Carbon Sinks and the Kyoto Protocol in Australia:

A Brief History and Consideration of the Opportunities for Integration in Environmental Management and Regulation

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Introduction

This paper briefly examines the history of international developments in the management of climate change, the actions Australia has taken in response to some of those developments, and possible directions for the future. Based on these observations, the paper proposes a role that carbon trading and in particular, carbon sinks could play in encouraging non-traditional investment in the environment, supported by a regulatory system that actively seeks to integrate previously disparate sectors of environmental management.

Climate Change and the Evolving International Obligations

The Framework Convention on Climate Change

On 30 December 1992, Australia ratified the United Nations Framework Convention on Climate Change ("UNFCCC"), as adopted on 9 May 1992 at the conference dubbed the "Rio Earth Summit". The central objective of the UNFCCC, as stated in Article 2, is the:

> *"stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system...within a time-frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner."*[1]

The UNFCCC entered into force on 21 March 1994, following ratification by 50 parties. Around 180 countries have now ratified the Convention. There have been six Conferences of the Parties since ("COPs" – with two parts to the recently concluded COP-6), at which issues relating to the future of the UNFCCC as well as its developing Protocols, have been negotiated. It was at COP-3 in December 1997 that the Kyoto Protocol was adopted, following a week of intense negotiations involving over 10,000 participants.

The Kyoto Protocol[2]

Now the most significant document under the UNFCCC, the Kyoto Protocol was adopted on 11 December 1997. Under the Protocol, Annex I Parties (essentially "developed" or "industrialised" countries) have agreed to reduce their emissions of greenhouse gases below their reported 1990 levels, in varying amounts, during the first "Commitment Period" which is set to run from 2008 to 2012.

The "varying amounts" were agreed to by each country according to their particular circumstances. For some countries such as Australia, this meant arguing that an increase of up to 8% on 1990 levels was reasonable, given particular dependence on high-emission technologies (in our case, coal-fired power). Most countries have agreed to a reduction of 6-8%, in an attempt to achieve a world-wide reduction of greenhouse gas emissions equal to around 5% based on 1990 levels, by the end of the first Commitment Period.

It is important to understand that the *reality* of these reductions is likely to be much higher than the actual percentage figure contained in the Protocol. This is particularly the case for countries with escalating emissions like Australia and the US, as the reductions are compared to 1990 levels. Given current estimates of emissions in Australia for example, its commitment of 108% requires a reduction in average annual emissions during the first Commitment Period, of around 32%.

Emissions Trading and Reduction Mechanisms under the Protocol

Many of the ways in which emissions reductions can be achieved under the Kyoto Protocol were deliberately general in nature in the original document, mainly to achieve in principle agreement from as many countries as possible at an early stage. The detailed rules for implementation were originally supposed to be finalised by the end of COP-6. This was threatened when COP-6 was suspended late last year due largely to disputes between the European Union and the US-lead "umbrella group", and the US subsequently stated that it was not going to enter into the Kyoto Protocol at all. However, with the recent resolution of COP-6 *bis*, many of the rules and compliance mechanisms for the Protocol have finally been agreed on, and the Protocol's future is looking more certain.

While the actual emissions covered by the Protocol extend beyond Carbon Dioxide, all emissions are converted to "CO2 equivalents" for ease of reference, so most literature refers to an actual or potential reduction in emissions as a "carbon credit", "carbon sequestration right", or occasionally the more formal term "Certified Emissions Reduction".

Three of the main mechanisms likely to be available under the Protocol to help countries achieve their Kyoto targets, can be summarised as follows:

- use of new forest plantations (since 1990) as "carbon sinks" to generate carbon credits. The rules recently resolved at COP-6 *bis* now include non-tree species in this category, a crucial development for Australia that will allow bushes and shrubs grown in arid areas to be counted towards our target;
- implementing new emissions reduction technologies or projects in developing countries (those not bound to reduce their emissions under the Protocol), to generate a carbon credit for the investing country or company ("the Clean Development Mechanism" - CDM). One of the more important decisions at the recent COP-6 *bis* approved the use of carbon sinks (ie. forest plantations) for CDM projects under the Kyoto Protocol, which had not previously been included under this head; and
- two or more countries or companies authorised by their governments, to jointly implement projects for emissions reductions and share in the resulting carbon credits ("Joint Implementation Projects").

For the purposes of this paper, carbon sinks will be the main mechanism considered. However, there are relevant roles for the other mechanisms mentioned above, as well as other aspects of the Kyoto Protocol, to play in new environmental management in Australia.

Many of these additional activities are already being planned or carried out in Australia, and will be explored in more detail in my PhD (due for completion December 2002) and upcoming papers related to this issue.

Developments on the Home Front

Following ratification of the UNFCCC, Australia developed a number of policy documents aimed at building on its climate change obligations. These included the overarching 1992 National Greenhouse Response Strategy ("NGRS"), and the 1995 Greenhouse Challenge, a program that aimed to build voluntary partnerships between industry and government. The Challenge continues today, with over 430 industry members (many in the electricity generation sector) now having signed agreements with the government relating to timetables and action plans for reducing their greenhouse emissions.

The following programs are identified as some of the more significant domestic developments, particularly those following the adoption of the Kyoto Protocol.

Australian Greenhouse Office (AGO)

This agency was established by the Federal Government within the environment portfolio, to implement the various activities relevant to greenhouse in Australia. It was the first organisation of its nature anywhere in the world.

The AGO is involved in a review of potential options for a national emissions trading scheme as well as developing the government's policies about related aspects of climate change, and initiating many of the programs mentioned below. One of its more important activities is in developing a carbon accounting system for measurement and validation of carbon stored in sinks, for the purposes of implementing a carbon credit scheme.

The AGO has released a series of four discussion papers reviewing options for an emissions trading scheme, which have been subject to extensive public and industry review processes.[3] Following a review of the AGO's papers, some form of National Emissions Trading Scheme has been given tentative support by the government, specifically subject to the Kyoto Protocol coming into force.

National Greenhouse Strategy (NGS)[3]

This is the successor to the 1992 NGRS, arising out of a review of that strategy that commenced in 1996 and finished in 1998, in a cooperative effort between the State and Commonwealth Governments. The review process also involved the Local Government Association, the public and industry.

Like its predecessor, the NGS is a very broad strategy aimed at setting up a strategic framework for the future of Australia's response to greenhouse emission issues. Its key objectives are in creating links between all levels of government, industry and the community and the development of "best practice" greenhouse management across transport, urban planning, industrial processes and waste management sectors.

Greenhouse Gas Abatement Program (GGAP)

This program represents a commitment of $400million by the Commonwealth government in two rounds, being 2000-2001 and 2003-2004, to assist Australia in meeting its commitments under the Kyoto Protocol. The projects successful in applying for funding during the first round include a major plant for the production and use of ethanol using the by-products from a sugar mill. Under GGAP, the government is targeting large-scale projects that go beyond pre-existing greenhouse reducing activities or activities that could reasonably be expected to be undertaken in the normal course of business.

Joint Standing Committee on Treaties Inquiry into Kyoto Protocol

This is a Commonwealth government inquiry into the reasons for and against Australia actually ratifying the Kyoto Protocol, including an evaluation of the extent and reliability of scientific evidence about climate change, and the likely economic, environmental and social implications of a domestic regulatory system. An interim discussion report was released by the Committee in April 2001,[5] concluding that a final decision on ratification should wait until the details relating to implementation of the Protocol have been finalised at an international level. Public hearings are continuing around Australia.

Bush for Greenhouse (BFG)

The AGO have appointed a group of three bodies including Greening Australia and Landcare Australia, to act as the "carbon broker" for this project. BFG is aimed at increasing Australia's carbon sinks, specifically related to native bush stocks. The carbon broker is responsible for identifying and managing pools of Kyoto-compliant revegetation projects, and encouraging investment on the basis that carbon credits generated will be tradeable by the investors at some later stage.

Cities for Climate Protection Australia

This is a world-wide program initiated by the International Council for Local Environmental Initiatives, a program in which there are now over 70 Local Government organisations participating from Australia alone. Councils agree to undertake a series of five "milestones" in which they develop action plans and actively monitor and reduce greenhouse gas emissions within the council itself and their broader community.

Renewable Energy Legislation[6] and Other Developments

As from 1 April 2001, it became mandatory for the large wholesale purchasers of electricity (basically electricity suppliers) to obtain legislated amounts of their electricity from renewable energy sources such as wind farms, hydro-electric power and cogeneration plants. The prescribed levels increase gradually over a ten year period, to a maximum level in 2010, with penalties of $40/GWh for failing to meet the targets (although these penalties are redeemable if the targets are achieved within the three years following the breach).

The government also continues to encourage renewable technology tests in Australia, with the relatively recent announcement of Commonwealth funding to allow the testing of three hydrogen fuel cell buses in Perth.

Greenhouse Trigger Under the EPBC

On the eve of his departure to COP-6 in November 2000, Senator Hill released draft regulations for the government's new *Environment Protection and Biodiversity Conservation Act 1999*, which would include a "greenhouse trigger" for the development assessment process under the Act.

The regulations propose that the Act would apply to any new development that would result in the release of more than 0.5million tonnes of CO2 equivalent, (covering more than 15 different greenhouse gases) in any 12 month period. This figure is roughly 10% of Australia's current annual increase in emissions, so the regulations are really only aimed at very significant developments, such as a new coal-fired power plant.

State Legislation Paving the Way

In various States, relatively recent amendments to legislation are providing a basis for legal recognition of "carbon sequestration rights", although in somewhat different ways that could prove to be a concern in any future national system for carbon trading.

For example in NSW, this has occurred through joining carbon rights with established profits á prendre, as a separable part of a "forestry right".[7] Victorian legislation on the other hand, allows the owner of land to grant actual ownership over both trees and the "products of trees" planted on their land.[8]

Early Action Towards Carbon Trading

Baker & McKenzie has acted on a number of recent deals, including the highly publicised arrangement aimed at establishing various forestry plantations on NSW State-Forest owned land, with all carbon credits and forestry rights arising out of the deal to be owned by a Japanese investor. This is the largest transaction of its type in Australia, but appears to be just an initial step in a series of much more significant transactions, with investors lining up to guarantee themselves a share of the anticipated carbon trading market.

Also on this front, NSW State Forests is currently going through a process of restructuring its corporate strategy, and is looking to source a large portion of its future income from markets other than timber. In particular, it is researching ways of making timber economical in areas where it may have not been previously grown, simply by virtue of attaching additional value to the timber through its use as a carbon sink.

It is this type of strategy, and the implications it has both for carbon trading specifically and environmental regulation in a more general way, that are considered below.

Carbon Sinks and the Motivation of the Dollar

There are a number of typical reactions to the advent of the Kyoto Protocol that can be identified among governments, industry and individuals alike. Whether seen as an opportunity or as a threat, the Protocol has attracted the dollar to reducing greenhouse emissions for many reasons, including:

- A perceived need to avoid penalties being levied at a later date, whether this be through a system that requires the purchase of emission permits, imposes fines for non-compliance, or simply requires a sudden and uneconomical investment in technology change or carbon sinks to avoid other negative consequences;
- To get "ahead of the game" and develop a pool of excess carbon credits that can be sold at a profit to participants in a developing system who can not afford to take any other ameliorative action, or who have avoided taking early action to reduce their greenhouse emissions;
- An opportunity to attract the "green vote" and develop an environmentally responsible image, which is becoming an increasingly important factor in consumer choice of product and company;
- Potential value adding to pre-existing technologies and practices, such as forestry activities.

There has traditionally been some concern about the long-term profitability of pure forestry activities, concern given weight by recent difficulties faced by some Australian forestry companies. This being the case, putting money into revegetation projects badged as "carbon sinks" has presented a relatively low risk opportunity for the type of investment referred to above, that could potentially turn a borderline profitable activity into a successful one. Even if a market for the carbon credits generated does not come about, the timber product can still be sold in the normal course of events.

Conversely, if the anticipated carbon market does develop, the timber product is suddenly worth more, the result potentially being an increased level of investment in existing forestry activities, and/or an expansion of forestry into less traditional areas and markets.

There is growing recognition that the market mechanisms that would develop under such a system could be used not only to indirectly encourage revegetation of land, but also to assist in dealing with other environmental problems in Australia including dryland salinity, biodiversity conservation and water quality.

In the initial stages, as discussed below, ensuring investment in these areas would require formal links between the generation of a carbon credit and these other environmental factors. Future scenarios could be quite different however, with current indications that these environmental issues could themselves develop market appeal over time. Credits for salinity reducing strategies are already being successfully trialed in NSW, and there are growing discussions about the development of "biodiversity credits", particularly following recent international agreements relating to biodiversity conservation.

Within Australia, State Forests NSW is paralleled by the Victorian timber giant Hancocks Victorian Plantations, which has been pursuing similar integrative strategies to add value to traditional timber products.

Whatever the future course of these developments may be, there remain clear links between the establishment of carbon sinks and Australia's ongoing environmental problems. For example:

- Significant revegetation projects cannot be established without impacting regional water quality and quantity, and under some systems, in an issue that discussions over the NSW water reforms have raised, plantation owners could foreseeably be required to purchase water permits;
- Revegetation of saline land improves the land fertility, reduces erosion and run-off, and provides a new source of income to land owners without competing with any other land use (ie. avoids planting trees on fertile land);

- Establishment of monoculture plantations can detrimentally impact regional biodiversity, especially if clearing of native vegetation has taken place. In addition, developing science is suggesting that monocultures may be less effective at sequestering carbon dioxide than diverse plantations;
- The prices for carbon and penalties for emissions in any trading market that develops will have a significant impact on whether land clearing for agriculture remains profitable.

Integrated Environmental Management Regulation

Recent actions, again by NSW State Forests this time acting with Integral Energy, have resulted in the creation of five hectares of Cumberland Plain Woodland on State Government land in Western Sydney. In return for their investment, Integral Energy retain all future benefits associated with carbon sequestration, and the project also clearly recognised community benefits from increased salinity control and biodiversity enhancement.

These sort of actions by industry are becoming more common and quite rightly, are being promoted as examples of alternative ways to successfully manage Australia's degrading environment. To ensure that these do not remain as "one-off" instances however, it will be essential to have a strong legislative base to make these wide ranging environmental investments more economically attractive than traditional activities.

The development of climate change law in Australia is in its formative stages – an ideal time, and arguably the only time, in which to successfully create a legal system that integrates climate change considerations with other environmental problems for which (largely unsuccessful) policy or regulatory mechanisms exist.

It is clear that the AGO, as Australia's foremost government consultant on the Kyoto Protocol, has recognised the potential interaction of climate change with issues such as salinity. However, it is equally clear that its mandate is to deal with carbon trading, and not to give any serious thought to the development of a legal system that would necessarily address these other issues. It has repeated this attitude on numerous occasions.

The following points are provided to provoke some thought about the sort of systems that could develop, based on the suggested integration above. Given the current state of Australia's involvement in the Protocol, the developing body of science and law, and the "in progress" status of my own research, it is quite possible that my personal views on the validity of these scenarios could change over time. At this time however, consider a system where:

- carbon credits for a particular forestry sink are "weighted" according to the extent to which they address biodiversity, salinity and water management issues. For example, failing to actively address these issues, or acting detrimentally to them (eg. by replacing a native forest) might mean only (for example) 20% of the actual carbon sequestered by the sink can be claimed as a credit;
- a central authority manages an authentication system for credits for carbon, salinity, biodiversity and any other valuable commodities generated, issuing certificates or bonds which can be traded, and enforcing allocated restrictions on emissions;
- investors are given concessions such as discounted government services or cheap use of Crown land, to enable the development of carbon sinks in environmentally degraded areas (such as Murray Darling Basin), or where they establish a plantation in partnership with salinity investors or renewable technology producers (eg. Visy Pulp & Paper Mill in Tumut);
- with the recent addition of shrubs and bushes to scope of internationally recognised carbon sinks, salt-bush plantations can be established on salinity affected land to help improve its quality. These bushes are also ideal fodder for sheep and/or cattle (which incidentally, stimulate increased rates of carbon sequestration through their "pruning" of the bushes while feeding).

Where to Now?

Action Regardless of the Protocol

Many countries have already introduced domestic emission trading schemes in order to get a head start on their emissions reduction commitments under the Kyoto Protocol, despite the fact that it has not yet come into force, and despite the continuing uncertainty created by the short-sighted position of the US government in suggesting it may withdraw from the Protocol altogether.

Canada has had a successful trading pilot scheme ("GERT") running since June 1998, and the UK has recently launched a voluntary trading scheme of its own, with participants entering into binding arrangements for emission reductions, and receiving saleable credits if they reach their targets.

In addition, a number of European countries such as Austria and Switzerland have established domestic systems, goals and policies that aim to reduce greenhouse emissions even further than their Kyoto commitments. One of the more significant deals in recent times was the decision of the Dutch government to purchase $31.5million of emission reductions from combined sources, including a wind park in Poland, a hydro-electric power station and two city heating systems in Rome, and biomass-fuelled boilers in the Czech republic.[9]

Getting Our Own House in Order First

The actions of these countries in setting up their own domestic systems while the rules for mechanisms under Kyoto are still being determined, recognises a fundamental truth about the Protocol. It was never intended to be the complete "rule-book" for carbon trading, nor was it intended to overly restrict the way in which countries attack the problem of greenhouse emissions on a domestic scale.

Its fundamental objective is to reduce greenhouse gas emissions, and every country will have a completely different way of achieving this objective based on their economy, location, geography and any number of other factors. While any significant international trade in carbon credits will eventually require a more detailed framework and some consistency or "translation mechanism" between systems, the essential obligations of each Annex I country to reduce its own emissions can and should be dealt with domestically, right now.

Some critics of "early action" suggest that such an approach could conceivably result in the investment in or generation of some carbon credits that are not recognised under the Kyoto rules as they are finally determined. However, this fails to recognise two significant considerations. The first is the nature of the Protocol as a flexible mechanism, in which carbon credits however they are generated, are likely to be accepted in a country's reported emissions if the science and validation mechanisms can demonstrate a real reduction in emissions.

The second and more important consideration is that Kyoto compliance is a government responsibility. Industry participation in a *domestic* system, where carbon credits are "rewarded" and debits are "penalised", perhaps through a requirement to purchase credits or pay fines, is completely separate from this for the purposes of the investor.

The investor's role on an international level is limited to helping the government to come up with a final figure for greenhouse gas emissions at the end of each year or commitment period. Their participation in the domestic scheme will remain unaffected by international developments, except to the extent that it results in the government changing the rules of the domestic system over time.

A recognition of this, coupled with the drivers of:

- other countries taking their own initiatives;
- significant investor interest in carbon trading, particularly in recent times;
- associated investor caution due to the total lack of any legislative base for carbon trading,

seems to suggest that the pressure for some form of domestic trading to be in place in Australia, will give within the next 2 to 3 years.

It is essential then, that the opportunities for integrated environmental management presented by this "new world" of regulation, be recognised and acted upon in these crucial stages of development. Failing to tie carbon trading together with Australia's related environmental issues now, will mean that coordinating these initiatives in the future, either on a policy or legislative basis, will be almost impossible.

The result will be a faulty, piece-meal system that fails to adequately protects any of its targets, and a lost opportunity to encourage investment in what should be our greatest legacy to future generations – the environment in which we live.

This paper was presented at the QELA Conference in May 2001 and therefore includes developments up to that date David Jones works part-time as an associate with Baker and Mckenzie solicitors in Sydney His time is also spent researching towards a PhD with the Institute for Conservation Biology at the faculty of Law, University of Wollongong David's PhD is exploring the potential avenues for integrating Australia's particular environmental management issues, through the design and implementation of a legal scheme for carbon trading

1 *United Nations Framework Convention on Climate Change,* opened for signature 4 June 1992, (21 March 1994) ('UNFCCC)

2 *Kyoto Protocol to the United Nations Framework Convention on Climate Change*, opened for signature 16 March 1998, (Not yet in force) ('Kyoto Protocol')

3 These discussion papers and most of the public submissions received in relation to them can be viewed at http //www greenhouse gov au

4 Australian Greenhouse Office, *The National Greenhouse Strategy Strategic Framework for Advancing Australia's Greenhouse Response,* (1998)

5 Joint Standing Committee on Treaties, *The Kyoto Protocol - Discussion Paper*, Report 38, (April 2001)

6 *Renewable Energy (Electricity) Act 2000* (Cth)

7 *Conveyancing Act 1919* (NSW), see particularly ss 87A & 88AB

8 *Forestry Rights Act 1996* (Vic), s 5

9 Reuters News Service, Dutch signs $31 5 million emission trade deal with Eastern Europe , (22 April 2001) *The Carbon Trader*, <http //www thecarbontrader com/news50 006 htm>, accessed 24 April 2001