Feasibility of Avoiding Deforestation in Latin America

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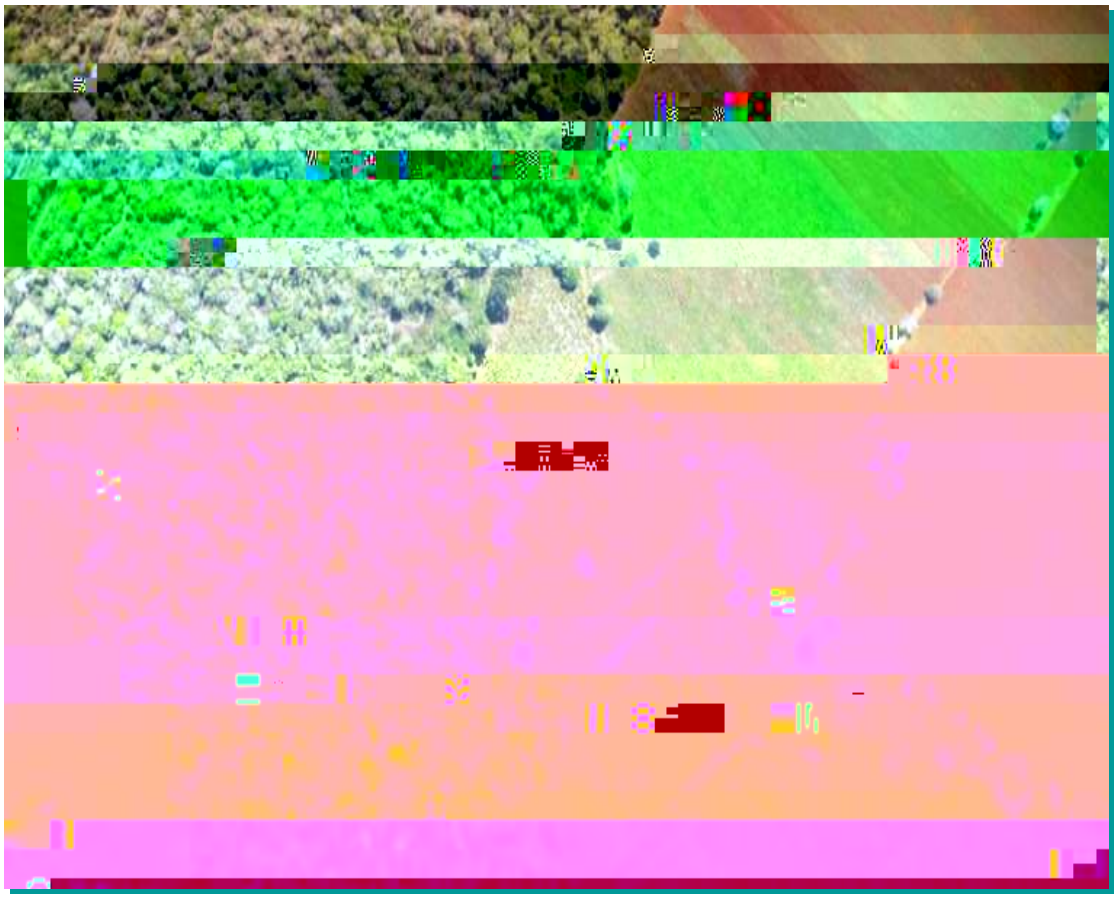

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Abstract

Deforestation is responsible for approximately eighteen percent of anthropogenic CO_2

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Prof. CCmt’-:jCzK-C l tHáwk--CkC$ d tà1ux)kwñok d tà1ux)kwñzCzC r e t f tjzK:1kx)kwñ-’wHáwz:á’ká1C

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1. Introduction

1.1. Deforestation and Climate Change

3.4 billion years ago the first photosynthetic organisms began to evolve (Mulkidjanian, Koonin et al. 2006) on what was then an anoxic planet. Today, about 7500ñk-1axHwkkj’ák’á15x)j’Ht O

negative impact on the area through desertification and the effect on the human ecosystem.

Land use change (LUC) due primarily to deforestation is the second largest source of greenhouse gas emissions after emissions from fossil fuels (IPCC 2001). The most important greenhouse gas (GHG) accounts for almost 20 percent of global CO_2 emissions and 25 percent of all global GHG emissions from deforestation (IPCC 2000)[1]. Nearly all of the emissions associated with deforestation is tropical (FAO 2006). To date, almost 136 Gt CO_2 has been released due to LUC, which is mainly through forest

afforestation and reforestation (A/R) project, are the only forestry projects approved under the CDM. In any event, for the first commitment period the annual additions of CERs from sink projects is CDM is capped at 1 percent of an Annex 1 country's base-year emissions, which severely limits the outsourcing of emissions reduction.

On December 7, 2005 leading up to COP11 in Montreal, Papua New Guinea and Costa Rica, representing the newly formed Coalition of Rainforest Nations

1.2. Avoided Deforestation and the Kyoto Protocol

The UNFCCC was negotiated and signed in 1992 at the Rio Earth Summit, together with the United Nations Convention to Combat Desertification (UNCCD) and the United Nations Convention on Biodiversity (CBD), with the ultimate objective of the to achieve stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.

The Kyoto protocol to the UNFCCC is a legal framework that introduced binding GHG emissions targets at an average of five percent below 1990 (base year) levels for industrialized (Annex I) countries. The targets are to be met during KP's first commitment period from 2008-2012. The target follows the principle of common but

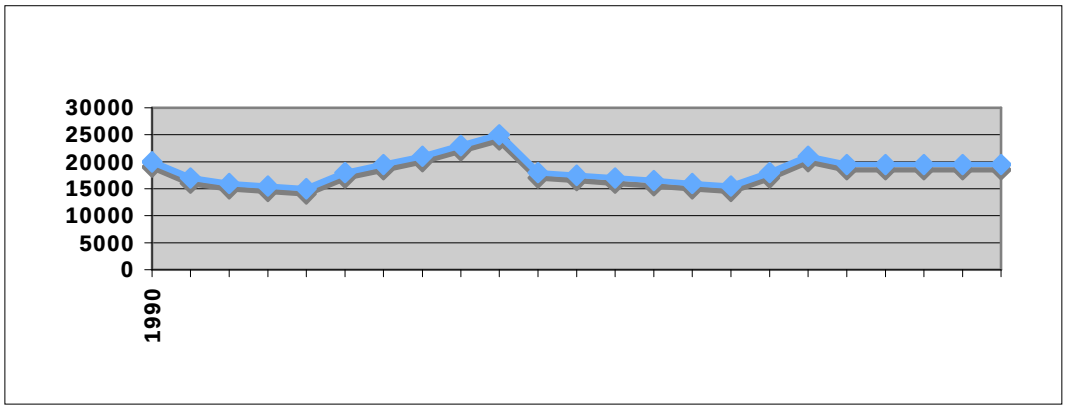
generate credits, only new forest plantation projects qualify under the CDM rules. Even so, as mentioned above, CDM is caped at 1%, limiting the capacity that sink projects could potentially have.

The opposition in setting clear limits to deforestation or and for the exclusion of forest conservation in the CDM is due to many different factors. The Marrakech Accords of 2001 focused primarily on sinks rather than sources with regards to LUC. There seemed to be a "disregard for the actual and potential function of existing tropical forests as an enormous source of carbon and trace gas emission through deforestation and land-use change" (P. Moutinho 2005). The policy discussions focused on tree plantations as sinks, ignoring that LUC is a major source of GHGs. At the end of the conference a compromise was brokered to only include A/R projects under CDM. This was due to the fear that cheap AD carbon credits would flood the market, that forestry activities would crowd out other mitigatory actions, that leakage – the displacement of emission-generating activities outside a project's boundaries – would occur, and so on. In all, it was felt that AD as it was presented in Marrakech would no ensure climate benefit.

As mentioned above, the Rainforest Coalition's submission at COP 11 to the UNFCCC added a fresh perspective to AD. The submission highlights the context that

The approach suggested to curb deforestation is called compensated reduction and is prevalent throughout the literature (P. Moutinho 2005; Santilli, Moutinho et al. 2005; Ebeling 2006; Stern 2007). As mentioned above, it is a mechanism which would reward though country's who deforest below a previously establish baseline, based on a historical national deforestation rates (see Figure 2). Changes in forest cover would be measured using remote sensing techniques, such as the use of satellite imagery. The amount of deforestation that was avoided is the difference between the baseline rate of deforestation and the new year's rate, with the participating countries being issued internationally tradable emissions credits. To ensure permanence there would be the establishment of a carbon backing mechanism that credits early action and debits compliance failures. Participating countries would have to make a "continued effort" to stabilize and reduce emissions from deforestation going forward (Coalition 2005).

In contrast to CDM, nations participating in CR have full control over their emissions reductions and participation in such scheme; where funding in international and implementation is national. National-level poli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and problems that need to be addressed. Potential obstacles range from how best to ensure climatic benefit to what type of payment mechanism will be employed to what political climate is conducive to AD and so on. The challenge to resolve both technical issues and the political and economic issues is far from complete. But given enough political will and high enough perceived benefits, technical challenges and disagreements may just fade. This paper will attempt to determine whether AD in Latin America is a politically desirable and an economically feasible policy.

Based on the readings and preliminary discussions

2. Research Approach

2.1. Methodology

This thesis follows a mixed-methods approach and incorporates a literature review, various interviews, economic modeling, and

Table 2 - Interviewee sampling by stakeholder group

Government agencies	**3**
Research organization and universities	**3**
NGO	**0**
IGO	**0, 1 not on record**

3. Is AD Politically Attractive and Socially Desirable?: Case Study Panama

3.1. Overview

Humans depend on forest ecosystems for their well-being. Any new government policies that are drawn up, which could potentially limit access those resources, those affected, the stakeholders, must be consulted. The following section will attempt to describe the social and political conditions that need to exist in Latin America before which the successful implementation of national avoided deforestation policies are possible.

Figure 3 shows how such a political and social reformation process could potentially unfold. What is interesting to note are the synergistic benefits associated with the changes that allow AD to occur. Benefits include: Establishment of good governance, institutional reforms, intra-governmental cooperation, poverty alleviation, carbon sequestration and so on. Moreover, the following section will analyze the difficulties associated with conforming to the tenants suggested by Figure 3 and make suggestions to overcome the political obstacles facing in Latin America. These obstacles are presented and demonstrated in the context of Panama.

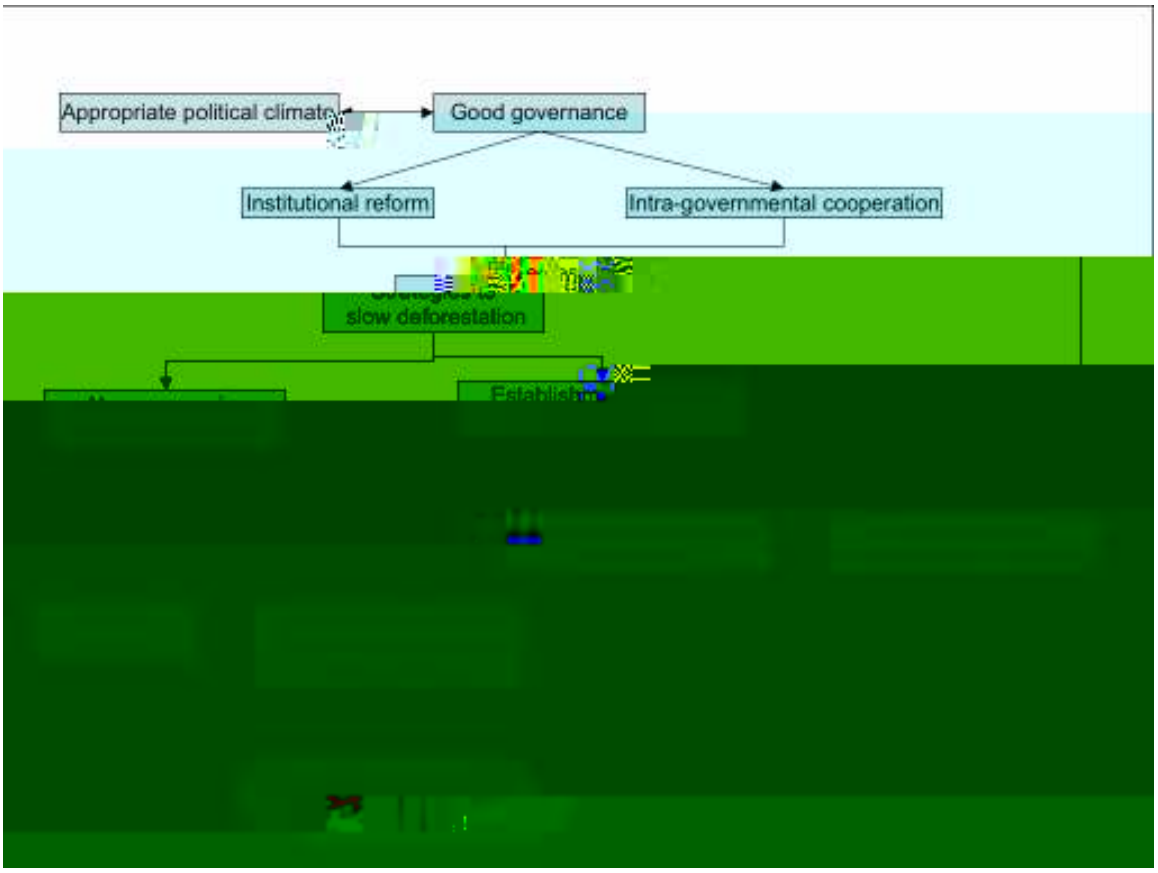

Figure 3 - Pathways to politically conducive conditions for AD

Impuesto sobre las Transferencias de Bienes Corporales Muebles) and by augmenting production through many economical incentives such as ley 2, 3, 25 which are discussed later. The national grain industry being not as productive as in the US, Panama cannot compete with them and an increased depend

Payment for preservation of forest would be a cost effective way to ensure conservation. It also has a potential to alleviate poverty as the permanence criteria of a PES requires that poverty be alleviated if it represent a treat to the conservation of forest (Wunder 2005). In Panama, it would mean to provide the campesino with the forest resource he is dependant on or a substitute. Compensation would have to be coupled with a rural work program that would keep the farme

required to support end enforce them" (Stern 2007).

rate, the real issue really is the choices that the nation takes in terms of land use, road infrastructure and economic development.

Zoning in function of land potential would permit maximization of biodiversity and economic benefits. The information can be used by landowner or by government to make a choice in term of land use and development of road placement, protected area ect. This plan would have to be done while taken in account the human dimension as public participation is necessary to ensure effective enforcement of conservation effort. This situation exists in the canal watershed where public acceptance of the conservation program favored sustainability of land use (presentation of Sir Bordett ACP).

3.6. Sustainable Land-Use and Development

What is a sustainable land use?

Sustainable development is a development that meets the needs of the present without compromising the ability of future generations to meet their own needs (FAO). Sustainability of land use would allow for feasibility of AD as it promotes conservation of the forest and enhance well-being of the population that depends of it. IUCN sustainability criteria include human as well as ecological wellbeing components. A project is thought as sustainable when it maximizes the human population and ecosystem wellbeing. As such, a land that is managed sustainably is a land that will be able to provide resources in the long run for human population. As a consequence, there will be no need for the subsistence peasant, provided with a sustainable living, to deforest. This would lead to a decrease in pressure on the forest ecosystem and possibly an avoidance of deforestation. Therefore human wellbeing is closely linked to ecosystem well-being.

Sustainability and Social desirability of AD

One could perceive land use such as national park as sustainable but it is only to the extent that it allows for local population's sustainability. In Panama, 24% of the landmass is enclosed in protected areas (Fisher and Vasseur 2000). Given that protection of land would further limit accessibility of forest resource to the rural poor, is forest preservation socially desirable? It is as long as it would not contribute to exacerbate rural poverty. An unsustainable situation is illustrated in a case of Aguas Claras, a community situated in the buffer zone of the Canal Watershed between a teak plantation and a protected forest area. The community members are highly informed about the importance of forest conservation but provided with little mean to compensate for their need in forest resource. Ensuing poor living conditions have led to massive migration of villagers to the city (pers com Zena Wright). This phenomenon further increases pressure on cities infrastructures and exacerbates poverty. This reinforces the idea that when opting for conservation land use, government has to think about the populations that are dependent on this resource and provide them with compensation.

An example of sustainable management of the land would be a land use plan that would use native species to convert degraded fallow land into an Agro-forestry project. Biological sustainability would be insured by benefits in terms of water availability, erosion regulation, biodiversity etc. Social sustainability would be insured, as the project would also provide jobs, health and educational benefits. Study carried out in Ipeti-Emberá, Panama, also demonstrates, through economic analysis, attractiveness of AD as a mean achieve those goals (Coomes, Grimard et al. submitted August 16, 2006).

In conclusion, AD is desirable to the extent that land-use changes required for carbon sequestration coincide with those required for poverty alleviation and sustainability creating a synergy when meeting both objectives. Social desirability of AD

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4. Economic Feasibility of AD in Latin America

4.1 Overview

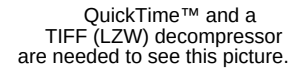
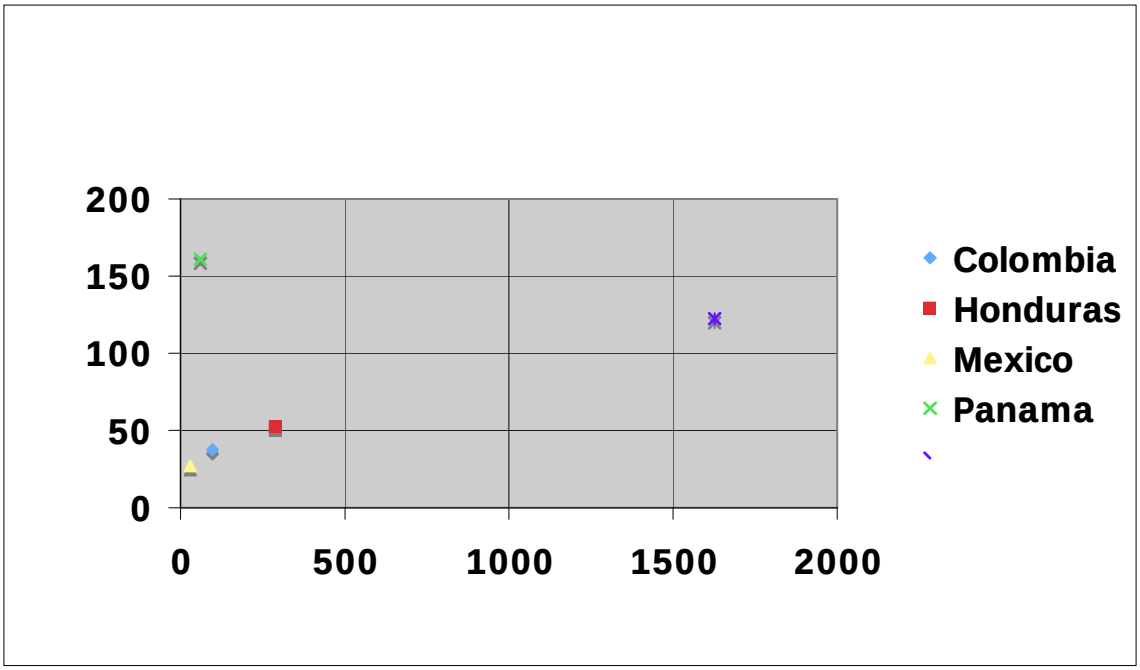


Figure 5 - Land-use opportunity costs
Adapted from: (Coalition 2007)

The relationship between profitability and carbon emissions from deforestation depends on three factors: the amount of carbon in biomass, the opportunity cost of the land and the financial difference between the present land-use and the alternative incentive. In many cases AD is more profitable than agriculture. Figure 5 shows that by pricing carbon at $5tn only farmer in Honduras and Peru are profitable, whereas Farmers in Colombia, Mexico and Panama would be more financially viable if they were to sell AD credits. When carbon is priced at $10tn only Peruvian farmers are profitable. It is important to keep in mind that that the weighted average of carbon market prices in 2004-2005 was $5.63tC. Another way to look at Figure 5 is, as Chomitz put it, “is worth while, after allowing for the damages caused by carbon rel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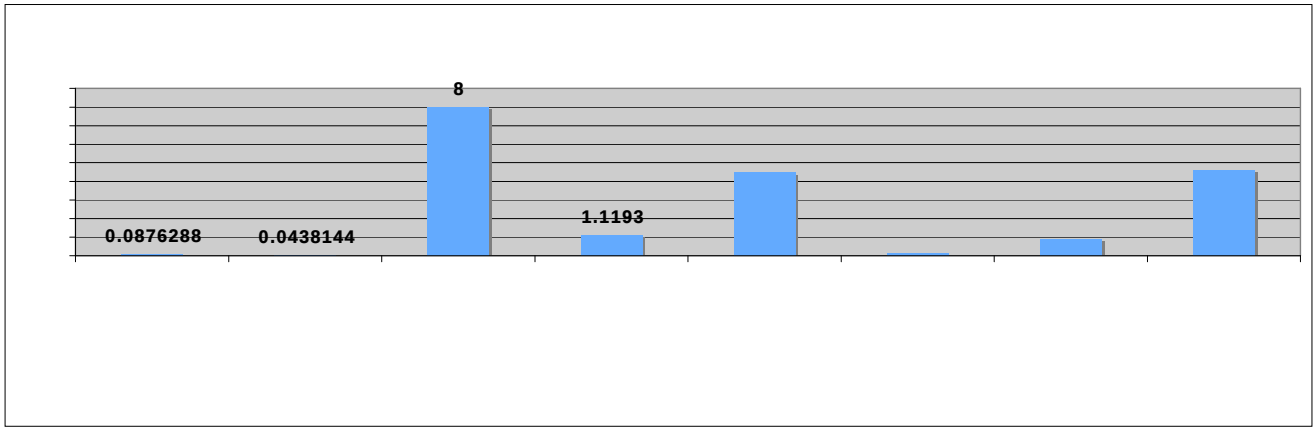
Mexico
Panama

Table 5 - Summery of five countries' metrics

Deforestation reduction by:	ha	$	tC
less 5000ha per year	250000	102243000	23050000
less 25% in 10 years	376480	120132903	21907200
Less 50% in ten years	752960	240265806	43814400
Halt in deforestation	1505920	480531612	87628800

In order to better understanding of the magnitude of emissions from deforestation in the five countries under study; Table 5 presents the total annual carbon emissions from deforestation. The sum of the carbon emissions from the five countries from deforestation represents 1.1 percent of global emissions from deforestation. By comparison Brazil and Indonesia equal four-fifths of the emissions reductions gained by implementing the KP in

Having assessed demand at no more than 0.0876GtC per year (0.2% of global carbon output), we can now look for potential buyers of AD credits. For this paper two sources were identified: increase of the CDM cap from 1 percent to 5, 10, 15 or 25 percent and following the call made by Jacques Chirac for a "green revolution" assessed the carbon output by international aviation and navigation. The results of the demand assessment can be seen in Figure 6.



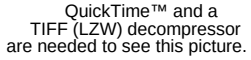


Figure 8 - AD in the CDM may lead to deeper emissions cuts

Adapted from: (Coalition 2007)
NB: REDD is reducing emissions from deforestation in developing countries and will be explained in 4.6.3.

Increase to the cap coupled with the inclusion of AD as a CDM would be a significant source of demand for Latin American carbon. The annual carbon output of the five counties under study amounting to less than 0.0876, which represents a mere 62% of a 1% cap. If the second commitment period were coupled with much larger emissions targets, 20 to 40 percent, with a larger role for CDM, 10 to 25 percent of total emissions, there would be enough excess capacity so that most of topical forests could be conserved.

4.3.2. International aviation and navigation

International aviation and navigation (IAN) is an interesting source of demand for AD credits. IAN accounts for anywhere between 2.8 to greater than 10 percent of global emissions. For accounting purposes to the UNFCCC emissions from domestic navigation and aviation are covered by the transport emissions included in a countries national emissions, while emissions from international aviation and navigation are reported

separately and not counted to a countries carbon balance sheet. Moreover, under IPCC Guidelines emissions from international aviation are not counted against national emission totals and are not classified under national emissions from transport (IPCC 1997). Emissions form fuel sold to ships or aircraft engaged in international transport are reported by the country where the fuel is loaded but are excluded form that country's national total (Yamin and Depledge 2004). In other words, all civil domestic flights inside a country are domestic, and ships not engaged in international transport are accounted for nationally, regardless of the length of a journey i.e. Los Angeles to Honolulu.

Under both the UNFCCC and the KP the international Civil Aviation Organization (ICAO) and the International Maritime Organization (IMO) will regulate emissions from international bunker fuels, rather than directly under the KP[8]. As a result, the ICAO and the IMO have been leading policy options formations to limit bunker and to "lessen the need for the climate regime to be proactive in the controversial policy issues surrounding allocation and control options" (Yamin and Depledge 2004).

In 1999 the Intergovernmental Panel on Climate Change (IPCC) published a report entitled “Aviation and the Global Atmosphere” in it the Panel suggests regulatory and market based approaches to emissions mitigation. One of the possible policy measures suggested by the IPCC report are, “voluntary and mandated policies to reduce emissions internalize to producer or consumer many of the associated environmental costs” (IPCC 1999). The report continues to say that, “emissions trading… enables participants from all industries to cooperatively minimize the cost of reducing emissions” (IPCC 1999)and that it would be the government’s role to set up caps on emissions and rules under which trading could take place. Furthermore, in October 2004 the ICAO published its consolidated statement of continuing policies and practices related to environmental protection. It is this document, and more specifically Resolutions A33-7 Appendices H and I, which have been guiding the environment policies of the ICAO.

needed to better estimate the impact of shipping globally and that policy options to

in atmospheric concentrations. GHGs are calculated as the ratio of the radiative forcing that would result from the emission of 1 kilogram of greenhouse gas to that from the emission of 1 kilogram of carbon dioxide over a period of time (usually a 100 years)" (Yamin and Depledge 2004), which is the reason why we express emissions as carbon dioxide equivalents (CO_2e). With respect to IAN (see Figure 8), the radiative effect if greenhouse gases can be clearly seen, with the difference between the radiative and non-radiative emissions of shipping being much greater than aviation.

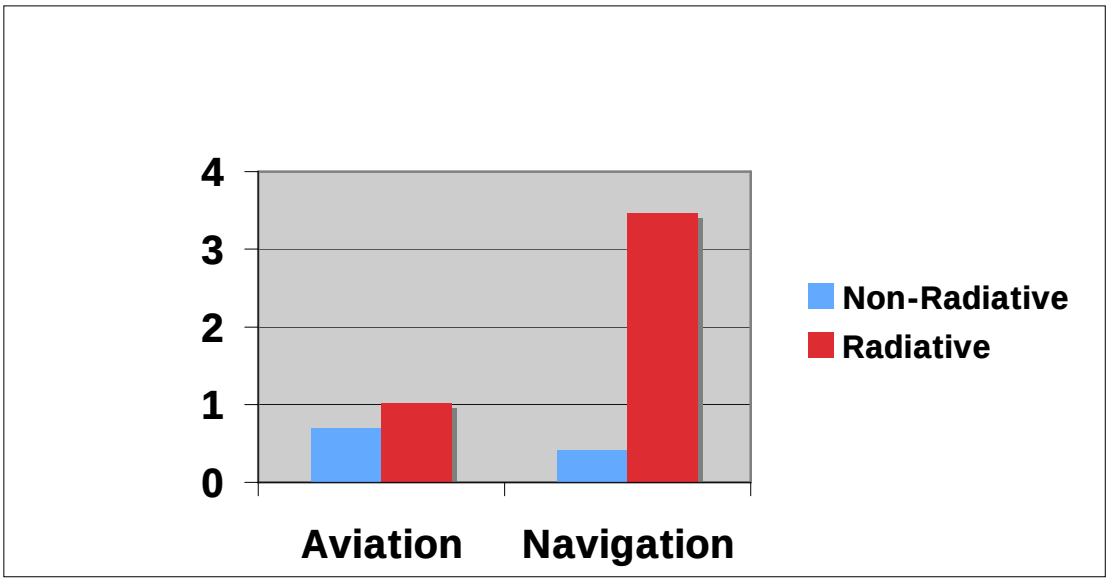


Figure 9 - Global warming potential of IAN

particularly acute in the aviation industry where they face some of the most difficult challenges in emissions mitigation, “whilst there is potential for incremental improvement is efficiency to continue, more radical options for emissions cuts are very limited” (Stern 2007).Even as air traffic is set to rise by nearly an order of magnitude by 2050 (IPCC 1999), the potential for either the consumers or the produced to internalize the environmental cost associated with their actions opens up a world of possibilities for AD.

4.4. Risk Assessment

Just like in the business world, where every good investor knows his or her aversion for risk, so too must countries assess their appetite for risk before choosing an appropriate compensated reduction scheme. Here we define risk as the variation of the price per unit of carbon. Good investors also know to diversify their portfolio, in order to hedge certain types of risk, which is where AD fits in.

In a 2005 Chomitz said, “forest carbon [is] a useful component of a comprehensive climate change mitigation portfolio” (Chomitz 2005). By having assess to various sources of carbon credits, such as, AD, A/R, JI, EU ETS and so on, a country is able to balance their exposure to risk. AD complements the basket of credits that already exist as they have the added advantage of providing local and global co-benefits that would be difficult to isolate and finance otherwise. Financing AD means preserving, biodiversity, hydrology, cultural services and other characteristics of forests that are difficult to monetize.

Once the amount of risk a country is willing to accept its quantified that country is able to look into ways to best ensure climatic benefits, keeping in mind those risks. Which leads us to the next section.

4.5. Ensuring Climate Benefit

4.5.1 Overview

There are many challenges that need to be faced before AD can be effectively integrated into global carbon markets. Many of the obstacles are technical issues, such as additionality leakage, permanence and monitoring that, when given enough political will, can eventually be overcome. Other obstacles include determining how best to include tropical deforestation emissions in terms of the international response to climate change. Based on the amount of risk a country feels it can expose itself to, an appropriate implementation mechanism needs to be employed, be it fund-based, market-based or a hybrid model.

4.5.2. Technical issues

The technical issues that this paper will soon discuss are the issues that have had the largest impact in hampering the reduction of emissions from tropical deforestation. For the most part these objections are what kept AD out of the Marrakech accord, and therefore out of the KP. The technical issues include questions about: additionality, leakage, monitoring, permanence and price. The solution to these issues not only depends on new technologies and old fashion diplomacy but on the type of mechanism chosen by a particular country. Therefore, in this section, we will explain the technical issues as they relate to the mechanisms of implementation.

Additionality

In order for a CDM project to be approved for the generation of CERs, the project must be real, measurable and have long-term benefits related to the mitigation of climate change and when the reductions are additional to any that would occur in the absence of the certified project activity (Yamin and Depledge 2004). Chomitz describes additionality as an "inherently unobservable characteristic of projects" (Chomitz 2002), but this does not stop people from trying to observe it. Additionality tests we drawn up during the Marrakech Accords to prevent CERs from being generated without merit. Paragraph 43 of the Marrakech Accords states that a project is considered to be additional when anthropogenic emissions by sources are reduced below those that would have occurred in the absence of CDM project registration.

All this ties into AD because for AD to be additional one must prove that without it deforestation or degradation would have occurred. This might seem easy enough, but

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a reduction target vis-à-vis this national baseline. Developing countries meeting their target would be allowed to trade the achieved emission reductions, coined compensated reduction, through a carbon market.

These market mechanisms are plagued with three main difficulties. First, national baselines are determined using past deforestation rates create a premium for countries who massively deforested in the 1980's and where remaining forested areas are hard to access and a disadvantage for countries who never did deforest on a large scale. Second, the proposed mechanisms link the market approach to the achievement of national commitments. Yet, the income, to be generated by the market, will be uncertain. The investor's risk associated with a market-based approach will be downloaded to governments who would have to accept a national commitment to participate. Finally, falling prices could imply that a government program would no longer be able to pay the opportunity costs, honor contracts signed with private forest owners, displaced farmers, etc. which may lead to the inability to meet the REDD target

Fund-base

Fund-based or non-market instruments carry a more conservative carbon accounting system with lower performance standards than a market-based approach, which intern causes non-market instruments to fetch a lower price per ton.

This mechanism circumvents the difficulty of national baseline and the limitation of relying on a carbon market plagued with uncertainty. However, a major difficulty with these fund-based mechanisms is that no effort has been made by the proponents to identify a constant and sufficient source of funding to replenish them. Without an effort to determine appropriate source of replenishment we believe that these fund-based

mechanisms will unlikely provide sufficient amount of resources to stimulate REDD action. The Stockholm Conference on environment and development (1992) estimated that US$ 30,000,000,000 would be needed to sustainably manage the world's tropical forests. Moreover, it is believed that the forestry sector only receives 27% of that amount (FAO 1997).

Hybrid

Our analysis suggests that none of the mechanisms proposed to date could stimulate action to reduce emissions coming from deforestation. We suggest that flexible mechanisms need to be designed to allow countries with diverse national circumstances to participate. We envision the possibility of REDD based on both on a fund and market-based approaches at the project level. The fund could serve for prompt start pilot projects, to build-up national capacity and help evaluating the legislative aspects of REDD, etc. Replenishment of such fund would need to be tied to UNFCCC and the Kyoto Protocol in order to ensure a predictable flow of money. Possible sources of replenishment that should be examined are: non-compliance of Annex 1 countries, international aviation, taxes on petroleum goods. The cost should be viewed by Annex 1 countries as payment for environmental services rendered. Furthermore, it might be possible to design a fund linked to ET or JI in a way similar to the adaptation fund. Without identifying clearly the source of replenishment a fund will not work.

Even if a fund source is identified, it is our belief that the amount of money necessary to offset the cost of avoided deforestation in developing countries will unlikely be generated. Thus countries engaging in REDD will most probably have to do so relying, at least partly, on their national resources. In consequence, we feel that the

international mechanisms should not be based on a target, rather should support the new national initiative on REDD.

5. Conclusion: Is avoiding deforestation socially desirable and economically feasible?

Avoiding deforestation in Latin America is possible, but will not be easy. There must be a politically conducive environment under which AD can exist. Only then can we ask whether or not AD makes financial sense.

In Latin America's case, more specifically Colombia, Honduras, Mexico, Panama and Peru, AD is economically feasible. There are high amounts of carbon in biomass, the

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Appendices

A.1. Executive Summery

Feasibility of Avoiding Deforestation in Latin America
Michele Boileau and Jordan Isenberg
STRI and Catherine Potvin

Deforestation is responsible for approximately eighteen percent of anthropogenic CO_2 and is the primary source of emissions in Latin America. Latin America land use change due to tropical deforestation is the largest source of CO_2 emissions. In 1997 the world got together to being process of cutting glob

cooperation, the creation of strategies to slow deforestation, such as new policies and incentives and the establishment of clear property rights. AD in Panama and, by extrapolation Latin America, presently is not desirable. However, through application of the framework suggested in section 3, the conditions might right for AD to be viable.

Avoiding deforestation in Colombia, Honduras, Mexico, Panama and Peru and, through inference Latin America, is economically feasible. Feasibility was established by determining supply of carbon, 0.04 Gt CO_2 per year at 50% reduction of deforestation with in a decade, and matching it to potential buyers, i.e. demand sources. Sources of demand were identified to be CDM cap increases and international aviation and navigation. Our analysis shows that there a huge potential demand for AD credits, with 1 percent of international aviation and navigation representing only 9.75 percent of the annual AD credits generated by reducing deforestation rates by 50 percent over 10 years.

If AD is to be successful on a grand scale, the desire will have to come from within. Top-down imposition of forestry polices without massive repression are impossible. As long as the rural poor look to the forest for livelihood, deforestation will continue. However, if presented with a viable alternative they could undoubtedly be swayed.

A.2 Resumen Ejecutivo

La deforestación es responsable por aproximadamente 18% del carbono emito para los humanos. También es la primaria fuente de emisiones en América latina. En 1997, el mundo se reunido para empezar el proceso de disminuir las emisiones globales basado sobre la Convención Marco de las Naciones Unidas sobre el Cambio Climático (CMNUCC). De este marco nació el protocolo de Kyoto (PK). Sin embargo, la Deforestación evitada (DE) fue excluida como categoría de mecanismo de desarrollo Limpio (MDL). En su estado actual, PK ni promueve ni prohíbe los proyectos que reducen las emisiones en carbono para deforestación evitada (DE).

El propósito de este documento es de determinar si evitar la deforestación en América Latina es factible en el punto de vista político, social y económico. Esa tesis sigue un método que incorpora a una revisión de la literatura, varias entrevistas, modelos económicos, y una análisis de sumisiones al CMNUCC. Para analizar el contexto político y social, un marco que asegura la factibilidad de DE fue creado. Usando modelos, la viabilidad económica del DE fue determinada en Colo

A.3. Massive Land Title Distribution: An Article

The following can be found at: http://www.mida.gob.pa/

Entregan 149 títulos de propiedad Unos 149 títulos de propiedad a pequeños productores del la provincia de Darién del Programa Nacional de Titulación (PRONAT), entregaron este sábado el Ministro de Desarrollo Agropecuario, (MIDA), Guillermo Salazar y el Diputado Giovanni Castillo, del circuito 5-1. El

A.4. Calculations of the Radiative effects of IAN

	Global warming potential	1996 emissions	
Type of emission	2001 IPCC GWP	Tg	gt
NOx	310	0.00982	3.0442
NMVOC (CH4)	21	0.0003	0.0063
CO2			

	Global warming potential	1992 emissions	
Type of emission	2001 IPCC GWP	Tg	Tg
NOx	310	0.00184	0.5704
CO2	1	0.453	0.453
		Sum (MtCO2e):	1.0234

A.5. Recommendations for Next Year

The project we are submitting, as far as we know, has no predecessor. We are not representing the interests of a particular NGO but those of the people of Panama, Latin America, and of every tropical forest. As such, any student who follows our lead must be aware of the lack information and steep and technical learning curve that exists before embarking on a journey through AD.

As with any internship, one on AD, it is as rewarding as the amount of effort you put into it; it is not easy, the concepts are not intuitive. At the same time it is highly rewarding to see that your work is not only relevant, to a topic as important as climate change, but use)’w-K’-j1w-1 x)Kw’-j’k)’wHdzK’-j1w-1 axKwjHjj1nx)K’w-j’á1gxñx)Kw’-zwz-kK’1tx)Hw-

A.5. Areas of AD policy with no literature

The following is an uncompleted list of the areas we feel that more work needs to be carried out with respect to AD. We say that it is incomplete as it is by no means a comprehensive list.

1. The creation of an international aviation and navigation party to the UN1ox)wñHjwz'zñ chat ittereavi
   c.aoesgeeUD nae

A.6. Annex I Parities to the Convention's metrics

List of Annex I Parties to the Convention	% base year/period
Australia	108
Austria	

Belgium	**92**
Bulgaria	**92**
Canada	**94**
Croatia	**95**
Czech Republic	**92**
Denmark	**92**

Estonia **92**

European Community **92**

Finland **92**

France **92**

Germany **92**

Monaco	**92**
Netherlands	**92**
New Zealand	**100**
Norway	**101**
Poland	**94**
Portugal	**92**

Romania	**92**
Russian Federation	**100**
Slovakia	**92**
Slovenia	**92**
Spain	**92**

Sweden	92
Switzerland	92
Turkey	--
Ukraine	100
United Kingdom of Great Britain and Northern Ireland	92
United States of America	93

Sums:	

NB: EU was subtracted from the totals, to avoid double counting.