‘Approaches to recognising carbon offsets arising from avoided deforestation in developing countries’

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Background

During 2007, the Intergovernmental Panel on Climate Change (IPCC) released its Fourth Assessment Report which represents the best available scientific evidence on global climate change. The report of Working Group I, ‘Climate Change 2007: The Physical Basis’,[1] states that there is ‘very high confidence’ in the fact that temperatures are warming. For the next two decades temperatures are expected to rise 0.2 degrees C. Even if greenhouse gas (GHG) concentrations were kept at 2000 levels a rise of 0.1 degrees C would be expected. If emissions continue at or above current rates, temperatures could rise by 6, or in the best case scenario to 4, degrees C.

Standing forests are the most important reservoir of carbon dioxide. Deforestation, especially in the tropics, contributes around 20% of annual GHG emissions and, in the case of Indonesia, amounts to 85% of its annual emissions from human activities.[2] There is a growing consensus that reducing emissions from deforestation (and degradation) (RED(D)) must be a priority in negotiations on a successor to the *Kyoto Protocol*.[3]

Under the Bali Action Plan, negotiated at the thirteenth Conference of the Parties to the *United Nations Framework Convention on Climate Change*[4] (COP13), the parties decided to begin a process immediately to allow them to adopt a decision at COP15 in 2009 on a shared vision for long-term cooperative action on climate change. This vision will include a long-term global goal for emission reductions, based on the principle of common but differentiated responsibilities. Significantly, the Action Plan requires ‘enhanced consideration of policy approaches and positive incentives on issues relating to reducing emissions from deforestation and forest degradation in developing countries; and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries.’[5] This builds on a decision taken at COP11, in December 2005, to establish a two-year review of relevant scientific and methodological issues, and to consider policy approaches and incentives for reducing emissions from deforestation in developing countries.[6]

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[1] Available at http://www.ipcc.ch/SPM2feb07.pdf (viewed 11 June 2007).
[2] Agus P. Sari, Martha Maulidya, Ria N. Bhutarbar, Rizka E. Sari, Wisnu Rusmantoro *Executive Summary: Indonesia and Climate Change* (March 2007) p. 3.
[3] *Kyoto Protocol to the Framework Convention on Climate Change*, opened for signature March 16, 1998, 37 ILM 22 (1998) (entered into force 16 February 2005).
[4] *United Nations Framework Convention on Climate Change*, opened for signature June 20, 1992, 31 ILM 848 (1992) (entered into force 21 March 1994).
[5] Art. 1(b)(iii) available at http://unfccc.int/files/meetings/cop_13/application/pdf/cp_bali_action.pdf (visited 29 January 2008).
[6] As part of this process, a number of workshops have been organised under the auspices of the Subsidiary Body of Scientific and Technical Advice of the UNFCCC including in Italy in September 2006, in Australia in March 2007, in Bonn in May 2007 and in Bali in December 2007; see for example http://www.rainforestcoalition.org/documents/UNFCCCSBSTA2007l10.pdf (viewed 31 January 2008).

The incorporation of RED(D) in the Bali Action Plan is highly significant as prior to this there has been no mention of it in international agreements. Under Art. 3.3 of the *Kyoto Protocol*, Annex I Parties[7] may rely on *domestic* reductions in GHG emissions resulting from forestry activities, limited to afforestation[8] and reforestation[9] since 1990, to meet their emissions reduction targets under the *Protocol*.[10] Similarly, afforestation and reforestation projects undertaken by Annex I Parties in developing countries may be relied upon, under the Clean Development Mechanism (CDM),[11] to satisfy their *Kyoto* commitments. However, to date, RED(D) projects are not recognised as eligible CDM projects.

There are a number of reasons why RED(D) has been excluded from the project-based CDM under the *Kyoto Protocol.* These include concerns about: the risk of leakage;[12] non-permanence;[13] establishing baselines;[14] additionality;[15] and difficulties associated with monitoring and measurement. However, during the two-year review of RED(D) established at COP11, considerable advances have been made in addressing these problems, particularly with respect to monitoring and measurement.[16] It should be noted also, that many of the problems relating to RED(D) also arise with respect to afforestation and reforestation CDM projects. For this reason, the CDM Executive Board has developed unique rules governing these types of projects.[17] This indicates that once the concerns about RED(D), mentioned above, have been allayed, it is possible for special rules to be devised by the Board so as to bring RED(D) within the auspices of the CDM.

If RED(D) projects were to be incorporated into the post-*Kyoto* framework, it should be remembered that RED(D) projects have the potential to deliver far more than carbon sequestration services. Forests also provide valuable local, regional and global ecosystem services ranging from water quality, flood control, soil stability and

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[7] These are developed countries with emissions reduction targets under the *Kyoto Protocol*.

[8] Afforestation is the artificial establishment of forests by planting or seeding in an area of non- forest land.

[9] Reforestation is the restocking of existing forests and woodlands which have been depleted, with native tree stock.

[10] Although reliance on this is limited in accordance with the Marrakesh Accords negotiated at COP7 in 2001; see Decision11/CP.7 available at http://unfccc.int/files/meetings/workshops/other_meetings/application/pdf/11cp7.pdf (viewed 31 January 2008).

[11] The Clean Development Mechanism (CDM), (Art. 12 of the *Kyoto Protocol*), allows developed countries to invest in emission reducing projects in developing countries, and to obtain certified emission reductions (CERs) towards meeting their assigned amounts.

[12] 'Leakage' refers to greenhouse gas emissions which occur outside the project boundary but which are nevertheless attributable to its activities.

[13] 'Permanence' refers to the possibility that carbon is released into the atmosphere as a result of fire, illegal logging or a change in government.

[14] Credits can only be generated for emissions below the 'baseline' i.e. GHG emissions reduction that would have occurred even in the absence of a CDM project.

[15] It must be demonstrated that the carbon sequestration would not have occurred without the incentives provided by the project.

[16] See, for example, the 2006 IPCC Guidelines for National Greenhouse Gas Inventories – Agriculture, Forestry and Other Land Use, available at http://www.ipcc-nggip.iges.or.jp/public/2006gl/vol4.htm (viewed 30 January 2008) and GOFG-GOLD REDD Sourcebook which uses remote sensing to monitor and measure greenhouse gas emissions from forests, available at http://www.gofc-gold.uni-jena.de/redd/ (viewed 31 January 2008) .

[17] See http://cdm.unfccc.int/methodologies/ARmethodologies/approved_ar.html (viewed 8 February 2008) and C. Streck et al. 'The role of forests in global climate change: whence we come and where we go' (2006) 82(5) *International Affairs*) at 868.

biodiversity.[18] If properly implemented, RED(D) projects also have the potential to contribute to the protection of forest livelihoods amongst forest dependant populations.[19]

Yet, to date, there is barely any legal scholarship in this area. An extensive search of Westlaw, LexisNexis, LegalTrac, Legal Journal Index, AGIS, APA-FT, Kluwer Law Online, HeinOnline failed to produce any articles in this area of research. It seems, therefore, that there is an urgent needs for legal scholars to be engaged in this aspect of Climate Law.

Emerging policy responses

There are currently two global policy responses to RED(D) which are emerging: (1) public funding schemes through which industrialised countries directly compensate developing countries for avoided deforestation; and (2) market-oriented proposals for carbon emissions reduction credits to be generated from RED(D) which are then traded on global markets.

Both policy responses hold out significant financial incentives to developing countries, like Indonesia, and are essentially market-based instruments for RED(D) as they rely on providing financial incentives to landholders to conserve forests. In addition, the carbon sequestration services provided by forests are inevitably linked to the broader ecosystem, or environmental, services provided by forests.[20]

Public funding schemes

An example of a public funding scheme is the Forest Carbon Partnership Facility[21] launched at COP13 by the World Bank in response to a request by developing and industrialised countries to explore a framework for piloting RED(D) activities. Two separate mechanisms have been established: the readiness mechanism and the carbon finance mechanism. The readiness mechanism will assist up to 20 developing countries to calculate a credible estimate of their national forest carbon stocks and sources of forest emissions, as well as assisting the country in identifying its reference scenario based on past emission rates for future emissions estimates. Technical assistance will be offered in calculating the opportunity costs of possible RED(D) schemes, and designing an adapted RED(D) strategy that takes into account country priorities and constraints.[22]

Under the carbon finance mechanism, a few countries will be selected to participate in pilot incentive programs for RED(D) based on a system of compensated

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[18] K. Karousakis 'Initial Review of Policies and Incentives to reduce GHG emissions from Deforestation' (Organisation for Economic Co-operation and Development (OECD): October 2006) at 8. See also K Karousakis and J Corfee-Morlot 'Financing Mechanisms to Reduce Emissions from Deforestation: Issues in Design and Implementation' (OECD and IEA: December 2007).

[19] L. Peskett et al. 'Can payments for avoided deforestation to tackle climate change also benefit the poor?' (Overseas Development Institute: November 2006) at 1.

[20] See R. Lyster '(De)regulating the rural environment' (2002) *Environmental Planning and Law Journal* 34 and G. Heal, G. C. Daily, P. R. Ehrlich, J Salzman, C. Boggs, J. Hellmann, J. Hughes, C. Kremen, T. Ricketts, "Protecting Natural Capital Through Ecosystem Service Districts" (2001) 30 *Stanford Environmental Law Journal* 333 at 336.

[21] Available at http://carbonfinance.org/docs/FCPF_Booklet_English_Revised.pdf (viewed 31 January 2008).

[22] See http://carbonfinance.org/Router.cfm?Page=FCPF&FID=34267&ItemID=34267&ft=About (viewed 31 January 2008).

reductions. The selected countries: (a) must have demonstrated a commitment to RED(D) and have adequate monitoring capacity; (b) must have established a credible reference scenario and options for reducing emissions; and (c) will receive payments for reducing emissions below the reference scenario. Payments will only be made to countries that achieve measurable and verifiable emission reductions.[23] The World Bank believes that fears about the future supply of carbon credits could be allayed by ensuring that RED(D) CDMs are incorporated into the post-2012 regime.[24]

Clearly, where developing countries receive international funding for RED(D) projects, governments will have to devise schemes whereby financial incentives to preserve forests are passed on to those who own, or control, the land on which the forests are situated. Land tenure, property rights and the contractual arrangements between government and landholders have emerged as crucial legal issue in this regard.[25]

RED(D) carbon credits

It has been suggested that to remedy the missing or incomplete market for forest ecosystem services, a market-based instrument to capture the carbon, and other, values of forests should be developed.[26] A UNFCCC-sanctioned market-based instrument would provide incentives for RED(D) in the form of carbon credits issued to developing countries to protect forests and discourage forest clearance for other uses. These credits could subsequently be sold to Annex I countries, or private industry organisations, wishing to purchase carbon offsets. The credits may subsequently be traded either within the international emissions trading scheme envisaged under the *Kyoto Protocol*,[27] or the burgeoning voluntary carbon markets.[28] Market advocates maintain that public funding schemes will not be sufficient to generate the required volume of funds to provide attractive and sustained economic incentives for RED(D).[29]

A number of proposals have been put forward for developing a market in RED(D) carbon credits.[30] These have implications at the international and the

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[23] Ibid.
[24] See *Point Carbon*, 10 September, available at http://www.pointcarbon.com/Home/News/All%20news/CDM%20&%20JI/article24413-470.html (viewed 13 October 2007).
[25] See Karousakis, above n 18; T. Griffiths 'Seeing 'RED?' Avoided deforestation and the rights of Indigenous Peoples and local communities' (Forest Peoples Programme: 2007); R. Haverfield '*Hak Ulayat* and the State: Land Reform in Indonesia' and D Fitzpatrick 'Beyond Dualism: Land Acquisition and Law in Indonesia' in T. Lindsey (ed) *Indoneisa: Land and Society* (Federation Press: 1999).
[26] Karousakis, above n 18.
[27] Art. 17.
[28] See R. Lyster 'Chasing down the climate change footprint of the public and private sectors: forces converge – Part II' (2007) *Environmental Planning and Law Journal* 450.
[29] Griffiths, above n 25 at 6.
[30] M. Ogonowski et al. 'Reducing Emissions from Deforestation and Degradation: The Dual markets Approach' (Centre for Clean Air Policy: August 2007); B. Schlamadinger, et al. 'Should we include avoidance of deforestation in the international response to climate change? *Tropical Deforestation and Climate Change*' (IPAM, Istituto de Perquisa Ambiental de Amazônia; Belém, Pará (Brazil)); P.M. Fearnside 'Mitigation of climatic change in the Amazon' in W.F Laurance & C.A. Peres (Eds.) *Emerging Threats to Tropical Forests* (University of Chicago Press, Chicago, Illinois) 353; L. Pedroni et al. 'Mobilizing Public and Private Resources for the Protection of Tropical Rainforests' (CATIE Tropical Agricultural Research and Higher Education Center); K. Karousakis 'Incentives to reduce

national level. At the international level, it is proposed that a separate RED(D) instrument be incorporated into the post-2012 climate change regime by way of a new Protocol,[31] and under which the ability of Annex I Parties to rely on RED(D) credits is restricted.[32] Here, the Conference of the Parties would set a maximum on the percentage of emissions reductions Annex I Parties can achieve through overseas RED(D). This satisfies the principle of 'supplementarity' as well as the inherent concerns about RED(D) programs, mentioned above. Also, it avoids the prospect of an oversupply of RED(D) credits disrupting a well established carbon market[33] and lowering carbon prices in the post 2012 era. In essence, this approach 'keeps separate an emerging market (REDD) from the more mature carbon market until questions of volatility have been resolved.'[34]

Irrespective of how a RED(D) carbon credit approach is integrated into the international climate change regime, the more fundamental question is whether credits should be granted to national governments, or whether a project-based/CDM type approach should be adopted. Under a national approach, credits could be distributed/auctioned to Annex I Parties by developing countries which accept nationally binding caps, or deforestation targets. Under a CDM type approach, private or public entities would be authorised to engage in RED(D) activities at the project level, irrespective of whether or not a host country has negotiated a national emissions reference level.[35] The rationale for a CDM type approach is that developing countries with capacity constraints to implement forest protection measures, may not be able to implement the necessary policy, legal and institutional reforms nationwide to meet a RED(D) target. It is unlikely that the private sector would participate in a RED(D) mechanism that links investment risk to government performance.[36] In this regard, the temporary Certified Emissions Reductions (tCERs) arising from afforestation and reforestation CDM (A/R CDMs) projects has been suggested as a basis for a CDM approach to RED(D).[37]

However, there is a view that a project-based approach would not provide for national coverage and would be more likely to cause 'leakage'. Here 'leakage' might counteract any emissions reduction in the project area so participants might find it difficult to claim the expected carbon credits. In practice then, because it is virtually impossible for project-based mechanisms to guarantee an overall reduction of emissions from a country's forests, it may ultimate be unsuitable as a RED(D) instrument. For this reason, it has been suggested that perhaps a national approach is preferable to a project approach, although it should also be acknowledged that the national approach does not solve the problem of leakage from one country to another.[38]

GHG emissions from deforestation: Lessons learned from Costa Rica and Mexico' (Organisation for Economic Co-operation and Development (OECD): 2007).

[31] See Karousakis, above n 30 at 30-32.

[32] Ogonowski et al, above n 30 at i.

[33] See World Bank *State of Carbon Market 2006* available at http://carbonfinance.org/docs/StateoftheCarbonMarket2006.pdf (viewed 10 March 2008).

[34] Idem.

[35] Fearnside, above n 30 at 3.

[36] Idem.

[37] Streck, above n 17 at 868.

[38] D Mollicone et al 'Elements for the expected mechanisms on 'reduced emissions from deforestation and degradation, REDD' under UNFCCC' (2007) 2 *Environmental Research Letters* (IOP Publishing) at 5.

RED(D) in Indonesia

As Indonesia is the third highest emitter of greenhouse gases in the world, as a result of deforestation, it provides a useful case study. Significantly, the Australian government has established an International Forest Carbon Initiative. Under this Initiative, Australia has committed $30 million to establish the Kalimantan Forests and Climate Partnership. It will be the world's first, large-scale demonstration activity. It will trial an innovative, market-oriented approach to financing and implementing measures for RED(D) in Central Kalimantan, Indonesia.[39]

At present, Indonesia's Basic Forestry Law, *Law No. 41/1999*, the Presidential Instruction No. 4 of 2005, the Long Term Forestry Development Plan for 2006-2025, the Medium Term Strategic Plan 2005-2009 and the National Forest Statement do not address these issues, and the regulatory environment is further complicated by Indonesia's decentralisation laws.[40] Indonesia's participation in any RED(D) scheme will require reform of its forestry legislation, as well as a consideration of legal arrangements relating to government/landholder contracts, land tenure and property rights.

It is acknowledged that, in using Indonesia as a case study for a developing legal system to accommodated RED(D), there are a number of critical issues that need to be addressed. For example, the spirit and letter of the law 'on paper' are not always reflected in the implementation of the law. In undertaking such research, it is essential that a research team include an expert in Indonesian law to ensure that the proposed legal solutions can be effective in Indonesia. Also there must be extensive consultation with Indonesian stakeholders and experts. Any research in this area must be cognisant of the problems that arise when foreign and international laws are transplanted into the Indonesian legal system. However, there is evidence to suggest that Indonesian law is benefitting from recent reforms to its legal system, especially to its judiciary. Indonesia now has a judicial system that, with properly drafted laws, will allow a citizen to sue the government for non-payment of compensation under a RED(D) scheme. Indonesia's anti-corruption regime is also promising, with the new Anti-Corruption Commission and Anti-Corruption Court securing a 100 % conviction rate. There are potential impediments to the RED(D) scheme posed by customary law (*adat*) – particularly its emphasis on community property rights and its lack of certainty in title. Given this, identifying beneficiaries of a RED(D) scheme might be difficult. However, none of the impediments posed by *adat* are insurmountable. For example, tests are being developed by the Constitutional Court in relation to the evidence required to prove leadership of a customary law group, which the researcher might consider as a model.

The need for national legislation

No matter whether it is decided, at the international level, that RED(D) is best achieved through public financing or the generation of RED(D) carbon credits, national legislation will have to be enacted to support the schemes.

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[39] See http://www.greenhouse.gov.au/international/publications/fs-ifci.html (viewed 1 August 2008).
[40] E. Soetarto et al. *Decentralisation of Administration, Policy Marking and Forest Management in Ketapan District, West Kalimantan* (Centre for International Forestry Research (CIFOR): 2001).

National legislation to support a public funding model

In developing national legislation for Indonesia to support a public funding model, the Costa Rican Payment for Environmental Services (PES) Programme, which has received considerable international attention, will be assessed.[41] The framework for the PES programme has been established under discrete pieces of legislation including: the *Forestry Law No. 7575 of 1996*, the *Public Services Regulatory Law*, the *General Law of the Environment*, the *Soil Conservation Law* and the *Biodiversity Law*. This suite of legislation indicates that a PES scheme needs to be implemented across all key environmental legislation relating to forestry ecosystem services. The scheme is implemented by the National Forestry Financing Fund (FONAFIFO) which was legally constituted in 1996.[42]

According to *Forestry Law No. 7575*, the following forestry environmental services are recognised: greenhouse gas mitigation; the protection of water for urban, rural or hydroelectric purposes; the protection of biodiversity for conservation, sustainable, scientific and pharmaceutical uses; research and genetic improvement; and the protection of ecosystems and life forms, including natural scenic beauty for tourism and scientific purposes.[43]

Under the PES scheme, landholders are paid a flat rate for limiting their activities to specified land uses. These include forest protection (5 year duration and USD210/ha dispersed over 5 years), sustainable forest management (15 year period and USD327/ha dispersed over 5 years) and reforestation (15-20 duration and USD537/ha over 5 years).[44] In 2006, agroforestry projects were included in the scheme.[45] Payment for forest protection, the principal issue of concern for the present application, requires landholders to have a minimum of two hectares under protection. In return, carbon and environmental service rights are ceded to FONAFIFO for the length of the contract. Upon expiry of the contract, landholders can renegotiate prices or sell the rights to other parties. Obligations under PES contracts are registered in the public land register and are binding on future purchasers of the land.[46] Significantly, the regulatory framework for the PES scheme is different for indigenous territories given that land is often communally, rather than individually owned. Consequently, FONAFIFO exempts indigenous territories from complying with land ownership regulations.[47]

There is some criticism of the way in which baselines, additionality and leakage are dealt with under the PES scheme although it seems that systems for monitoring, reporting and evaluation are comprehensive. These systems are supported by the use of Geographic Information Systems such as the Global Position System as

[41] See Karousakis, above n 30 at 16-23.
[42] See FONAFIFO website, available at http://www.fonafifo.com/english.html (viewed 5 February 2008).
[43] See http://www.fonafifo.com/paginas_english/environmental_services/servicios_ambientales.htm (viewed 5 February 2008).
[44] R. Sierra and E. Russman 'On the Efficiency of Environment Service Payments: A forest Conservation Assessment in the Osa Peninsula, Costa Rica' (2006) 59(1) *Ecological Economics* 131, cited by Karousakis, above n 30 at 19.
[45] T. Wunscher, S. Engel, S Wunder 'Payments for environmental services in Costa Rica: increasing efficiency through spatial differentiation' (2006) 45(4) *Quarterly Journal of International Agriculture* 317, cited by Karousakis, above n 30 at 19.
[46] Karousakis, above n 30 at 19.
[47] Ibid, at 17.

well as visits by FONAFIFO staff to PES sites, and the auditing of FONAFIFO activities.[48]

The PES scheme is largely funded by a special fuel tax on the consumption of any crude-oil derivatives, as provided for under the *Forestry Act.* More recently, FONAFIFO has entered into PES agreements with foreign governments and private sector institutions in order to augment funding for the scheme.[49] It has also developed the issuing of Environmental Services Certificates to domestic companies and institutions that benefit from environmental services, to compensate forest owners for conserving them.[50]

National legislation to support RED(D) carbon and biodiversity credits

The design of national legislation to support RED(D) carbon credits depends on the approach which is agreed upon at the international level. If a national approach is adopted, Indonesia will need to agree to place a sectoral cap on emissions from the forestry sector. This will require legal reform of forestry and other legislation, and may involve the establishment of a domestic emissions trading scheme within the forestry sector. There is no shortage of legal frameworks upon which to rely for comparative research purposes in this regard, albeit that the scheme would relate to the forestry rather than the energy sector.[51] In addition, in Australia both the New South Wales[52] and Victorian governments[53] have established trading schemes to generate biodiversity credits. These schemes could form the basis for investigating a trading scheme in Indonesia which recognises the many ecosystem services provided by its forests, including all those identified in Costa Rica's *Forestry Law No 7575.*

The biodiversity trading scheme in NSW

Although the trading scheme discussed here is for trading biodiversity in the context of an environmental planning and assessment regime, there is no reason why carbon sequestration services could not be added to the ecosystem services which are being traded within such a scheme in a RED(D) context. What is proposed is that the Payment For Environmental Services Scheme in Costa Rica, which currently includes carbon sequestration services, could be modified in developing countries to establish a trading scheme in credits derived from RED(D).

The NSW biodiversity trading scheme is incorporated in the *Threatened Species Conservation Act 1995 (NSW)* under Part 7A and comprises the following elements.

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[48] Ibid, at 21.
[49] See http://www.fonafifo.com/paginas_english/invest_forest/i_ib_convenios.htm (viewed 5 February 2008).
[50] See http://www.fonafifo.com/paginas_english/invest_forest/i_ib_que_es_csa.htm (viewed 5 February 2007).
[51] See Lyster, above n 28 and all trading schemes discussed therein.
[52] See Part 7A – Biodiversity Banking *Threatened Species Conservation Act 1995 (NSW)*; see also R. Lyster and T. Stephens 'The Rise and Rise of Environmental Markets: Biodiversity Banking in Australia' (2007) 10 *Asia Pacific Journal of Environmental Law* 1-12.
[53] *Bushbroker: native vegetation credit registration and trading* (State of Victoria: Department of Sustainability and Environment: 2006). http://www.dpi.vic.gov.au/CA256F310024B628/0/E42AA88543BD2B57CA25712B0012E9A4/$File/bb+information+paper+05_03+1.pdf (viewed 8 February 2008).

Biobanking agreements

In accordance with biobanking agreements entered into between the Minister for the Environment and owners of land, biobanking sites may be established on land in NSW (Division 2). Key features include:

- The agreements will authorise or require a land owner to carry out certain management actions on the land in order to preserve biodiversity values
- Biobanking agreements must be registered on title to land and will generally last in perpetuity and can be varied in limited circumstances.
- Entry into an agreement leads to automatic entitlement to registration of the biobank site, however this may be cancelled where the conditions of an agreement are breached.

Creation of biodiversity credits

Biodiversity credits may be created by the Director-General in respect of management actions carried out on a biobanking site (Division 3). The number and class of credits that can be created on a site will be determined in accordance with the BioBanking Assessment Methodology[54] developed by the Department of Environment and Climate Change. For the purposes of this paper, the Methodology contains very detailed rules with respect to:

- The assessment and measurement of biodiversity values for the generation of ecosystem and species credits. Essentially, biodiversity values are assessed and measured using different vegetation types as surrogates for general biodiversity values. The assumption is that a particular type of vegetation will reflect specific biodiversity values
- The assessment and measurement of threatened species, and
- The calculation of ecosystem and species credits. A biobanking credit calculator, which is a software interface, enables users to enter data and calculate credits.

Credits may be cancelled or suspended by the Director-General on account of wrongdoing by the person who created the credit, and credits may also be compulsorily retired because of wrongdoing. Failure to comply with an order to retire credits attracts a penalty of $550,000 (Division 5).

Trading in biodiversity credits

The Act sets up a biodiversity credit trading scheme subject to the Regulations (Division 4). Essentially, a credit may be traded to any person. On the first transfer of a biodiversity credit, the regulations may require the payment of an amount into the Biobanking Trust Fund which will fund management actions carried out by land owners (Division 8).

[54] Available at http://www.environment.nsw.gov.au/resources/biobanking/08385bbassessmethod.pdf (viewed 2 August 2008).

Registers

The Director-General must keep a register of biobank sites, biodiversity credits and biobanking statements (Division 9).

Integrating biodiversity credits with carbon credits

It is suggested that the sophisticated BioBanking Assessment Methodology could be integrated with Australia's world leading technology on measuring carbon from the land-based sector – the National Carbon Accounting System (NCAS). The NCAS uses satellite imagery of land cover change, land management data and climate and soils data and is designed to meet national and international reporting requirements, under the *UNFCCC*. Even more importantly for our purposes, a derivative of the NCAS – the National Carbon Accounting Toolbox (NCAT) – allows landholders to engage in carbon accounting from land based activities at the individual project level.

Interestingly, as a result of Australia's expertise in this area, it has been announced recently that the technology is to be expanded and enhanced to support RED(D). In a partnership between the Australian Government and the Clinton Climate Initiative, the NCAS will be extended into the international arena for global monitoring of carbon emissions. The partnership will facilitate access to technology that will help countries to make comprehensive legitimate forest assessments, and to monitor and manage their forests. It is intended that the system will be consistent with the requirements of the Intergovernmental Panel on Climate Change (IPCC) and the likely future needs for recognising RED(D) under the *United Nations Framework Convention on Climate Change* (UNFCCC). The partnership will focus on large-scale projects that demonstrate the use of the NCAS in developing countries, and the development of a web based data delivery system that facilitates free and open access to wide-ranging data from satellites, aircraft and field measurements.[55]

It is also worth noting that a pilot study to measure carbon credits from avoided deforestation has already been established in Bolivia. In 1997, a partnership was established between the Bolivian government (through the National Program of Climate Change), a Bolivian conservation organisation and the Nature Conservancy to create the Noel Kempff Climate Action Project. Under the project, 832,000 hectares of forest, threatened with timber harvesting and deforestation were incorporated into the national park thereby terminating logging rights. In November 2005, an internationally accredited certifier evaluated and certified the Project design and emissions reduction in accordance with standards used to accredit Clean Development Mechanism projects. This process indicated that, between 1997-2005, a total of 989,622 tons of carbon dioxide was sequestered.[56]

[55] Available at http://www.greenhouse.gov.au/ncas/factsheets/fs-gcms.html (viewed 2 August 2008). For academic commentary on difficulties associated with monitoring carbon emissions from forests see R Achard et al 'Pan-tropical monitoring of deforestation' (2007) 2 *Environmental Research Letters* (IOP Publishing); Holly K Gibbs et al 'Monitoring and estimating tropical forest carbon stocks: making REDD a reality' (2007) 2 *Environmental Research Letter* (IOP Publishing).

[56] See the submission of Bolivia to the UNFCCC Subsidiary Body for Scientific and Technological Advice, Twenty-sixth session, Bonn, 7-18 May 2007 (FCCC/SBSTA/2007/3) at 38-39.

The market jumps ahead of international regulation

It is clear, that despite the fact that negotiations regarding the acceptability of RED(D) schemes under the UNFCCC, will be progressed at Copenhagen in December 2009, corporate investors and investment banks are already investing in RED(D) projects in developing countries.[57] For example, on 7 April 2008, Marriott International signed the first RED(D) agreement in the Brazilian state of Amazonas committing $2 million, with an additional $4 million to be added over three years. This is indicative of a pipeline of new projects, which incorporate sustainable development and biodiversity benefits, seeking certification under the Climate, Community and Biodiversity Project Design Standard.[58]

In another development, US Investment Bank, Merrill Lynch, has signed a six-year $9 million agreement with Carbon Conservation, an Australian-based project developer, and UK-based NGO Flora and Fauna International (FFI) to buy voluntary emissions reductions (VERs) from a RED(D) project in Indonesia's Aceh province. Merrill Lynch has the option to expand the deal to $400 million. The project, which is regarded as the largest carbon offset project in the world, seeks to avoid the emission of 100 million tonnes of CO_2 over 30 years. Named Aceh Green, the project hopes to achieve: avoided deforestation, improved forestry management, small-holder estate crop development and land reform, the development of public infrastructure, and 'green' soft commodity production marketed with Aceh Green branding.[59]

On 24 June 2008, Australia's Macquarie Group and Fauna & Flora International (FFI) announced the formation of a task force to invest in the management of tropical forests and generate carbon credits for sale. During the next 3 years, the partnership will work with local communities and governments to protect six forests at risk from deforestation in South East Asia, South America and Africa. The drivers of deforestation will be addressed by developing new economic opportunities for forest-dependent communities. Capital and financial services for the forest projects will be provided by Macquarie Group which will also take responsibility for ensuring compliance with carbon standards. Macquarie has reserved the right to sell the carbon credits internationally. FFI will draw on its conservation experience to work with local governments and communities to implement the projects.[60]

Meanwhile, in 2007, a Utah-based environmental foundation, signed an agreement with the Costa Rican government to buy credits generated under the country's Payment for Environmental Services scheme, discussed above. Pax Natura, the foundation, will pay US$10 million for the credits which it will sell into the voluntary carbon market in North America.[61]

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[57] See J Speckman 'REDD under way' (2008) *Environmental Finance* 56.

[58] The *Climate, Community and Biodiversity Project Design Standards* identify land-based projects that can deliver climate, biodiversity and community benefits simultaneously but are primarily designed for climate change mitigation projects. The Standards were developed by the Climate, Community & Biodiversity Alliance (CCBA) which is a global partnership of research institutions, corporations and environmental groups, with a mission to develop and promote voluntary standards for multiple-benefit land-use projects; see http://climate-standards.org/images/pdf/CCBStandards.pdf (viewed 2 August 2008).

[59] Speckman above note 57 at 58.

[60] See http://www.fauna-flora.org/docs/macquarie_media_release.pdf (viewed 2 August 2008).

[61] Point Carbon, 19 September 2007.

Relevance of RED(D) for Australia?

In July 2008, the Australia government released its *Carbon Pollution Reduction Scheme Green Paper.*[62] The Australian government is committed to achieving a 60% reduction in GHG emissions by 2050. The 2020 target will be released in the government's White Paper[63] in accordance with the work of the Garnaut Climate Change Review (Garnaut Review) and modelling undertaken by the Treasury.[64] Scheme caps will be set for five years in advance in order to gradually achieve the target, and would be extended by one year, every year, to maintain a constant five-year cap horizon.

The Green Paper proposes that the following sectors be covered by the Scheme: stationary energy; transport (indirect fuel use); fugitive emissions; industrial processes; waste; and forestry (on an opt-in basis). The threshold for liability is the emission of 25,000 tonnes of $CO_{2\text{-}e}$. The agricultural sector is currently excluded although it is proposed that this sector might be included in 2015 with a final decision being made in 2013.

Permits must be surrendered to discharge Scheme obligations, and may be traded. Permits will be auctioned four times in each financial year on the basis of an ascending clock auction. Compensation, probably by way of a free allocation of permits, will be provided to Emissions Intensive Trade Exposed Industries (EITEIs), coal-fired power stations and the agriculture sector when, and if, it is included in the Scheme.

The question for present purposes is whether the government will allow carbon credits from RED(D) projects to be used as offset credits under the CPRS. The Task Group, commissioned by John Howard, stated in its Report[65] that it regarded offsets provided by avoided deforestation as an important element of international emissions trading, especially given the then Commonwealth government's 'Global Initiative on Forests and Climate'.[66] Such offsets were also recognised as activities that could generate early abatement credits under a policy document released by the Howard government entitled *Abatement incentives prior to the commencement of the Australian Emissions Trading Scheme.*[67]

However, the Green Paper only recognises offset credits[68] generated from *Kyoto* compliant Clean Development Mechanism (CDM), Joint Implementation (JI) and from Land Use, Land Use Change and Forestry (LULUCF) projects. No doubt this might change with the further elucidation of the status of RED(D) under the UNFCCC to be provided at the Copenhagen negotiations.

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[62] [62] See *Carbon Pollution Reduction Scheme Green Paper* (Australian Government Department of Climate Change: July 2008) available at http://www.greenhouse.gov.au/greenpaper/index.html (viewed 24 July 2008).

[63] To be released in early December.

[64] To be completed in October 2008.

[65] See *Report of the Task Group on Emissions Trading* (Prime Minister and Cabinet: 2007) (The Task Group Report); available at http://pandora.nla.gov.au/tep/72614 (viewed 24 July 2008).

[66] On 29 March 2007 the former Australian Government launched a $200 million Global Initiative on Forests and Climate to advance the global effort to tackle climate change and protect the world's forests.

[67] Available at http://www.dpmc.gov.au/consultation/docs/early_action_discussion_paper.pdf (viewed 2 August 2008); see also Lyster above note 28.

[68] An offset credit, generated from various emissions reduction activities, can be surrendered to make up the difference between the total allowable emissions by a liable party and the number of permits that it holds at the end of a compliance period.

Meanwhile, the Garnaut Climate Change Review supports the establishing of a regional carbon trading market between Australia, New Zealand, Papua New Guinea and other Southwest Pacific countries, and Indonesia. Garnaut recognises the large volumes of low-cost abatement opportunities which PNG and Indonesia could provide from avoided deforestation and improved land and forest management.[69]

Conclusions

Now that the Bali Action Plan requires the 'enhanced consideration of policy approaches and positive incentives on issues relating to reducing emissions from deforestation and forest degradation in developing countries', research into legal measures to support RED(D) is crucial. Such research is at the cutting edge of Climate Law and has the potential to deliver solutions, tailored to discrete jurisdictions, in the search for mechanisms to reduce deforestation in developing countries.

[69] Garnaut Climate Change Review *Emissions Trading Scheme Discussion Paper* (March 2008) available at http://www.garnautreview.org.au/CA25734E0016A131/WebObj/D0836448ETSpaper-FINAL-fullcolour/$File/D08%2036448%20%20ETS%20paper%20-%20FINAL%20-%20full%20colour.pdf (viewed 2 August 2008).