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Committee Secretary
Senate Standing Committee on Environment and Communications
PO Box 6100
Parliament House
CANBERRA ACT 2600
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Dear Committee Secretary

Re: Carbon Farming Initiative Inquiry

The NSW Farmers' Association (the Association) supports establishment of a scientifically valid and efficiently administered voluntary market for farm sector offsets but has significant concerns regarding the Carbon Credits (Carbon Farming Initiative) Bill 2011; Carbon Credits (Consequential Amendments) Bill 2011 and Australian National Registry of Emissions Units Bill 2011.

These concerns are discussed in detail in the attached submission made by the Association to the public consultation on the CFI Initiative. Please refer to this submission and its recommendations as part of the Association's formal submission to the inquiry.

While some minor improvements have been made in relation to the treatment of additionality and related matters, the Association's substantive issues raised during the consultation period have not been addressed in formulation of the final Bill.

The foremost of these issues is that the CFI is being presented to Parliament before a decision has been made regarding the introduction of a mandated carbon price and emissions trading scheme. This decision is crucial to the economics of the CFI and how it will impact the commercial farm sector and regional Australia.

The CFI Bill allows for the creation of both Kyoto-compliant and non-Kyoto-compliant Credits, with the former potentially eligible for trade in an ETS, the latter restricted to voluntary, non-mandated markets.

However, a voluntary market for CFIs cannot exist alongside a mandated ETS market. If an ETS is implemented, firms with carbon liabilities on their balance sheets will not invest in credits that cannot be used as offsets. In short, if an ETS Act is passed, the non-Kyoto compliant provisions of the CFI will be made redundant. While reference has been made to a potential international market for non-kyoto compliant CFIs, there is no factual basis to substantiate such demand.

But it is only the non-Kyoto compliant component of the CFI that has significant potential for commercial farmers. This is because Kyoto accounting rules applying to natural disturbance, additionality and permanence will severely restrict the ability of commercial farmers to establish viable Kyoto compliant CFI projects.

If there is no ETS, a strong voluntary market for non-Kyoto compliant CFI credits could provide a valuable income scheme to farmers to drive sustainable production initiatives. The Association has had preliminary discussions with corporations wishing to offset their emissions under such a model.

If there is an ETS and a mandated carbon market, plantation operators and other parties favoured by Kyoto carbon accounting rules will benefit at the expense of commercial farming, with cascading negative impacts for land markets, water allocation, and regional economic viability. A case in point, albeit at smaller scale, is the distortion of land markets and the social and economic structure of regional towns that has resulted from Managed Investment Scheme driven timber plantations.

In summary, it is literally impossible for Parliament to assess the economics of the CFI and its potential to engage the farm sector prior to a decision regarding an ETS and mandated carbon price. On this ground alone the Association believes that consideration of the CFI Bill should be postponed until after consideration of an ETS Bill.

It should be noted that such a deferral need not and should not delay work in relation to practical aspects of the CFI proposal such as the detail of integrity criteria, methodologies, accounting systems and so on. An investment in detailed consultation and R&D on these matters would better inform the debate and help to resolve the questions being raised by the farm sector and other stakeholders.

Yours sincerely

Matt Brand
CHIEF EXECUTIVE OFFICER

Growing the Business of Farming | NSW Farmers ASSOCIATION

Submission to Department of Climate Change and Energy Efficiency

Design of the Carbon Farming Initiative Consultation Paper

January 2011

NSW Farmers' Association
Level 25, 66 Goulburn Street
Sydney NSW 2000

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SUMMARY OF RECOMMENDATIONS

1. INTRODUCTION

The NSW Farmers' Association (the Association) is Australia's largest state farming organisation representing the interests of the majority of commercial farm operations throughout the farming community in NSW. Through its commercial, policy and apolitical lobbying activities it provides a powerful and positive link between farmers, the Government and the general public.

The vision for carbon farming advocated by the Association is one involving dynamic, mosaic, agricultural landscapes, where the dominant theme is landuse flexibility, sustainable production and food security. In this vision, carbon credits could help to fund:

- improvements in soil condition, fertility and general productivity;
- improvements in water quality and reliability of supply;
- strategic revegetation with productivity co-benefits (eg wind breaks);
- provision of biodiversity services (deforestation credits);
- short rotation agroforestry in synergy with biochar;
- new sources of nutrients from waste recycling and avoided landfill; and
- new clean tech business opportunities in regional communities, with flow on benefits for social and economic vitality.

The Association has for many years advocated funding for soil carbon schemes and is an active proponent of 'sustainable production' initiatives in general, including joint ventures with the clean technology and resource recovery sectors.

Funding for such initiatives (public and private) is urgently needed to support farmers in optimising the health and productivity of their soil and water resources, and to enable the Australian agricultural sector to meet growing demand for food.

The Association welcomes discussion of programs and schemes such as the Carbon Farming Initiative (CFI) that may result in increased funding and policy support for environmental innovation in the agricultural sector.

The challenge, however, is establishing CFI rules that are genuinely supportive of commercial farming and sustainable agricultural production yet which are compliant with the Kyoto Protocol.

Soil carbon is the area that should be the centre piece of the scheme and which offers potential to deliver major food security co-benefits. There is, however, currently no methodology for soil carbon that is capable of meeting the proposed integrity criteria while at the same time generating a carbon price that meets the costs of increasing and retaining soil carbon as part of commercial farming systems.

While acknowledging the potential of the CFI, the Association has significant concerns regarding the scheme. These include:

- The marketing of the initiative as primarily about farming when the activities available to commercial farmers are those least ready for market in regard to basic science, available technology and established methodologies;

- The uncertainty surrounding soil carbon;

- A general lack of practical provisions for landuse flexibility within carbon projects;

- A bias towards not-for-harvest forestry projects;
- Related to this, a bias towards non-agricultural land investors and industries such as forestry, which may be in competition with farming;
- The potential for land and water allocation conflict (forestry versus farming);
- The duration of crediting periods – three years is too short to justify investment in project set up;
- The proposed rules in relation to additionality and permanence;
- Uncertainty regarding the treatment of natural disturbance and the fate of international negotiations in this regard;
- The exclusion of pre-1990 vegetation;
- A lack of clarity surrounding carbon title, notification on title, and onus regarding errors in this regard;
- The proposed uniform risk buffer that amalgamates 'risk of wrong doing' and 'risk due to natural events', and fails to discriminate between the wide differences in natural risk that may exist across different projects; and
- Lack of information regarding the likely depth and scope of a CFI market

These and other concerns are discussed in detail below. The reader is also referred to the indexed summary of recommendations (Page 3).

2.1 Relationship between the CFI and an ETS

In addition to concerns about the CFI proposal itself, issues must also be addressed arising from the relationship between the CFI market and the market potentially established under a Kyoto-compliant Emission Trading Scheme (ETS).

The Government has recently reaffirmed its intention to establish a carbon price via an ETS or equivalent mechanism, with a fixed price in initial years.

The CFI proposal keeps its options open in this regard, allowing for the creation of both Kyoto and non-Kyoto Credits, with the former potentially eligible for trade in an ETS. There has been no analysis provided, however, of how an ETS will affect the viability of voluntary, Non-Kyoto CFI projects (the ones that will be most attractive to farmers).

It is unlikely that a voluntary market for CFIs can flourish alongside a mandated ETS market. If an ETS is implemented, firms with carbon liabilities on their balance sheets will not invest in credits that cannot be used as offsets. Nor is there any significant existing international demand for non-Kyoto offsets.

It seems safe to project that if an ETS is made law, demand for non-Kyoto CFI credits will be weak, with significant discounting. Conversely, if Parliament rejects an ETS, the prospects for the voluntary carbon market and non-Kyoto CFIs will be stronger. This dynamic is critical to evaluation of the CFI by the farm sector and other stakeholders.

In this light, consideration of CFI legislation should be postponed until after Parliament has reached its conclusions regarding an ETS.

This should not delay work, however, in relation to practical aspects of the CFI proposal such as the detail of integrity criteria, methodologies, accounting systems and so on. An investment in detailed consultation and R&D on these matters would better inform the debate and help to resolve the questions being raised by the farm sector and other stakeholders. The Association wishes to be directly involved in such activities.

Recommendation 1: Consideration of CFI legislation should be deferred until after Parliament has considered ETS legislation. This should not, however, delay detailed R&D and consultation in relation to the proposal

2.2 Food security and productivity co-benefits

The Paper repeatedly refers to the importance of biodiversity co-benefits and indicates a preference for permanent, not-for-harvest forestry projects. Such projects, however, are largely incompatible with commercial agriculture as they prevent adaptive landuse.

The Association would like to see greater emphasis in the scheme design on supporting projects with food security and productivity co-benefits.

Recommendation 2: That there is greater emphasis in the scheme design on supporting projects with food security and productivity co-benefits.

2.3 Whole farm carbon accounting and a portfolio approach

A focus for methodology development must be on practical mechanisms for farm carbon accounting. In this regard, the Association advocates 'whole farm' carbon accounting based on net stock changes with a flexible, 'portfolio' approach to achieving carbon outcomes.

In a 'whole farm carbon' approach farmers opting into the CFI would be able to sum carbon outcomes across entire properties and would have freedom to rotate units of land in and out of a portfolio of carbon activities.

In addition to 'on-farm' carbon activities, methodologies need to reward synergies between different CFI sectors and facilitate integration across projects.

To illustrate, farm-based projects could be linked up with clean technology ventures in regional centres (eg converting organic waste to fertiliser and biochar). In such a scenario a farmer could increase soil carbon by several means:

- Short rotation nitrogen fixing woody vegetation (eg Acacia)
- Low tech on site pyrolysis (burning Acacia and crop residue in covered trenches to produce biochar)
- Importing recycled nutrients and 'high tech' biochar generated from avoided landfill, sewage and waste streams.

These activities, and others, could contribute to a positive 'whole farm carbon' balance sheet. Naturally, considerable R&D and demonstration would be needed to explore such concepts and prove that they are economically viable.[1]

Recommendation 3: That consideration is given to 'whole farm' carbon accounting models based on net stock changes with a flexible, 'portfolio' approach to achieving carbon outcomes.

Detailed discussion of the CFI Consultation Paper (the Paper) follows. The Association would welcome further meetings with the Department to discuss the issues raised.

3 COMMENTARY ON THE CFI DISCUSSION PAPER

Relevant sections of the Paper are given in indented, italicised text, as below, followed by the Association's comments.

> *On 14 August 2010, the Prime Minister announced an election commitment to establish the Carbon Farming Initiative (CFI) to give farmers, forest growers and landholders access to domestic voluntary and international carbon markets. This will begin to unlock the abatement opportunities in the land sector which currently make up 23 percent of Australia's emissions.*
>
> *The Carbon Farming Initiative will include:*
>
> - *A carbon crediting mechanism ('the scheme');*
> - *Funding to fast track the development of methodologies for offset projects, including on-farm demonstration of biochar; and*
> - *Information and tools to help farmers and landholders benefit from carbon markets.*

It is noteworthy that the clients of the initiative are stated as being 'farmers, forest growers and landholders' yet the scheme is being marketed as being about agriculture.

In the interests of accurate marketing, it should be made clear that the term "carbon farming" refers to a new 'hybrid' sector, involving forestry, biochar, avoided land fill, potentially, marine carbon, and is not about agriculture as commonly understood. As it stands, many people, including farmers, think that the scheme is focussed on agriculture.

The proposal to provide funding to fast track development of methodologies is welcome but highlights the uncertainty surrounding the feasibility of projects in the agricultural area of the CFI (for example, soil carbon, livestock methane, biochar).

Further, the low starting point with regard to methodologies relevant to commercial agriculture needs to be clearly acknowledged by government and provisions made to ensure a level playing field in this regard. There is a risk that projects based on relatively mature methodologies (eg carbon forestry) will dominate the CFI market at the expense of options of greater utility to commercial farmers.

The Association and other farm sector entities have argued successfully for increased opportunities and R&D in the soil carbon field and considerable research has been

1 Factors critical to the economics of high tech biochar ventures include access to reliable volumes and quality of feed stock and the costs of transport and spreading. Note that biochar can be produced on site by farmers using low tech methods such as burning in covered pits.

undertaken. However, there is still no clarity regarding the financial prospects of a soil carbon market or, in practical terms, how such a market could function.

The Association is not aware of any methodology for soil carbon offsets that is capable of meeting the indicated integrity criteria while at the same time generating a carbon price that meets the costs of increasing and retaining soil carbon as part of commercial farming systems. Likewise, there are currently no established methodologies for fertiliser emissions, livestock methane, manure management, short rotation agroforestry, and avoided deforestation in native vegetation on farm land.

As is indicated in the Paper, major research and development is needed to bring such projects to market. The Association wishes to be closely involved in this research and development.

Also, the Association seeks detail regarding the 'Information and tools' for farmers that will be available on July 1, 2011 and requests to be consulted regarding development of this material.

Recommendation 4: Significant new funding is needed by the farm sector to fast track development of CFI methodologies relevant to commercial agriculture

3.1 Background to crediting schemes

> *There are a number of offset standards and offsets crediting mechanisms currently in operation including the Clean Development Mechanism under the Kyoto Protocol, the Voluntary Carbon Standard, the Chicago Climate Exchange, the New South Wales and Australian Capital Territory Greenhouse Gas Reduction Scheme (GGAS), the offset component of the Regional Greenhouse Gas Initiative (which operates in 10 northeast and mid-Atlantic states in the United States) and the Alberta Offset System.*
>
> *The proposals outlined in this consultation paper build on Australia's decade-long practical experience in implementing offsets programs such as the Greenhouse Friendly and GGAS, as well as the forestry and offsets components of the CPRS. The Government recognises, however, that only the Alberta Offsets Scheme covers a broad range of agricultural offsets and that many of the issues unique to the sector have yet to be fully explored.*

The Association recognises the practical experience gained through previous forestry offset schemes and the relative maturity of offset schemes based on standing vegetation.

However, as acknowledged in the Paper, there is no equivalent experience in relation to agricultural sector projects beyond the Alberta Offsets Scheme.

Offsets in standing vegetation may have only marginal application in commercial farming since agriculture demands flexibility in land use (schemes involving woody vegetation typically lock up land for 100 years).

Standing vegetation could play an important role if short rotation stands were permitted and if credits can be established in existing native vegetation. However, the paper suggests that the emphasis will be on biodiversity co-benefits, and, therefore, permanent stands.

3.2 Scheme design principles

The principles that will guide design of the scheme are:

- *Ensuring environmental integrity – credits that represent genuine and additional emissions abatement will have a higher market value and help address climate change; and*
- *Enabling broad participation – clear and simple rules will keep administrative costs low and ensure that farmers and Aboriginal and Torres Strait Islander and other land owners and managers can benefit from the scheme.*

The Association supports the integrity and participation principles but notes the difficulty of applying both principles in practice. For example, it will be a challenge to establish methodologies for soil carbon that are sufficiently cost effective, flexible, clear and simple to attract broad participation but which also meet current Kyoto additionality, permanence and Monitoring, Reporting and Verification (MRV) criteria.

Commercial agriculture depends on flexibility in landuse and on productivity – the ability to produce food and fibre at a profit - it is important that scheme design reflects this necessity. A third design principle therefore should be added which is "Ensuring ongoing flexibility in agricultural landuse and the productivity and profitability of agricultural systems".

Recommendation 5: Ensuring ongoing flexibility in agricultural landuse and the productivity and profitability of agricultural systems should be included as a guiding principle for scheme design.

3.3 Coverage

The scheme could enable crediting of land sector abatement, whether or not it is recognised towards Australia's international emissions reduction targets.

Potential eligible abatement activities include:

- *Reforestation and revegetation;*
- *Reduced methane emissions from livestock;*
- *Reduced fertiliser emissions;*
- *Manure management;*
- *Reduced emissions or increased sequestration in agricultural soils (soil carbon);*
- *Savanna fire management;*
- *Avoided deforestation;*
- *Burning of stubble/crop residue;*
- *Reduced emissions from rice cultivation; and*
- *Reduced emissions from landfill waste deposited before 1 July 2011.*

As noted above, methodologies for the above activities are in different stages of development, ranging from mature to speculative. It seems likely that by far the greatest proportion of offsets generated will be in the forestry sector.

Avoided deforestation could also be an important sector, provided that additionality rules allow the inclusion of existing native vegetation on farm land.

To enable farmers to better understand the potential of the scheme, Association requests that the Department provides:

- Analysis showing the projected volume and value of offsets for each activity as a proportion of the total projected CFI market;
- A table indicating whether activities are likely to result in Kyoto CFIs or Non-Kyoto CFIs; and
- An information sheet detailing how existing native vegetation on private land will be treated under the scheme.

Recommendation 6: To enable farmers to better understand the potential of the scheme, further information is needed regarding the projected volume and value of offsets for each activity as a proportion of the total CFI market; whether activities are likely to result in Kyto CFIs or Non-Kyoto CFIs; and how existing native vegetation on private land will be treated under the scheme.

> *The scheme will deliver on the election commitment, as well as provide a source of domestic offsets under the National Carbon Offset Standard (NCOS). The NCOS was designed to complement the CPRS and establish rules for companies to become carbon neutral or to sell carbon neutral products. It provided for domestic offsets to be generated from abatement that is not counted towards Australia's Kyoto Protocol target. Rather than establishing separate administrative arrangements to enable crediting for this 'non-Kyoto' abatement, this abatement will be credited under the scheme.*
>
> *Credits representing non-Kyoto abatement (non-Kyoto CFI credits) would, however, need to be distinguished from CFI credits that are issued for Kyoto-recognised abatement (Kyoto CFI credits), so they may be readily identified by compliance and voluntary market buyers.*[2]
>
> *The demand and therefore the price of Kyoto CFI credits is likely to be higher than for non-Kyoto CFI credits, which could only be traded in voluntary markets.*
>
> *A significant advantage of administering all eligible domestic abatement under the same scheme is that farmers will be able to bring forward projects, without having to first determine whether or not the abatement is recognised towards Australia's Kyoto Protocol target. This would be determined by the scheme administrator, with the assistance of the Department of Climate Change and Energy Efficiency. A 'one-stop shop' approach would also reduce overall administrative costs for scheme participants and the Government.*

The Association supports the efficiency objectives of using a single register for offsets and a 'one-stop-shop' approach but is concerned by the suggestion that farmers should be encouraged to 'bring forward projects without having to first determine whether or not the abatement is recognised towards Australia's Kyoto Protocol target'.

2 The term "CFI credits" refers to all CFI credits, whether or not they represent abatement that is recognised under the Kyoto Protocol.

Given that non-Kyoto CFI credits are certain to have a lower value than Kyoto CFI credits it would be irresponsible for government to encourage farmers to invest in establishing a scheme in the absence of clear guidance as to its ability to achieve Kyoto CFI status.

This underlines the Association's general concern that the scheme is being put forward as a 'learning through doing' exercise, with farmers caring the majority of the risk.

A related issue is that foresters and other land sector participants will have greater ability to create Kyoto CFIs and, therefore, greater ability to enjoy financial benefits from the scheme. This will create an asymmetry in the CFI market with potentially detrimental consequences for farming communities.

3.3.1 Extend coverage to marine carbon

The Association would support inclusion of activities relating to 'Blue Carbon' (carbon in oceanic environments).

3.4 Demand for Carbon Farming Initiative credits

> *Demand for Carbon Farming Initiative credits is expected to come from both international and voluntary markets.*
>
> ***International***
>
> *The international buyers for CFI credits may include governments that have obligations under the Kyoto Protocol, companies with emissions obligations under national or regional emissions trading schemes, such as the European Union Emissions Trading Scheme, and organisations voluntarily offsetting their emissions.*
>
> *Specially marked "Kyoto" CFI credits would be issued for abatement that is recognised under Australia's Kyoto Protocol target. Credits for abatement that occurs prior to the end of the first Kyoto Protocol commitment period (2008-2012) could be exchanged for Kyoto Protocol units held by the Government – either Assigned Amount Units or Emissions Reduction Units – and could be exported to other Kyoto Protocol registries. The Government would make the necessary arrangements to facilitate the continued export of CFI credits as arrangements for the post-2012 period become more certain.*
>
> *Carbon Farming Initiative credits could also be sold directly into international voluntary markets. This can be achieved by cancelling units in Australia's registry on behalf of international buyers. The Government could also explore options for linking the Australian National Registry of Emissions Units to other voluntary registries to enable direct international transfers of CFI credits.*

The Association notes the vague and speculative nature of the statements relating to demand.

Land sector offsets (sinks) are not eligible under the European Union Emissions Trading Scheme so it is unclear why this has been cited as a potential source of demand. The inclusion of sinks is currently opposed by NGOs as well as the EU commission itself, on the grounds that sinks are surrounded by too many scientific uncertainties over permanence and divert effort from reducing emissions from industrial sources.

But even if European policy changed in this regard, the price achieved would be inadequate to cover costs. On the European Climate Exchange (ECX) the price in December 2009 was approximately 14 Euros (~US18.00) per tonne CO_2e.

Established international voluntary markets pay far lower amounts. In 2009 transactions equivalent to only 94 million tons of CO2e, were recorded in the United States voluntary carbon market, a 26% drop compared to 2008. The total value of traded credits declined 47% to US$387 million in 2009 and the average price of an emission reduction was $6.50/t$CO_2$e. [3]

With regard to soil carbon, the picture is considerably worse. During January 2010 the price for a soil carbon credit on the Chicago Climate Exchange (CCX) was just US$0.15 per tonne CO_2e.

According to McKenzie, D and Mason, W, 2010[4] for soil carbon trading to be economically attractive for a dairy farmer, the carbon price would have to be at least $200 per tonne CO_2e.

While changes in practice can certainly result in improved soil condition and increased soil carbon, deriving a profitable carbon credit from this is a different challenge. It is technically difficult and expensive to achieve sustained and verifiable carbon increases in agricultural soils through agricultural practice alone.

To illustrate, Baldock, Broos (2008) found that to increase soil organic carbon from 3% to 5%) in the upper 10 cm of soil, 24 t C/ha would have to be added to the soil. [5] Since plant residues contain approximately 45% C, this would equate roughly to 50 t/ha dry matter (DM). If this increase was to occur over 5 years, then an additional 10 t DM/ha above that currently being added would be required annually if no decomposition occurs. Since at least 50% of the added plant residues will decompose, annual additions of approximately 20 t DM/ha above that currently being added in an average year would be required to achieve an increase in soil organic carbon content from 3% to 5% over 5 years. To achieve this aim from above-ground portions of pasture plants at Ellinbank– a high fertility dairy region in West Gippsland Victoria – pasture production would have to be tripled without increasing stocking rate.[6] This may be an impossible challenge, particularly in drought years.

Even if it is physically possible to increase soil carbon, retaining that carbon comes at a cost. CSIRO has investigate the hidden costs of soil carbon credits and found that in order to retain carbon in soil, nutrients must also be retained.[7] Carbon is locked up in soil in humus, a stable form of organic matter. However humus also contains nitrogen (N), phosphorus (P) and sulphur (S) – elements essential for healthy plant growth and consumed in the production of crops and pasture. Dr Mark Peoples, Deputy Chief CSIRO Plant Industry, has estimated that per tonne of humus farmers would have to replace post harvest about 60kg of N, 12kg of P and 9kg of S – about $200 worth of fertiliser.[8]

If a farmer wishes to use a parcel of land involved in a soil carbon scheme, he will have to replace any nutrients consumed or repay the credit. If follows that the carbon credit received will to exceed the value of nutrients or the scheme or will not be economic for the farmers.

[3] Hamilton K, Sjardin M, Peters-Stanley M and Marcello T, 2010. Building Bridges: State of the Voluntary Carbon Markets 2010 : Report by Ecosystem Marketplace & Bloomberg New Energy Finance
[4] McKenzie D, Mason W 2010, '*Soil Carbon Sequestration under Pasture in Southern Australia',* Prepared for Dairy Australia, McKenzie Soil Management Pty. Ltd, Orange NSW.
[5] Baldock J, Broos K (2008) *Can we build-up carbon and can we sell it*? Australian Grain, May 2008, 4-9.
[6] ibid
[7] http://www.csiro.au/resources/ps4lu.html
[8] ibid

While acknowledging the general potential and importance of soil carbon initiatives, including those involved the introduction of carbon-rich soil conditioners from biochar, considerably more science and economics needs to be done to establish viable methodologies, effective funding methods and complementary planning regimes.

The proposed information and tools prepared for farmers, particularly in relation to soil carbon, must include financial projections regarding market depth and likely credit prices.

Recommendation 7: The information and tools prepared for farmers should include financial projections regarding market depth and likely credit prices.

> ***Domestic***
>
> *Domestic buyers of CFI credits could include companies that may have offsetting obligations under state government regulations, and organisations, companies and individuals voluntarily offsetting their emissions, for example to achieve carbon neutrality.*
>
> *All CFI credits would be recognised as eligible under the NCOS for use by Australian businesses seeking to voluntarily offset their emissions or become carbon neutral. The NCOS will be amended to this effect in the context of its first review which is to commence in late 2010.*
>
> *The Government would ensure that CFI credits that are voluntarily surrendered are not double counted (once towards Australia's international target and again by the offset buyer) by cancelling an equivalent number of Australian Assigned Amount Units in the Commonwealth's holding account.*
>
> *Whether or not CFI credits can be used to meet carbon liabilities under a domestic carbon pricing mechanism is a matter for future Government decision-making, following consideration of a carbon price by the Multi-Party Climate Change Committee.*

As has been noted above, there is high degree of uncertainty regarding demand for CFI credits and likely prices. Further, it is impossible to gain any sense of the economics surrounding the CFI while the fate of a domestic ETS or carbon tax remains undecided.

It would appear self evident that establishment of a Kyoto compliant domestic ETS will significantly reduce demand for and the price of non- Kyoto CFI credits. Conversely, non-Kyoto CFI credits will command higher prices in the absence of an ETS. It will be difficult for entities to raise funding for development of methodologies and projects under these circumstances.

The treatment of CFI credits in an ETS is a further source of uncertainty.

3.5 Regional communities, water, biodiversity

> *Many land sector abatement activities are expected to produce benefits for farm productivity, biodiversity and natural resource management. For example, environmental plantings can connect existing areas of habitat, help manage salinity and improve water quality; and increasing soil carbon can improve farm productivity.*
>
> *Some stakeholders, however, are concerned about the possible adverse impact of abatement projects for water and food production. For economic reasons reforestation is more likely to occur on marginal than on productive agricultural land, for example to manage salinity, provide shelter for animals or wind breaks against erosion. This is because, generally,*

> *ongoing returns for agricultural production would be significantly higher than once-off returns for increasing carbon storage.*

The Association advocates increased investment in sustainable natural resource management and recognises the co-benefits of managing vegetation, water and soil to maximise the sustainability of our food production systems.

In this regard, the Paper's reference to the food and water security is oddly dismissive.

Food and water security is more than a matter concerning 'some stakeholders'. On the contrary, food security is recognised by the United Nations as an international priority and is increasingly a central issue in COP discussions on LULUCF.

The inherent complexity of land and water systems is reflected in the ongoing disagreement regarding fundamental aspects of LULUCF policy among the Kyoto Parties and its technical working groups. An aspect of this is the treatment of 'wetting and dewetting' factors in national accounts.

3.6 Carbon and water

The water dynamic is critical to the outcomes of carbon policy and the CFI scheme design and warrants more detailed consideration than has currently occurred in Australia.

The wetness of a land system is a critical factor in its ability to produce food, sequester carbon and support human settlement and biodiversity. Water and bio-sequestration are in a reciprocal relationship. Up to saturation points, the more water, the faster plants grow and sequester carbon. Reinforcing this, the more carbon is sequestered, the more water is held within land systems. For example, increasing carbon in soil increases its water holding capacity.

However, the relationship between water, carbon and biota is complex and any large scale introduction of carbon into land systems must be intelligently managed. For example, forestry schemes on upland marginal land can take water from productive farm lands lower in catchments; poorly chosen tree species with high water demand can strip water from soil, driving soil carbon loses and land degradation. To ensure sustainable outcomes, CFI planning should be integrated with catchment planning.

Recommendation 8: To ensure sustainable outcomes, CFI project assessment should be integrated with catchment planning and must consider carbon/water dynamics

A further issue is the capacity and willingness of carbon forest operators to manage fire, weeds and feral animals. A possible remedy in this regard would be to quarantine a percentage of credit revenue from carbon forestry schemes in an annuity fund for ongoing management, similar to the approach taken under the NSW Biobanking scheme.

Recommendation 9: That consideration is given to quarantining a percentage of credit revenue from carbon forestry schemes in an annuity fund for ongoing management of fire and pest risk, similar to the approach taken under the NSW Biobanking scheme.

> *To address community concerns about the potential impacts of carbon offset projects, the Government is considering requiring projects to have*

> *obtained all regulatory approvals and met regulatory requirements from all levels of government before they receive final approval under the scheme. This would promote compliance with Commonwealth, state and local government planning, environmental and water requirements, and give buyers confidence in the environmental integrity of the scheme.*

The importance of this issue will be determined by the scale of CFI adoption. For the reasons given above, a random, unplanned introduction of major carbon projects into catchments would be unwise.

If the CFI develops significant scale, the Association would support consideration of a formal referrals and concurrence process between state and federal jurisdictions. This would entail amendments to statutory planning and water legislation. At this point in time, there is no explicit provision in NSW Water or Planning legislation in relation to carbon offset schemes. At a minimum, the CFI Bill should include consequential amendments to the Water Act 2007. The Association requests to be advised regarding any bilateral process established between NSW and the Federal Government on this matter and would like to be consulted regarding any resulting policy changes.

> *A further option is to require project proponents to consider relevant regional natural resource management plans. Whilst not all regional plans are at the same level of development, such a requirement could provide a vehicle for regional communities to discuss and make decisions about land use planning and priorities. This requirement could help to improve alignment with other natural resource management policies and programs such as the Green Corridors Plan election commitment and investments under Caring for Our Country.*

This option could be an adjunct to a formal planning and approval process but would not in the view of the Association be an adequate alternative.

> *Finally, the scheme could prevent approval of abatement projects that involve, or make use of material derived from, the destruction of native forests, for example projects involving the conversion of native forests into biochar. Projects that involve uses of native forests that are consistent with keeping the forests healthy and intact, for example harvesting bush foods and selective thinning, would be permitted.*

It is not clear what is meant by 'destruction' of native forests. The Association advocates biochar from sustainable silviculture, including private native forestry. Many farmers own substantial stands of native forest. Sustainable silviculture based on selective logging and stand replacement could deliver excellent biodiversity outcomes while producing a source of biochar.

As discussed below, transporting forest waste for biochar or biofuel should be avoided. In this regard, the Association advocates investigation of projects that involve on-farm recycling of wood and crop waste via pyrolysis with carbon directly returned to soil.

More detail is needed regarding the Governments proposed policy in this regard.

Recommendation 10: That the Government funds investigation of methods that involve on-farm recycling of wood and crop waste via pyrolysis with carbon directly returned to soil.

3.7 Integrity standards

> *The Australian Government will develop legislation for the scheme to provide long-term certainty to participants. To underpin the environmental integrity and market value of carbon credits, abatement will need to meet internationally consistent integrity standards.*
>
> *The Government recognises the importance of certainty regarding the rules for crediting and selling carbon offsets and is working towards scheme commencement on 1 July 2011.*

As far as the Association is aware, there are no existing methodologies capable of meeting internationally endorsed integrity standards in a majority of the non-forestry areas being promoted as important elements of the scheme. The Association seeks detailed advice regarding the R&D program and certification process by which such methodologies will be established by I July 2011.

> *The environmental integrity of the scheme will directly affect consumer confidence and the amount that buyers are willing to pay for Carbon Farming Initiative credits.*
>
> *For these reasons, it is important to ensure that all abatement credited under the Carbon Farming Initiative meets internationally recognised standards, which are designed to ensure that abatement is real and verifiable. Under the NCOS, only offset credits that meet these standards are recognised as suitable for the purpose of carbon neutrality. They include:*
>
> ***Additional** – a project must result in abatement that would not have occurred in the absence of the scheme. There would be no reduction in emissions as a result of the Carbon Farming Initiative if the project activity would have occurred in the normal course of business.*
>
> ***Permanent** – permanence is an important characteristic of any offset project that involves the removal of carbon from the atmosphere and its long-term storage in plants, soil or other carbon sinks. There would be no real abatement if carbon were to be stored and subsequently released to the atmosphere. For practical purposes, biological carbon stores would be generally considered permanent if they were maintained (on a net basis) for at least 100 years.*
>
> ***Avoidance of leakage** – the project must not cause material increases in emissions elsewhere, which nullify or replace the abatement that would otherwise result from the project.*
>
> ***Measurable and verifiable** – emissions abatement must be able to be accurately measured or estimated to ensure each offset credit represents one tonne of carbon dioxide equivalent (CO_2-e) of emissions reduction or removal. Measurement and monitoring systems must be consistent over time and enable abatement estimates to be audited. Projects should be verified by an independent, qualified third party.*
>
> ***Conservative** – conservative assumptions, numerical values and procedures should be used to ensure that abatement and other claims are not over-estimated. Every CFI credit must be equivalent to at least one tonne of carbon dioxide abatement.*
>
> ***Internationally consistent –** estimation methods must be consistent with (not necessarily the same as) the National Greenhouse Accounts, where relevant, and internationally agreed methodologies and reporting practices adopted by the United Nations Framework Convention on Climate Change.*
>
> ***Supported by peer-reviewed science** – scientific evidence must be peer-reviewed, or if based on peer-reviewed science there must be independent*

and expert opinion validating the application of the approach or model in the relevant circumstances. Peer-reviewed science is scientific evidence that has been subject to independent review and critique by scientific peers prior to publication in scientific journals.

As indicated above, the Association has significant concerns regarding the practicality of integrity standards for projects involving commercial agriculture.

Also, there is a further dimension to integrity that has not been touched on in the Paper. This is the integrity of broader environmental and natural resource systems.

As discussed above, if there is any large scale uptake of the scheme, it may be desirable to systematically plan the allocation of land and water to scheme activities. This is relevant to the leakage issue and the potential for displacement of activities to other locations. If a scheme can be shown to be contributing to integrated strategic carbon plans, which are a component of broader land and water allocation plans, the potential for leakage will be diminished.

3.7.1 Additionality

Assessing whether abatement is additional to business as usual – whether the project would have occurred in the absence of the scheme – can be time consuming, costly and subjective.

To reduce participation costs whilst maintaining environmental integrity, the scheme could provide for streamlined assessment of additionality in the manner outlined below. Further, the Government has provided funding to develop methodologies as part of the Carbon Farming Initiative. This will include development of approaches to baseline setting that will make it easier for project proponents to demonstrate that their projects are additional.

The way additionality is applied will be critical to uptake of the scheme in the farm sector.

The aim of the CFI should be to facilitate and motive farmers to adopt climate friendly farming practices as quickly as possible. A threat to withdraw this funding should practices become common, or prove to be profitable in the absence of carbon credits, will be a red light to the majority of commercial farmers.

Such threats also raise doubt about the practicality of raising funding for projects with uncertain future cash flow.

While appreciating the difficulties posed by Kyoto rules applying to additionality, a central principle of the CFI should be that if a farmer increases or conserves carbon beyond a base line he will be paid for the service. In this regard, financial additionality or common practice considerations should neither exclude participation nor lead to later disqualification of an established project.

Recommendation 11: 'Financial additionality' and 'common practice' considerations should neither exclude participation nor lead to later disqualification of an established project.

This is a complex issue and it is likely that significant additionality questions will surround any projects involving land that is also allocated to commercial farming.

The Association seeks advice regarding the quantum and timing of funding available to the farm sector to conduct the methodology development work referred to. Critical methodological issues include:

- the treatment of 'early movers' – farmers who are already implementing practices that may qualify for credits;
- the treatment of regrowth – vegetation regrown since 1990 that can legally be cleared under the NSW Native Vegetation Act 2003. This should be eligible for avoided deforestation credits; and
- the treatment of pre-1990 native vegetation.

Recommendation 12: The treatment of 'early movers'; the treatment of regrowth; and the treatment of pre-1990 native vegetation must be clarified

3.7.2 Non-Kyoto CFI fund for pre-1990 vegetation

The treatment of pre-1990 vegetation will significantly affect attitudes to the CFI in the farm sector.

To take advantage of Kyoto Article 3.7 (the 'Australia clause') the Government claimed the carbon in pre-1990 native vegetation on private farm land to offset Australia's increased fossil fuel emissions in the first Kyoto commitment period. A consequence of this is that Australian farmers with pre-1990 vegetation do not enjoy the ability of landholders in non Annex One nations to sell avoided deforestation credits. As estimated by the Climate Institute, these credits would have a value of $1.8 billions of dollars at a carbon price of $28.[9]

This situation could be remedied by the Government purchasing retrospective avoided deforestation credits from the farmers concerned. This special class of credit could be sold on to those who understand the difficulties experienced by farmers who cannot develop their land due to the clearing bans imposed in the 1990s. Such landholders should have the same opportunity to benefit from a carbon market as do those with already cleared land or younger vegetation.

Recommendation 13: That the Government establishes a fund to purchase avoided deforestation credits from farmers owning pre-1990 vegetation

3.7.3 Positive list

> *Activities which achieve abatement and clearly do not result in material increases in agricultural productivity or business profitability would be identified in the regulations through a 'positive' list that would be deemed additional without further assessment. Activities that could be included on such a list include not-for harvest, carbon sink forests, on-farm tree planting or capture and flaring of methane from livestock manure or landfill facilities.*

[9] *Mission Billions: How the Australian Government Climate Policy is Penalising Farmers*, Climate Institute, October 2006

The Association can see some benefits of a positive list but cautions that such benefits may be outweighed by other factors. In practice, establishing a valid list may be troublesome. For example, the Department has indicated in consultation meetings that the list could not function on a pure category basis and would need to be geographically specific to meet additionality criteria.

A further consideration is that identifying certain schemes as 'positive' will 'bias investment decisions, R&D funding allocation and, most importantly, market perceptions. It seems probable that a corporation keen to present an image of carbon neutrality would prefer to buy a 'blue chip', positive list credit, over one that stakeholders may have residual doubts about.

There is also a risk that a 'positive list' will accentuate the market advantage of schemes such as not-for-harvest carbon forestry that are of least benefit to and may be in competition with commercial agriculture.

Recommendation 14: The proposal to establish a 'positive list' should be reconsidered

3.7.4 Exclusion of projects already in receipt of government funding

> *Landscape conservation or restoration that has been funded under previous or existing government programs and secured, for example with a covenant or contract, could not be considered additional even if environmental covenants or contracts protecting these areas are removed or cancelled. Similarly, activities that require ongoing funding, such as feral camel management and savanna fire management, would likely be considered once government funding ceases.*

The Association does not support this position. If the work was, or is being done for reasons other than carbon – for example, to address biodiversity or land degradation outcomes – the scheme should not be excluded.

> *If an activity is on a positive list or depends on revenue from the sale of credits, participation in future government conservation and natural resource management programs including grants, covenanting and stewardship programs would not, of itself, result in ineligibility for participation in the Carbon Farming Initiative.*

The Association supports this position. Aggregating benefits from multiple funding streams (including taxation incentives) is likely to be critical to the viability of carbon projects.

3.7.5 Business as usual and policy risk

> *The majority of agricultural activities increase productivity. Approaches to assessing additionality, which are consistent with integrity principles outlined in section 7, will be explored as part of the program of work to develop offset methodologies for use under the Carbon Farming Initiative.*
>
> *Activities that are mandated under Commonwealth, state, territory or local government regulations could not be approved as these form part of business-as-usual.*

This highlights a critical area of uncertainty for the farm sector. The Government must clarify in detail its position regarding productivity increases and additionality.

With regard to mandated activities, the legislation must provide explicit protection from future policy changes that would otherwise make activities non-additional. If a farmer invests in establishing a scheme, he must be certain that future government policy will not cancel, prevent renewal, or otherwise change the terms of the scheme. For example, if NSW law was changed to prevent cultivation of grass lands[10], this must not affect the ongoing validity of a soil carbon scheme involving a commitment not to cultivate a given area of grass land.

Recommendation 15: CFI legislation must include provisions to ensure that future government policy will not cancel, prevent renewal, or otherwise change the terms of an approved project

3.7.6 Permanence

> *Carbon that is removed from the atmosphere and stored in the landscape can be re-released to the atmosphere, reversing the abatement benefit. Biological carbon stores are generally considered permanent if they are held for at least 100 years.*
>
> *The risk of reversal is unique to sequestration activities and needs to be addressed to ensure the value of credits issued for these projects. On the other hand, the Government recognises the difficulties involved in making very long-lasting decisions about land use and the value of preserving future land use flexibility. The Government is therefore considering the following approach to permanence:*
>
> - *scheme participants would be able to withdraw voluntarily from the scheme and associated permanence obligations at any time as long as they relinquish credits already received for abatement;*
> - *a risk of reversal buffer to insure the scheme as a whole against re-release of carbon that is not otherwise covered by compliance and penalty provisions;*
> - *an obligation to relinquish credits if carbon stores are destroyed and not re-established; and*
> - *a carbon maintenance obligation that would require future landowners to maintain carbon stocks if the project is not properly transferred and the proponent becomes insolvent, goes into receivership or dies.*

The Association welcomes the Paper's recognition of the need for flexibility in land use and appreciates the tension between retaining such flexibility and the need to guarantee the integrity of credits. As noted above, flexibility should be included a scheme design principle.

It is widely recognised that the approach to permanence currently established under Kyoto is not suitable for commercial agriculture and will deter both broad participation and the flow of significant carbon finance to agricultural activities.

A whole farm carbon accounting model is needed (under Kyoto and under the CFI) that enables ongoing flexibility in land use yet still demonstrates ongoing delivery of carbon commitments.

3.7.7 Whole farm carbon accounting

A whole farm carbon accounting model would entail:

[10] Currently legal if less than 50% native or has previously been cultivated post 1990.

- A 'net stock change' approach to accounting – provided an agreed carbon balance can be demonstrated each accounting period, it does not matter how or where in the contracted land area this is achieved.

- A portfolio approach, whereby multiple methods could be used to achieve the net carbon balance - a soil carbon paddock can be replaced by a stand of trees and vice versa provided a *bone fide* a carbon balance can be demonstrated

- Spatial and temporal averaging – averaging across entire paddocks, properties and activities, and across reporting time periods. Note that averaging should not be used as the means of addressing natural disturbance, but strictly in relation to variations in response to proponent activity.

- The exclusion of natural disturbance from liability (provided all reasonable actions have been taken to minimise the impacts of natural disturbance)

Naturally, establishing a valid MRV methodology for such an approach would demand considerable R&D.

The Association wishes to be directly involved in directing a whole farm carbon accounting project in partnership with relevant research organisations. It is critical that the practical needs of farmers are understood in the development of farm carbon accounting.

Recommendation 16: Funding is provided to the farm sector to develop a 'whole farm' carbon accounting model entailing:

- **A 'net stock change' approach to accounting;**

- **A portfolio approach, whereby multiple methods could be used to achieve the net carbon balance;**

- **Spatial and temporal averaging; and**

- **The exclusion of natural disturbance from liability**

3.7.8 Biodiversity projects

> *Further, proponents of projects involving environmental plantings that provide important biodiversity benefits could seek to protect these through conservation covenants or by transferring these plantings to conservation organisations or governments, for example for inclusion in the National Reserve System. Participation in conservation programs and activities as well as the Carbon Farming Initiative may assist landowners with the future costs of managing these plantings.*
>
> *This approach could ensure the environmental integrity of abatement and allow for higher returns on bio-sequestration projects than other offset schemes which issue temporary credits for bio-sequestration or apply very large risk buffers.*

The Association does not support policy that would favour biodiversity oriented projects such as not for harvest forestry over those offering wider social, economic and environmental benefits.

In the first place, there is a risk that such policy would favour CFI projects that are in competition with commercial farming. This would reinforce other features of the scheme that threaten to negatively impact food and fibre production and the social and economic fabric of farming communities.

Secondly, allowing a focus on biodiversity outcomes to drive project selection might exclude projects with beneficial outcomes in the realm of food security, and general sustainability (for example, short rotation agroforestry in combination with pyrolysis and soil carbon).

To illustrate, farmers could rotate crops of Acacia (a native nitrogen fixing woody species) to supplement soil nitrogen (critical to soil carbon chemistry) then pyrolise the timber to generate biochar by burning in covered pits or trenches (pyrolysis does not have to be hi-tech). These activities could contribute to a positive carbon balance in the whole farm carbon accounting model proposed. Naturally, R&D would be needed to validate such concepts.

Recommendation 17: CFI design principles must prioritise food security and sustainable production co-benefits

3.7.9 Risk of reversal buffer

> *The purpose of the 'risk of reversal buffer' is to insure the scheme against losses of carbon in the period whilst carbon stores are being re-established following bushfire, drought, disease and pest attack, and against deliberate wrong-doing which has not otherwise been addressed under the scheme.*
>
> *The Government is considering applying a risk buffer of five per cent of the carbon sequestered by the project to all bio-sequestration projects. A uniform approach will be simple to administer and is justified because there is limited data to enable project or activity level risks to be accurately and easily quantified. As more information becomes available, the risk of reversal buffer could also be adjusted to reflect project level risks or risks for a particular activity.*
>
> *To help evaluate the adequacy of the buffer over time, the administrator would report annually on the number of units withheld and the amount of carbon losses reported (both annually and cumulatively). Any increase in the buffer would apply prospectively to new projects and existing projects from the commencement of a new crediting period (see crediting periods below).*

The Association suggests a different approach to the reversal buffer.

While a uniform buffer has the obvious appeal of simplicity, it risks creating winners and losers across different kinds of bio-sequestration projects. It is likely that different buffer approaches will be appropriate for different projects, with high buffer needs effectively being subsidised by those with low buffer needs.

As a solution to this, it is suggested risks related to 'wrong doing' and risk due to 'natural disturbance' are treated separately. A uniform buffer 'wrong doing' buffer could be established – say 2% - and levied on all projects. A further 'natural disturbance' buffer could then be fitted precisely to the project methodology or category of project.

Recommendation 18: That risk due to 'wrong doing' and risk due to 'natural disturbance' are treated separately, with a uniform 'wrong doing' buffer percentage applying to all projects and 'natural disturbance' buffers fitted precisely to the project or category of project.

To illustrate, the quantum of carbon at risk due to fire from a forestry based project can be estimated using the same data used to establish credits coupled with State fire Authority hazard mapping and other data. Naturally, risk will vary considerably across species, topography and climate zone. The insurance industry is practiced in such approaches. Risk in relation to soil carbon needs a fundamentally different approach and is discussed below.

3.7.10 Adjustment of risk buffers

The legislation must provide certainty regarding the process for 'adjusting' risk buffers. Buffer arrangements will be fundamental to project economics and therefore must remain in place for the duration of projects (not just crediting periods). Further, any review must be in line with a designated statutory review period and subject to consultation.

Recommendation 19: That the legislation provides certainty regarding the process for 'adjusting' risk buffers and any review must be in line with a designated statutory review period and subject to consultation.

3.7.11 Carbon restoration

> *As a result of their contribution to the risk buffer, project proponents would not have to relinquish credits if carbon stores were re-released to the atmosphere as a result of a natural disturbance, such as bushfire.*
>
> *However, project proponents would have to take the necessary steps to ensure that carbon stores were re-established. In many cases, environmental plantings are likely to regenerate with only modest intervention by the project proponent. However, other types of bio-sequestration projects may require more action by the proponent to re-establish carbon stores.*
>
> *Further, project proponents would not receive any further credits until carbon stores are re-established and reach previously reported levels.*
>
> *For these reasons, the application of a five per cent risk of reversal buffer will have a marginal impact on incentives to manage the risk of natural disturbances such as bushfire and pest attack. Indeed, some project proponents are expected to take out private insurance to cover outstanding risks including loss of income whilst carbon stores are being re-established and the cost of re-establishing carbon stores.*

Risks in relation to carbon restoration are likely to be significantly greater for commercial farmers than for other categories of landholder, such as not-for-harvest carbon foresters. This is because commercial farmers are more likely to engage in projects involving activities that are integrated with productive landuse, with soil carbon being the central element. Both flood and drought may severe affect the feasibility and carbon outcome of practices that a farmer has committed to under a project.

The discussion paper does not address how natural disturbance and restoration would be treated in relation to soil carbon schemes.

Recommendation 20: That the Government clarifies how restoration will be treated in relation to soil carbon

3.7.12 Different buffer approach needed for soil carbon

A fundamentally different approach to risk and restoration is needed for soil carbon projects than is taken for forestry.

In the case of soil carbon, natural disturbance losses are harder to identify, due to the diffuse and prolonged nature of drought events, the uncertainty of climatic cycles and the role of climate forcing. In contrast to fire in forestry, there are no distinct and readily identified disturbance events. This is the primary reason why adequate carbon accounting rules for soil have been so hard to establish under the Kyoto process.

In times of drought or flood, not only will massive soil carbon losses occur, it may be practically impossible to restore pre-drought carbon levels within the lifetimes of projects.

Natural disturbance in relation to soil carbon releases is a vexed issue in domestic and international circles, with no clear policy resolution in sight.

A compounding factor is the uncertainty surrounding post 2012 policy in relation to Article 3.4 (Australia may lose the option to exclude soil from its obligations) and the international debate surrounding accounting for natural disturbance.

While *force majeure* may offer a solution for fire, it seems unlikely that Parties will accept its application to soil, since the disturbance events are temporally and spatially diffuse, and extended over long periods of time. Further, the relative contribution of management practices and climate forcing is difficult to discriminate. Applying a low threshold for *force majeure,* as has been advocated by Australia, is not an acceptable solution to many scientists and Parties.

The Association believes that the government should give the highest priority to soil carbon accounting solutions. In particular, Australia should take the lead internationally in developing and promoting scientifically robust solutions for factoring out natural soil carbon losses.

Recommendation 21: That Australia instigates an international project to establish agreement on a scientifically robust, Kyoto-compliant soil carbon methodology, including measures for factoring out natural soil carbon losses.

In the meantime, and in the interests of ensuring the viability and take up of soil carbon projects, the Association proposes that the Commonwealth takes responsibility for a soil carbon natural disturbance buffer. This could be modelled at national scale using NCAS/FullCam[11].

Recommendation 22: Pending resolution of international negotiations in relation to natural disturbance accounting, the Commonwealth should take responsibility for a soil carbon natural disturbance buffer.

[11] Austalia's land sector carbon accounting system.

The Association does not support averaging of soil carbon over climatic periods as a means of buffering out natural disturbance. Farmers should be credited for all of the additional carbon attributable to their efforts.

Recommendation 23: Soil carbon should not be averaged over climatic periods as a means of buffering out natural disturbance. Farmers must be credited for all of the additional carbon attributable to their efforts.

3.7.13 Carbon maintenance obligation

> *The carbon maintenance obligation would apply if the project is not properly transferred and the proponent dies, becomes insolvent, or does not relinquish credits as required. The obligation would require future land owners not to engage in conduct that would destroy carbon stores that existed at the time the obligation was applied. Landowners would not be required to re-establish carbon stores that were destroyed prior to the application of the obligation.*
>
> *The carbon maintenance obligation would apply automatically if there was an unmet obligation to relinquish units. It would be lifted with respect to any areas for which obligations to relinquish units were met, for example because of successful or partially successful compliance action against a previous project owner.*
>
> *Project proponents would have two options when selling property that underpins a CFI bio-sequestration project. They could transfer the project to the purchaser who would become the new project proponent, responsible for reporting on the project and eligible to receive credits. Alternatively they may terminate the project, relinquish units and sell the land free of the project.*
>
> *Property may sometimes transfer to new owners without their consent to the transfer of the project, for example because land is inherited or a lease is terminated. In these circumstances, the new owner would take the land subject to the carbon maintenance obligation and would not be allowed to destroy existing carbon stores. Accordingly, state and Commonwealth governments could become subject to carbon maintenance obligations following the expiry of long term leases.*
>
> *Civil penalties would apply for non-compliance with the obligation. The legislation would also enable the administrator to seek injunctions preventing destruction of carbon stores or to require the land owner to take actions to restore carbon stores that they had destroyed.*
>
> *Scheme obligations would need to be noted on land title. This note would not give the Commonwealth Government an interest in the land, and is intended only to ensure that future interest holders in the land are given notice of scheme obligations.*

It is critical that the Government takes responsibility for confirming clear carbon title and for ensuring notification on title. Clarity must be provided to stakeholders regarding the bilateral arrangements established with each State and Territory in this regard. See section 3.8.2 for further discussion of this issue.

3.7.14 Avoided deforestation

> *The risk of reversal in avoided deforestation projects is particularly high if credits representing the full amount of carbon sequestered in the forest are issued immediately after the project is approved. Further, these stocks*

would take a very long time to recover if they were destroyed. For this reason, the scheme could provide for credits for avoided deforestation projects to be issued on a pro-rata basis over a longer period, for example twenty years. Under these arrangements, project proponents would receive a stream of credits over the crediting period, which would be similar to land stewardship payments. These crediting arrangements may not be necessary where permanence is ensured through additional mechanisms such as the application of a conservation covenant or transfer of land to the National Reserve System.

Further detail is required regarding how funds would be held under a pro rata model and security for farmers in this regard (for example, would the total funds from the credit purchaser be held in a government controlled fund and issued via an annuity). It is not clear what kind of security would be provided to a farmers regarding ongoing payment in subsequent crediting periods and risks regarding changes in government policy that may invoke additionality exclusions. If a farmer commits to forego developing his land, he should be guaranteed the full credit value provided the vegetation remains in place. If this guarantee is provided, delivery of credits via an annuity stream would be a sensible approach.

Carbon restoration requirements and the implications for pro rata payments also need to be clarified

The terms of participation in this area will be critical to uptake by farmers. There is considerable interest among Association members regarding their ability to gain income from native vegetation on their land. Additionality criteria will be a critical factor in this regard. The Association is interested in exploring methodologies for avoided deforestation of existing native vegetation on farm land, including regrowth.

3.7.15 Leakage

Some abatement activities can result in increases in emissions.

To prevent over-crediting, material increases in emissions that are directly attributable to the abatement activity would need to be estimated and deducted from project abatement. For example, improvements in soil carbon can involve increases in nitrous oxide from fertiliser use. Further, projects can displace economic activity and therefore increase emissions outside the project boundaries. For example, reductions in deforestation in one area may be offset by increases in deforestation in other areas if the market demand for timber remains the same.

As it can be difficult to estimate leakage that occurs beyond the boundaries of project or individual farm, this issue would also be examined through the program of work to develop offset methodologies for use under the Carbon Farming Initiative.

As noted in section 3.5, land sector leakage issues can be partially ameliorated via spatial planning and natural resource allocation processes. A land sector carbon market of any significant scale cannot operate in isolation from statutory planning and resource management systems. Nor can individual carbon projects operate or be assessed in isolation from each other. In this regard, Full Cam may offer a platform for integrating planning information.

3.8 Scheme processes

3.8.1 Recognised entity

> *To reduce the risk of fraud undermining the credibility of the scheme, the scheme could allow only recognised offset entities to participate in the scheme. The key requirement for recognition would be that the entity or offset project proponent passes a 'fit and proper' person test.*
>
> *To provide flexibility, the scheme could allow farmers or landholders to appoint an agent to report on the project on their behalf. The farmer or landholder would still receive the credits and have to relinquish credits if carbon stores were destroyed and not re-established.*

Agents could create significant liabilities for landholders without their knowledge. A legislated registration and governance process would therefore be required for agents along with mandated training programs. In addition to properly qualified agents, a robust government information system, accessible to registered project owners, would be essential to ensure rigour and transparency. For privacy and commercial in confidence reasons, access in this regard must be restricted to data relevant to the proponent's project.

Recommendation 24: A legislated registration and governance process is required for carbon agents along with mandated training programs. Only registered agents and registered project owners should have access to CFI project data and administrative systems.

3.8.2 Project approval

> *For a bio-sequestration project, the proponent would also have to demonstrate that they have the right to the carbon in the soil and/or vegetation, for example because they have a lease or own the land. This is to ensure that offset credits are issued to the right person.*
>
> *The project proponent would also have to demonstrate that they have obtained the consent of all persons who have a registered interest in the project land to include that land in the scheme. This would help to protect the interests of those who may be subject to a carbon maintenance obligation (see carbon maintenance obligation above). Further, the project proponent would need to ensure that a note is placed on the land title to alert future purchasers to the potential for carbon maintenance obligations.*

It is not clear why the obligation to register schemes on title is placed with the proponent, nor how the Commonwealth intends to confirm that registration has occurred.

The full burden of establishing right to title and registration on title (and onus for errors) should not rest with the proponent and clear administrative process need to be established in this regard. This area is potentially a legal minefield with potential for significant confusion in future years.

The CFI administration and legislation must include bilateral arrangements to facilitate provision of right to carbon title information by relevant State land title agencies.

Further, the right to the carbon may not always be clear and it is essential that the legislation clarifies how the Commonwealth will establish this right for the purposes of the scheme.

Notification is likely to be problematic and the legislation will need to clearly define the meaning and consequence of 'registered interest' in the respective jurisdictions. For

example, if a mining company holds a mining title over farm land, it may be able to block a CFI scheme or demand a share. It is unreasonable to expect project proponents to navigate these issues in the absence of clear guidance.

Recommendation 25: The full burden of establishing right to title and registration on title (and onus for errors) should not rest with the proponent. Robust legal and administrative process must be established by government prior to scheme commencement.

Recommendation 26: The CFI administration and legislation must include bilateral arrangements to facilitate provision of right to carbon title information by relevant State land title agencies and must clarify how the Commonwealth will establish carbon rights.

Indigenous held land

> *The scheme would provide new economic opportunities for Aboriginal and Torres Strait Islander land holders.*
>
> *In many cases Indigenous land could be treated similarly to other land, for example, Aboriginal and Torres Strait Islander owners of a freehold title could demonstrate that they have the right to carbon in a similar manner as other landholders. However, some Indigenous lands are not readily comparable to freehold title (eg Crown reserves), and there may be uncertainty in these cases as to the capacity of Indigenous people to participate in the scheme.*
>
> *In addition, concerns have been raised about whether exclusive possession native title includes the right to benefit from carbon or to manage vegetation for the purpose of carbon sequestration. Any uncertainty about this could lead to difficulties for such native title holders gaining approval for scheme bio-sequestration projects.*

The Paper does not discuss the status of Crown Land held by farmers under perpetual lease or other instrument. This may be a critical issue for many farmers in NSW.

3.8.3 Database of offset projects

> *To provide transparency, the scheme could include information about eligible projects on a publicly accessible database of offset projects. Mandatory information would include a detailed description of the project, the methodology applied, the name of the project proponent, the location of the project, and the number of credits issued to date.*
>
> *The database of offset projects would assist prospective purchasers of land to understand their potential future responsibilities. Prospective land buyers, seeing a note on the title about the Carbon Farming Initiative, could check the database for information about the project, including the number of carbon credits that had already been issued.*

Firstly, the Association would oppose a public register, believing that such information is both private and commercial in confidence and its publication would be equivalent to placing tax returns in the public domain. Very few farmers would participate in the scheme on those terms.

Secondly, relying on purchasers to check a Commonwealth data base is a vague and inadequate way to ensure the integrity of the scheme and minimise risk for both buyers and landholders. Ultimately, it is also unlikely to prove satisfactory to scheme administrators.

Instead, CFI details and obligations should be provided to prospective buyers as an attachment to contracts of sale (via Section 149 Certificates in NSW). This would need to be established via consequential amendments to State legislation.

The CFI scheme will not be able to function without a sophisticated registry and administrative data base, integrated with relevant State agencies. Data integration should include title and registered interests.

Recommendation 27: There should be no public register of schemes. Instead, CFI details and obligations should be provided to prospective buyers as an attachment to contracts of sale as a legal requirement of State land transfer processes

3.8.4 Co-benefits

The scheme could allow optional information to be included on the database about the biodiversity and other co-benefits associated with the project, to assist offset buyers who have a preference for such projects. Claims included on the database about the co-benefits of the offset project would need to be supported by evidence made available for public scrutiny. The provisions of the Trade Practices Act 1974 in relation to misleading and deceptive conduct would also apply.

Governments are working to develop a method for assessing and rating or accrediting the value of co-benefits associated with abatement projects. Proponents of bio-diverse abatement projects could advertise co-benefits associated with their projects in order to sell their credits at a premium price. Other co-benefits that could be listed against the project include Indigenous or youth employment and benefits for water quality, erosion control or management of salinity.

A more inclusive approach to benefits assessment is proposed whereby projects are rated against a full sustainability assessment that considers both co-benefits and disbenefits.

Parameters could include

- Increasing or decreasing agricultural productivity and food security
- Synergies with the clean tech/recycling sector
- Negative and positive impacts on water resources (quality and quantity)
- Soil condition and fertility
- Biodiversity

For example, a not-for-harvest carbon forest project could score well on biodiversity but poorly on food security and on synergies with the clean tech/resource recovery sector.

Recommendation 28: Rating and marketing of projects should include a statement of benefits and disbenefits across a range of sustainability parameters.

3.8.5 Crediting periods

The scheme could allow the administrator to approve an offset project to use a particular version of a methodology for a maximum crediting period of three years, unless the regulations provide for longer crediting periods for specified activities. This is to allow for new, improved versions of methodologies in line with advances in carbon estimation.

Project proponents could apply to use a revised methodology before the end of a crediting period, and would be expected to do so if revisions resulted in higher abatement estimates.

At the start of a new crediting period, project proponents would need to demonstrate that their project meets the requirements of the relevant methodology. This will allow for continuous improvement of methodologies. Further, some projects may cease to be additional during their lifetime, for example because the project activity may become common practice. Proponents of emissions reduction projects would need to seek confirmation of the project baseline (in accordance with the relevant methodology) for any subsequent crediting period. It is not necessary to reset baselines for reforestation and revegetation projects because increases in abatement are measured from one period to the next (as the trees or vegetation grow), rather than relative to a baseline.

Permanence obligations would continue to apply to bio-sequestration projects even if these were not re-credited for a further period.

Projects could not be credited for a further period if the activity has become mandatory, which is unlikely for most land sector activities.

The risk of reversal buffer may also be adjusted in a new crediting period.

A crediting period of three years is too short to provide a basis for investment in commercial agricultural carbon projects.

The statement regarding projects becoming 'common practice' is most concerning and if implemented would undermine the feasibility of most farm based schemes. A commercial farmer would be unlikely to invest in establishing a farm carbon plan and MRV system, and tooling up to implement changed practices, if the financial incentive can be removed at the end of a crediting period under a 'common practice' ruling. Likewise, uncertainty regarding baselines would prevent effective business planning and investment.

Certainty regarding matters determining the basic economics of projects would need to be provided for at least 10 year periods.

Recommendation 29: Crediting periods of three years is too short. Certainty regarding the ongoing eligibility of projects is needed for at least 10 year periods.

3.8.6 Reporting

The scheme could enable project proponents to report to the administrator annually in accordance with the relevant methodology. Proponents could report every 12 months and would be required to report at least once during the crediting period. This is to enable regular crediting while minimising participation costs for projects that generate smaller volumes of abatement, for example bio-sequestration projects in which trees or other vegetation grow very slowly.

Project proponents wishing to exchange eligible Carbon Farming Initiative credits for Kyoto units would have to submit a report and a request for exchange of units by the end of March 2013. This would allow the Government time to finalise its Kyoto Protocol accounts for the first Kyoto commitment period.

The scheme could require that all project reports be independently audited by suitably qualified persons, with the costs borne by the project proponent. To underpin the integrity of the audit process and reduce administrative costs, proponents would be required to select auditors who have met the requirements of the National Greenhouse and Energy Reporting System (NGERS) and have been listed on the Register of Greenhouse and Energy Auditors. Reporting relating to greenhouse gas

> *emissions would need to be consistent with NGERS requirements, including the requirement that records are kept for seven years.*
>
> *The scheme could also require proponents to report relevant changes to the project, for example significant natural disturbances. Penalties would apply for obtaining credits fraudulently, for example through misreporting.*

This section underlines the immense administrative burden associated with the scheme.

While a market based model can work for forestry projects, it must be noted that MRV for forestry is relatively easy to achieve and there is no requirement for ongoing flexibility in landuse.

The Paper places responsibility for reporting natural disturbance on the proponent, with penalties for misreporting. With regard to soil carbon, this infers that a farmer or his delegate would have the capacity to model the impacts of climatic events and quantify attributable carbon losses.

An alternative approach would be to estimate natural disturbance losses using FullCam (the model underlying NCAS for the land sector) and to provide periodic statements to project administrators in this regard. Such statements should be contestable.

To ensure the integrity and marketability of the CFI to domestic and international clients, it would seem essential that NCAS's spatial capacity be deployed in a monitoring role and its resolution upgraded to cover natural disturbance and compliance at project scale. It is assumed in this regard that NCAS would be integrated with the CFI register.

3.8.7 Crediting

> *The scheme could provide that the administrator issue Carbon Farming Initiative credits on the basis of abatement estimates in the proponent's project report, once the report has been independently audited and then approved by the administrator.*
>
> *It is generally very difficult to estimate past abatement and demonstrate that abatement that has already occurred is not business-as-usual. However, for reforestation and abatement projects for which methodologies are approved prior to the proposed commencement of the scheme on 1 July 2011, the scheme could allow the first reporting period to be backdated to commence on or after 1 July 2010. This transitional arrangement would mean that projects applying an approved methodology and underway before the start of the scheme could generate credits for any part of 2010-11 in which the project was in operation.*

Once again, this demonstrates the market advantage that the scheme would provide to forestry projects.

> *For bio-sequestration projects, the number of credits issued would be equivalent to the increase in carbon storage since the previous report, with an adjustment to account for the risk of reversal (see section 7.2 Permanence).*
>
> *If carbon stores are reduced over the reporting period, the project proponent would have to indicate whether the reduction was due to natural disturbance and provide supporting evidence.*

As discussed above, it is surprising that the Government considers evidence from the proponent would be adequate to demonstrate natural disturbance in relation to soil carbon.

3.9 Methodology approval

> *Carbon Farming Initiative methodologies will be developed by the Department of Climate Change and Energy Efficiency and the Department of Agriculture, Fisheries and Forestry in collaboration with industry, as well as by private project developers.*
>
> *Methodologies developed by the Departments will be prioritised on the basis of scale, cost of development and potential public benefits.*
>
> *The Departments may assist private methodology proponents, including by providing advice on international carbon accounting rules.*
>
> *A methodology could consists of:*
>
> - *a description of the abatement activities, greenhouse gases, and sources and sinks affected by a project;*
> - *procedures for determining baseline emissions and removals for the project;*
> - *procedures for identifying and estimating leakage;*
> - *procedures (or the model) for estimating or measuring abatement (net of leakage) relative to the baseline;*
> - *project monitoring requirements; and*
> - *any additional reporting and record keeping requirements which are not specified elsewhere in legislation.*

The Association notes that the Government is developing methodologies relevant to the farm sector and requests to be directly involved in that process.

4 OTHER ISSUES

4.1 Marketing and raising capital

There is no detail in the Paper regarding the likely scale and value of international and domestic markets for CFI credits. As noted above, however, there does not appear to be any significant existing market for CFI credits relevant to commercial agriculture.

Scheme developers have expressed the view in consultation meetings that the quality of Australian CFI credits, backed by the credibility of the Australian government, will create a market of sufficient volume and value to make projects financially viable. This may prove to be the case but it seems likely that project developers and their funders (banks) will need more certainty. A significant chicken and egg problem exists in this regard.

A key question both for the cost of establishing projects and the likely value of credits is the degree to which Kyoto carbon accounting rules and MRV requirements are adopted.

While Kyoto requirements will be impractical and costly to meet for activities such as soil carbon, avoiding these costs may ultimately prove self defeating.

It seems likely that both international and domestic markets will assess the 'integrity' and therefore value of non-Kyoto CFI offsets against Kyoto carbon accounting rules and principles. In short, the voluntary nature of a credit will not exempt it from critical evaluation and discounting. Evidence in this regard is that the non-compliant and notoriously 'soft' soil carbon credits created by the Chicago Climate Exchange were trading in January 2011 at US 15 cents a tonne.

Inevitably, non-Kyoto CFI credits will be discounted to the degree that civil society deems them not to offer genuine sequestration or abatement.

The Offsets Integrity Commission and the backing of the Australian Government should help to establish the credibility and market value of non-Kyoto CFI units and offers some scope for Australia to demonstrate alternative ways of establishing valid offsets.

Ultimately, however, the Offsets Integrity Commission will have to reflect the science and policy embodied in Kyoto carbon accounting rules or its own integrity will come into question.

In short, for a farmer to achieve a worthwhile value for a credit in the international or domestic voluntary market, he (or his service provider) will have to implement an accounting methodology that is for all intents and purposes Kyoto compliant.

It should be noted that a non-Kyoto CFI will not be tradable in a mandated market (for example, because we have elected to exclude soil under article 3.4) but it will still have to represent a genuine unit of carbon. In short, voluntary credits will be subject to similar establishment and accounting costs, with potentially far lower returns.

While not insurmountable, these financial realities need careful consideration.

4.2 Kyoto negotiations regarding LULUCF

International negotiations regarding the details of Land Use, Land Use Change and Forestry (LULUCF) policy continue to be critical to outcomes for the land sector. As has been argued above, this applies both to voluntary and mandated markets, since the credibility and therefore value of carbon units will be to a large extent determined by standards set via the established international policy process.

There continues to be considerable uncertainty regarding critical elements of this policy framework, being those relating to natural disturbance, permanence and additionality.

Documents arising from Conference of Parties 16 (COP16) held in Cancun Mexico are the primary reference in this regard. Chapter II and the associated Annex of FCCC/KP/AWG/2010/CRP.4/Rev.4 sets out the outcomes from COP 16/CMP 6 for LULUCF. [12]

Much of the text is 'bracketed', meaning that decisions have not been reached on alternative options for dealing with many issues for accounting and reporting obligations beyond 2012 when the first commitment period of the Kyoto Protocol ends.

Issues subject to further investigation and debate include:

- Rewetting and drainage – the COP is connecting up water management policy with carbon policy since activities that wet or dry land and vegetation have a significant impact on carbon fluxes.
- Additionality, baselines, and base period year
- Mandatory reporting or natural forests converted to commercial forests

[12] http://unfccc.int/documentation/documents/advanced_search/items/3594.php?rec=j&priref=600006112 .

- Methodologies for factoring out natural changes in GHG fluxes - i.e. reporting only anthropogenic emissions and removals.

- Methods for identification and ongoing monitoring of land areas that enter the accounting system. These rules are aimed at minimising double counting and gaming through bringing areas of land in and out of the accounts.

- *Force majeure,* being policy that enables exemptions for loss of carbon due to major natural disturbance. Critically, references to a threshold for *force majeure* remains bracketed indicated the lack of agreement about how a threshold would be set. As discussed above, this is relevant to how loses of soil carbon due to drought and less extreme climatic factors will be treated. Ideally, natural soil carbon losses would be treated as fluxes and factored out, but the challenge is establishing a practical measurement regime and methodology for this.

The text relating to *Force majeure is given below:*

> *Where force majeure has occurred on lands subject to Article 3, paragraph 3, and*
>
> *Article 3, paragraph 4, and provided that the requirements of paragraphs 31 and 32 below are met, Parties may exclude from the accounting, annually or at the end of the commitment period, annual emissions [above the threshold] due to the force majeure minus any removals until the end of the second commitment period on the lands affected. The treatment of emissions and removals that occur on these lands in subsequent commitment periods shall be reflected in LULUCF accounting for those commitment periods. Emissions associated with salvage logging shall be accounted for in the commitment period during which the salvage logging has occurred. In the case of land use change following force majeure, Parties shall not exclude emissions.*[13]

In the view of the Association, it is critical that Australia wholeheartedly joins the international campaign for a LULUCF methodology that releases international carbon finance for soil carbon projects. This campaign needs to focus on the co-benefits of improving soil condition in relation to food security, poverty and famine in the developing world.

4.3 Risk management

The Association understands that the CFI is intended as a speculative, 'learning through doing exercise' and can see how this experimental approach offers a way forward.

However, experimental activities carry a high risk of failure, demanding an entrepreneurial spirit and high risk tolerance from participants. Currently dealing with flood following drought and converging policy threats on many fronts, including the Murray Darling Basin Plan and the prospect of a carbon price that will increase energy and fertiliser costs, few farmers in NSW are in the position to take entrepreneurial risks.

In the interests of disclosure and to ensure the sustainability of the scheme, risks to participants must clearly be acknowledged and provided for in the legislation and in information materials.

[13] ibid

In addition, consideration should be given to transitional arrangements by which government can share the financial risk through credit purchase or direct investment.

Given the relative difficulty of getting some categories of activity to market, consideration could be given to transitional direct funding arrangements. These could take the form either of conventional grants (eg Carrying for Country) or government purchase of credits external to a commercial credit market via a revolving fund.

Recommendation 30: In the interests of disclosure and to ensure the sustainability of the scheme, risks to participants must clearly be acknowledged and provided for in the legislation and information materials.

Recommendation 31: Consideration should be given to transitional arrangements by which government can share the financial risk through credit purchase or direct investment.

4.3.1 Revolving government fund to guarantee credit price

To achieve early and broad participation in relation to activities subject to high levels of uncertainty such as soil carbon, measures should be introduced to ensure that a fair share of the risk is carried by the government.

This could include, in an establishment phase, the government guaranteeing to purchase all, or a proportion, of agricultural credits to be held in a government backed pool.

At a future date, credits would be sold on (if a viable market for the credit develops) or used to help cover losses resulting from project failure. A revolving fund could be established for this purpose as part of the initiative. Such a model would clarify investment decisions for parties developing the methodologies and projects in the agricultural sector where technical solutions for MRV, sequestration and mitigation are not yet proven.

Recommendation 32: A revolving fund is proposed to back projects in high risk categories such as soil carbon.

4.4 Biofuel, biochar and waste recycling

Organic waste (agricultural, forestry waste, landfill) contains both energy and carbon, which can be reclaimed via burning.

The Association is supporting of innovation in this area, but notes the need for full carbon accounting (of all inputs and outputs including transport costs). The low energy to volume ratios of waste suggest that transport should be avoided and projects should focus on using waste on site.

The Association is exploring the potential of sophisticated biochar plants co-located with intensive agriculture (for example, chicken manure is a high energy feedstock). Such plants produce both energy and carbon rich soil conditioners as well as providing a valuable waste disposal service.

'Low-tech' biochar may also play an important role enhancing soil carbon in broad acre agriculture. Humans have been making charcoal since prehistoric times and biochar could be produced by farmers simply by pyrolysing vegetation and crop waste in pits. Such techniques could avoid expensive transport and technology.

As noted above, short rotation crops of nitrogen fixing woody vegetation such as Acacia, could be used in conjunction with pyrolysis to accelerate soil carbon recovery

The Association supports funding and projects to demonstrate Biochar and other resource recycling and renewable energy initiatives and is working on initiatives in this space.

There are strong potential synergies between agriculture and the clean technology sector in general and the Association would welcome a dialogue with the DCC as to how to source funding in this regard.

Recommendation 33: A program is needed to fund partnerships between the farm sector and the clean technology and recycling sector, with a focus on returning carbon and nutrients to soil

4.5 Research and development

The Association notes the recognition in the Paper of the need for research and development in relation to farm sector activities. It is difficult for the sector to evaluate the CFI proposal in the absence of detailed information about the quantum and allocation of funding in this area, however. It is recommended, therefore, that the Government produces, in consultation with the farm sector and research community, a paper detailing the RD&E program and funding arrangements for the CFI. Areas urgently requiring new funding include:

- Whole farm carbon accounting methodologies and technology
- Technology for livestock methane abatement
- Technology for fertiliser emissions management
- A range of experimental and demonstration initiatives in the biochar field (including synergies with short rotation forestry and synergies with intensive livestock facilities)
- A range of experimental and demonstration initiatives in the recycling sector (organic waste to farm; avoided landfill to farm etc)

Recommendation 34: The Government produces, in consultation with the commercial farm sector, a paper detailing the program and funding arrangements for the CFI related RD&E.

5 CONCLUSION

While noting many concerns about the detail of the proposal, the Association welcomes the initiative and wishes to be closely involved in further development of the scheme.

It is essential that the scheme is designed from the point of view of farmers and in full consideration of their practical needs.

If the policy settings are right, the CFI can help Australian farmers to improve the productivity and sustainability of their soil, land and water systems. If the settings are

wrong, the CFI will be dominated by forestry investors and is unlikely to achieve any significant scale in the realm of commercial farming.