country forests are razed anyway.

- Willful fraud

In the US it has been noted that tree plantings have been resold to different customers ie counted multiple times. The bringing forward of best case absorption rates to immature trees has been likened to the accounting practices of the infamous Enron Corporation.

Alternatives to formal credits

- Adaptation funds

It seems politically prudent for developed nations to underwrite such schemes. The forest preservation and replanting component can be justified on the grounds of sustainable harvest, biodiversity and catchment integrity. Carbon capture can be cited as a key benefit albeit difficult to quantify. As a form of conspicuous wealth display the irony is that poor nations may then aspire to wealth even more. Therefore forest preservation

should be bundled with material improvement such as renewable electricity. However there should be no formal nexus between millions of dollars contributed and tonnes of CO2 saved. This will circumvent criticism that Australia merely wants to save regional forests as an excuse to keep burning coal.

- Voluntary offsets

These are espoused by high profile figures such as Al Gore and Richard Branson. Note the Terrapass travel offset firm has moved to 'clean development' type offsets rather than tree based. People can assuage their guilt by purchasing these offsets and they probably do little harm given that travel will be reduced anyway by rapidly escalating fuel costs.

- Greening Australia

Australians who wish to plant trees should be encouraged via Landcare and other organisations. The public benefit criterion should be relaxed somewhat to include tree planting on more private properties.

- State based ETS

Having told farmers they will be paid for carbon credits State governments must honour those agreements. If they are renewed it can be regarded as a form of rural welfare.

Methane and nitrous oxide emissions in agriculture

- Methane

While little can be done about diffuse sources, 'hot spots' such as feed lots, dairies, sewage farms and municipal garbage dumps are of concern. They create damp anaerobic conditions that favour methanogenic microbes. Mitigation strategies include dispersal and aeration (muck spreading), permanent containment and burning. While burning of methane reduces the greenhouse impact it does not justify a credit as some have suggested . Rather it should avoid a larger debit. A parallel issue is the flaring of natural gas (about 80% methane) from oil wells for which re-injecting the gas underground is preferred or adding to larger fuel streams covered by an ETS. Nonetheless large methane burning operations then have to be assessed as CO2 emitters.

I suggest that with State government co-operation a policy of use-it-or-lose-it is enforced. A size limit for practical purposes could be accumulations of methanogenic material (not gas flows) of say 10,000 tonnes or more. Failure to mitigate by containment, burning or dispersal means the methane source must be register for ETS purposes.

- Nitrous oxide

Nobel laureate Paul Crutzen has argued that making ethanol from corn creates unacceptable GHGs via use of nitrogen fertiliser such as anhydrous ammonia, urea and mineral nitrates. Note that ammonium nitrate is also used as an explosive in mining and construction, releasing NO2 via a different chemical pathway. Manufacture (eg by Orica) or import tends to be in the hands of a few companies. I suggest these nitrogen chemicals, both fertilisers and explosives, be assessed on an upstream CO2 equivalence basis at the point of manufacture.

A looming development is that depletion of natural gas needed for Haber-Bosch production of nitrogen fertiliser will see increased use of human and animal manures in conjunction with legume rotation of crops. The net effect is hard to predict.