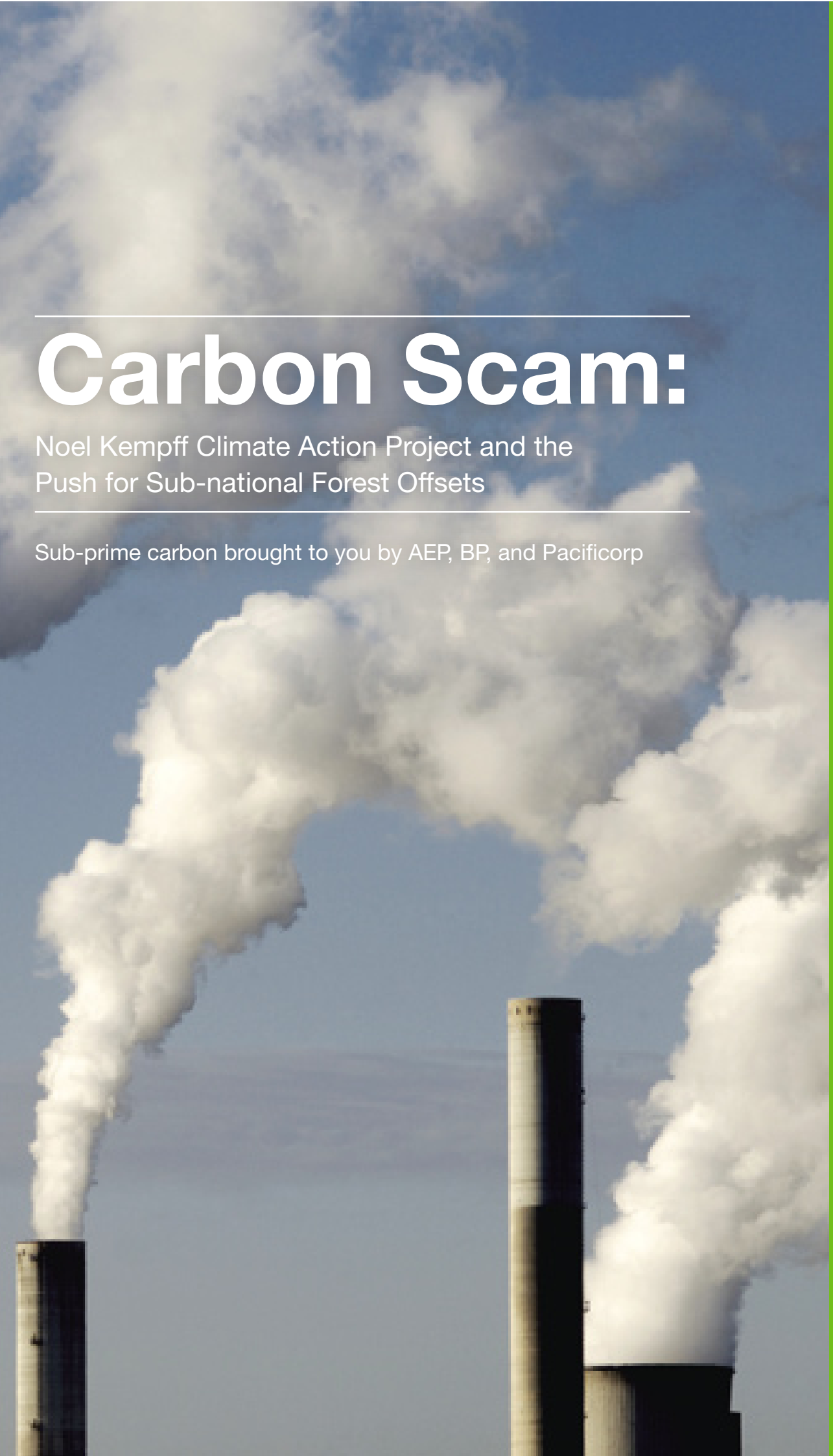

Carbon Scam:

Noel Kempff Climate Action Project and the Push for Sub-national Forest Offsets

Sub-prime carbon brought to you by AEP, BP, and Pacificorp

GREENPEACE

Protecting the world's forests and climate

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Logging at San Martin saw mill, just outside NKCAP

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Executive Summary

Save the Forests, Save the Climate

There is widespread agreement that tropical deforestation, which accounts for about 20% of global greenhouse gas emissions, must be halted in order to avoid the catastrophic impacts associated with a 2°C or more rise in global mean temperature. There is also agreement that efforts to reduce emissions from deforestation and degradation (REDD) in developing countries must play a prominent role in United Nations Framework Convention on Climate Change (UNFCCC) negotiations and in domestic climate change initiatives in countries such as the United States.

The political will to provide financial incentives for developing nations with tropical forests is a positive trend. But this political momentum is under threat as heavy polluters attempt to appropriate REDD for their own purposes, proposing REDD project offsets within carbon markets as low-cost substitutes for their own emissions reductions. Among the most controversial proposals are sub-national REDD offsets, which allow corporate polluters to continue emitting greenhouse gases in exchange for protecting an area of forest in a developing country.

Greenpeace is calling on countries to end deforestation globally by 2020 and has developed a REDD Fund proposal called the Tropical Deforestation Emissions Reductions Mechanism (TDERM) or Forests for Climate. Our Forests for Climate proposal maps out what world leaders must do to achieve this goal. World leaders must agree at the Copenhagen climate conference in December 2009 to create a new global fund for forests. This fund should be based primarily on financing raised through the auctioning of emission allowances in the amount of $40 billion per year to protect the world's remaining tropical forests by 2020.

Sub-national Projects in Reality: Noel Kempff Climate Action Project, Bolivia

In 1997 three energy giants, American Electric Power (AEP), BP-Amoco (BP), and Pacificorp entered into a REDD agreement with the Government of Bolivia. In return for millions of dollars of investment for the protection of an area of rainforest from logging for 30 years, they would be allocated the carbon offsets generated by keeping the trees standing. These offsets could then be bought and sold in carbon trading systems, in order to offset some of the CO_2 pollution produced by these power companies.

The project resulting from this agreement is known as the Noel Kempff Climate Action Project (NKCAP). Since its establishment, it has become the most highly touted sub-national REDD project in the world. NKCAP has been showcased as a model for future subnational REDD projects and used to promote sub-national forest offset policies within the international climate talks, to members of the US Congress, and to other REDD stakeholders.

Authentic Claims or Misaligned Promises?

Given the importance of REDD in the current international climate change talks and the high profile of NKCAP as an example of sub-national forest offset project success, Greenpeace set out to discover whether the claims made by the project developers could stand up to scrutiny. Based on extensive analysis of the documentation relating to NKCAP, as well as interviews with people associated with and impacted by the project, this report looks at the project's promises in relation to actual emissions reductions, methodologies used to prove the various elements of successful REDD projects, and improvement of the livelihoods of the local communities affected by it.

General Findings

This report documents evidence that

- contradicts the investors' claims that NKCAP can produce scientifically quantifiable carbon emissions reductions;
- questions the methods used to minimise and quantify leakage (drivers of deforestation moving to another area);
- casts doubt on the project's additionality (proving that a specific forest area would not have remained standing without offset compensation) and permanence (where changes to, or losses of, emissions reduction values occur over time); and
- calls into question the claim that NKCAP has provided sustainable benefits and alternative livelihoods to the local communities.

Key Findings

Scientifically Certain Emissions Reductions

Over the last decade of the project (1997-2009), the estimated emissions reductions of NKCAP have plummeted by nearly 90%, from about 55 million to "up to" 5.8 million metric tonnes of CO_2. After twelve years of operation, a fixed and consistent figure has not been established.

Leakage

When providing submissions and comments to the UNFCCC and the US Congress, the project's investors have generally used a project leakage estimate of about 15%.[1] However, on inspection of the methods used to calculate this number, Greenpeace found documentation estimating and projecting leakage from the project to be as high as 42-60%,[2] and identifying other significant problems such as:

Leakage figures relating to land conversion are largely limited to activities that have shifted to a small 15km area southwest of the project. Leakage to the north, east, and southeast of the project appears not to have been monitored or accounted for, even though the impacts to the atmosphere would be identical to leakage occurring in the limited areas where it is monitored;

Leakage figures relating to logging from NKCAP are based on the predictions generated by a "dynamic optimisation model of Bolivian timber markets," rather than real world monitoring techniques

After 8 years of operations, SGS,a third party auditor found that existing logging practices were "not conducted in a good practice style," "not well controlled," and lead to "more damage … and subsequent GHG emissions than necessary." In September 2009, the United Nations suspended SGS, the world's largest auditor of carbon offset projects, due to its failure to properly vet projects it was accrediting.[3]

Additionality

Greenpeace has discovered evidence indicating that the NKCAP may not be demonstrably additional. This undermines the arguments that its additionality can be proven in a measurable, reportable, and verifiable manner. This is based in part on a new Bolivian forestry law passed in 1996 — one year before NKCAP was established — and which changed the economics of timber harvesting countrywide in such as way that it reduced the area of land under concession in Bolivia by about 75%,[4] and therefore independently of NKCAP's establishment.

Permanence

If AEP, Pacificorp or BP has already used NKCAP to offset their emissions, in the event of a forest fire or other damage, the CO_2 emissions originally prevented will be released into the atmosphere. This means that twice the volume of CO_2 may be emitted as a result of the project. Greenpeace has been unable to find evidence of a carbon reserve or buffer fund beyond a 5% discount factor used to compensate for CO_2 emissions from possible future fires.

Community Benefits

There appear to be large disparities between the claims of the project's investors and the local communities regarding the benefits of the project to locals. Interviews reveal that many members of the community were not informed about elements of the project, and that efforts to help locals with alternate livelihoods, trainings, and new skills were in many cases never realised.

These interviews revealed many complaints and criticisms. One particularly egregious example was provided by a community member, who revealed that the programme "APOCOM (later PRODECOM)", set up to provide alternative livelihoods to local communities, amongst other things, "bought a herd of cows for the community, but they bought the wrong breed — a European breed that could not survive in this type of [tropical] environment. They all died in the end. The cows were so expensive that a whole herd of local breeds could have been bought for the price of a single one."

Interviews with community members, park guards, and personnel at the Noel Kempff Museum confirmed to Greenpeace that the project has been left unattended and without a day-to-day manager for over three years, since the ten-year contract with a local Bolivian NGO for the NKCAP's daily administration ended in 2006.

Massive Lobbying by Utilities and the Locking in of Economic Coal Dependency

In the United States, the coal, oil and gas industries have spent extraordinarily large sums of money in the last few years lobbying Congress on issues such as the introduction of carbon trading and emissions offsetting. AEP, the primary investor in NKCAP, is one of the most

active electric utilities in these efforts. In 2008, the company spent over $11 million lobbying Congress, making it third on the list of the biggest power company spenders (this being $9.5 million more than the company spent in 2007).

When broken down by industry, in 2008, the electric utilities (such as AEP and Pacificorp) rank second out of all US industries, with over $160 million spent on lobbying US Congress. The oil and gas sector (which includes BP) trails only slightly behind, and with spending at over $130 million, comes in fourth place. Incredibly, between 1998-2009, the electric utilities together spent over $1,161 million lobbying Congress.

A False Solution: Sub-national REDD Offsets

The "award winning" NKCAP highlights and demonstrates how sub-national REDD offsets are laden with problems, in particular when attempting to measure the carbon value of "avoided deforestation." This is far less precise than the measurement of emissions from industrial sources such as smokestacks or tailpipes for which they are supposed to substitute.

From 1997-2004, AEP, Pacificorp, and BP reported their carbon offsets from NKCAP to the US Department of Energy's 1605b voluntary emissions reductions reporting program. These total about 7.4 million tonnes of CO_2 over an eight year period. We have discovered that this is far greater than the amount verified by NKCAP's third party auditor for the 30-year lifespan of the project — 5.8 million tonnes of CO_2. This means that the NKCAP investors may have claimed millions of tonnes of CO_2 emissions reductions that never occurred.

Had the project's offsets been intended to be used under a regulatory, rather than a voluntary market in 1997, the significant shortfall in actual (5.8 million) versus claimed (55 million) carbon offsets could have resulted in 49 billion tonnes of additional CO_2 having been spewed into the atmosphere.

Polluting companies such as AEP are using voluntary sub-national REDD offsets to project a green image, while creating ways to side-step required pollution cuts that could result from pending climate initiatives. If adopted on a large scale, sub-national REDD offsets threaten to undermine the environmental integrity of the next international agreement on climate change as well as any climate legislation eventually adopted by the US Congress. Concerns are mounting that aggressive lobbying for large quantities of cheap, carbon market based offsets will threaten the climate, people, biodiversity, and confidence in emerging carbon markets.

Put simply, sub-national REDD offsets do not deliver promised emissions reductions and could perversely facilitate an increase in global greenhouse gas emissions. Furthermore, buying carbon offsets from projects such as Noel Kempff allows giant polluters such as AEP, BP, and Pacificorp to portray themselves as good actors on climate change while doing little to reduce the amount of CO_2 they emit into the atmosphere.

Conclusions

Although NKCAP has been hailed as a successful model for sub-national offset projects, a careful analysis of the documentation relating to the project, combined with on-the-ground interviews and research, indicates that the project has failed to meet its own claims to properly monitor and account for leakage, ensure additionality, guarantee its permanence for the foreseeable future, and provide adequate sustainable development opportunities for local communities. Despite over $10 million in financing and 12 years of operation, the model for sub-national REDD offsets has yet to produce real, measurable, reportable, and verifiable emission reductions.

Should the UNFCCC or US Congress allow sub-national REDD offsets into compliance markets, the result would be the government-sanctioned use of offsets known to be of highly questionable value. They likely would not have provided quantifiable emission reductions and may even result in an overall increase in global greenhouse gas emissions by allowing major emitters such as AEP to continue to build polluting coal-fired power stations while purchasing offsets that cannot be depended upon to provide real emission reductions.

Requiring national-level emissions reductions through REDD appears to be an absolute minimal pre-requisite for the generation of real, measurable, reportable, and verifiable emission reductions. At the last UNFCCC Conference of Parties (COP 14 in Poznan, Poland), Brazil, Indonesia, the Democratic Republic of the Congo, Papua New Guinea (PNG), the European Union, and others signalled a strong consensus and willingness in support of national-level emissions reductions through REDD. Such an approach would go a long way towards avoiding the problems of leakage, non-additionality, and impermanence which are associated with subnational projects.

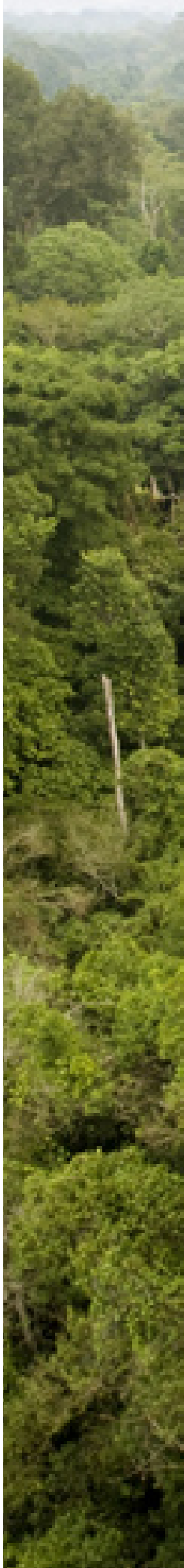
In order to give the world the best chance to keep global temperature rise as far below 2°C as possible, Greenpeace is calling on countries to commit to the goal of ending deforestation globally by 2020. To achieve this goal, world leaders must agree at the Copenhagen climate conference in December 2009 to create a new global fund for forests with the goal of protecting the world's remaining tropical forests by 2020. This fund should contain financing in the amount of $40 billion per annum, with the vast majority of financing coming from public and market-linked sources, such as through the auctioning of emission allowances. Given the estimated costs of climate change, quick and equitable action on deforestation would save taxpayers significant climate-related costs in the future.

Greenpeace Policy Position on REDD

Greenpeace strongly supports the inclusion of REDD as a key part of any international and domestic climate change action. A successful REDD mechanism should bring the world closer to — not further away from — the goal of keeping global temperature rise as far below 2°C as possible. Therefore, an effective REDD mechanism **will not include offset credits in the carbon markets** and would have the following characteristics:

- **achieve zero gross deforestation** in priority areas such as the Amazon, the Congo Basin, and the Paradise Forests of Southeast Asia by 2015, and all other countries with tropical forests by 2020
- require **national-level reductions** in forest emissions to minimise the problems of leakage, non-additionality, and impermanence
- allow for the **broad participation of countries** with tropical forests;
- **protect biodiversity** consistent with international conventions and objectives to avoid perverse incentives and outcomes
- **fully respect the rights of indigenous peoples and local communities** and provide forums for full participation and free, prior, and informed consent
- ensure that **benefits are equitably shared** between countries and stakeholders
- guarantee reliable **independent monitoring and verification** of activities and results

For more on Greenpeace's position on REDD visit www.greenpeace.org/forestsforclimate



Intact Amazonian rainforest—Cristalino State Park

Logging operations just outside the NKCAP buffer zone.

2

Noel Kempff Climate Action Project

Background

Tropical deforestation, which accounts for about 20% of global greenhouse gas emissions, must be halted in order to avoid catastrophic impacts associated with a 2°C rise in global mean temperature. There is widespread agreement that efforts to Reduce Emissions from Deforestation and forest Degradation (REDD) in developing countries must play a prominent role in United Nations Framework Convention on Climate Change (UNFCCC) negotiations and in domestic climate change initiatives in countries such as the United States. The debate is not whether to pursue REDD, but how to fund and administer it. Instead of funding REDD through public and market-linked financing (such as auction revenues from emission allowances) that would take us closer to the overall emission reductions required by the science, industrial polluters are proposing sub-national REDD offsets to provide a cheap alternative to required emissions reductions under a cap and trade programme.

Concerns over the quality of REDD offsets excluded them from the Kyoto Protocol and barred them from the European Union Emissions Trading System, the largest compliance-based carbon market in the world. Measuring the amount of carbon sequestered as a result of "avoided deforestation" is much less precise than measuring the amount of carbon emissions from industrial sources such as smokestacks or tailpipes that they are supposed to replace or offset. Also, the inherent problems of leakage (wherein avoided deforestation in one area results in deforestation in another), additionality (proving that a specific forest area would not have remained standing without offset compensation), and impermanence (changes to, or losses of, emissions reduction values over time) are extraordinarily difficult to address in the case of REDD offsets. These challenges are particularly problematic with sub-national REDD offsets which protect small areas without reference to national-level monitoring or accounting. REDD offsets that do not deliver promised emissions reductions due to these factors could perversely facilitate an increase in global greenhouse gas emissions.

There is international recognition that national-level approaches to REDD are better suited to address problems of leakage and additionality.[5] However, polluting companies such as American Electric Power (AEP) are using voluntary, sub-national REDD offsets to project a green image,[6] while creating ways to side-step required pollution cuts that could result from pending climate initiatives.[7] Sub-national REDD offsets threaten to undermine the environmental integrity of the next international agreement on climate change as well as domestic initiatives to control emissions, such as the (the Senate version of the House American Clean Energy and Security Act (ACES), (also known as Waxman-Markey) bill pending in the US Congress. Such a move could also damage the progress and goodwill that has been built to date and either, once again, leave forests outside of an international agreement, or see them included but in a perverse way. Concerns are mounting that aggressive lobbying for large quantities of cheap, low-quality REDD offsets will threaten the climate, people, biodiversity, and confidence in carbon markets.

The Noel Kempff Climate Action Project (NKCAP) in Bolivia is the most highly touted sub-national REDD project in the world.[8] NKCAP has been used to promote sub-national forest offset policies within the international climate talks, to members of the US Congress, and to other REDD stakeholders. However, Greenpeace has discovered evidence that sponsors of the twelve-year-old model for sub-national REDD offsets have seriously overestimated its emissions reduction potential, failed to quantify and prevent leakage, and failed to deliver promised benefits to affected local communities and indigenous peoples.

"[W]e have a project here that was developed with great care, a project that we believe can withstand the scrutiny of the world and will be viewed as a very cost effective, but legitimate as well, response to the climate change issue."

(American Electric Power, testimony to US Congress (2001))[9]

Entrance to Noel Kempff Park

The Noel Kempff Climate Action Project History

In 1997, three power companies, a US NGO called The Nature Conservancy (TNC), and the Bolivian government made a deal to protect an area of tropical rainforest in northeast Bolivia — NKCAP. Financing was used to buy out pre-existing logging concessions in an area near a national park (the Noel Kempff Mercado National Park, designated as a UNESCO World Heritage site) and create a protected area twice its original size.[10] Project sponsors planned to generate carbon offsets to be sold on the Chicago Climate Exchange (CCX) and to offset their CO_2 emissions.[11]

The Players

AEP invested $6.2 million into NKCAP (53% of the total investment), Pacificorp invested $1.75 million (16% total investment), BP invested $0.8 million (7% total investment), and TNC invested $2.6 million (24% total investment).[12] The rights to the carbon offsets were split 49% to the Government of Bolivia and 51% to the investors. More specific allocation details are below.[13]

Breakdown of the rights to Noel Kempff's carbon offsets:

"According to the [project] agreement the parties would receive Certified Offsets as follows:

- **Apportionment to AEP. The equivalent of 2% of offsets accumulated each year during the project term. AEP shall receive this apportionment as consideration for its leadership, financial support in developing the project and for marketing the project to other prospective financial participants.**

Problem: Systemic Lobbying by AEP, BP, and Pacificorp

The last few years have witnessed heavy and sustained lobbying for the introduction of carbon trading and emissions offsetting, like that now seen in the US ACES legislation. This lobbying activity has successfully made the concept of "cap and trade" very favourable to industry, in particular to allow it to continue emitting at "business as usual" levels (by "offsetting" their emissions with forest projects, etc.). Additionally, this lobbying has also brought around a strengthened profit making environment.

American Electric Power has the dubious distinction of coming in third place in the list of energy companies having spent money lobbying the US Congress, with over $11 million spent in 2008 (this is $9.5 million more than they spent in 2007).[14] In the same year, they paid $350,000 and $580,000 to retain the lobbying services of Washington law firms Van Ness Feldman and Sidley Austin respectively.[15] These firms are foremost in leading the development of climate change and carbon trading laws. Notably, Sidley Austin advises corporations on issues such as the creation of hedge funds which involve carbon offsets traded on the CCX, and the voluntary reporting of greenhouse gas emissions on the US Department of Energy's 1605b programme.[16] Van Ness Feldman specialises in advice on emissions trading, carbon markets and offset project development like those similar to Noel Kempff.[17]

BP stepped up its lobbying efforts in 2009. Having not featured on the list of the 20 biggest spenders since 1998, already at time of writing (Sept 2009) the company has spent over $7.5 million on lobbying US Congress and federal agencies, and it ranks as the 15th biggest spender.[18]

AEP and Pacificorp are members of the coal utility trade association, the Edison Electric Institute (EEI).[19] The EEI has frequently been one of the biggest spenders on lobbying US Congress over the last 10 years, spending a massive $128 million between 1998-2009.[20]

It is illuminating to see that when broken down by industry, in 2008, the electric utilities come in at second place out of all US industries (over $160 million) spent on lobbying US Congress. The oil and gas sector is not far behind at 4th place spending over $130 million.[21] Between 1998-2009, the electric utilities have spent over $1,161 million (that's over a thousand million dollars) on lobbying alone.[22]

THE INVESTORS
Corporate Profiles and Environmental Records [23]

American Electric Power (AEP)

American Electric Power (AEP) is a major investor-owned electric utility operating in the United States. Based in Columbus, Ohio it serves 5.2 million customers in 11 states.[24] AEP is tough to beat when it comes to dirty energy. The company burns more coal than any other electric utility in the Western hemisphere and emits more CO_2 than any other power company in the United States. As a result of a landmark 2007 lawsuit filed by the Justice Department for repeated violations of the Clean Air Act, the company agreed to install $4.6 billion in equipment to reduce pollution at some of its coal-fired power plants: this was the largest environmental settlement in Justice Department history.[25] AEP is also the proud owner of eleven "high hazard"[26] coal ash dumps.[27]

On its website, AEP claims that from 2010 onwards, the company will voluntarily "reduce" or "offset" 5 million tonnes of CO_2 per year through such measures as investing in forest projects at home and abroad, improving power plant efficiency and added renewable energy projects to it generation portfolio.[28] Despite this, the company's CO_2 emissions are set to increase from 175 million tonnes per year to 192 million tonnes in ten years' time.[29]

AEP is the single largest energy contributor to both Republican and Democratic candidates for Congress and has spent more money than any other power company lobbying members of Congress.[30] In 2008, AEP paid out more than $12 million for Washington lobbyists.[31]

BP-Amoco

BP-Amoco is a British petrochemical company headquartered in Westminster, London. It is the largest UK company, the fifth largest globally, and has active operations in 29 countries.[32] BP has 19 oil refineries which process 1.5 million barrels of crude oil every day.[33] The company's UK arm operates 45 oil fields and 33 oil platforms alone.[34] In global terms, BP-Amoco is ranked as 351st biggest emitter of CO_2 in the world,[35] and in 2008, the company's operations released over 66 million tonnes of CO_2 into the earth's atmosphere, roughly equivalent to the emissions of Portugal.[36] This figure would be substantially higher if carbon emissions from the use of oil products were taken into account.

In 2000, BP rebranded itself and adopted the tagline "Beyond Petroleum."[37] In 2000 and 2005, BP was named as one of the "10 worst corporations" for its environmental and human rights record.[38] In 2009, it was a nominee for the 2009 Greenwash Awards for deliberately exaggerating its environmental credentials.[39]

Far from being "Beyond Petroleum", BP's documents show that in 2008, the company allocated about $20 billion of its total investment fund for the exploration, production and refining of oil and other fossil fuels.[40] By contrast, investment in all alternative forms of energy amounted to $1.5 billion.[41]

BP America has actively lobbied for the introduction of carbon trading. It is a member of the US Climate Action Partnership which supports the ACES bill and a national compliance-based carbon trading system. Strangely, BP is also a member of the American Petroleum Institute (API) which has been lobbying heavily against substantive carbon reduction measures in the ACES bill. In 2008, BP, a lobbying "heavy hitter"[42] spent almost $10.5 million,[43] and in the same year spent almost $5 million on lobbying US Congress, by virtue of its membership in API. [44]

Pacificorp

Pacificorp, an electric utility serving industrial, commercial and residential customers in the western United States, is a wholly owned subsidiary of MidAmerican Energy Holdings Company. Berkshire Hathaway owns MidAmerican Energy Holdings, which purchased Pacificorp from Scottish Power in 2006 for $9.4 billion.[45] MidAmerican also owns CalEnergy Generation, HomeServices of America, Kern River Gas Transmission Company, CE Electric UK, and Northern Natural Gas Company.[46]

Pacificorp is the most polluting of MidAmerican Energy Holdings companies, responsible for 53,900,000 tonnes of CO_2 out of a total of 76,400,000.[47] In global terms, it ranks as the 35th biggest polluter of CO_2 in the world.[48] The vast majority of Pacificorp energy — 87% — comes from fossil fuels (70% coal, 17% natural gas).[49] Wind and other renewables constitute only 3%, with large hydroelectric dams providing the remaining 10%.[50] It operates surface and underground coal mines near some of its larger coal fired power plants, including the Jim Bridger, Huntington & Hunter and Craig mines (140, 45 and 47 millions of recoverable tonnes, respectively).[51]

The Jim Bridger plant is currently one of the top twenty most polluting coal plants in the United States, emitting 16,000,000 tonnes of CO_2 a year.[52] In addition to being sued for repeated permit violations by community groups,[53] Pacificorp was fined $10.5 million in 2009 for illegally killing eagles and other birds with outdated transmission lines.[54]

During the 2008 US election cycle, Pacificorp/MidAmerican Political Action Committee contributed to Republicans and Democrats at nearly a two to one ratio ($39,800 to $22,000).[55] It also contributed to CoalPAC which lobbies aggressively for the coal industry.[56] Despite a claim to be "committed to an aggressive series of benchmarks in adding renewable projects to its generating capacity,"[57] Pacificorp is projected to increase its CO_2 emissions by 10,000,000 tonnes over the next 10 years.[58]

- **Apportionment to the Industry Participants. To industry participants, AEP, BP, Pacificorp, (on a pro rata basis in proportion to their respective financial contributions to the project) the equivalent to 49% of the offsets accumulated each year during the project term.**
- **Apportionment to Fundación Amigos de la Naturaleza [see below] and the Government of Bolivia. The equivalent of 20% of the offsets accumulated each year during the project term. Funds obtained through the sale of these offsets shall be contributed to an Endowment Account for the National System of Protected Areas.**
- **Apportionment to the Government of Bolivia. The equivalent of 29% of the offsets accumulated each year during the project term. Funds obtained through the sale of these offsets are to be invested in Bolivia…"**[59]

TNC secured the financing, managed, and administered the project in cooperation with Fundación Amigos de la Naturaleza (FAN), a local NGO in Bolivia. Winrock International Institute for Agricultural Development was the lead carbon measurement partner for NKCAP, and Société Générale de Surveillance (SGS), a British owned validation and certification firm, was brought in as an independent third party to certify the carbon offsets from the project.[60]

The Purpose

AEP, BP, and Pacificorp are large polluters interested in carbon offsets that would allow them to avoid reducing their own emissions. Buying carbon offsets from projects such as Noel Kempff allows these companies to portray themselves as good actors on climate change while doing little to reduce the amount of CO_2 they emit into the atmosphere. This is called greenwashing. In the face of a carbon constrained energy future, power companies are pursuing all sorts of creative accounting measures (i.e., carbon intensity targets) to make it look like they are tackling climate change when the reality is that the only thing that will cut their CO_2 emissions is burning less fossil fuel.

These companies may also have been motivated by making profits from offsets.[61] While NKCAP has produced offsets intended for sale in voluntary carbon markets, it is likely that the investors will seek to have such offsets approved by governments for sale on regulatory markets (e.g. as credit for early action), where they would yield significantly greater profits.[62]

The Plaudits

Since its establishment twelve years ago, NKCAP has been the flagship sub-national REDD project. The Project's partners have extolled the project's successes in submissions to the US Congress and the UNFCCC.[63] NKCAP has also been cited in studies such as the Eliasch Review[64] and in U.K. House of Commons Environmental Audit Committee hearings.[65]

Noel Kempff also became part of the US Initiative on Joint Implementation (USIJI)[66] and Activities Implemented Jointly (AIJ)[67] programmes, and was hailed as conforming to the Clean Development Mechanism criteria even though it

Table 1. The NKCAP partners claims of the Project's CO_2 savings over a ten-year timeframe

Date	Statement by Project Investors on the Ability to Accurately Assess NKCAP Emission Reductions	NKCAP Emissions Reduction Figures over project life (reduce, avoid or mitigate) (Carbon: CO_2 ratio taken as 1:3.67)
1999	"The carbon sequestered by the project has been estimated using scientifically rigorous methodology developed by Winrock… The project and its monitoring and verification protocol is viewed as an important model in demonstrating scientifically valid carbon measurements." – Statement of Tia Nelson, Deputy Director, Climate Change Program, The Nature Conservancy; Before the Senate Committee on Environment and Public Works, United States Senate (March 24, 1999) available at <http://epw.senate.gov/107th/nel_3-24.htm>	15 million tonnes of carbon (equals 55 million metric tonnes of CO_2)
2001	"We believe we have proven with this project that avoided deforestation is a legitimate and verifiable climate change mitigation option . . . ." – Dale E. Heydlauff, Senior Vice President for Environmental Affairs, American Electric Power Company, Hearing before the Subcommittee on Science, Technology and Space on Carbon Sequestration: Measurements and Benefits (May 23, 2001), p.7	7 million tonnes of carbon (equals 25.6 million metric tonnes of CO_2)
2008-2009	"The technology currently exists to effectively measure and monitor the emissions reduced by preventing deforestation and degradation… large-scaleavoided deforestation projects can produce real and measurable carbon offsets." – The Nature Conservancy: REDD is the New Green (15 October 2008), available at <http://conexmeeting.org/ht/a/GetDocumentAction/i/1927>	"Up to" 1.6 million tonnes carbon (equals "up to" 5.8 million tonnes of CO_2)

was not an eligible activity.[68] In addition, the project was recognised by Harvard University as a global model for its approach to climate change. In 2003, the NKCAP partners received the Roy Family Award, presented bi-annually at Harvard University to a public-private partnership project that enhances environmental quality through the use of novel and creative approaches, as a result.[69]

The Reality

Greenpeace launched an investigation to examine the veracity of the claims associated with the Noel Kempff project as a suitable prototype for future sub-national REDD projects. Specifically, we examined the ability of the project to deliver on claims to quantify and reduce carbon emissions, and bring sustainable benefits to local communities. Our investigation has found that NKCAP has systematically failed to demonstrate it has delivered on these objectives.

1. Are Emission Reductions from NKCAP Accurately Reported?

> **"Experts have determined through a series of technical workshops and projects that GHG benefits can be accurately quantified."**
>
> (American Electric Power, testimony to US Congress, (2000))[70]

> **"It is not an easy task to figure out what the exact methodologies are and how carbon benefits have been calculated."**
>
> (SGS, Third Party Verifier of NKCAP (2005))[71]

The immediate question when considering the objective performance of sub-national REDD projects is: are the emissions reductions provided by the projects real, additional, and permanent?[72] This imperative is heightened if the emissions reductions from the project are intended to offset continued industrial emissions. In such instances, the crediting of an offset that is not real allows emissions to be emitted into the atmosphere elsewhere, and could lead to the perverse situation in which global greenhouse gas emissions increase overall.

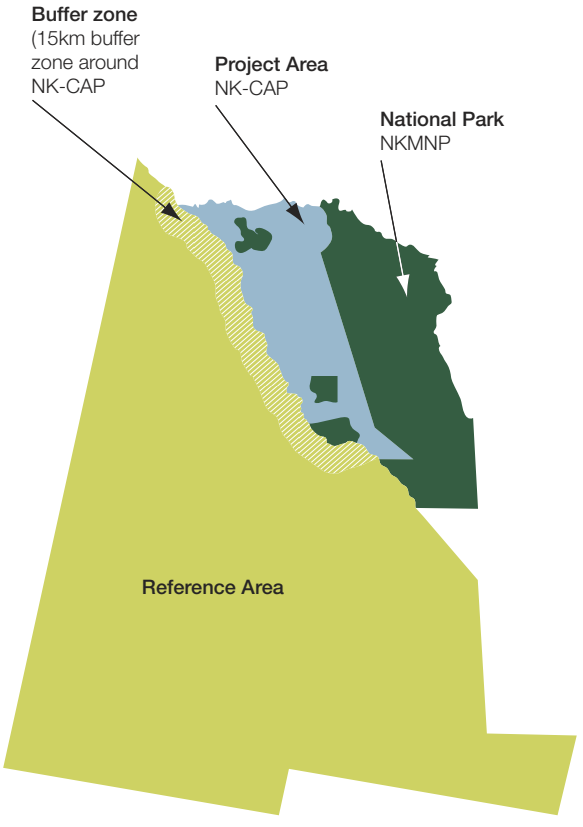
NKCAP's investors and stakeholders have stated from the beginning that they can accurately quantify the emissions reductions the project will achieve over its 30-year lifespan.[73] Yet, over the last decade of the project (1997-2009), the estimated emissions reductions of NKCAP have plummeted by more than 90%, from about 55 million to 5.8 million metric tonnes of CO_2 (or less).[74] The 1999 AIJ Report for Noel Kempff established that the project's lifetime CO_2 benefits would total about 55 million tonnes.[75] Yet just six years later, in 2005, SGS determined that to date, the project had provided only about 1 million tonnes, and estimated that it would result in about 6 million tonnes over its lifetime (10% of the initial promise of about 55 million).[76] In 2007, the numbers were revised yet again, with the Project's carbon benefits being estimated as any amount "up to" 5.8 million tonnes of CO_2 over its lifetime.[77] After twelve years, a consistent figure is yet to be established.

NKCAP's partners defend these figures as based on the best available data at the time, and given that the science of monitoring and measuring CO_2 has improved over the years, assert that the emissions avoidance figures were scaled down appropriately. However, such assertions fall flat when accompanied by claims about the accuracy and scientific certainty of carbon accounting methodologies subsequently shown to be inaccurate. Indeed, the information in this report seriously calls into question the veracity of claims currently being made about the project.

First Step: Establishing a Legitimate Baseline

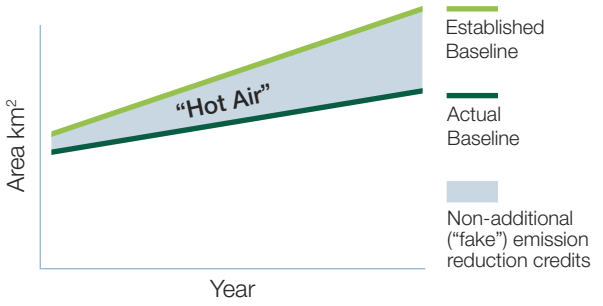
In order to know whether emissions have been reduced, a baseline is needed against which future emissions will be measured. In the context of a national approach, this is a relatively straightforward exercise, with a historical baseline established on a five, ten, or twenty-year horizon, based on deforestation rate information that has been collected on countries since 1990.[79] With sub-national projects like NKCAP, however, the establishment of a baseline is a much more tenuous process. Since there are no obvious geo-political boundaries to use as a basis, there is a risk that the baselines will be arbitrary, inaccurate, or even manipulated to maximise claimed carbon offsets (see Chart .1 below).

Map 1. The Noel Kempff Climate Action Project area which highlights the park, project area, buffer zone, and reference area[78]



The NKCAP baseline was determined by combining historical data (satellite imagery) from three points in time prior to the start of the project with a simulation model's future projection of deforestation in the project area (not including the park), buffer zone, and a "reference area" (see Map. 1 above).[80] The project design documents argue that this process "creates a reasonable baseline scenario" against which deforestation is measured.[81] Little information is provided on the reasons behind the identification and selection of the reference area.[82]

Chart 1. The potential for bogus emission reductions



Baselines for sub-national forest projects are likely to be established incorrectly (through genuine error or political manoeuvring), resulting in the generation of non-additional REDD offset offsets which could increase global greenhouse gas emissions.

2. Can Leakage from NKCAP be Accurately Quantified?

"Leakage is the Achilles' heel to all these projects."

(American Electric Power, (2001)) [83]

"Through the process of assessing the leakage prevention activities for the Noel Kempff project and attempting to quantify leakage from the averted deforestation activities, it has become ever more apparent that quantifying leakage is not a straightforward process."

(Winrock International (2001)) [84]

"Without a national commitment, displacement or leakage of emissions beyond project boundaries is particularly difficult to measure."

(The Eliasch Review, (2008)) [85]

A Greenpeace analysis of the NKCAP documents, in combination with an on-the-ground investigation, has revealed that leakage from NKCAP does not appear to have been accurately quantified or contained.

Major Methodological and Monitoring Problems

The problem of leakage may be an insurmountable one to the successful operation of sub-national REDD offset projects. The relevant literature on leakage suggests that rates can be anywhere from 10% to more than 100%.[86] Others argue that it is impossible to measure accurately.[87]

To make credible CO_2 reductions claims, sub-national projects must be able to accurately measure, report, and verify leakage.

NKCAP's partners have argued that leakage from the project can be accurately measured, reported, and verified.[88] When providing submissions and comments to the UNFCCC[89] and the US Congress, the project investors have generally used a project leakage estimate of about 15%.[90] However, there have been significant problems relating to the monitoring and quantification of leakage resulting from NKCAP. Below we provide both documentary and testimonial evidence that calls into question the ability of this project to accurately monitor and account for leakage, and the discrepancy between the project reality and statements of the NKCAP sponsors, which appear to consistently downplay the scale of leakage actually occurring.

Leakage from Land Conversion: Whatever You Define It to Be

The methodologies used to determine leakage from the project are filled with gaps, assumptions, and uncertainties. Rather than addressing the leakage impacts of deforestation and degradation comprehensively, the project divided its analysis of leakage into two components: primary and secondary.[91] Primary leakage was defined as deforestation caused by the conversion of land outside the project area,[92] whereas secondary leakage was characterised by the effect on timber markets caused by less supply (and increased prices), which then causes producers in other regions to harvest more timber from their lands, thereby reducing the effective amount of carbon conserved.[93]

The project chose to apply a "people approach" to monitoring primary leakage, which it found to be much "simpler" than a geographically-based approach.[94] Under this "alternative" approach, it was assumed that all primary leakage was being caused by the local and indigenous communities near the project.[95] Since the communities were to receive sustainable development and alternative livelihood benefits, it was assumed they would not engage in further land conversion activities that could result in leakage.[96] Winrock International's 2001 study on leakage, baselines, and carbon benefits reports that "in the case of the NKCAP, this people-based approach is the focus of the existing leakage prevention activities, for example providing alternative livelihood benefits for local communities. Such activities have, to date, been successful."[97] Based on the "people approach," this assumption seemingly turned into a conclusion: primary leakage was nil.[98]

The extent of primary leakage was further limited to a 15km "buffer zone" adjacent to the NKCAP.[99] It is not known why a zone of 15km was selected, as opposed to zones of 5, 50, or 100+ kilometres, or why this particular strip of land to the west/southwest of the project was

chosen. What is known is that the 15km buffer zone happens to correspond to an area where several local indigenous communities applied for, and later obtained, title to lands.[100]

Needless to say, leakage from destructive forest activities generally does not end after 15 km.[101] The major drivers of deforestation are global (e.g., agribusiness, palm oil, logging, etc.), and extend not only across provinces, but also across nations (and even continents).[102] The justification provided for accounting for leakage only within the buffer zone is that: "In case of subsistence farmers it is highly unlikely that these people would travel long distances away from the project area in order to deforest outside the park what they would have deforested inside the park otherwise."[103] While this may provide an explanation for why leakage monitoring was focused on a particular area, it does not provide absolution from having to monitor leakage wherever it may occur. It also does not justify the extremely limited nature of the buffer zone.

In addition to limiting potential leakage to that which may occur within a specific 15 km area, leakage from the project that may enter the national park adjacent to NKCAP or cross the nearby border into Brazil is apparently neither monitored nor accounted for by the project.[104] It is also noted in the methodology that fires, likely caused by "human settlements" have always occurred in the park, which would seem to indicate a fair likelihood of leakage moving to areas other than those represented by the project, buffer zone, and reference areas.[105] Although the project documents concede that leakage may occur in the buffer zone or in the park, only the former is considered.[106]

It therefore appears that only leakage that occurs within the designated 15km strip of land to the west/southwest of the project falls within the purview of the project's monitoring and accounting of primary leakage.[107] Leakage to the north, east, or southeast of the project is not monitored or accounted for, even though the impact to the atmosphere is the same as it would be for leakage that occurs in the buffer zone.[108]

Logging operations just outside the NKP buffer zone. This indicates that logging operations continued to operate after the establishment of NKCAP both inside and outside of the buffer zone

Leakage from Logging

Seven years after the start of NKCAP, the project failed third party verification by SGS due to problems associated with the project's "additionality, baseline, *possible leakage*, the monitoring plan and the environmental and social impacts . . . ."[109] Even when the project was verified by SGS in 2005, it obtained a minor Corrective Action Request (CAR) since SGS found that the logging practices were "not conducted in a good practice style," "not well controlled," and lead to "more damage . . . and subsequent GHG emissions than necessary."[110] In September 2009, SGS, the world's largest auditor of offset projects, was suspended by United Nations inspectors for its failure to properly verify carbon offset projects.[111]

A saw mill just outside the Noel Kempff park

Logging Companies Continued Operations

Recent conversations with local community members and logging companies, as well as further research, indicate that logging companies continued to operate after the establishment of NKCAP both inside and outside the buffer zone. Although both of the major pre-existing logging companies, Moira and San Martin, left the project area after the project was initiated, Moira continued to log inside the NKCAP buffer zone for several years using the same unsustainable logging practices.[112]

The San Martin logging company remains in operation today (2009). When we visited the company, we were informed by one San Martin worker that the company still owns and operates a large saw mill for a logging concession of roughly 119,200 ha just outside the buffer zone.[113] The employee stated that the project partners had never approached the company for a report of their logging activities by the project partners, or to inquire whether the money the company received from the project had been reinvested into other concessions. We were informed that the company continued to utilise

the same exploitative forestry practices for several years after it left the project area, but changed to more sustainable methods as a result of the new Bolivian forestry law.[114]

We were also informed that the governmental body in charge of monitoring these activities, the superintendencia forestal (Forest Superintendancy),[115] has never had the ability or capacity to monitor the region due to the lack of personnel and the size of the area. This has meant that controls are, at best, sporadic and, at worst, a one-time event. As a result, we were told that some illegal logging takes place in this region because it is simply too hard to control. Apparently, the local municipality only started setting up road controls this year (a decade after the start of NKCAP) but even this effort is primarily aimed at controlling and protecting the area from colonisation, not illegal logging.[116]

Modelling Emissions versus Monitoring Emissions from Logging

Rather than utilise a combination of remote sensing and ground-based monitoring to measure actual leakage from logging companies, the project relies heavily upon a modelling experiment that simulates logging responses to various supply and demand variables.[117] As a result, the leakage figures from NKCAP are not measurable, reportable, and verifiable estimates based on real world monitoring, but rather predictions based on the assumptions of the "dynamic optimisation model of Bolivian timber markets."[118]

Based on these assumptions, the model predicted a 14 to 44% risk that emissions from displaced logging would leak to areas outside the project area, with the lower figure assuming "elastic" demand and the higher figure indicating the likelihood of leakage if demand is "inelastic."[119] These figures are commonly touted to promote NKCAP.[120] However, the project's background documents also predicted that long-term leakage could be as high as 60%,[121] and note that the risks of long-term leakage could not be predicted with any sort of accuracy.[122]

The Project Design Documents relating to NKCAP identify some potential instances of leakage from logging, but then quickly explain them away. For instance, logging activities that commenced in the buffer zone after the initiation of the project would normally be considered leakage, and the project document notes that, "At first glance, one might classify this loss of biomass as leakage.[123] However, the project documents explain that these activities may have been community forestry projects supported and financed by the NKCAP, and that the emissions from these activities were less than those from the harvesting activities in the same area before the project began.[124] It is then concluded that even if the activities were a displacement related to the project, it was not leakage because the new logging activities did not result in an increase in greenhouse gas emissions relative to the prior logging activities.[125] While the lowered rate of subsequent emissions may relate to the project's emission reductions claims, it is difficult to see how this cannot be classified as leakage.

The project documents also note that one of the logging company owners paid by NKCAP to forfeit his logging concessions actually used the proceeds of this payment to purchase "a nearby concession… [which] could be considered primary leakage."[126] This revealing fact is quickly downplayed with arguments that the identified leakage is "implicitly included" in the dynamic optimisation model's simulations (explained below)[127] and "the nearby concession would likely have been undertaken regardless."[128] The documents then note that "much of the equipment" used for logging was retired, and that the "direct movement of capital" to the new concessions "appears to be fairly limited; etc."[129]

Despite the need for serious monitoring of leakage from logging, and aside from the predictive modelling experiment, the project developers appear to have placed significant hopes on a questionable, short-term "monitoring" technique. In short, NKCAP struck an agreement with the indemnified logging companies to track their future expenditures to ensure that they weren't merely using the indemnification monies to purchase logging concessions elsewhere.[130] Arguments over the relative merits of this "monitoring" method are somewhat mooted, since the agreement to track the expenditures of concessionaires following indemnification was limited to five years (and has since expired).[131] As noted above, recent conversations with the logging companies indicate that their expenditures may not have been fully tracked during the five year period and that logging has continued in the areas surrounding NKCAP. Nonetheless, the NKCAP deemed this limited effort "sufficient for analysis of leakage" from the project.[132]

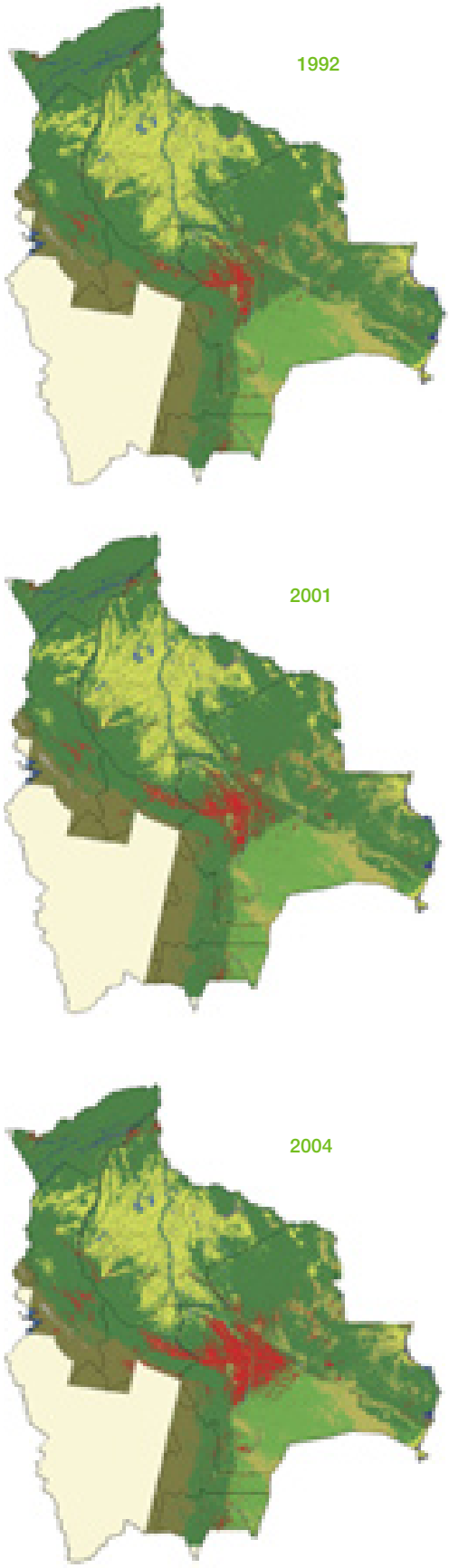
3. Are Emission Reductions From NKCAP Additional?

> **"Additionality is at the crux of an offset's integrity. . . . [I]t may be impossible to accurately determine what 'would have happened anyway' for some projects."**
>
> (Congressional Research Service, (2008))[133]

> **"It was not until 1999 when San Martin started using Sustainable Forest Management practices, which was an obligation by the Bolivian law, and not a product coming out from the NKCAP"**
>
> (Anonymous worker at the San Martin Saw Mill (2009))[134]

Additionality requires proof that the emissions reductions achieved by a project are genuinely and quantifiably supplemental to what would have otherwise occurred. NKCAP's partners claim that the project directly resulted — in emissions reductions from deforestation and degradation that would not taken place had it not been

GIS mapping of the extent of deforestation occurring in Bolivia in 1992, 2001 and 2004



implemented.[135] They argue that deforestation and logging would have continued and that the additionality of the project "is obvious."[136] However, Greenpeace has discovered evidence indicating that NKCAP may not be demonstrably additional, calling into question arguments that the project's additionality can be proven in a measurable, reportable, and verifiable manner.

Legal Coattails

Greenpeace has uncovered two problems with this claim. First, in 1996 — one year before NKCAP was established — Bolivia passed the 1996 National Forestry Law (Ley Forestal No. 1700).[137] This law introduced new harvesting restrictions on all logging companies within Bolivia, and required a significant number of the existing logging concessionaires to submit management plans for sustainable harvest. These new requirements changed the economics of logging in the Noel Kempff area in a way that could have partly, or completely, shut down existing timber activities regardless of the project. The 2001 report by Winrock International on NKCAP leakage, baselines, and carbon benefits highlights the "substantial difficulties" of separating the effect of the law from the efficacy of NKCAP.[138] It also reports that the new law reduced the area of land under concession in Bolivia by 75%,[139] which is independent of NKCAP's establishment.

National Deforestation Rates on the Rise

While the NKCAP was generating sub-national offsets based on reductions in deforestation the project was allegedly providing at the sub-national level, the national deforestation rate in Bolivia was actually increasing (in percentage terms).[140] Indeed, a recent study of lowland areas in Bolivia found that while about 3 million hectares of forest were lost between 1990 to 2004, almost half of that deforestation occurred in the last four years of that time frame.[141] This information raises questions on the project's emission reduction claims, specifically with regard to both leakage and additionality.

Since there does not appear to have been any stringent, ongoing real world monitoring program for potential leakage from NKCAP, one can only speculate as to the extent to which the project has been successful in actually reducing overall deforestation and degradation emissions. One could argue that Bolivia's national deforestation emissions would have been even higher in the absence of the project, but such discussions quickly devolve into a game of "what ifs," generating serious questions not only about the accuracy of the reported emissions reductions, but also the additionality of the project as a whole (see section below). Given the problems identified with the methodologies for the establishment of baselines and accounting for leakage from NKCAP, it seems impossible to determine whether the project resulted in real, measurable, quantifiable, and verifiable emission reductions.

The problems of demonstrating additionality would be significantly reduced by requiring national-level REDD. Countries would receive financial and other incentives for reducing their emissions relative to a national baseline, which would be based on information currently available on national deforestation rates dating back to 1990.[142] Continued payments would be made based on a countries progress towards halting deforestation by an agreed upon date.[143] As progress is made from national historical deforestation rates towards a halting of deforestation the question of what "would have occurred" becomes subsumed by the longstanding protection of forests at the national level.

4. Are the Emission Reductions from Noel Kempff Permanent?

"Emissions from forests are irreversible."

(Anna Lehmann, Chair, Carbon Markets and Investors Association's (CMIA) (2008))[144]

A fundamental requirement for the success and credibility of REDD offset projects is that emissions reductions are permanent, i.e., that the avoided CO_2 emissions are kept out of the atmosphere for an amount of time comparable with how long the fossil fuel emissions the project is designed to offset interfere with the climate. Were this not the case, greenhouse gas emissions in the atmosphere would rise because, in addition to the extra fossil fuel emissions, the carbon stored in the REDD offset project would eventually be released and also end up in the atmosphere alongside the fossil carbon they were meant to offset. Despite the importance of ensuring permanence of emission reductions where they justify additional fossil fuel emissions, there is little evidence that NKCAP can guarantee emissions reductions over time.

Despite the fact that NKCAP is part of a scheme of protected areas within Bolivia, threats to the permanence of the park are numerous. FAN's submission to the UNFCCC on REDD[145] and Bolivia's recent R-PIN[146] both highlight the country's "high deforestation rates [of] around 250,000 ha /year." Both list forest fires as one of Bolivia's principle drivers of deforestation,[147] adding to the risk of change in vegetation cover in the years to come,[148] e.g., from drought, forest die back, pest infestation, disease, political turnover.[149] These risks mean that the CO_2 supposedly sequestered or locked up for good in the project area may eventually be released into the atmosphere.

If a company such as AEP, Pacificorp or BP had already used the carbon stored in a forest to offset their emissions at home, in the event of a forest fire or other occurrence mentioned above, that CO_2 will be released, resulting in twice the volume of CO_2 in the atmosphere.

Although NKCAP's partners set up a $1.5 million endowment fund to insure the project's longevity and therefore its "financial permanence,"[150] Greenpeace has been unable to find evidence of a carbon reserve or buffer fund beyond a 5% discount factor which was subtracted off the volume of forest carbon stocks in order to compensate for the risk that CO_2 emissions may occur from possible future fires.[151]

Such reserves are commonly used and discussed among REDD proponents today. Carbon reserves act as insurance against inherent and unforeseen circumstances such as deforestation, fires, drought, die back or disease, that result in the release of CO_2 emissions. These unforeseen changes in vegetation cover pose an intrinsic risk that carbon sequestration will not be permanent, making it common practise to put anywhere from 20-60% of the project's carbon offsets into a reserve.

Two other actions cast further doubt on the prospect that the avoided carbon emissions claimed by NKCAP's partners will be permanent. First, although the risk of leakage is ongoing, the project partners have argued that "it is unreasonable to expect" the project to be the cause of leakage after a given period of time, and suggest limiting their liability for releases to 10 years.[152] Second, the ability to monitor leakage from the indemnified concessionaires formerly in the project area was reliant upon tracking the expenditures of the owners of the concessions.[153] However, the contracted requirement to provide data on the purchase of new concessions was limited to a term of five years (which has since expired).[154]

5. Community Benefits

"We only found out two months ago about the contract and we tried to renegotiate the term but now we just want it to be cancelled."

(Victor Hugo Vela, indigenous peoples representatives of the Chiquotano tribe and head of the Coordinating Body of Indigenous Organisations of Bolivia, (2009))[155]

The second objective of NKCAP was to enable the affected communities to develop sustainably once they had stopped logging. However, there appear to be large disparities

Medical centre and portable water facilities in Florida. The NKCAP was supposed to have provided these services, however our informants claim that these were rather provided by the local municipial

between the claims of the project investors and the local communities regarding the outcomes of these efforts.

Conflicts with local communities began early on. The Project Design Document states that "a formal consultation of communities before the project implementation was not done"[156] and that the communities rejected the proposed expansion of the Park into the Climate Action Project.[157] This precipitated the creation of the Central Indígena Bajo Paraguá (CIBAPA),[158] a federation of communities and peoples within the buffer zone, and the *Comite de Gestion* (Management Committee), a local forum comprising of CIBAPA, the local municipality, FAN, SERNAP,[159] and project managers in order to discuss issues surrounding the project.

Despite this, SGS declined to certify any carbon offsets in 2004 because a socio-economic assessment had not been carried out.[160] When one eventually took place in 2005, it identified negative impacts engendered by the project including: "loss of access to the resources, no abatement on the use of fauna for hunting, loss of transport and road infrastructure, and the loss of income from employment and services provided by the Moira sawmill."[161] This assessment further highlighted the fact that the creation of a "new action plan" that set targets, timetables, and indicators to be monitored had not yet been created.

Local communities informed Greenpeace of a meeting held by the Management Committee of the Project *(Comite de Gestion)*[162] on June 27, 2009. At this meeting, the projects partners and the role of carbon offsets were described to members of the local communities.[163] This was the first time that many community members were presented with this information — despite the fact that the project had been in operation for over a decade.

A Dispute of Facts

In 2001, AEP and its partners asserted in front of US Congress that the project had significantly benefited[164] local communities by establishing revolving loan funds for micro-enterprises (e.g., heart-of-palm plantings, agro forestry projects, animal husbandry, and bee keeping), to compensate — for the loss of jobs and tax revenue from the terminated logging concessions.[165] AEP continues to make many of these claims.[166] However, one community member we spoke to discredited these assertions.

> **No, the Noel Kempff project has not initiated any micro credit projects. The only palmito plantation in the area belonged to a private owner until a few years ago, when the CIBAPA President[167] bought the plantation [with no benefits to the communities]. The Noel Kempff project did not help us with palmito plantations here in the TCO.[168] . . . Noel Kempff has not brought any benefits to the communities . . . there is nothing here . . . this is why the Noel Kempff project has been negative for us.[169]**

Further, local community members we interviewed spoke of ineffective attempts by NKCAP administrators to provide alternate livelihoods, trainings, and new skills. For example, one community member revealed that

> **"APOCOM[170] bought a herd of cows for the community, but they bought the wrong breed — a European breed that could not survive in this type of [tropical] environment. They all died in the end. The cows were so expensive that a whole herd of local breeds could have been bought for the price of a single one."[171]**
>
> **With regards to the agro-forest projects, "they only provided technical help for a couple of days, and after that no more capacity was given to us or any money to actually buy the seeds or animals to initiate the projects."[172]**

AEP also testified in 2001 that the project partners had provided funding for other things such as the repairing of roads and bridges, improving schools and healthcare, as well as installing portable water supplies.[173] Although FAN claims that the project did provide support in terms of the construction of schools and medical centres, the community member we spoke to told us otherwise.

> **"The Noel Kempff project has not helped us to construct the community's [Florida] school, medical centre and the potable water, or maintained the road coming into Florida. This was done by the municipal in San Ignacio. The Noel Kempff project only helped [through FAN] with refurbishing the roof of the school, that is all. . . . . [T]the roads are in ruin, as you can see here...the Noel Kempff project was supposed to maintain the roads so that the people living here and tourists could easily access the communities. Now it is impossible. And there are very few tourists that come now since they cannot travel here." [174]**

A neglected road inside the park

Lack of Oversight & Failed Initiatives

FAN had day-to-day administrative responsibility for NKCAP until 2006. Since then, the Bolivian Protected Areas National Service (SERNAP) has had responsibility for the project and the park.[175] However, Greenpeace has obtained a leaked contract between SERNAP and FAN signed on 24 June 2009, which established the cooperation of FAN and SERNAP over the future administration of Bolivian National Protected Areas (such as NKCAP). This means that officially, the project has been left unattended and without a day-to-day manager for over three years — something that was confirmed by community members, park guards, and personnel at the Noel Kempff Museum.[176] This perhaps partly explains the following.

AEP testified in front of US Congress in 2001 that they had invested in "an ecotourism destination in the Park, complete with lodging facilities and a visitor center," in aid of the project's long-term protection.[177] This venture was overseen and run by FAN.[178] Our investigation in Bolivia revealed that although the ecotourism venture was started in two locations and lodges were built, they have rarely been used in the last few years, partly due to the state of the roads. Since FAN lost oversight responsibilities in 2006, buildings have fallen into disrepair.[179]

AEP has also claimed in front of US Congress to have made "investments in for-profit Bolivian companies that produce and sell organic, sustainably produced foods," as well as investments in the discovery and genetic reproduction of new species of flora and fauna.[180] Our research revealed the former existence of "Canopy Botanicals SRL,", a private venture company that was set up to fund the ecotourism project — and earn additional returns for NKCAP and its investors. Original projections estimated annual income from Canopy of as much as $300,000.[181] However, Canopy Botanicals has since been dissolved.[182] Furthermore, a proposed research and bio-prospecting company "Canopy Pharmaceuticals"[183] appears never to have materialised.

6. The Money Trail

"These are some of the cheapest credits the world will ever know."

(American Electric Power, (2000))[184]

"The expectation is that the credits [from Noel Kempff] will become marketable on commodity exchanges in the next few years, although no trading structure yet exists. When this happens, the companies may realise a tidy profit."

(Birchard, 2000)[185]

"The Bolivian project…could save AEP billions of dollars in pollution controls if international agreement is reached on a treaty to prevent global warming…It's very significant and it's very inexpensive, in comparison to other alternatives for reducing carbon dioxide emissions within our own system."

(American Electric Power (2000))[186]

Sub-national REDD projects such as Noel Kempff would allow some of the dirtiest companies on the planet to pollute at "business as usual" levels for a very cheap price.[187] This is no secret. In 2000, AEP reported that it invested in Bolivia because it would be seven times cheaper to purchase such offsets than to reduce their own emissions.[188]

Table 2. **Noel Kempff reported emissions savings to the US Department of Energy's 1605b voluntary reporting of GHG emissions reductions programme**

Year	NKCAP Reported emission reduction figures as submitted to the US DOE 1605b voluntary reporting of emissions reductions programme	Cumulative total (tonnes CO_2) (Yearly reported figures added together from 1997-2004)
1997	1 million metric tonnes of CO_2 reported as avoided by the 3 energy company partners.	1 million
1998	Unable to locate a figure but using the average of 1997 and 1999 gives a total of 1.35 million.	~2.35 million
1999	1.77 million metric tonnes of CO_2 reported as avoided by AEP and Pacificorp on their shares in Noel Kempff.	4.12 million
2000	1.88 million metric tonnes of CO_2 reported as avoided by the 3 energy company partners.	6 million
2001	803,484 metric tonnes of CO_2 reported as avoided by AEP and Pacificorp.	6.8 million
2002	211,272 metric tonnes of CO_2 reported as avoided by AEP and Pacificorp.	7.01 million
2003	243,660 metric tonnes of CO_2 reported as avoided by the 3 energy company partners on their shares in Noel Kempff.	7.25 million
2004	180,000 metric tonnes of CO_2 reported as avoided by AEP and Pacificorp on their shares in Noel Kempff.	7.43 million (already way over the "up to" 5.8 million they predict for the 30 years of the project)

The estimated carbon benefits of the NKCAP have been reduced by 90% since 1997. Had they allocated their offset shares already, AEP, Pacificorp, and BP would have been operating their day-to-day business on the false assumption that the project was offsetting a much larger amount of CO_2 than it was.[189] In 2005, SGS verified that the project had offset only about 1 million metric tonnes of CO_2 in the years it had been operating.[190]

The figures reported to the US Department of Energy's 1605b program over a 7 year period (1997-2004) for AEP, Pacificorp, and BP's carbon shares in NKCAP (see table 2. page 14) total about 7.4 million tonnes of CO_2 for this period. This is far greater than the amount verified by SGS for the entire 30-year lifespan of the project (5.8 million tonnes CO_2).[191] This means that the NKCAP investors may have claimed millions of tonnes of CO_2 emissions reductions that never occurred. If such carbon offsets had been used in a regulatory, rather than a voluntary carbon regime, such claims would not only be greenwash, they could have led to an overall increase in global greenhouse gas emissions by — allowing regulated facilities to utilise government sanctioned offsets of questionable value instead of reducing their own emissions.

As a member of the Chicago Climate Exchange (CCX), AEP committed to reduce or offset 4% of its total greenhouse gas emissions between 2003-2006. Through this commitment, the company expects to reduce or offset an estimated 18 million tonnes of carbon dioxide emissions.[192] AEP reports that through its forestry/ terrestrial sequestration activities such as its investment in NKCAP,[193] it has made "substantial greenhouse gas reductions." AEP reports that the total volume sequestered by these projects is 18 million tonnes of CO_2.[194]

Financial Risks to the Public

> **"Climate change mitigation legislation will happen, even as the scientific community debates the timing and magnitude of climate change. The driving force will not be the politics, but the finance. Powerful financial market participants are swinging into place behind it, whatever their politics."**
>
> (Talking about Noel Kempff – Jeremy Weinstein, lawyer for Pacificorp, (2000))[195]

Voluntary carbon markets more than doubled in value between 2007 and 2008 totalling $705 million in 2008 with 123 million tonnes.[196] Over the same time period, the compliance market of the EU ETS increased in value by 87%, from $49 billion to $92 billion. Added together, this means that the total value of carbon markets doubled from $63 billion in 2007 to $126 billion in 2008.[197]

By 2020, this market is forecast to be worth $2-3 trillion,[198] with a large percentage of this trade occurring among brokers and traders who will be moving the same offset credit back and forth depending on carbon price forecasts.[199] Already this form of "secondary" trading is outstripping the direct exchange of the credits between offset projects and the final user of the credit. With a further increase in secondary trading, the volume of the trade increasingly becomes a poor indication for the volume of actual emissions achieved: the same credit or permit will be traded back and forth multiple times, resulting in the volume of trading increasing without a corresponding increase in emissions cuts, and corresponding atmospheric benefits.

Given the size and value of these markets, the increasing use of carbon derivatives and speculative trading, and the lessons learned from the financial crash, the potential risks of low quality REDD project offsets should be apparent. Had NKCAP offsets been traded as part of a compliance market in 1997, on the basis of a 55 million CO_2 tonnes claim, a significant disruption would have occurred following the downwards revision of the emissions reduction estimate of the project, from about 55 million tonnes of CO_2 to "up to" 5.8 million tonnes. If traded on a large scale, sub-national REDD offsets could undermine the integrity of carbon markets, creating grave implications for the climate, economies, government budgets, and taxpayers.

Carbon Prices: Then versus Now

Greenpeace has analysed the data and the figures surrounding the investments of AEP, Pacificorp, and BP, and the results are revealing. In 1997, the power companies made their investments based on the belief that they were purchasing a tonne of CO_2 at about $0.20, the equivalent of five tonnes of CO_2 per dollar.[200] Economists at the time forecast these tonnes of CO_2 could expect to sell for between $15-175 per tonne, providing profits between 75-875 times the original investments.

In 2009, AEP reported that the cost per tonne of the CO_2 was actually higher than anticipated ($7.60 per tonne CO_2), primarily due to the costs of the carbon monitoring measures.[201] On the basis of these figures, had they been used in regulatory markets, the partners' project investments potentially could have yielded profits of almost 300% (based on current compliance market prices).[202] However, given the significantly lower prices found on the voluntary markets, the investor's current investments into NKCAP may result in financial losses.[203]

This demonstrates the powerful incentive to minimise implementation costs for REDD offset projects. As more money is spent on actual monitoring, community benefits, biodiversity protection, and other safeguards, the cost of the offsets rise and potential profits decline. If the Clean Energy Jobs and American Power Act, were to become law, it could create a strong incentive to deliver poor-quality, but profitable, REDD offsets to a rapidly expanding carbon market.

Proposed US climate legislation would allow for a maximum of two billion tonnes of offsets per year for US polluters to use in place of reducing their own emissions, 75% of which may be from international sources. REDD offsets are the only offsets described in detail in the bill, and they are also the principle source of offsets for the Strategic Reserve — a mechanism designed to keep carbon costs low.

When speaking of effects that 2 billion tonnes of offsets will have on industry, Rick Boucher, a Congressman from Virginia, said that an **"...electric utility burning coal will not have to reduce the emissions at the plant site. It can just keep burning coal."** The Congressional Budget Office (CBO), which evaluates legislation for the US Congress, estimates that if the offsets in ACES are fully exploited, the US will only begin to reduce emissions in 2018.[204]

Banking Offsets

In anticipation of limitations being placed on their emissions, companies such as AEP, PacifiCorp, and BP, as well as others, have been able to create a kind of "carbon bank" of offsets. Under the proposed ACES rules, companies will be able to use these banked credits, which they obtained at relatively cheap prices, instead of, or in addition to, the emission allowances allocated to them under the program.

This has two advantages for the companies: where they received the emission allowances (or permits) free of charge (such as under the EU Emissions Trading Scheme), they can use cheap offsets to meet their emissions reduction requirements and sell the excess emission allowances they received for free under the cap and trade scheme at a profit, as these allowances trade at a higher value than offsets. Alternatively, if the company's allocated allowances are not sufficient to cover its emissions, it can use these banked offsets to exceed the emissions limit — the cap — while still claiming compliance with the emissions limit.

As a result, the largest carbon emitters not only could use sub-national REDD offsets to continue polluting at business as usual levels, but actually stand to reap large windfall profits for their investment in such projects. There is therefore a massive financial incentive for project investors to have projects currently limited to the voluntary carbon markets sanctioned by governments for trade on current and future regulatory markets. While the current price of carbon on the voluntary markets hovers at less than $0.20 per tonne of CO_2 equivalent, allowances on the regulatory markets are trading for about $20 per unit.[205]

7. Conclusions from Research and Investigation into NKCAP

As a result of their inherent deficiencies, sub-national offsets for REDD do not constitute a legitimate climate mitigation practice, and in fact, could harm the global effort to reduce emissions. Although NKCAP has been hailed as a successful model for sub-national offset projects, a careful analysis of the documentation relating to the project, combined with on-the-ground interviews and research, indicates that the project has failed to meet its own claims to properly monitor and account for leakage, prove additionality, and guarantee its permanence for the foreseeable future. Despite over $10 million in financing and 12 years of operation, the model for sub-national REDD offsets has yet to produce real, measurable, reportable, and verifiable emission reductions.

Should the UNFCCC or US Congress allow sub-national REDD offsets into the compliance markets, the result would be a government-sanctioned use of offsets of highly questionable value.[206] These offsets likely would not have provided the quantifiable emission reductions anticipated under the existing emissions cap, and a strong argument can be made that they would have increased global greenhouse gas emissions by allowing a company (such as AEP) to continue to pollute while purchasing offsets which cannot be depended upon to provide real emission reductions.[207]

8. Greenpeace policy recommendations

Deforestation and forest degradation are costing the world's economy $ 2 to 5 trillion per year in losses of biodiversity and ecosystem services — more than Wall Street lost during the current financial crisis.[208] Across all tropical forests, more than one million hectares are lost each month, resulting in the release of more greenhouse gas than the monthly emissions of the entire European Union.

In order to give the world the best chance to keep global temperature rise as far below 2°C as possible, Greenpeace is calling on countries to commit to the goal of ending deforestation globally by 2020. To achieve this goal, world leaders must agree at the Copenhagen climate conference in December 2009 to create a new global fund for forests. This fund should be based primarily on financing raised through the auctioning of emission allowances in the amount of $40 billion per year to protect the world's remaining tropical forests by 2020. We estimate that the US contribution to the fund to be about $16 billion per year — less than the government has given to a single company, AIG, in the last ten months ($173 billion). The EU contribution is estimated at approximately $14 billion per year. Given the estimated costs of climate change,[209] quick and equitable action on deforestation would save taxpayers significant climate-related costs in the future.

1) National Level Actions to Achieve Zero Deforestation

Greenpeace believes that each country should do its fair share in combating global climate change and that approaches are needed that reduce transaction costs, ensure the integrity of baselines, and prevent the problem of leakage, non-additionality, and impermanence.

Therefore, we urge countries to support REDD mechanisms with national accounting for emissions and where policies and approaches are coordinated at the national level. In countries that lack significant national capacities, sub-national activities could be directly financed through a forest fund based on public and market-link financing (such as the auctioning of emission allowanced, rather than financed through questionable carbon offset schemes through carbon markets. While such financing may be defensible when projects have objectives in addition to emission reductions, such as biodiversity protection, they are not when the objective is global climate protection. National-level emissions should be the starting point for any discussion on offsets relating to REDD — project and sub-national approaches which generate offsets (even if time-limited) via carbon markets should in no circumstances play a role in global regulatory efforts to address global climate change.

At the last UNFCCC Conference of Parties (in Poznan), tropical forest countries like Brazil, Indonesia, the Democratic Republic of the Congo, Papua New Guinea (PNG), and others signalled a strong consensus and willingness to make national-level approaches to REDD.[210] Yet, in some cases, industrialised countries are ironically demanding less of developing countries on climate change than developing countries are demanding of themselves. The current American Clean Energy and Security Act (ACES) bill before the US Senate would allow sub-national offsets in developing countries, essentially allowing certain countries to set up small parks rather than taking actions to protect their forests nationwide.[211]

2) A Global Problem Demands a Global Solution

Greenpeace believes that the urgency of the climate change crisis demands that emissions from deforestation be addressed quickly and equitably with the goal of halting gross emissions from deforestation by 2020. It is our firm belief that a new forest fund adopted to achieve this goal, based on agreements among developed and developing countries, is most likely to provide effective, long-term forest protection, which in turn will provide the global community the most cost-effective means of addressing deforestation. Funding should be directed to countries whose actions demonstrate a commitment to ending destructive forest practices and the long-term protection of biodiversity values, while fully respecting the rights of indigenous peoples and local communities. Such agreements between developed and developing countries could more easily be adopted within the confines of a forest fund, and would be difficult to address through the carbon markets.

At the UNFCCC Conference in Copenhagen (December 2009), countries should create and immediately operationalise a new global fund for forests. A fund could get more countries with tropical forests involved more quickly — than an approach based on offsets in the carbon markets.[212] Approaches and agreements could be made with countries as diverse as Brazil, the Democratic Republic of the Congo, and Indonesia. Developed countries would avoid the inefficiencies that would come with each country creating its own rules while also guaranteeing a certain minimal standard for all REDD activities. Furthermore, a fund could provide payment for the incremental costs achieving REDD, which could be close to the actual costs of achieving those reductions. Whereas a recent report on the economics of REDD offsets found that the separation between the cost of REDD and the carbon market clearing price could be as high as 600%, leading to the inefficient expenditure of limited mitigation financing.[213]

3) The 2°C Goal: Avoiding Catastrophe for the Climate and the Forests

To avoid catastrophic climate change, global temperature rise must be kept as far below 2°C as possible.[214] The IPCC has found that reductions by Annex I countries in the range of 25-40% by 2020 (from 1990 levels) are necessary merely to keep global temperature rise to between 2.0-2.4°C. Yet, Greenpeace has found that the currently stated targets of developed countries amount to only a 11-17% reduction at best. The inclusion of REDD offsets in the carbon markets would do nothing to bridge the gap between the currently stated targets and the magnitude of reductions demanded by the science.[215]

According to recent modelling by the Met Office Hadley Centre (UK), the probability of irreversibly losing much of the Amazon forest to climate-related impact increases dramatically above a 2°C rise in temperature.[216] The creation of a new global fund for forests to provide reductions that are additional to domestic actions could achieve reductions up to and beyond the IPCC range. To save the climate we must protect the forests. And to save the forests; we must protect the climate.

4) Protection of Indigenous Rights and Biodiversity

A REDD mechanism must ensure that benefits are equitably shared both among and within countries, and reach those whose livelihoods depend on these forests. It should prioritise the protection of intact natural forests (which store more carbon and are more resilient to climate change) and prevent perverse incentives such as the conversion of forests into plantations which hold less carbon and biodiversity than natural forests, and are less resilient to the impacts of climate change). This requires an approach that can actively promote both carbon and biodiversity values, while fully respecting the rights of local and indigenous peoples. Studies of project-based market mechanisms such as the Clean Development Mechanism, demonstrate that they have little regard for values other than carbon.[217] The oversight that would accompany a fund should be expected to better ensure that biodiversity and indigenous peoples' rights are properly considered and promoted.

END NOTES

1 *H. Select Comm. on Energy Indep. and Global Warming,* 110th Cong. 7 (February 14, 2008) (Testimony of Stephanie Meeks, Acting President and CEO, The Nature Conservancy) [hereinafter "Meeks Testimony"], available at <http://globalwarming.house.gov/tools/assets/files/0347.pdf>

2 Brown, S., *Land Use and Forests, Carbon Monitoring, and Global Change, Cooperative Agreement between Winrock International and the EPA (ID# CR 827293-01-0), Product 10, Report of leakage analysis for the Noel Kempff averted deforestation component,* Winrock International May 2002 [hereinafter "Brown Leakage Report"], at 7-8, 15. <http://www.winrock.org/ecosystems/files/Product%2010%20leakage%20Noel%20Kempff.pdf>

3 Carbon-trading market hit by UN suspension of clean-energy auditor, The Times, Danny Fortson, Georgia Warren (13 Sept. 2009). ("The legitimacy of the $100 billion (£60 billion) carbon-trading market has been called into question after the world's largest auditor of clean-energy projects was suspended by United Nations inspectors. SGS UK had its accreditation suspended last week after it was unable to prove its staff had properly vetted projects that were then approved for the carbon-trading scheme, or even that they were qualified to do so."); Carbon market under fire as UN suspends British CDM project accreditor (James Murray, BusinessGreen, 14 Sep 2009).

4 Winrock International (2002). *Analysis of Leakage, Baselines and Carbon Benefits for the Noel Kempff Climate Action Project* (hereinafter "Winrock Leakage Analysis"), at 31-32, available at <http://conserveonline.org/library/Noel_Kempff_report.doc/view.html>

5 See, for example, the Ministerial Declaration on REDD produced on 12 December 2008, following the UNFCCC Conference held in Poznan, Poland. Drawn up at the initiative of the United Kingdom, it is a joint-statement that sets out what both rainforest countries and the international community should be working towards in order to protect tropical forests. According to the EC Press Release, The developing countries involved show their willingness to develop national REDD strategies in cooperation with relevant stakeholders, including indigenous peoples, other civil society groups and the private sector. Establishing national systems for monitoring, reporting and verifying emissions and emission cuts will be vital in order to produce credible results." Press Release, *Climate change: Commission endorses Poznan declaration on reducing emissions from deforestation,* December 12, 2008, available at <http://europa.eu/rapid/pressReleasesAction.do?reference=IP/08/1965>. The content of the joint ministerial statement is fully in line with the EU Commission's strategy for REDD, presented on 17 October 2008 and endorsed by the Council of EU Environment Ministers on 4 December 2008. *Id*.

6 In a letter to shareholders in its 2004 annual report, AEP's chairman claimed that the company was an "industry leader in addressing global climate change," and the company asserts that it is a "steward of the environment." AEP IRRC Greenhouse Gas Profile, *supra* note 6, at 2, 3, retrieved from the AEP website on October 2, 2009, available at <www.aep.com/environmental/reports/docs/AEP_IRRC_Profile.pdf>. The company publically committed to reducing/offsetting its greenhouse gas emissions by 10% (or 18 million tonnes of CO_2) between 2003 and 2006, through its voluntary membership of the Chicago Climate Exchange — a goal reinforced by its participation in the US Department of Energy's voluntary reduction of greenhouse gas emissions 1605b programme, and Climate Challenge Programme. Id. at 3. AEP reports that between 1991 and 2002, it made registered avoided emissions of 22,200,000 tonnes of CO_2, and by 2010, the company expects to have avoided emissions of 46,000,000 tonnes of CO_2 – through the purchase of emission reduction credits, amongst other measures. *Id.* at 4. It lists its investment in Noel Kempff (as well as other projects) as part of the company's forestry activities to reduce CO_2 concentrations in the atmosphere — and that more than 20 million tonnes of CO_2 will be offset over 40 years as a result. *Id.* at p 7. Internal company documents reveal that "international forestry offsets will be used towards AEP's voluntary reduction goals" and that Noel Kempff is one of these international projects. Bruce Braine, *AEP's International Forestry Project Experiences* [powerpoint slides] [hereinafter "Braine Forestry Project Experiences Presentation"], at slide 2, 4, retrieved from Electric Power Research Institute's website on October 2, 2009, available at <http://mydocs.epri.com/docs/PublicMeetingMaterials/0905/4SNGEB5QK69/E232009_Braine_REDD_EPRI_Offsets_W5_Final.pdf> Further AEP's Corporate Sustainability report (2009) at 20, reports that "The international forestry projects undertaken to offset our carbon emissions are located in biodiversity "hot spots," such as Bolivia.." <http://www.aep.com/citizenship/crreport/docs/CS_Report_2009_web.pdf>

7 The Clean Energy Jobs and American Power Act (Kerry-Boxer, 30 Sept. 2009), at <http://www.epw.senate.gov/public/index.cfm?FuseAction=PressRoom.PressReleases&ContentRecord_id=0C00344C-802A-23AD-4F4D-EDB0C9408D2E>; see also Congressional Budget Office Cost Estimate: H.R. 2454 American Clean Energy and Security Act of 2009, CBO, June 5, 2009, at <http://www.cbo.gov/ftpdocs/102xx/doc10262/hr2454.pdf>; Jesse Jenkins, Climate Bill Analysis, Part 12: CBO Projects Waxman-Markey Would Cut Cumulative Emissions by Just 2% through 2020, Breakthrough Institute, June 15, 2009 at <http://thebreakthrough.org/blog/2009/06/climate_bill_analysis_part_xii.shtml>

8 See, for example, TNC policy advisor Rane Cortez's blog on reducing emissions from deforestation — describing Noel Kempff as the "first and best known REDD project in the world." <http://blog.nature.org/2009/08/what-do-conservation-and-policy-have-to-do-with-each-other/>, (last visited on Oct. 1, 2009).

9 *Carbon Sequestration: Measurements and Benefits Hearing Before the S. Subcomm. on Sci. Tech., and Space of the Comm. on Commerce, Sci., and Transp.,* 107 Cong. 5 (2001) [hereinafter "Carbon Sequestration Hearing"], (testimony of Heydlauff, Dale E., Senior Vice President for Environmental Affairs, American Electric Power Company), available at <http://bulk.resource.org/gpo.gov/hearings/107s/88841.pdf>.

10 FAN Document "The Noel Kempff Mercado Climate Action Project", page 3. (See Noel Kempff Reference Documents).

11 Winrock Leakage Analysis, *supra* note 4, at 28, ("to secure rights to the gains in carbon arising from [the] 634,286 hectare expansion") (last visited October 2, 2009); "Seeing REDD: Reducing Emissions and Conserving Biodiversity by Avoiding Deforestation, IUCN, UNEP, slide 5. ("*Offsets awarded to the Bolivian Government to be sold on Chicago Climate Exchange*") <http://www.yale.edu/istf/pres08/peterson.pdf>

12 FAN Bolivia, *The Noel Kempff Climate Action Project: Challenges for project based approaches in future REDD schemes,* July 29-August 3, 2007 [powerpoint slides], at slide 12, retrieved from the BFN website on October 2, 2007, available at <http://www.bfn.de/fileadmin/MDB/documents/ina/vortraege/22_FAN_Noel_Kempff-Seifert-Grenzin.pdf>

13 For a further breakdown and chart, see Marshall, S., *The Nature Conservancy Conservation Learning Exchange,* Oct. 15, 2008 [powerpoint slides], at slide 46, retrieved on October 2, 2009 from the Conservation Learning Exchange website, available at <http://conexmeeting.org/ht/a/GetDocumentAction/i/1927>

14 Data from the Center for Responsive Politics, available at (www.opensecrets.org) <http://www.opensecrets.org/lobby/indusclient.php?year=2008&lname=E08&id>

15 Data from the Center for Responsive Politics (www.opensecrets.org) <http://www.opensecrets.org/lobby/clientsum.php?lname=American+Electric+Power&year=2008>

16 Sidley Austin LLP website: <http://www.sidley.com/climatechange/>

17 Van Ness Feldman website: <http://www.vnf.com/practices-41.html>

18 Data from the Center for Responsive Politics (www.opensecrets.org) <http://www.opensecrets.org/lobby/top.php?showYear=2009&indexType=s>

19 A business association that advocates and lobbies on behalf of shareholder owned electric company members before Congress, federal and state regulatory agencies, the courts, and various industry organisations. EEI is also a major investor in sub-national REDD projects such as Rio Bravo in Brazil. See <http://www.eei.org/Pages/default.aspx>

20 Data from the Center for Responsive Politics (www.opensecrets.org) <http://www.opensecrets.org/lobby/top.php?showYear=a&indexType=s>

21 Data from the Center for Responsive Politics (www.opensecrets.org) <http://www.opensecrets.org/lobby/top.php?showYear=2008&indexType=i>

22 Data from the Center for Responsive Politics (www.opensecrets.org) <http://www.opensecrets.org/lobby/top.php?showYear=a&indexType=i>

23 For information see: (www.CARMA.org)

24 AEP Corporate Sustainability report, (2009) at 3: <http://www.aep.com/citizenship/crreport/docs/CS_Report_2009_web.pdf>

25 <http://www.cnn.com/2007/US/law/10/08/pollution.suit.settlement/index.html>

26 The rating applies to sites at which a dam failure would most likely cause loss of human life, but does not include an assessment of the likelihood of such an event.

27 <http://www.nytimes.com/2009/07/01/science/earth/01ash.html?_r=1&ref=us>

28 AEP Corporate Sustainability report, (2009) at 52: <http://www.aep.com/citizenship/crreport/docs/CS_Report_2009_web.pdf>

29 Data from CARMA (www.CARMA.org)

30 According to data compiled by <http://coalmoney.priceofoil.org>

31 According to data compiled by <http://www.publicintegrity.org/projects/entry/1182/>

32 BP website: <http://www.bp.com/sectiongenericarticle.do?categoryId=3&contentId=2006926>

33 BP website: <http://www.bp.com/sectiongenericarticle.do?categoryId=9004510&contentId=7008142>

34 These make up a mere 10% of the company's global production, BP website: <http://www.bp.com/sectiongenericarticle.do?categoryId=24&contentId=2000737>

35 Data from CARMA <http://carma.org/dig/show/world+company#top>

36 BP Sustainability Review (2008) at 6 under "Our Performance: <http://www.bp.com/liveassets/bp_internet/globalbp/STAGING/global_assets/e_s_assets/e_s_assets_2008/downloads/bp_sustainability_review_2008.pdf>

37 It reportedly spent $600 million on this rebranding exercise <http://www.climategreenwash.org/bp>

38 2000: <http://www.motherjones.com/politics/2001/01/ten-worst-corporations-2000> and 2005 <http://www.multinationalmonitor.org/mm2005/112005/mokhiber.html>

39 Climate Greenwash <http://www.climategreenwash.org/bp>

40 Slide 74: <http://www.bp.com/liveassets/bp_internet/globalbp/STAGING/global_assets/downloads/I/IC_bp_strategy_presentation_2008_slides.pdf>

41 *Id* at side 71:

42 Described as such by the Center for Responsive Politics (www.opensecrests.org) <http://www.opensecrets.org/orgs/list.php>

43 Data from the Center for Responsive Politics (www.opensecrets.org) <http://www.opensecrets.org/lobby/clientsum.php?year=2008&lname=BP&id>

44 Data from the Center for Responsive Politics (www.opensecrets.org) <http://www.opensecrets.org/lobby/clientsum.php?lname=American+Petroleum+Institute&year=2008>

45 "Forbes, AFX News Limited, Scottish Power sells Pacificorp to Warren Buffet for 9.4 billion USD" (24 May 2005) <http://www.forbes.com/feeds/afx/2005/05/24/afx2049995.html>

46 <http://www.midamerican.com/subsidiaries1.aspx>

47 Data from CARMA (www.CARMA.org)

48 Data from CARMA <http://carma.org/dig/show/world+company#top>

49 <http://www.pacificpower.net/File/File58241.pdf>

50 <http://www.pacificpower.net/File/File58241.pdf>

51 <http://www.pacificpower.net/File/File58241.pdf>

52 Data from CARMA (www.CARMA.org)

53 Public News Service, "WYO Power Plant Pollution Suit - Push Coming to (Legal) Shove" (21 February 2007.) <http://www.publicnewsservice.org/index.php?/content/article/1613-1>

54 Environmental News Service, "Electrocuting Eagles Costs Pacificorp $10.5 Million" (14 July 2009) <http://www.ens-newswire.com/ens/jul2009/2009-07-14-092.asp>

55 Center for Responsive Politics (www.opensecrets.org)

56 Id.

57 <http://www.pacificorp.com/Navigation/Navigation3883.html>

58 Data from CARMA (www.CARMA.org)

59 S. Prt. 109-27, Appendix H, *Information Re: Emission Credits,* at 444 (2005), available at <http://www.gpo.gov/congress/senate/pdf/109cp/21035/appendix-H.pdf>

60 See SGS, *Validation and Verification Report, Programa Nacional de Cambio Climatico, Noel Kempff Climate Action Project, Summary,* Nov. 27, 2005 [hereinafter "SGS Validation Report Summary"], at 7, available at <http://portals.wi.wur.nl/files/docs/file/REDD%20bossen%20klimaat/Bolivia%20case-%20Carbon%20Certif%20SGS.pdf>

SGS is one of the world's largest auditors of "clean" energy and offset projects and is accredited under the Kyoto Protocol's Clean Development Mechanism (CDM). As of the second week in September 2009, SGS had its accreditation suspended by United Nations inspectors, after failing spot checks due to shortcomings in its verification procedures. SGS "was unable to prove its staff had properly vetted projects that were then approved for the carbon-trading scheme, or even that they were qualified to do so." Danny Fortson, Georgia Warren, *Carbon-trading market hit as UN suspends clean-energy auditor,* The Sunday Times, Sept. 13, 2009, available at <http://business.timesonline.co.uk/tol/business/industry_sectors/natural_resources/article6832259.ece>

61 See Noel Kempff website: "[T]he investors are seeking an investment return on capital through the use or sale of carbon offset credits generated." <http://www.noelkempff.com/English/Weinstein.htm>; "The NKCAP partners have found that access to the carbon market is critical for the long-term financial sustainability of the NKCAP and the long-term provision of climate, community and biodiversity benefits." TNC Submission to the United Nations Framework Convention on Climate Change regarding Reducing Emissions from Deforestation in Developing Countries (Feb. 23, 2007), FCCC/SBSTA/2006/L.25 [hereinafter "TNC RED Submission"], at 4 , available at <http://unfccc.int/resource/docs/2007/smsn/ngo/008.pdf>; "The expectation is that the credits will become marketable on commodity exchanges in the next few years, although no trading structure yet exists. When this happens, the companies may realise a tidy profit," Ingrid Roerhorst, *Potential financial instruments for PAN Parks – Examples and Ideas,* Oct. 2000 [hereinafter "Roerhorst"], at 5, available at <http://74.125.77.132/search?q=cache:SfVoAfK_obAJ:www.panparks.org/index.php%3Fname%3DOE-DocManager%26file%3Ddownload%26id%3D1963%26keret%3DN%26showheader%3DN+%22some+of+the+cheapest+credits+the+world+will+ever+know%22&cd=1&hl=en&ct=clnk&gl=uk>

62 "Accounting for early action is essential," Bruce Braine, *AEP's Perspective on GHG Accounting,* July 23, 2002 [powerpoint slides][hereinafter "Brain GHG Accounting Presentation"], at slide 18, available at <http://www.merid.org/GHGaccounting/docs/Braine,%20AEPs%20Perspective%20on%20GHG%20Accounting.pdf>; AEP is pushing to see "credit for early action" included in a cap and trade system within the United States. This may see projects like Noel Kempff included retrospectively — if the system permits such actions. *See* Avoided Deforestation Partners, *Tropical Forest-Climate Unity Agreement, Consensus Principles on International Forests for US Climate Legislation,* May 12, 2009, at principle 10 and Appendix I at 2 and 4, available at <http://adpartners.org/pdf/ADP%20Forest-Climate%20Unity%20Agreement-%205-18-09.pdf>

63 Meeks Testimony, *supra* note 1.

64 The Eliasch Review, Climate Change: Financing Global Forests (2008) [hereinafter "Eliasch Review"], at 155, available at <http://www.illegal-logging.info/uploads/Fullreporteliaschreview1.pdf>

65 The Voluntary Carbon Offset Market Inquiry, *Submission to the House of Commons Environmental Audit Committee,* Memorandum by Sustainable Forestry Management, Ltd. [hereinafter "SFM Submission"], at 13, available at <http://www.4apes.com/carbon/downloads/SFM-EAC-Voluntary-Carbon-Market-Inquiry.pdf>

66 This was a pilot program initiated in 1994 by the United States designed to evaluate different approaches to reducing emissions of greenhouse gases, and which encourages organisations in the United States (mainly private sector firms) and other countries to form partnerships to implement projects that mitigate greenhouse gas emissions and promote sustainable development. See USIJI website, <http://www.gcrio.org/usiji/index.html>. NKCAP is included on the list of current USIJI projects. <http://www.gcrio.org/usiji/projects/CurrentProjs.html>. See also GAO Report, Climate Change: Information on the US Initiative on Joint Implementation, RCED-98-154 (June 29, 1998), available at <http://www.gao.gov/products/RCED-98-154>

67 This is a programme under the UNFCCC that allows for the joint implementation of greenhouse gas mitigation projects by developed countries (and their companies) and developed/developing countries (and their companies). AIJ was intended to allow Parties to gain experience in jointly implemented project activities pursuant to Article 4.2(a) of the UNFCCC. See USIJI Uniform Reporting Document: Activities Implemented Jointly Under the Pilot Phase, Noel Kempff Climate Action Project [hereinafter "USIJI Uniform Reporting Document"], available at <http://www.gcrio.org/usiji/pdf/Bolivia-1%203-05.pdf>

68 Forestry in the CDM permits only project level afforestation and reforestation activities. Decision 5/CMP.1, Modalities and procedures for afforestation and reforestation project activities under the clean development mechanism in the first commitment period of the Kyoto Protocol, FCCC/KP/CMP/2005/8/Add.1, available at <http://cdm.unfccc.int/Reference/COPMOP/08a01.pdf#page=6>; SGS, itself a designated operational entity for validating CDM projects, carried out an assessment of the project to validate and verify its CO_2 benefits in 2005. It affirmed, "It has to be emphasised that [NKCAP] does not constitute an eligible activity under the CDM – which only allows for afforestation and reforestation — and, therefore, will not generate certified emissions reductions (CER) as recognised under the Kyoto Protocol." SGS Validation Report Summary, *supra* note 60, at 4.

69 The award was established at Harvard University to recognise outstanding effort by public and private sector organisations working together to protect the environment or preserve uniquely valuable natural resources. See Belfer Center, Kennedy School of Government, Harvard University website, <http://belfercenter.ksg.harvard.edu/project/43/environment_and_natural_resources.html?page_id=16> According to the AEP press release, NKCAP was recognised as a "prime example of how governments, non-governmental organisations and private companies can cooperate to promote sustainable development with lasting benefits for local communities and the global environment." Press Release, AEP carbon sequestration project recognised by Harvard University (April 4, 2003), available at <http://www.aep.com/Newsroom/newsreleases/?id=1010>; Press Release, Kennedy School Bestows Inaugural Roy Family Award to Bolivia-US Public-Private Partnership (March 25, 2003), available at : <http://belfercenter.ksg.harvard.edu/publication/3604/kennedy_school_bestows_inaugural_roy_family_award_to_boliviaus_publicprivate_partnership.html>

70 *Hearing Before S. Comm. on Agriculture, Nutrition and Forestry,* 107th Cong. March 29, 2001 (testimony of Gary Kaster, Manager, Forestry and Recreation Programmes, American Electric Power) [hereinafter "Kaster Testimony"], available at <http://agriculture.senate.gov/Hearings/Hearings_2001/March_29__2001/0329kas.htm>

71 SGS Validation Report Summary, *supra* note 60, at 12.

72 Real reductions are those that are easily measurable, reportable, and verifiable. Leakage (emissions displacement) refers to forest destruction halted in one part of a country being moved to another part or across an international border. Additionality refers to the need to prove that compensated reductions would not have occurred in the absence of the rewarded activity. Permanence refers to the need for emission reductions to be permanent, not temporary. This is especially problematic for forest carbon offsets due to the possible release of the carbon stored or sequestered as a result of the project activity (i.e., avoided deforestation) that may occur as a result of human or natural disturbances (fires, disease, pests or even climate change). A major issue with permanence is who should be liable (buyer, seller, joint, other) in the event that the forest is later destroyed. Any approach to REDD will have to deal with the significant problems of leakage, permanence (and liability), and baseline-setting. However, these issues are especially problematic in the case of market offset mechanisms that allow energy and industrial emissions to increase if "equivalent" reductions in forest emissions are made. For example, under a market offset mechanism, if a country's baseline is incorrectly established, it could end up generating non-additional reductions — i.e. "fake" emission reduction credits (or "hot air") — and allow an industrialised country to increase its emissions. The result is that the market offset mechanism could lead to an increase in global greenhouse gas emissions.

73 *The Tropical Forest Protection Act, Hearing on H.R. 2870 Before the H. Comm. on Int'l Relations,* 105th Cong. 42 (1998) (statement of Tia Nelson, The Nature Conservancy), available at <http://commdocs.house.gov/committees/intlrel/hfa48783.000/hfa48783_0f.htm>; *Hearing before the S. Env't and Public Works Comm.,* (March 24, 1999), (statement of Tia Nelson, The Nature Conservancy) available at <http://epw.senate.gov/107th/nel_3-24.htm>; Kaster Testimony, *supra* note 70; Carbon Sequestration Hearing, *supra* note 9, testimony of Dale Heydlauff, AEP; testimony of John Kadyszewski, Winrock International; prepared statement of Mike Coda, Director, Climate Change Program, the Nature Conservancy; FAN Submission on reducing emission from deforestation in developing countries: approaches to stimulate action, at 7 (FCCC/CP/2005/L.2), available at <http://unfccc.int/resource/docs/2006/smsn/ngo/008.pdf>; SFM Submission, *supra* note 65, at 13; TNC RED Submission, *supra* note 61, at 2-4; *Emerging Technologies and Practices for Reducing Greenhouse Gas Emissions, Hearing before the S. Env't and Public Works Comm., Subcomm. on Private Sector and Consumer Solutions to Global Warming and Wildlife Protection,* 107 Cong., May 9, 2007 (testimony of Michael W. Rencheck, AEP), available at <http://epw.senate.gov/public/index.cfm?FuseAction=Files.View&FileStore_id=0ec52e8e-4657-4612-816c-ee25a0552058>; Meeks Testimony, *supra* note 1..

74 Estimated carbon emissions reductions from NKCAP (1996-2009) (Carbon to CO_2 ratio taken as 1:3.67.)

[1996] - 14.5 million tonnes of carbon (equals 53.2 million tonnes of CO_2 over 30 years), Ecological Enterprises, Bolivian Forests to Offset Greenhouse Gas Emissions, (Dec. 9, 1996) available at <http://ces.iisc.ernet.in/hpg/envis/boldoc1210.html>;

[1997] - 18 million tonnes of carbon (equals 66 million tonnes of CO_2 over 30 years), Republic of Bolivia Ministry of Sustainable Development and Planning, et al., National Strategy Study for the Participation of Bolivia in the CDM, Executive Summary (May 2001) (hereinafter "Bolivia CDM Strategy"), at 31, available at <http://unfccc.int/resource/docs/natc/boladd3.pdf>;

[1998] - 15.8 million tonnes of carbon (equals 57.9 million tonnes of CO_2 over 30 years), <http://www.luxner.com/cgi-bin/view_article.cgi?articleID=849>; <http://rainforests.mongabay.com/10noel.htm>; <http://forests.org/archive/samerica/doubsize.htm>; *AEP Practices Energized Environmental Stewardships,* PRNewswire article, (21 April 1998) (See Noel Kempff Reference Documents)

[1999] - 15 million tonnes of carbon (equals 55 million tonnes of CO_2 over 30 years), Hearing on Voluntary Activities to Reduce the Emission of Greenhouse Gases Before Senate Comm. on Env't and Public Works, 107th Cong. (March 24, 1999) (statement of Tia Nelson, Deputy Director, Climate Change Programme, The Nature Conservancy), , available at <http://epw.senate.gov/107th/nel_3-24.htm> and USIJI Uniform Reporting Document, *supra* note 22;

[2001] - 7 million tonnes of carbon (equals 25.7 million tonnes of CO_2 over 30 years) National Energy Technology Laboratory (May 14, 2001). *Forest Conservation and Restoration as a Response to Climate Change* [Powerpoint presentation], at slide 14, retrieved from Dep't of Energy website on Oct. 2, 2009, available at <http://www.netl.doe.gov/publications/proceedings/01/carbon_seq/ps1c.pdf>;

[2001] - 14 million tonnes of carbon (equals 51.3 million tonnes of CO_2 over 30 years), Carbon Sequestration Hearings, *supra* note 9, Heydlauff testimony;

[2001] - 5.6 to 7.1 million tonnes of carbon (equals 20.5 to 26 million tonnes CO_2 over 30 years), Bolivia CDM Strategy, see above, at 31;

[2003] - 6 to 8 million tonnes of carbon (equals 18 to 24 million tonnes CO_2 over 30 years), retrieved from TNC 2003 website on Bolivia Program, Noel Kempff Mercado National Park <http://web.archive.org/web/20031004054159/http:/nature.org/wherewework/southamerica/bolivia/work/art11035.html>;

[2004] - 4.5 million tonnes of carbon (equals 16.5 million tonnes of CO_2 over 30 years), retrieved from TNC 2004 webpage on Bolivia Program, Noel Kempff Mercado National Park, available at <http://web.archive.org/web/20040430180205/http:/nature.org/wherewework/southamerica/bolivia/work/art11035.html>;

[2007] - Up to 1.6 million tonnes carbon (equals 5.8 million tonnes of CO_2 over 30 years), retrieved from TNC 2007 webpage on Noel Kempff <http://web.archive.org/web/20071017122136rn_1/www.nature.org/wherewework/southamerica/bolivia/work/art11035.html>

[Today] - Still no fixed figure: "up to 5.8 million tonnes of carbon dioxide" (equals 1.6 million tonnes of carbon over 30 years), TNC 2009 website on Bolivia Noel Kempff Mercado National Park, available at <http://www.nature.org/wherewework/southamerica/bolivia/work/art11035.html>

75 UNFCCC AIJ Report for NKCAP, Section E.3, available at <http://unfccc.int/kyoto_mechanisms/aij/activities_implemented_jointly/items/1890.php>

76 SGS, Validation Summary Report, *supra* note 60, at 16.

77 TNC webpage for Bolivia Program Noel Kempff Mercado National Park (see section entitled "What the Conservancy is Doing"), available at <http://www.nature.org/wherewework/southamerica/bolivia/work/art11035.html; > and B., Virgilio, N., *Noel Kempff Case Study: Capturing Carbon Finance,* [hereinafter "Noel Kempff Case Study"] at 2, available at: <http://www.worldwildlife.org/science/pubs/CommissionedPapers/Stanley,%20B._%20Noel%20Kempff%20Case%20Study.pdf>.

78 A/R CDM Project Design Documents for the Noel Kempff Climate Action Project (PDD_v02.03), May 17, 2006 [hereinafter "NKCAP PDD"], at 119, available at <http://conserveonline.org/workspaces/climate.change/ClimateActionProjects/NoelKempff/NKPDD>

79 See e.g. UN Food and Agricultural Organisation (FAO) Global Forest Resources Assessment 2005.

80 NKCAP PDD supra note 78 at 48-50, and 129. The projected baseline will be "adapted" in the future if deforestation in the reference area "proves to become exponentially." There is little justification for the identification and use of this reference area, other than the statement: "The reference area may differ in size and socio-economic conditions of the project area as long as it is in the same region and reflects the overall trend of the area." *Id.* at 118.

81 *Id.* at 23.

82 NKCAP PDD supra note 78 at 48-50, and 129. The projected baseline will be "adapted" in the future if deforestation in the reference area "proves to become exponentially." There is little justification for the identification and use of this reference area, other than the statement: "The reference area may differ in size and socio-economic conditions of the project area as long as it is in the same region and reflects the overall trend of the area." *Id.* at 118.

83 Schmidt, C., *Green Trees for Greenhouse Gases: A Fair Trade-Off?,* 109 Env'l Health Perspectives (No. 3) (March 2001), at A 126 (quoting Dale Heydlauff, Vice President for Environmental Affairs, AEP), available at <http://www.ehponline.org/docs/2001/109-3/spheres.pdf>

84 Winrock Leakage Analysis, *supra* note 4, at 27.

85 Eliasch Review *supra* note 64, at 113.

86 Acosta, M., Sohngen, B., *How big is leakage from forestry carbon credits? Estimates from a global model,* Ohio State University (2009), at 6, available at <http://ageconsearch.umn.edu/bitstream/49468/2/How%20big%20is%20leakage%20from%20forestry%20carbon%20credits-AAEA-Submission613055.pdf>

87 Beane, J., *et al., Forest Carbon Offsets: A Scorecard for Evaluating Project Quality* (Nov. 2008), at 2, available at <http://www.manometmaine.org/documents/ForestCarbonScorecard.pdf>

88 NKCAP PDD, *supra* note 78, at 50-51, 71-72.

89 TNC RED Submission, *supra* note 61, at 3. <http://unfccc.int/resource/docs/2007/smsn/ngo/008.pdf>

90 Meeks Testimony, *supra* note 1, at 7.

91 Winrock Leakage Analysis, *supra* note 4, at 28-29.

92 "The establishment of the NKCAP is averting land conversion activities from taking place and therefore creating a risk of 'activity shifting' or 'primary' leakage from [sic] occurring. The existing leakage prevention activities of the NKCAP are focused on the land conversion activities of the few communities surrounding the park boundary." *Id.* at 7. This study also establishes that, "in terms of identifying and tracking potential leakage, we felt that understanding the baseline drivers and agents was crucial, thus focusing activities on specific groups of people rather than on the broader issues and geographical statistics," *id.* at 27, and that in Noel Kempff, "this people based approach is the focus of the existing leakage prevention activities, for example providing alternative livelihood benefits for local communities." *Id.*

93 *Id.* at 28-29. The same study later describes secondary leakage as where "other concessionaires take advantage of the 'hole' in timber supply caused by a reduction in concession area by increasing their own production." *Id.* at 31.

94 *Id.* at 7, 20.

95 "In the few years since the establishment of the NKCAP, the largest threat of leakage associated with land conversion is from the communities living on the border of the park." *Id.* at 20. "The establishment of the NKCAP is averting land conversion activities from taking place and therefore creating a risk of 'activity shifting' or 'primary' leakage . . . ." *Id.* at 7.

96 Noel Kempff Climate Action Project, Project Design Documents (PDD_v02.03) p.118 and 129

97 *Id.* at 27. See also *id.* at 7, 20.

98 Brown Leakage Report, *supra* note 2, at 7-8, 15. ; Winrock Leakage Analysis, *supra* note 4, at 7, 23, 28. (Compare "These data show an increase in the average carbon loss per year since the establishment of the NKCAP when compared with the situation before the project," with "There is no evidence to suggest that there has been any leakage to date as a result of the averted and conversion activities." *Id.* at 21 and 28 respectively.)

99 "The most important risk of leakage is when communities continue to deforest at the same rate as before with the only difference that the deforestation is taking place outside the project area instead of inside. The area that could possibly be considered leakage is monitored in the buffer zone: a 15km wide strip next to the project area," SGS Validation Report Summary, *supra* note 60, at 11.; The Noel Kempff Climate Action Project, Project Design Documents back up this focus on leakage being caused by local communities. According to the documents, "[t]he buffer zone is the area of possible leakage. Leakage occurs when communities continue to deforest at the same rate as before the implementation of the project with the only difference that the deforestation is taking place outside the project area instead of inside." NKCAP PDD, *supra* note 78, at 118, 129.

100 NKPDD Appendix A, at 13, Annex 6 at 17, PDD at 4; Winrock Leakage Analysis, *supra* note 4, at 7, 23.

101 *See generally,* Leakage from an Avoided Deforestation Compensation Policy: Concepts, Empirical Evidence, and Corrective Policy Options, Brian C. Murray, Nicholas Institute for Environmental Policy Solutions, Duke University, NI WP 08-02 (June 2008); Estimating Leakage From Forest Carbon Sequestration Programs, by Brian C. Murray et al, Working Paper 02_06 (May 2002, RTI International).

102 See generally Helmut Geist & Eric Lambin, What Drives Tropical Deforestation? A Meta-Analysis of Proximate and Underlying Causes of Deforestation Based on Subnational Case Study Evidence (LUCC Report Series No. 4, Louvain-la-Neuve 2001); *see also* U.K. House of Commons, Environmental Audit Committee, Reducing greenhouse gas emissions from deforestation: No hope without forests (16 June 2009), at <http://www.publications.parliament.uk/pa/cm200809/cmselect/cmenvaud/30/3002.htm>

103 NKCAP PDD, *supra* note 78, at 118, 129.

104 *Id.* at 118, 119 (map of areas), and 129 (stating that leakage from communities is only monitored in three areas: "the project area, a buffer zone and a reference area."); Brown, S., and Sohngen, B., *Measuring Leakage from Carbon Projects in Open Economies: A Stop Timber Harvesting Project in Bolivia as a Case Study,* 34 Canadian Journal of Forest Research 829, 830 (2004) [hereinafter "Brown Case Study"] , available at <http://article.pubs.nrc-cnrc.gc.ca/RPAS/rpv?hm=HInit&afpf=x03-249.pdf&journal=cjfr&volume=34>

105 NKCAP PDD, *supra* note 78, at 60.

106 *Id.* at .118, 129.

107 NKCAP PDD, *supra* note 33, at.118 (119 (map of areas) and 129 (stating that leakage from communities is only monitored in three areas: "the project area, a buffer zone and a reference area."); Brown Case Study, *supra* note 104 at 830.

108 Brown Leakage Report, *supra* note 2, at 14. The document indicates that leakage will not be considered if it enters into "any areas with some form of legal title or protection," even though the atmosphere does not discriminate between leakage that encroaches onto titled or non-titled land.

109 SGS Validation Report Summary, *supra* note 60, at 4 (italics added). The initial assessment in 2004 found two major "Corrective Action Requests" (the occurrence of a single major CAR precludes verification and validation). One of the major CARs related to the socio-economic aspects of the project. *Id.* at 5.

110 *Id.* at 13 (finding that "unsustainable logging" practices had occurred as late as 2004 despite being undertaken "in the context of a sustainable community development programme.")

111 Carbon-trading market hit by UN suspension of clean-energy auditor, The Times, Danny Fortson, Georgia Warren (13 Sept. 2009). ("The legitimacy of the $100 billion (£60 billion) carbon-trading market has been called into question after the world's largest auditor of clean-energy projects was suspended by United Nations inspectors. SGS UK had its accreditation suspended last week after it was unable to prove its staff had properly vetted projects that were then approved for the carbon-trading scheme, or even that they were qualified to do so."); Carbon market under fire as UN suspends British CDM project accreditor (James Murray, BusinessGreen, 14 Sep 2009).

112 This was against the terms of their contracts that they signed with the project's partners, which required them to utilise this new practice in any future logging operations.

113 The concession is located next to a road that runs alongside the buffer zone to Piso Firme, halfway between Florida and Porvenir.

114 Interview on file with author. For details on the new law, see section on "additionality."

115 A governmental body in charge of approving and monitoring sustainable forestry management practices as well as monitoring deforestation in general, both legal and illegally. We were told by a local engineer of the San Ignacio municipality that today, this is a non-functioning aspect of the body.

116 A governmental programme to encourage colonisation of the lowlands. Interview on file with author.

117 Brown Case Study, *supra* note 104, at 830.

118 *Id.;* Winrock Leakage Analysis, *supra* note 4, at 39-40. According to this report, this activity "would likely have been undertaken regardless," which is perplexing given that it was apparently financed with funds provided by the project investors and in any event may explain their behaviour but fails to deal with the atmospheric consequences of the act on the project's overall emission reductions. The same study goes on to state that "Given the difficulties associated with collecting data to estimate leakage directly, and given the large changes in the structure of Bolivian forestry after the new law in 1996, this report will rely on a timber harvesting model that has been developed for Bolivia." *Id.* at 32.

119 Winrock Leakage Analysis, *supra* note 4, at p. 39.

120 Meeks Testimony, *supra* note 1.

121 Brown Leakage Report, *supra* note 2, at p.13.

122 "Over the longer term, it is likely that other sources of threats to the project area may become apparent…and therefore constitutes another source of potential leakage. In particular, this may be from the sporadic colonisation of the area, or from the approach of the agricultural frontier. A number of methods are proposed for trying to analyse, track and quantify this longer-term leakage." Brown Case Study, *supra* note 104, at 7. "Predicting the extent of leakage that might occur in the longer term is a difficult exercise given the range of factors that may affect land use change outside of the project area, many of which may be unrelated to the project itself." *Id.* at 24. "Given the difficulties associated with collecting data to estimate leakage directly, and given the large changes in the structure of Bolivian forestry after the new law in 1996, this report will rely on a timber harvesting model that has been developed for Bolivia" and therefore not ground based monitoring and remote sensing. Winrock Leakage Analysis, *supra* note 4, at 32.

123 NKCAP PDD, *supra* note 78, at 129-130.

124 *Id.*

125 *Id.* (citing Methodological Issues, Land Use, Land-Use Change and Forestry: Definitions and Modalities for Including Afforestation and Reforestation Activities Under Article 12 of the Kyoto Protocol (FCCC/SBSTA/2003/L.27), Annex 1(e) at 5) ("leakage is the increase in greenhouse gas emissions by sources which occurs outside the boundary of an afforestation or reforestation project activity under the CDM which is measurable and attributable to the afforestation or reforestation project activity."). The Project Design Documents cite a UNFCCC definition of leakage, which it is claimed, lends support to its determination (although the definition on its face does not establish any specific baseline for determining whether or not an increase in leakage has occurred)

126 Winrock Leakage Analysis, *supra* note 4, at 30, 40.

127 NKCAP PDD, *supra* note 78, at 128; Annex 2, at 16. . Since the dynamic optimisation model "simulates the whole timber production of Bolivia," the project design document argues that "it is reasonable to state, that this specific form of leakage is implicitly included in the calculation."

128 Winrock Leakage Analysis, *supra* note 4, at 39-40.

129 *Id.;* NKCAP PDD, *supra* note 78, at 128.

130 Noel Kempff Climate Action Project, Project Design Documents (PDD_v02.03) p.127-8 (footnote 27), p.131 and p.142-3

131 Noel Kempff Climate Action Project, Project Design Documents (PDD_v02.03) p.127-8 (footnote 27), p.131 and p.142-3

132 Noel Kempff Climate Action Project, Project Design Documents (PDD_v02.03) p.128

133 Ross W. Gorte and Jonathan L. Ramseur, Congr. Research Serv., Report for Congress, *Forest Carbon Markets: Potential and Drawbacks,* July 3, 2008, at 18, available at <http://ncseonline.org/NLE/CRSreports/08Aug/RL34560.pdf>.

134 Interview held on file with author.

135 FAN Document "The Noel Kempff Mercado Climate Action Project", page 8. (See Noel Kempff Reference Documents)

136 NKCAP PDD, *supra* note 78, at 71.

137 1996 National Forestry Law (Ley Forestal No. 1700).

138 Winrock Leakage Analysis, *supra* note 4, at 43. "[T]here would be substantial difficulties with separating the influences of the NKCAP from the dramatic changes in Bolivian forestry law that occurred in 1996. The law changed the way that concessions were granted, and the fee structure. One clear effect was a 75% reduction in the area of land under concession, from 22.5 million hectares in 1995 to 5.7 million hectares in 1997." *Id.* at 31. "[A]vailable data suggests that concession area declined dramatically (75% country-wide) after the change in timber law. Thus, it is difficult to assess fully the potential impact of the change in Bolivian timber law in 1996 on Bolivian timber market structure, and more specifically, on the concessions indemnified. Such information would be crucial for understanding the baseline harvests from the area indemnified, since both the change in law and the indemnification occurred at the same time. As discussed below, additional data collection could provide more information on the effects of the change in law in 1996, and the indemnification." *Id.* at 43.

139 *Id.* at 31-32.

140 The UN Food and Agriculture Organisation (FAO) data (Global Forest Resources Assessment (2005) and the State of the World's Forests (2005, 2003, 2001)) reports that between 1990-2000 annual percentage change in Bolivia's forest cover was -0.43%, and between 2000-2005, annual percentage change was -0.45%. Between 1990-2005, total percentage change in Bolivia's land cover was -6.46%. Available here <http://rainforests.mongabay.com/deforestation/2000/Bolivia.htm>

141 FRA (2005) (Global Forest Resource Assessment). UN Food and Agricultural Organisation (FAO), Rome, Italy. ESRI, GIS for Climate Change, Conserving Bolivia's Critical Resources, November 2008, p.7-8.

142 See e.g. UN Food and Agricultural Organisation (FAO) Global Forest Resources Assessment 2005.

143 The European Union is calling on a halt to global forest cover loss by 2030 at the latest. See European Council Conclusions on the further development of the EU position on a comprehensive post-2012 climate agreement (2 March 2009). Major NGOs have called for such action with Greenpeace calling to halt global gross deforestation by 2020 (with priority areas such as the Amazon protected by 2015); and WWF calling to halt global net deforestation by 2020.

144 Chris Lang, *The insurance industry on carbon stored in forests: "It's a regulatory asset.",* Dec. 10, 2008, retrieved from REDD-Monitor website, available at <http://www.redd-monitor.org/2008/12/10/the-insurance-industry-on-carbon-stored-in-forests/>

145 FAN Submission on reducing emission from deforestation in developing countries: approaches to stimulate action (FCCC/CP/2005/L.2)[hereinafter "FAN REDD Submission"], at 7, available at <http://unfccc.int/resource/docs/2006/smsn/ngo/008.pdf>.

146 R-PIN is the acronym for "Readiness Plan Idea Note". It is a document that governments participating in the World Bank's Forest Carbon Partnership Facility (FCPF) must produce in order to receive funding. The FCPF is a mechanism to finance REDD activities in developing countries under the auspices of the World Bank. See <http://www.forestcarbonpartnership.org/fcp/sites/forestcarbonpartnership.org/files/Bolivia_R_PIN_Annex_II_Country_Experience.pdf>

147 FAN REDD Submission, *supra* note 145, at 1; FCPC R-PIN - Annex II, Bolivia: Country Experiences, at 2, available at <http://www.forestcarbonpartnership.org/fcp/sites/forestcarbonpartnership.org/files/Bolivia_R_PIN_Annex_II_Country_Experience.pdf>

148 And the immense difficulties with which these changes can be measured and accounted for. The current 2006 IPCC Guidelines for Greenhouse Gas Inventories suggest a 60% uncertainty rate on reporting changes in carbon stocks. 2006 IPCC Guidelines for Greenhouse Gas Inventories (Simon Eggelston, et al., eds., 2006) [hereinafter "2006 IPPC GHG Inventory Guidelines"], available at <http://www.ipcc-nggip.iges.or.jp/public/2006gl/index.html>

149 This is recognised by Noel Kempff's partners, see, e.g., Noel Kempff Case Study, *supra* note 77, at 4.

150 The interest from this fund is designed to guarantee that finance will never run out.

151 The discount factor was used to account for anthropogenic fires only. Biomass carbon stocks of all types of forest were reduced by 5% to supposedly cover this risk. SGS Validation Report Summary, *supra* note 60, at 11.

152 Winrock Leakage Analysis, *supra* note 4, at 7.

153 NKCAP PDD, *supra* note 78, at 127-28, note 27, 131, and 142-43.

154 *Id.*

155 Victor Hugo Vela, indigenous peoples representative of the Chiquotano tribe and head of the Coordinating Body of Indigenous Organisations of Bolivia, speaking at a side event on REDD at the UNFCCC talks in Poznan, Poland, Feb 2009, as reported here: <http://thestar.com.my/lifestyle/story.asp?file=/2009/2/3/lifefocus/2947516&sec=lifefocus>

156 NKCAP PDD, *supra* note 78, at 168.

157 *Id.*

158 *Id.* at 4 and 12 (Central Indigena de Bajo Paragua (CIBAPA) is a group that represents the local communities surrounding the Project. It was created during the NK project process to represent the four key communities affected (Porvenir, Florida, Piso Firme and Cachuela). Its goals include using the land-title process to ensure that proceeds from future forestry activities are disbursed at community level. CIBAPA consists of a president and a vice-president elected by the communities every five years.)

159 SERNAP (Servicio Nacional de Areas Protegidas), or Bolivian Protected Areas National Service, is directly responsible for the management of about 20 national protected areas and supervises the overall system.

160 "Major CARs [corrective action requests] preclude certification . . . . One of the two major CARs related to the socio-economic aspects of the project." SGS Validation Report Summary, *supra* note 60, at 5.

161 NKCAP PDD, *supra* note 78, at Annex 6, Livelihood impact assessment: Noel Kempff Climate Action Project (NK-CAP) Bolivia, Final Report, November 2005, at 23.

162 This is a local forum set up at the start of the Project which is comprised of the local municipality, CIBAPA, FAN, SERNAP, project managers, community leaders etc who meet to discuss issues relating to Noel Kempff.

163 Twenty-six % of the government's ownership of 49% of the rights to carbon credits were supposed to be reinvested back into the Project.

164 Meeks Testimony, *supra* note 1, at 7.

165 Carbon Sequestration Hearing, *supra* note 9, Heydlauff testimony, at 6. This assertion is maintained today. See Meeks Testimony, *supra* note 1, at 7.

166 Braine Forest Project Experiences Presentation, *supra* note 6, at slide 8.

167 Central Indigena de Bajo Paragua (CIBAPA) is a group that represents the local communities surrounding the Project. It was created during the NK project process to represent the four key communities affected (Porvenir, Florida, Piso Firme and Cachuela). Its goals include using the land-title process to ensure that proceeds from future forestry activities are disbursed at community level. CIBAPA consists of a president and a vice-president elected by the communities every five years.

168 Interview on file with author. The indigenous territory Bajo Paraguá (TCO) refers to the area where the local communities applied for and subsequently obtained title to land and property rights therein, with assistance from FAN.

169 Interview on file with author. Further, an article written in 2002 claims that at least in the short term, certain sections of the local communities are financially poorer. See Nigel M. Asquith, et al., *Can forest-protection carbon projects improve rural livelihoods? Analysis of the Noel Kempff Mercado climate action project, Bolivia,* 7 Mitigation and Adaptation Strategies for Global Change (Number 4), December 2002, at 323 <http://www.naturabolivia.org/Informacion/Vargas.pdf>"

170 During FAN's 10-year oversight of Noel Kempff it managed two separate investments of $850,000, both 5 years apart, which were to provide alternate livelihoods and capacity building for the local communities. FAN created a programme called APOCOM (Apoyo Comunitario) in the first five year period, which was designed to provide services to the communities such as alternative livelihoods. The second $850,000 investment over the next five year period was also invested through the APOCOM (renamed "Programa de Desarrollo Comunitario" or PRODECOM) programme supposedly towards capacity building, administration, and technical support.

171 Interview on file with author.

172 Interview on file with author. "They" refers to the programme set up by FAN called PRODECOM (previously APOCOM).

173 Carbon Sequestration Hearing, *supra* note 9, Heydlauff testimony at 6. FAN also asserts that the project has provided the local communities with services such as schools, diesel, road maintenance, medical centers, portable water facilities, electricity, etc., but they also admit that many of the projects failed. One local community member told us that "the NK project has not helped us to construct the community's [Florida] school, medical centre and the portable water, or maintained the road coming into Florida. This was done by the municipal in San Ignacio. The NK project only helped [through FAN] with refurbishing the roof of the school, that is all." Interview held on file with author.

174 Interview held on file with author. Although ecotourism ventures were started and two lodges were built as part of the project's implementation of community benefits, they are rarely used after FAN lost its administrative responsibilities in 2006. Very few tourists have used the facilities since, and many buildings and roads have fallen into disrepair and are badly in need of maintenance. Interview on file with author.

175 The community members and park guards we spoke to were of this opinion. Interviews on file with author.

176 Interviews on file with author.

177 Carbon Sequestration Hearing, *supra* note 9, Heydlauff testimony at 6.

178 See Noel Kempff website <http//:www.noelkempff.com/English/Ecotourism.htm>

179 Video footage on file with author.

180 Carbon Sequestration Hearing, *supra* note 9, Heydlauff testimony at 6.

181 See Noel Kempff website <http://www.noelkempff.com/English/Weinstein.htm>

182 See Canopy Botanicals website: <http://jweinsteinlaw.com/Canopy%20Botanicals,%20S_R_L_,%20Products%20of%20Bolivia.htm>

183 Carbon Sequestration Hearing, *supra* note 9, Heydlauff testimony at 6; Nina Robertson & Sven Wunder, *Fresh Tracks in the Forest: Assessing Incipient Payments for Environmental Services Initiatives in Bolivia* (2005), at 19, available at <http://www.cifor.cgiar.org/pes/publications/pdf_files/BRobertson0501.pdf>.

184 Roerhorst, *supra* note 61, at 5.

185 *Id.* (citing Birchard, Bill, *A pragmatic activist: Bill Birchard meets John Sawhill, an NGO chief for whom Big Business is friend, not foe,* TOMORROW number 4, vol. IX, July-August 1999.)

186 David Lore, *Forest Project Helping AEP Offset Toxins,* Columbus Dispatch (Ohio), (May 28, 2000), (Quoting Dale Heydlauff) [Hereinafter "Offset Toxins article"] (See Noel Kempff Reference Documents)

187 Greenpeace, The Economics of 2°C and REDD in Carbon Markets, Greenpeace summary of KEA3 report: *"REDD and the effort to limit global warming to 2°C: Implications for including REDD credits in the international carbon market,"* (30 March 2009), available at <http://www.greenpeace.org/raw/content/usa/press-center/reports4/the-economics-of-2-c-and-redd.pdf>. The report's conclusions highlight the negative impacts of REDD credits. It also highlights that, "significant questions of permanence, leakage, and additionality have been raised about potential REDD credits; as well as the ability of countries to accurately measure, monitor, and report on such emissions. Issues of quality need to be addressed for any REDD mechanism to succeed, but cause significant problems when REDD is used to offset industrialised country emissions.' It concludes that 'including forest offset credits in the carbon markets would crash the price of carbon up to 75% under currently stated reduction targets."

188 Offset Toxins article, *supra* note 186.

189 See, for example, AEP's portfolio of greenhouse gas initiatives in "AEP's Strategy for Managing Climate Risks," Bruce H. Braine, *AEP's Strategy for Managing Climate Risks,* December 1, 2004, at 5 [presentation at EPA 3rd International Conference on SF6 and the Environment], available at <http://www.epa.gov/electricpower-sf6/documents/conf04_braine_paper.pdf>

190 SGS Validation Report Summary, *supra* note 60, at 16 (between 1997-2005 net carbon offsets achieved by the project totalled 989,622 tonnes CO_2).

191 *Id.* (between 1997-2026 net carbon offsets achieved by the project are estimated to total 5,836,961).

192 From a baseline of 1998-2001 average emissions. See Bruce H. Braine, Vice President, Strategic Policy Analysis, American Electric Power, "AEP's Strategy for Managing Climate Change Risks," [Hereinafter "AEP Strategy Climate Risks"] available here: <http://www.epa.gov/electricpower-sf6/documents/conf04_braine_paper.pdf>; AEP IRRC Greenhouse Gas Profile, *supra* note 6.

193 Other forestry activities in which AEP is a partner include for example: *Guaraqueçaba Climate Action Project* — this project seeks to restore and protect nearly 20,000 acres of partially degraded and/or deforested land in the tropical Atlantic rainforest of Brazil. The Project is expected to offset approximately 1 million metric tonnes of carbon over 40 years; *UtiliTree Carbon Company* — this is a consortium of 41 utilities organised by the Edison Electric Institute to invest in a portfolio of forestry projects that manage GHG emissions, particularly CO_2. AEP claims that a $3.2 million investment in eight domestic and two international projects will capture over 3 million tonnes of CO_2 over the life of these projects. See AEP Shareholder Report (2004), available at <http://www.aep.com/environmental/reports/shareholderreport/docs/FullReport.pdf>. See also AEP IRRC Greenhouse Gas Profile, *supra* note 6.

194 AEP Strategy Climate Risks, *supra* note 192, at 5.

195 Talking about Noel Kempff - Jeremy Weinstein, lawyer hired by Pacificorp in 1989 as in house counsel for venture projects like Canopy Botanicals arising from Noel Kempff. Jeremy Weinstein, *Innovative Financing and Forest Conservation,* Environmental Finance, June 2000, at 25, available at <http://jweinsteinlaw.com/pdfs/Canopy.pdf>.

196 Katherine Hamilton, et al., Ecosystem Marketplace and New Carbon Finance, *Fortifying the Foundation: State of the Voluntary Carbon Markets 2009,* 20 May 2009, available at <http://ecosystemmarketplace.com/documents/cms_documents/StateOfTheVoluntaryCarbonMarkets_2009.pdf>

197 Karan Capoor, et al., The World Bank, *State and Trends of the Carbon Market 2009,* May 2009, available at <http://wbcarbonfinance.org/docs/State___Trends_of_the_Carbon_Market_2009-FINAL_26_May09.pdf>

198 Point Carbon, *Carbon Market Transactions in 2020: Dominated by Financials?,* May 21, 2008, available by subscription at: <http://www.pointcarbon.com/research/carbonmarketresearch/analyst/1.917962>

199 *Id.*

200 By dividing the total project investment of 11.35 million by the original total amount of CO_2 avoided (about 55 million) the price per tonne of CO_2 works out as about $0.20. That is five tonnes per US dollar.

201 The following shows the increasing cost per tonne of CO_2. In March 2007, the German Society for Technical Cooperation (GTZ), in a presentation to the UNFCCC on "Lessons Learned from Avoided Deforestation," reported that the cost per tonne was US$1.87, see <http://unfccc.int/files/methods_and_science/lulucf/application/pdf/070307dutschke.pdf>; and in 2009, both American Electric Power and The Nature Conservancy reported that the cost per tonne had risen to US$7.60, see <http://mydocs.epri.com/docs/PublicMeetingMaterials/0905/4SNGEB5QK69/E232009_Braine_REDD_EPRI_Offsets_W5_Final.pdf> and <http://unfccc.int/files/methods_and_science/lulucf/application/pdf/070307dutschke.pdf> respectively.

202 For example, the EU ETS, as of Sept. 8, 2009, was trading at € 15.32 per tonne (equivalent to $22.18).

203 CCX credits were trading at less than $0.20 a tonne (In October 2009, while the cost per tonne paid by the investors was $7.60 per tonne.

204 Congressional Budget Office Cost Estimate: H.R. 2454 American Clean Energy and Security Act of 2009, CBO, June 5, 2009, at <http://www.cbo.gov/ftpdocs/102xx/doc10262/hr2454.pdf>; Jesse Jenkins, Climate Bill Analysis, Part 12: CBO Projects Waxman-Markey Would Cut Cumulative Emissions by Just 2% through 2020, Breakthrough Institute, June 15, 2009 at <http://thebreakthrough.org/blog/2009/06/climate_bill_analysis_part_xii.shtml>

205 See prices for the European Emission Trading Scheme and Chicago Climate Exchange posted at <http://www.pointcarbon.com> and <http://www.chicagoclimatex.com> (October 2009).

206 Even the current 2006 IPCC Guidelines for Greenhouse Gas Inventories suggest a 60% uncertainty on reporting changes in carbon stocks. See 2006 IPPC GHG Inventory Guidelines, *supra* note 148.

207 As noted elsewhere, one would be forced to argue what would have happened in the absence of the project. The 15 km leakage buffer would appear to be highly questionable in this regard.

208 Pavan Sukhdev, lead author, The Economics of Ecosystems and Biodiversity – Interim Report, The Economics of Ecosystems and Biodiversity, European Communities (2008). Available at <http://ec.europa.eu/environment/nature/biodiversity/economics/pdf/teeb_report.pdf>

209 The Stern Review: The Economics of Climate Change, Summary of Conclusions, at 1. The Review estimates that the costs and risks of climate change will result in the loss of between 5-20% global gross domestic product per year. Available at: <http://www.hmtreasury.gov.uk/d/CLOSED_SHORT_executive_summary.pdf>

210 See *supra* note 5 above, Ministerial Statement on REDD (Poznan, 12 December 2008)

211 The Clean Energy Jobs and American Power Act (Kerry-Boxer, 30 Sept. 2009), at <http://www.epw.senate.gov/public/index.cfm?FuseAction=PressRoom.PressReleases&ContentRecord_id=0C00344C-802A-23AD-4F4D-EDB0C9408D2E>

212 The Montreal Protocol Multilateral Fund provides a precedent for striking a balance between developing countries' national sovereignty issues and developed country input on funding priorities, while ensuring the efficient allocation of resources to actors at the sub-national level as needed.

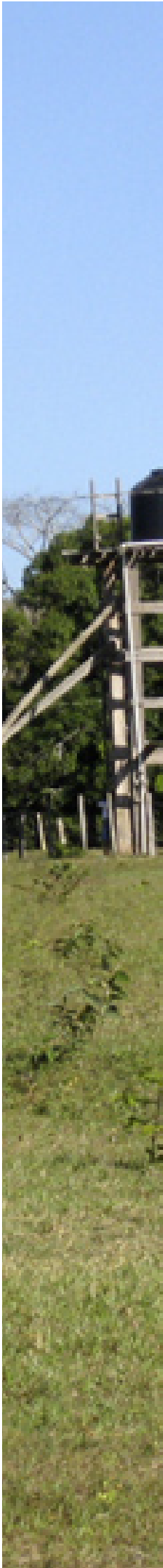
213 KEA3: REDD and the effort to limit global warming to 2°C: Implications for including REDD credits in the international carbon market (30 March 2009), at 11, available at <http://www.greenpeace.org/forestsforclimate>

214 See Intergovernmental Panel on Climate Change (IPCC), Climate Change 2007: Impacts, Adaptation, and Vulnerability, Contribution of Working Group II to the Fourth Assessment Report; James Hansen, Tipping point: Perspective of a climatologist, introductory chapter to Wildlife Conservation Society, State of the Wild 2008-2009: A Global Portrait of Wildlife, Wildlands, and Oceans, at 6-15 (W. Woods, ed., 2009), available at <http://www.columbia.edu/~jeh1/2008/StateOfWild_20080428.pdf>

215 Furthermore, while national reductions would help alleviate many of the worst problems associated with sub-national forest offsets, there remain many problems with including any fully fungible offsets from REDD in the regulatory carbon markets. For more information visit <www.greenpeace.org/forestsforclimate>

216 Chris Jones et al, Committed ecosystem change due to climate change, Climate Change: Global Risks, Challenges and Decisions, IOP Conf. Series: Earth and Environmental Science 6 (2009) 062017 (doi:10.1088/1755-1307/6/6/062017_c), IOP Publishing, (Copenhagen 10-12th March 2009)

217 Christoph Sutter & Juan Parreno, Does the Current Clean Development Mechanism (CDM) Deliver its Sustainable Development Claim: An Analysis of Officially Registered CDM Projects, Climatic Change, Vol. 84, No. 1 (Sept. 2007); Karen Olsen, The Clean Development Mechanism's Contribution to Sustainable Development: A Review of the Literature, Climatic Change, Vol. 84, No. 1 (Sept. 2007); Lambert Schneider, Is the CDM fulfilling its environmental and sustainable development objectives: An evaluation of the CDM and options for improvement, Report prepared for WWF Berlin (Nov. 2007).



Medical centre in Florida community

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