2011

Private sector strategy for the UN REDD Programme

LAC regional Outlook

This report will look into the main drivers of deforestation in the LAC region, focusing on both the positive and negative impacts the private sector has in the region. Based on this analysis, this paper will bring forth a strategy to incorporate the private sector into REDD+ initiatives.

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Table of Contents

LIST OF ACRONYMS

CATIE	Centro agronómico tropical de investigación y enseñanza
CIPAV	Centro para la investigación en sistemas sostenibles de producción agropecuaria
FAO	Food and Agriculture Organization of the United Nations
FSC	Forest Stewardship Council
GEF	Global Environmental Facility
HCV	High Conservation Value Area
LAC	Refers to Latin America and the Caribbean
NGOs	Non-governmental organizations
PES	Payments for Ecosystem Services
REDD	Reducing Emissions from Deforestation and Forest Degradation
REDD+	Goes beyond deforestation and forest degradation, and includes the role of conservation, sustainable management of forests and enhancement of forest carbon stocks.
RSB	Roundtable for Sustainable Biofuels
RTRS	Roundtable for Responsible Soy
UN	United Nations
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UN REDD	United Nations Reducing Emissions from Deforestation and Forest Degradation

INTRODUCTION - PURPOSE OF THIS STUDY

The purpose of this report is to deliver a strategy to incorporate the private sector into REDD+ initiatives in the Latin America and Caribbean (LAC) region, without disregarding the potential for replication in other regions where the REDD+ initiatives operate. The study will build off current private sector initiatives already being conducted in the region, and link them to the UN REDD programme and see if there is room for any collaboration in resolving the existing problems with deforestation. One case study country (Paraguay) has been selected as a way to establish a methodology to move forward with a private sector engagement phase for companies involved in direct deforestation from current business practices.

The UN REDD programme is a global initiative spearheaded by UNDP, UNEP and FAO, that was launched in 2008 to assist developing countries to prepare and implement national REDD+ strategies that will reduce emissions from deforestation and forest degradation (REDD) and create a financial value for the carbon stored in forests. REDD+ is an aggregate to REDD, and includes promoting conservation, sustainable forestry management and forest carbon stock enhancement. Economically speaking, REDD+ could generate up to US $30B a year, aiding developing countries to pursue economic, social and environmental sustainability.

There are currently nine initial UN REDD pilot countries. Cambodia, Ecuador, the Philippines and Solomon Islands were recently added and an additional 22 partner countries exist, totalling 35 participating countries. Table 1 below is a breakdown per region of the pilot and partner countries:

Table 1: UN REDD pilot and partner countries

Pilot countries	Partner countries
Africa – Democratic Republic of the Congo, Tanzania and Zambia	**Africa** – Central African Republic, Ethiopia, Gabon, Ivory Coast, Kenya, Nigeria, Republic of Congo and Sudan
Asia and the Pacific – Indonesia, Papua New Guinea and Vietnam (recently added: Cambodia, the Philippines and Solomon Islands)	**Asia and the Pacific** – Bangladesh, Bhutan, Mongolia, Nepal, Pakistan and Sri Lanka
Latin America and the Caribbean – Bolivia, Ecuador, Panama and Paraguay	**Latin America and the Caribbean** – Argentina, Colombia, Costa Rica, Guatemala, Guyana, Honduras, Mexico and Peru

(Source: UN REDD website)

STRATEGY TO INCORPORATE THE PRIVATE SECTOR INTO UN REDD

The following methodology was used to bring forth a strategy to incorporate the private sector into the UN REDD programme and other REDD+ initiatives in the region. First, a private sector strategy will be presented, and then a series of activities will be discussed to develop the strategy. To develop the strategy with its activities, five areas will be assessed: (i) Specific outcomes to be accomplished; (ii) Stakeholder analysis (iii) An overview of the current situation—the top private industries contributing to deforestation, companies involved, best practices and opportunities; (iv) Opportunities and areas for potentially joining forces to add value; (v) Risks, challenges, and roadblocks that may hinder success; (vi) Summary of recommendations. Each section of this report will follow these five areas (minus the first one, since it applies to the overall outcome) as the approach to achieve a private sector strategy.

I. **Outcomes**: The goal of this strategy is to bring in the private sector (regardless of the different sectors mentioned above, e.g. agriculture, forestry, infrastructure, etc) into accomplishing two objectives: (i) investment into REDD+ initiatives, (ii) committing to changing their purchasing or BAU policies. The next section lays out in detail specific actions per country and industry.

II. **Reality**: Forests in the LAC region are currently being cleared as a result of global trends like population growth, urbanization, highly populated countries becoming more affluent (i.e. China and India) and the demand for more goods and services. In the LAC region, the largest area of tropical forests in the world exists, and globally has been the leader in deforestation over the last 30 years, with more than 22 million hectares deforested alone between 2000-2005. Much of the deforestation in the LAC region has been because of the expansion of the agriculture frontier, both for crops (i.e. soy) and pasturelands. However, according to the Union of Concerned Scientists´ report ¨The Root of the Problem¨ (2011), since the 1990s, enterprises have been the main drivers of deforestation[1], and will be the main focus of this strategy.

III. **Who are the stakeholders**: The stakeholders for this analysis are companies, governments and civil society organizations, and the following is a brief outlook of some of the main players in each of these sectors:

- Companies: Cargill, ADM, Bunge (soy); Grupo JBS, Berthin (cattle-beef); Nestle, Soprole, Parmalat, Dos Pinos, Estrella Azul, Bonlac (Dairy), Rio Tinto (minerals)
- Governments: Ministry of Economics, Commerce, Energy (i.e. oil and gas, biofuels, etc.), Transportation (i.e. roads and highways) Trade, Agriculture, Environment, Planning, etc.,
- Civil Society Organizations: WWF, IUCN, TNC, World Resource Institute (WRI), Forest Stewardship Council (FSC), GIZ, Rainforest Alliance

IV. **Opportunities**: The UN has multiple initiatives incorporating the private sector in sustainable development in which a private company could piggyback on the project objectives, or develop a new project incorporating components that attack problems with deforestation, and the following is just a brief breakdown:

- Tightly affiliated with governments and civil society organizations
- Has excellent experience within other UN agencies, since the programme covers the UNDP (166 country offices), UNEP (Green Economy Initiative) and FAO (MRV programme)
- Experience working with the private sector
    - UNDP Private Sector Division (PSD)
    - UNDP Regional Coffee programme
    - UNDP mainstreaming BD coffee in Colombia
    - UNDP CAMBio and Coast projects working with environmental finance
    - UNEP Green Economy
    - UNDP Green Commodities Platforms (PPP)
        - Pineapple-Costa Rica
        - Cocoa-Ghana
        - Cocoa-Cote d´Ivoire
        - Cocoa-Dominican Republic (Green & Blacks)
        - Coffee-Colombia and Honduras
        - Dairy-Regional LAC silvopastoral systems

V. **Risk and challenges:** The following is a list of some of the roadblocks that this strategy may confront when developing a private sector strategy:

- Lack of the appropriate financial resources to pursue a REDD+ initiative with the private sector (i.e. not being able to provide matching funds)
- Lack of government interest in pursuing private sector initiatives with national REDD+ financial resources
- Lack private sector interest in involving itself with UN agencies, governments, etc.
- Competition of initiatives from various other institutions

VI. **Summary of recommendations**

[1] The Root of the Problem, Union of Concerned Scientists (2011), pg. 25

Companies are under much criticism (regardless of the sector) for the practices they use, whether it be the method used to extract a mineral, or how the cultivation of a commodity can lead to deforestation. Thus companies have been committing to various sustainability initiatives with the sole purpose of bettering their image for their consumers, countries where they operate, and even internally with their shareholders. A corporate engagement is recommended as the main activity that should be conducted to involve the private sector in REDD+ initiatives. This could be through a series of corporate calls through existing UN partnerships with the private sector (i.e. Kraft, Coca Cola and IKEA), workshops on REDD+ thematic issues (i.e. stakeholder engagement phase) and/or a series of marketing-related publications demonstrating the services that UN can offer to engage in initiatives that incorporate both government and the private sector. (See Paraguay case study for more details)

DRIVERS OF DEFORESTATION

Global deforestation has been accurately tied to certain types of economic activities, and is one of the main thematic areas that the UN REDD programme seeks to work with. The main drivers behind deforestation in the LAC region, in order of importance, is the production of commercially bulk-traded commodities (i.e. timber, palm oil, cattle (beef), soy, cocoa, coffee, rubber, mining and biofuels), infrastructure development (i.e. roads and energy-related projects) and wood extraction.

LARGE-SCALE AGRICULTURE

On a global scale, agriculture accounts for roughly 17 percent of global greenhouse emissions.[2] Agriculture commodities play an important role in contributing to this 17 percent, and commodities such as beef, coffee, cocoa, palm oil and soybeans, lead in emissions and deforestation. Cattle (beef) and soybeans are the leading deforesting crops in the region, with five of the top soybean producing nations in the global top ten[3]: Argentina (ranked 3rd), Brazil (ranked 2nd), Bolivia (ranked 8th), Paraguay (ranked 6th), and Uruguay (ranked 9th); and four of the top cattle producing nations in the global top ten[4]: Argentina (ranked 5th), Brazil (ranked 2nd), Colombia (ranked 10th) and Mexico (ranked 9th). Until recently, most of the deforestation was thought to be driven by small-scale producers seeking to provide for their families, however this has now changed due to the increasingly affluent nations consuming more, particularly meat and the resources needed to produce it (e.g.soybean meal).

Table 2 below is a summary of the some of the main commodities being produced in the LAC region based on their global ranking, but recognized as nations where deforestation exists and where the activity is a direct driver of deforestation.

Table 2: Commodity-country deforestation rankings in the LAC region

Commodity	Countries (ranking)	As a driver of deforestation in country
Cattle[5]	Brazil (2nd) Argentina (6th) Paraguay-2010 (8th) Mexico (9th) Colombia (10th)	Brazil (1st) Argentina (2nd) Paraguay (2nd) Mexico (1st) Colombia (1st)
Coffee*	Brazil (1st) Colombia (3rd)	Minas Gerais State (1st)[6] Colombia (2nd)
Soy*	Brazil (2nd) Argentina (3rd) Paraguay (6th) Bolivia (8th)	Brazil (2nd), Argentina (1st) Paraguay (1st) Bolivia (1st)[7]

*(Source: Green Commodities scoping paper series) [8,9]

[2] http://www.climatemediapartnership.org/reporting/stories/agriculture-bids-for-deforestation-money/
[3] Green Commodities Scoping Paper series (soybean)
[4] http://www.dailylivestockreport.com/documents/dlr%206-30-2010.pdf
[5] http://www.dailylivestockreport.com/documents/dlr%206-30-2010.pdf
[6] http://www.lumes.lu.se/database/alumni/02.03/theses/achinelli_moira.pdf
[7] http://library.fes.de/pdf-files/bueros/bolivien/07570.pdf
[8] http://www.rainforestsos.org/about-rainforests/whats-happening-to-them/drivers-of-deforestation/

Agriculture is an important economic driver in the LAC region and according to an agricultural census conducted in LAC, it is estimated that in 15 LAC countries there were about half a million corporate farms, owning approximately 55 percent of the farm land. The remaining is in smallholder possession, with 6 million family farms (42 percent of the land), and 11 million subsistence farms (3 percent of the land). A total of approximately 15 million family farms exist and occupy around 400 million hectares.[10]

CATTLE IN THE LAC REGION

Reality: At a global level, cattle grazing accounts for 3.4 billion hectares, a total land equivalent to 26 percent of earth´s surface. Current livestock production utilizes 70 percent of all agricultural land and as much as 30 percent of all terrestrial land surface area[11]. Cattle occupy more pasture globally than all other domesticated animals and crops combined. An area of rainforest larger than New York State is destroyed each year in the creation of grazing land; and composition of native scrubland and grasslands are further altered, or out and out removed, through conversion processes and successive overgrazing[12].

In under a ten-year period, from 1981 to 1990, the LAC region lost 75 million hectares of forest, the majority of which became grasslands[13]. In Central America alone, forested area has been reduced by over 40 percent in the last 40 years and pasture now covers more than nine million hectares, half of which is now considered degraded. Cattle production is the number one driver of deforestation in the LAC region. Of every 100 hectares of forest lost worldwide between the years 2000 and 2005; nearly 65 were in Latin America and the Caribbean. In that period, the average annual rate was 4.7 million hectares lost - 249,000 hectares more than the entire decade of the 1990s.[14]

Beef production in LAC has accelerated production in the last 20 years; countries such as Brazil and Argentina have been the leaders in both production and export, making them major players in the global beef market. As developing countries have become more affluent, meat consumption has grown, making other countries such as Mexico, Colombia and Paraguay, important emerging producers in the region.

Statistically, Brazil is the largest producer over the past 20 years, where 70 percent of the deforested land is pasture land.[15] Between the years of 1990 and 2000, the Brazilian Amazon lost an area of forest the size of Uruguay or twice the size of Portugal. Those states experiencing the highest growth rates and which currently have the highest ratios of head of cattle to inhabitant: Mato Grosso, Pará, and Rondônia are also those experiencing the highest levels of deforestation. These three states accounted for over a third of all Brazilian cattle slaughtered in 2006[16]. More recently, from 2000-2007, the Brazilian Amazon deforestation rates were at an average rate of 19,368km^2, of which over time, 154,312 km^2 were destroyed, an area larger than Greece.[17]

In terms of cattle-related deforestation, cattle production is the number one or number two driver of deforestation in various countries in the region (e.g. 1st Brazil, 2nd in Argentina, 1st in Mexico and Colombia, and 2nd in Paraguay) where in 2010, the country passed Argentina in beef exports[18]. This production has been all at the expense of forests and the following table is a brief summary of some the main environmental externalities generated by cattle grazing.

Table 3: Environmental externalities created by cattle grazing

	Impact

[9] http://www.redorbit.com/news/science/2080176/study_touts_carbonabsorbing_power_of_forests/
[10] ibid
[11] Livestock, Environment and Development (LEAD). 2006. Livestock's long shadow: environmental issues and options. FAO, Rome. 391pp.
[12] Clay , J. 2004. World Agriculture and the Environment: a commodity-by-commodity guide to impacts and practices. Island Press.
[13] Kaimowitz, D. 1996. Livestock and deforestation Central America in the 1980s and 1990s: a policy perpective. CIFOR, Jakarta.
[14] http://ipsnews.net/news.asp?idnews=41225
[15] http://ec.europa.eu/environment/enveco/biodiversity/index.htm
[16] Smeraldi, R., May, P.H. 2008. The cattle realm – a new phase in the livestock colonization of Brazilian Amazonia. Amigos da Terra – Amazônia Brasileira – Sãn Paulo.
[17] http://www.greenpeace.org/usa/Global/usa/report/2009/1/amazon-cattle-footprint-mato.pdf
[18] http://en.mercopress.com/2011/02/28/paraguay-exported-more-beef-than-argentina-in-2010

Biodiversity loss	Habitats are converted or lost including forest, scrublands, grasslands. As a major driver of deforestation, forest fragmentation, land conversion and degradation, cattle farming may well be a leading player in its contribution to biodiversity loss: • Globally, cattle affect more ecoregions of significant biodiversity than any other agricultural commodity[19]. • Of the 825 terrestrial ecoregions identified by WWF, ranging across all biomes and biogeographical ranges, some 40 percent cited livestock as one of the current threats[20]. • From 35 global 'hotspots' for biodiversity identified by Conservation International, characterised by exceptional levels of plant endemism and serious levels of habitat loss, 23 report to be affected by livestock[21]. • The IUCN Red List of Threatened Species show most of the world's threatened species are suffering habitat loss where livestock are a factor[22].
Climatic change	Increased emissions are caused by cattle themselves and through deforestation to create pasture: • Methane emissions from cattle account for 22 - 37 percent of all human-related methane emissions • Massive forest clearings can also impact upon local climate.
Soil loss & degradation	Initial conversion to pasture can cause extreme erosion and loss of topsoil and organic matter which can take decades to replace. • Overgrazing damages soil structure and leads to further erosion • It is estimated that 73 percent of global grazing land is so degraded that it has lost at least 25 percent of its animal carrying capacity. • Soil compaction from repetitive impact can prevent root penetration, reduce water infiltration and reduce aeration.
Water damage	• Livestock is the largest sectoral source of water pollutants. • Disposal of improperly treated organic waste leads to eutrophication and can cause large-scale algal blooms capable of killing aquatic life. • Pesticides used to improve grasslands lead to waterway and ground water contamination. • Contributes to "dead zones" in coastal areas, degradation of coral reefs and human health problems • Direct consumption and irrigation of pastures is in direct competition with other water uses, which can be particularly severe in drier area, even leading to conflicts. • Livestock sector accounts for 8 percent of global water use. • Particularly important given increasing water stresses under unpredicable climatic future • Deforestation further increases surface run-off and reduces dry-season flows • Soil compaction reduces replenishment of freshwater and reduces water tables. • Soil erosion leads to further degradation and siltation of surface waters
Indirect	• Production of feed grains for cattle sector generated further land conversion and degradation. • 33 percent of arable land used for feedcrop production • Expansion of soybean plantations for feedcrops continue to replace forests worldwide • Production of feed grain also leads to contamination of waterways through pesticide use. • Production of fishmeal as important feed component leads to overexploitation of many fish species used within fishmeal.

(Source: Green Commodities Facility Beef Scoping Paper)

In the UN REDD pilot countries, cattle-related deforestation is also an important driver of deforestation. The following is a brief outlook of these four countries:

- *Bolivia:* Cattle ranching is the 2nd driver of deforestation in Bolivia, falling behind soy as the major driver. Bolivia´s annual deforestation is currently estimated between 300,000-350,000 hectares per year.[23]
- *Ecuador:* Ecuador has an annual deforestation rate of somewhere between 60,000 and 200,000 hectares a year, depending on the source. FAO states 200,000 hectares, and the government states 62,000. In terms of driver of deforestation, the main driver is land use change, then cattle production and extracting activities.[24] Santo Domingo is the region of Ecuador seeing most of the expansion of cattle in Ecuador, which accounts for 200,000 hectares of pastureland, generates 150,000 litres of milk, and 14-15,000 heads of cattle are commercialized every month.[25]
- *Panama:* Most recent tracked data of cattle production and deforestation was in a study conducted by CIPAV, where from 1947-2000 total area of forests were reduced from 52,450 km^2 (1947) to 33,645 km^2 (2000).

[19] Clay , J. 2004. World Agriculture and the Environment: a commodity-by-commodity guide to impacts and practices. Island Press.
[20] Clay , J. 2004. World Agriculture and the Environment: a commodity-by-commodity guide to impacts and practices. Island Press.
[21] Clay , J. 2004. World Agriculture and the Environment: a commodity-by-commodity guide to impacts and practices. Island Press.
[22] Livestock, Environment and Development (LEAD). 2006. Livestock's long shadow: environmental issues and options. FAO, Rome. 391pp.
[23] http://library.fes.de/pdf-files/bueros/bolivien/07570.pdf
[24] http://elproductor.com/2011/10/02/ecuador-registra-alta-tasa-de-deforestacion/
[25] http://www.lukor.com/not-mun/america/0407/04024825.htm

Although cattle are not the only driver of deforestation in Panama, the regions that have seen the most increase have been Chiriquí, Veraguas, Los Santos and Veraguas.[26]

- *Paraguay:* Cattle expansion in the Gran Chaco region of Paraguay, has allowed for continued deforestation, and according to a civil society NGO called Guyra, in 2008 approximately 265,000 hectares were deforested, and estimates show that this was equivalent to 1500 football pitches a day. Experts in Paraguay predict that the 2009 figure will exceed 300,000 hectares by the end of the year. The main reason for this drastic forest clearance is to make way for agricultural development, in particular for cattle grazing. [27] There are other figures from the Chaco (April 2011 article) showing that the destruction of 3600 hectares of the Gran Chaco forest in Paraguay was done by large Brazilian cattle ranching companies.[28] (Refer to Paraguay case study for more information)

***Stakeholders*:** Some of the world´s largest livestock companies operate out of the LAC region. Companies such as Grupo JBS, Marfrig Group, Frigorífico Bertin and Minerva are headquartered in Brazil, but with operations across the region. Grupo JBS is the largest operating cattle company in the world, with revenues in 2010 of $31 billion, only a third of it coming from their operations in Brazil. In the past five years, Grupo JBS purchased two American companies, Swift (largest beef processor in the US) and Pilgrim´s Pride (one of the largest chicken producer´s in the US). These purchases allowed Grupo JBS to move into new markets such as Japan and other Asian countries, places where their presence had yet to exist.[29] (Also see opportunities section for more stakeholders)

***Opportunities*:** In 2008, the four companies previously mentioned, agreed to participating in a cattle moratorium, of which they would not buy any cattle from newly deforested areas of the Amazon rainforest. These four companies also agreed on implementing on a certification and monitoring system to ensure that their beef and leather products were not being sourced from these areas. The companies also agreed on not purchasing cattle from ranches using slave labour or illegally occupying indigenous lands and protected areas. These initiatives were started because of the criticisms these companies received from a report released by Greenpeace, linking consumer brands with illegal logging and deforestation.

In response to this, a ripple effect emerged, where large beef buyers such as Walmart, Carrefour and Pão de Açúcar, stated that they would stop purchasing beef from those companies sourcing from areas in the Amazon tied to deforestation. Bertin, the second largest beef producer, had its $90 million loan from the World Bank´s International Finance Corporation withdrawn, because of their connections with sourcing cattle from areas of deforestation, which was the incentive for them to participate in the moratorium.[30]

Silvopastoral systems (SPS) are emerging in the region, and serve as a viable solution to reducing expansion into new forests, since they are set up to intensify production on degraded lands by implementing land use technologies that combine agriculture and tree crops in tropical pastures. These trees and plant species have multiple benefits including: source of abundant protein for cattle, shade and temperature reduction, carbon sequestration, soil management, additional income to farmers from sale of tree products (fruit) and in the long term, income from high end value tropical wood species. Organizations such as CATIE, CIPAV and UNDP SGP, are working throughout the region on SPS initiatives, including initiatives with major dairy producers such as Nestle. The following list of companies could also be engaged based on their presences in the region and in UN REDD pilot countries:

- Panama: Nestle, Dos Pinos, Estrella Azul and Bonlac
- Paraguay: Parmalat, Grupo A J Vierci, Frigorífico Concepción, Frigorífico Guaraní S.A.
- Ecuador: Floralp, Industrias Lácetas Toni SA, Alpina, INPROLAC SA,
- Bolivia: PIL Andina, Clara Bella, La Campiña, Delicruz, La Purita and Federación Nacional de Industrias Lácteas (FENIL)
- Others worth considering: Soprole and Parmalat

One other area emerging is the use of certification schemes that are set up to create standards that both implement best agricultural practices and access new consumer markets seeking to buy goods that are grown responsibly. A Brazilian

[26] http://201.120.157.239/comunidades/download/Avances%20SSPis%20en%20Panama_%20Galindo.pdf
[27] http://www.worldlandtrust.org/news/2009/11/deforestation-in-paraguay-over-1500-football-pitches-lost-a-day-in-the-chaco.htm
[28] http://news.mongabay.com/2011/0412-hance_chaco_law.html
[29] http://www.economist.com/node/21528978
[30] http://news.mongabay.com/2009/1007-greenpeace_cattle.html

NGO, Aliança da Terra's, created a certification system that aims to supplement failed governance by creating incentives for producers to maintain their forest reserves, reforest waterways, implement fire controls, and conserve soils. Aliança certification could aid Brazilian farmers and ranchers to access newer markets where premium prices are being added which in turn restaurants, supermarkets and large beef buyers can say that they are using legally and responsibly produced beef.[31] As of 2008, 200 ranchers had signed up to participate in this certification scheme, operating on over 1.5 million hectares in the states of Mato Grasso, Pará, Goias and Tocantins; of these 100 have so far been assessed for certification. It is expected that by the end of the year this figure will have risen to 250 fully certified and 2.2 million hectares, up to 500 and 6 million hectares by the end of 2009.[32]

In June 2008, Alimentos SA – Brazil's fifth largest beef producer and a lead exporter – announced it would begin marketing beef produced from the Amazon based on criteria established by Aliança de Terra[33]. Aliança de Terra is further also involved with Bertin, in a sustainable supply chain linkages pilot project. The International Finance Corporation (IFC)-Bertin project's intention is to create a sustainable beef supply chain in the region surrounding Bertin's Marabá plant in the state of Pará. Currently involving 20 pilot producers, Bertin hopes new environmental standards will allow better access to export markets, such as the US and EU.[34]

Rainforest Alliance (RA) in 2010 launched their beef certification scheme, which consists of many of the same characteristics of Aliança´s certification scheme, where the aim of RA´s scheme is to improve both environmental and social performances of cattle ranching.

The creation of protected areas has also been an alternative to reducing deforestation in the LAC region. According to FAO, 18 percent of the total forest area in the region was designated as protected areas, where 14 percent of it for the conservation of biodiversity. This area has increased by more than 3 million hectares annually since 2000, and the majority situated in South America. The countries with the highest designation of protected areas in the region in descending order are Cuba, Chile, Ecuador, Trinidad and Tobago, and Honduras.[35]

Risks: The cattle industry in the LAC region is one of the leading industries, and countries such as Brazil, Argentina, and new up and coming countries as are Paraguay and Colombia depend on them as an economic driver of the country. However, there are multiple risks and challenges when assessing what areas or initiatives UN REDD pilot countries can affiliate themselves to. Some of the major risks and challenges are the following:

- Lack of financial commitment from companies for REDD+ initiatives in pilot countries
- Lack of UN REDD interest to invest in private sector strategy
- Government counterparts lack interest in developing sustainable cattle initiatives
- Private sector interests in initiative compete with other NGO REDD activities (e.g. WWF, TNC, etc.)
- Private sector prefers to invest CSR-philanthropy funds into other types of initiatives non-REDD+ related
- Lack of technical capacity (extension services) within countries to pursue best management practices/certifications schemes
- Global company CSR initiatives are not applicable at a national level
- REDD+ initiative does not coincide with government mandate for development

Summary of recommendations

There are multiple initiatives that can serve as examples to pursue a REDD+ initiative working with the beef and dairy sectors. Based on the experiences of UNDP already working with other organizations in the region (i.e. Colombia, Nicaragua, and Panama) on SPS projects, it is recommended that pilot countries should be pursue them as alternatives to reducing cattle-related deforestation. There are multiple examples within the region to build off of, and multiple institutions that can serve as executing partners with extensive experience on the subject, as are CATIE and CIPAV. The UNDP SGP also has multiple projects on the ground in various countries in Central America implementing these types of

[31] http://news.mongabay.com/2009/0909-amazon-cattle-ranching.html
[32] Carter, John 2008. Founder of Aliança de Terra and Amazonian rancher. Personal communication.
[33] Mongabay.com. 2008. Amazon beef producer creates eco-certified meat product with help of scientists. Available at: http://news.mongabay.com/2008/0605-amazon_beef.html (13/12/08)
[34] Aliança de Terra. Available at: http://www.aliancadaterra.org.br/flash/index.php?docid=155 (12/12/08).
[35] http://www.fao.org/docrep/013/i2000e/i2000e.pdf

systems as is in Honduras and Panama. Linking the private sector into these initiatives will be the most challenging part; however, with the current SPS initiative with Nestle in Colombia and Nicaragua, connections within this company already exist. In addition, Nestle is not the only company that could be approached, as mentioned above, companies such as Soprole, Parmalat, Bonlac, etc., are other companies with a large presence in the region and would be of interest to approach these companies seeking partnerships.

SOY IN THE LAC REGION

Reality: Argentina, Brazil, Bolivia, Paraguay and Uruguay are in the top ten of the largest soybean producing countries. These five countries combined have over 50 percent of total global production and take up approximately 45 percent of global planted soybeans. The total planted area in these five countries can be viewed in the Table 4 below.

Table 4: Highest soybean producing countries

Rank	Country	Production in 2009/10 (MT)	Hectares in 2009/10 (in millions)	Production in 2010/11 (MT)	Hectares in 2010/11 (in millions)	Hectares projected in 2011/2012 (in millions)
1	USA	91.42	30.91	91.85	31.09	29.88
2	Brazil	69.00	23.50	67.50	24.25	25.00
3	Argentina	54.50	18.60	52.00	18.60	19.30
4	China	14.70	8.80	14.40	8.40	8.25
5	India	9.00	9.60	9.60	9.40	9.60
6	Paraguay	7.50	2.68	6.50	2.75	3.00
7	Canada	3.50	1.38	3.95	1.45	1.50
8	Uruguay	1.82	0.86	1.62	0.90	1.00
9	Bolivia	1.67	0.90	1.58	0.85	0.90
10	Indonesia	0.80	0.62	0.80	0.62	0.47
	World	260.11	101.95	257.36	103.05	98.9

(Source: USDA 2010)[36]

Currently, a total of 47.35 million hectares is planted across these five LAC countries based on the USDA´s 2010/2011 figures, which represents 45.74 percent of global planted soybeans of the top ten countries. In terms of total hectares, soy-related deforestation is the second most important driver of deforestation in the LAC region, and is some countries it's the number one cause, as is in Argentina, Bolivia[37] and Paraguay. The expansion of soy plantations in the Amazon saw tremendous deforestation in the late 1990s, thanks to the new strands of modified soybeans adaptable to the humid climatic conditions of the Amazon.

The following table is a brief outlook on the deforestation that has occurred over the past decade, although moratoriums have been implemented as a partial solution to soy-related deforestation, other regions of these countries are still seeing expansion.

Table 5: Deforestation in the main soy LAC producing countries

Countries	Description
Brazil	Between 2000 and 2009, Brazil had deforested over 176,000 km^2.[38] The main drivers behind this deforestation have been a combination of pastureland for cattle and soybean expansion. As forecasts for the 2010/11 season predict, soybeans demand will be on the rise, with that, continued deforestation in the Amazon (e.g. 24 million hectares expected to be planted).
Argentina	Between 1998 and 2002, 194,389 hectares of forest were destroyed in the region of Salta. Then, between 2002 and 2006, another 414,934 hectares were deforested, mostly for soy expansion.[39]
Paraguay	Paraguay has seen dramatic changes in the eastern part of the country, where the soybean industry is converting coastal Atlantic forests into soybean farms.[40] Over the past decade production has doubled reaching a record

[36] USDA http://www.fas.usda.gov/psdonline/circulars/production.pdf (retrieved on 11/19/2010)
[37] http://library.fes.de/pdf-files/bueros/bolivien/07570.pdf
[38] Mongobay http://www.mongabay.com/brazil.html (retrieved on 11/25/2010)
[39] http://lasojamata.iskra.net/files/Soy_Expansion_Northwest_Argentina.pdf
[40] Clay, J (2004) World Agriculture and the Environment *Island Press* pg. 179

	production of 7.5 million tons. In 2007, soy production covered 2.5 million hectares, and in 2008 it increased 3.5 million hectares[41] Paraguay is ranked 6th in the world for production.
Bolivia	Bolivia in the 1970s only grew about 1000 ha of soybeans, at the turn of the century they were producing over 470,000 ha., and as of 2007 it was 617,200 ha. Bolivia is within the top 10 producers of the world, standing in 8th place, and soy is the number one cause of deforestation in country.[42]

(Source: Green Commodities Facility Soybean Scoping Paper)

Stakeholders: Multinational traders and companies play key roles in the production and distribution of soybeans throughout the supply chain. In Brazil for example, much of the money that finances soybean production comes from foreign investment. Cargill, ADM (Archer Daniels Midland) and Bunge, are responsible for 60 percent of the financial investments in soybean production in Brazil, and these three companies also control nearly 80 percent of the European Union's soybean processing.[43]

Greenpeace´s report ¨Eating up the Amazon¨ released in 2006, tracked the soy crisis in the Amazon by focusing on two companies, Cargill and McDonalds. The report documents the path of soy within both these two companies supply chains, and found that the soy was being sourced from illegally cleared farms, sometimes with the use of slave labour, through the ports, processors and meat producers of Europe, and finally into the Chicken McNuggets of McDonalds. In response to this, these same two companies committed to not sourcing soy from deforested areas. Other companies such as Carrefour, also signed on as companies making steps to monitor and control the soybeans in their supply chains.[44] (See Table 14 for an overview of sustainability commitments by companies, and also see the annexes for a list of the main soy companies in the LAC region.)

Opportunities: In efforts to reduce the deforestation from soy production, Brazil in 2006 implemented a soy moratorium that slowed down some of the deforestation in Brazil. The moratorium requires that no supplier should cultivate soy on land deforested within the Amazonian biome. The moratorium is committed to reducing deforestation by 80 percent (Amazon) by 2020, and to date, the moratorium has already reached 67 percent, of which 40 percent of it is from the Cerrado region of the Amazon.[45] Since its initiation, NGOs along with the soy sector have established the Soya Working Group; which gained the support of the Brazilian Government and has set about identifying and developing key tools to implement the moratorium, establishing monitoring systems, including detailed maps. The moratorium was initially implemented for one year, but has been renewed and continues to reduce deforestation.

In Paraguay in 2004, created the Zero Deforestation Law (Ley de Deforestación Cero), which prohibits the conversion of native forests to agricultural areas or areas for human settlements in the Upper Parana Atlantic Forest (UPAF). However, there has been a significant increase in deforestation outside the limits of the Atlantic Forest, especially in the western Chaco region. The current deforestation rate in this region is estimated at 500 ha per day.[46]

Other global initiatives do exist in attempts to reduce the deforestation. The Roundtable of Responsible Soy (RTRS) was launched in 2006 creating a global platform composed of the main stakeholders of soy supply chain promoting responsible soy production. One of main focuses of RTRS strategy is to work these different stakeholders bringing them together to increase dialogue, collaboration and consensus finding amongst the various sectors. ADM, Cargill, Nestle to just name a few, are becoming active members of RTRS, and working to trace soy to its source, something to consider with other soy producing countries, such as Argentina, Paraguay and Bolivia.

The soybean certification markets are still in their infant stages; however the RTRS is attracting cross-sectoral institutions and are gaining a large corporate participation. Some of the institutions worth mentioning are the Chinese Soybean Industry Association, WWF, ASDA and Cargill. The RTRS released its first batch of certified soybeans in January 2011 Arla Foods Netherlands who agreed to work with Solidaridad to purchase soybean meal from small scale Brazilian

[41] http://lasojamata.iskra.net/es/node/183 (retrieved on 11/24/2010)
[42] http://library.fes.de/pdf-files/bueros/bolivien/07570.pdf
[43] http://ipsnews.net/news.asp?idnews=33652
[44] http://www.greenpeace.org/international/en/publications/reports/eating-up-the-amazon/
[45] UCS The Root of the Problem (pdf)
[46] http://commodityplatform.org/wp/wp-content/uploads/2009/06/factsheet_paraguay_final_120609.pdf

farmers for their dairy productions.[47] In addition, and according to WWF, the RTRS has reported 224,000 ha of soybean field testing sites, which will expect to produce 650,000 tons of RTRS field-tested soy.[48] In June 2011, 85,000 tonnes of soy was purchased by the Initiative for Sustainable Soy (IDS), a Dutch food, retail, and feed companies.[49] In August 2011, Swedish company Lantmännen purchased 30,000 tonnes of RTRS soy, which is 18 percent of the company´s total soy volume.[50] In addition, Grupo Maggi, SLC Agricola, and APDC of Brazil, and Grupo Los Grobo, AdecoAgro and Aceitera General Deheza of Argentina, are working with RTRS to certify their soy products.

Risks: Although the soy industry in Brazil is complying with the moratorium, the problems with soy production and its ties to deforestation is now being displaced into other countries, as is the case with Paraguay. Paraguay has had a large impact on their forests because of soy production, but the majority has been because of Brazilian investments and ownership of land. Tranquilo Favero, known as the ¨brasiguayo¨, alone has been responsible for over one million hectares of soy-related deforestation in Paraguay, and has properties in 13 of the 17 departments. Please refer to the case study on Paraguay, for a detailed analysis of soy production and deforestation in Paraguay.

Some of the other risks associated with reducing deforestation is the lack of a market for certified soy products. Although in the Netherlands there has been some purchasing of certified soy, large companies have yet to commit to purchasing large enough quantities that would impact the industry and impulse other companies to follow. One because the supply of certified has yet to become competitive, and second because the demand is not there yet. The Dutch have committed to purchasing all of their soy from RTRS by 2015, a total of 1,800,000 tonnes of certified soy.

A final issue to observe is that the RTRS does not distinguish their standard from GM soy, as it includes conventional, organic and genetically-modified. The RTRS have been scrutinized by several advocacy programs, which claim that GM soybeans should not be included within the certification. In response to this the RTRS has just released a voluntary annex for RTRS members that wish to produce or trade soy GM free.[51]

The list provided in the cattle risk section, also provides some of the same risks that a soy initiative could face.

Summary of recommendations

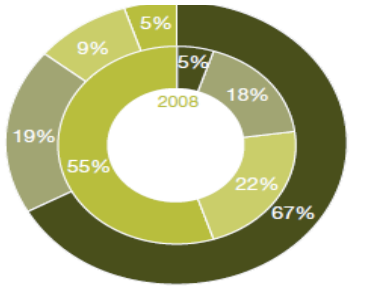
Based on the analysis above, there are various initiatives that could emerge as counterparts for a REDD+ initiative in soy. Two of the four pilot countries have and will continue to be emerging soy producing countries, and soy is already the number one drivers of deforestation in these countries. The RTRS is a viable option to engage as a partner in these countries, first because they are tightly affiliated with some of the main soy companies (i.e. Cargill, ASDA, etc.), and second the Green Commodities Facility has already contacted them and started conversations about a UNDP project in Paraguay regarding scaling up sustainable soy practices.

[47] RTRS http://www.responsiblesoy.org/index.php?option=com_content&view=article&id=149:primera-demanda-de-soja-certificada-rtrs&catid=4:noticias&Itemid=3&lang=en (retrieved on 11/30/2010)
[48] WWF http://wwf.panda.org/?193809/Soy-industry-members-agree-to-environmental-safeguards-for-responsible-production (retrieved on 11/30/2010)
[49] http://www.foodnavigator.com/Financial-Industry/First-market-uptake-of-Round-Table-s-responsible-soy (retrieved on 09/08/2011)
[50] http://responsiblesoy.org/index.php?option=com_content&view=article&id=284%3Alantmaennen-purchases-swedens-first-rtrs-soy&catid=4%3Anoticias&Itemid=3&lang=en (retrieved on 09/08/2011)
[51] WWF http://wwf.panda.org/?193809/Soy-industry-members-agree-to-environmental-safeguards-for-responsible-production (retrieved on 11/26/2010)

Reality: At a global level, forests occupy over four billion hectares. Latin America is home to one fourth of the globe´s total forests (891 million Ha.) and to about one half of the tropical forests of the world. According to FAO (State of the World´s Forests-2011), Brazil has the largest forest cover at 13 percent and is the largest owner of tropical forests. Bolivia, Brazil, Colombia, Peru and Venezuela represent 84 percent of the total forest area in the region. [52] Although tropical forests only cover two percent of the Earth´s surface, they are extremely important an ecosystem level, as they house 50 percent of all life on the planet.

Figure 1: global market shares

(SOURCE: PWC)



Global trade in tropical timber is worth approximately US$16 billion per year (as of 2009 it rose to US$18 billion), with illegal timber representing an additional US$7 billion [53] (World Bank estimates that illegal logging costs governments US$15 billion in lost royalties)[54].

In a recent publication by PwC (Branching Out-2009), Latin America surpassed other regions in the forest, paper and packaging (FPP) markets in 2009, taking up two-thirds of the global share. Holding only 5 percent in 2008, in 2009 their market share in FPP rose to 67 percent, where North American shares dropped to just 5 percent, Europe at 9 percent, and Asia (Australasia) stayed more or less constant at 19 percent.

Plantations are seeing positive growth in the forestry sector. According to FAO the potential industrial wood production from planted forests in 2005 was 1.2 billion cubic meters, or two-thirds of global wood production. An outlook for the year 2030 indicates that the area of planted forests may increase by 30 percent and wood production by 50 percent, thus increasing the importance of tree plantations' expansion.[55]

According to FAO, in the LAC region, plantations made up less than two percent of total forest area, and the region accounted for less than six percent. This number however is increasing, where plantations are seeing a yearly growth rate of 3.2 percent every year, specifically in Argentina, Brazil, Chile, Peru and Uruguay showed the largest increases between 2000 and 2010.[56] The following table is an overview of the UN REDD pilot countries and the forestry activities currently taking place.

Table 6: Forestry activities in pilot countries within the last decade

Country	Activities
Bolivia	Forest sector generates approximately US$100 million per year in exports; representing 7 percent of the country´s total exports, represents 0.9 percent of the country´s GDP and generates 160,000 jobs.[57] 46,000 Ha are plantations[58] and certified forest exports in Bolivia account for approximately US$13 million per year, and it is expected that within the next ten years, exports in general could reach US$360 million under the right forest policy framework.[59] Bolivia is a leader in voluntary forest certification under the FSC label, with over two million hectares of forest under sustainable management. However, Bolivia looses 290,000 hectares of forest annually due to illegal logging and deforestation.[60] Main companies: Camara Forestal (link to companies)
Ecuador	Ecuador forest sector generates over US$60 million per year in exports, however it imports of over US$ 270 million in

[52] http://www.fao.org/docrep/013/i2000e/i2000e.pdf
[53] The Princes' Rainforest Project: http://www.rainforestsos.org/pages/key-commodities
[54] http://www.nationalaglawcenter.org/assets/crs/RL33932.pdf
[55] http://www.fao.org/news/story/en/item/10324/icode/
[56] http://www.fao.org/docrep/013/i2000e/i2000e.pdf
[57] FAO-PPT Tendencias y Perspectivas del Sector Forestal – Visión al 2020, de los países de la región amazónica con énfasis en Bolivia
[58] ibid
[59] http://www.chemonics.com/pv_obj_cache/pv_obj_id_372754E9E91ED1DF4EDE2564BDCD94E9AA142500/filename/Bolivia%20Sustainable%20Forestry.pdf
[60] http://www.fscus.org/news/archive.php?article=437&

	forest products. Of the wood harvested in Ecuador, 67 percent of it is used as fuelwood or illegally logged, of which only 19 percent is actually processed into products.[61] Main companies: ENDESA, Plywood Ecuatoriana, CODESA, BOTROSA, ARBORIENTE, COTOPAXI, NOVOPAN (link to more companies)[62]
Panama	Panama currently has 350,000 Ha of natural forest for commercial concession, of which 75,000 Ha already exist and there about 1500 private investors developing reforestation projects. There is around 2 million Ha available for reforestation, and from 1993-2004 these projects generated over 600,000 jobs and brought in US$ 314 million in investments (US$ 100 million from government incentives and US$ 214 million from private funds).[63] Main companies: Panama Forest, GEO Forestal, Grupo Melo
Paraguay	Paraguay has a forest cover of approximately 10 million Ha. Only 800,000 Ha are considered valuable extractable wood, and currently there are only 40,000 Ha of planted forests. The forestry sector in Paraguay is small, mainly due to the lack of a proper forest policy for the forestry sector.[64] Main companies: Emprendimientos Forestales, Rale S.A (link to more companies)

(Source: Various, see footnotes)

Stakeholders: Large transnational corporations like Iberpapel for example, have large tree plantations in South America, totaling 10,551 Ha in Uruguay and 8,537 Ha in Argentina, adding up to more than 16 million trees planted[65]. In Brazil, Aracruz Celulose owned about a quarter million hectares of land planted with trees, before the merger with Votorantim Celulose e Papel that resulted in the new company Fibria[66].

In the past couple of years, there have been various movements in ownership (mergers and acquisitions) of forestry companies and the following table is a brief breakdown of the some of the major activities that took place in 2009:

Table 7: Forestry companies in LAC

Company	Countries of operations	Milestones
Aracruz Celulose SA	Brazil	Acquired by Votorantim Celulose e Papel SA of Brazil
Fibria SA	Brazil	Acquired by Empresas CMPC SA of Chile
Botnia South America SA	Uruguay	Acquired by UPM-Kymmene Oyj of Finland
Satipel Industrial SA	Brazil	Acquired by Duratex SA of Brazil
Grupo Empresarial ENCE SA	Uruguay	Acquired by Stora Enso Oyj; Celulosa Arauco y Constitución SA of Finland/Chile

(Source: PwC)[67]

For a listing of companies in the UN REDD pilot countries, refer to Table 6 for some of the main companies in those countries.

Opportunities:

Certification

This rise of certification has led to the emergence of several different systems throughout the world. As a result, there is no single accepted forest management standard worldwide, and each system takes a somewhat different approach in defining standards for sustainable forest management. The following table is a summary of the main certification schemes worldwide, many of them present in the LAC region, however worth noticing that not all are designed for industrial tree plantations.

Table 8: Different certification schemes for timber used in different parts of the world.

Issuing body	Characteristics	Website

[61] http://www.lfpdc.lsu.edu/publications/working_papers/wp69.pdf
[62] http://www.ibcperu.org/doc/isis/7454.pdf
[63] http://www.conagefor.com/images/documentos/Presentation_Panama_CG_v3.pdf
[64] http://www.sectorproductivo.com.py/ambiental/forestal/4935-paraguay-y-su-sector-forestal-
[65] http://www.forestalweb.com/Noticias-internacionales/iberpapel-supera-los-16-millones-de-arboles-en-sus-plantaciones/
[66] WRM. 2001. *The sad figures of employment generated by plantation companies*. http://www.wrm.org.uy/bulletin/50/employ.html
[67] http://www.pwc.com/en_GX/gx/forest-paper-packaging/pdf/top10deals.pdf

The American Tree Farm System	Is a program for small, private, non-industrial landowners (family forest landowners). ATFS certifies contiguous parcels from 10 - 20,000 acres and was endorsed by PEFC in August of 2008.	www.treefarmsystem.org
The Canadian Standards Association	Is a national standard for sustainable forest management and tracking and labeling certified material. It covers operations in Canada.	www.csa.ca
The Forest Stewardship Council	Is an international system covering forest management practices and the tracking and labeling of certified products and paper products with recycled content.	www.fsc.org
Programme for the Endorsement of Forest Certification Schemes	Is a mutual recognition framework for national forest certification standards.	www.pefc.org
The Sustainable Forestry Initiative Program	Is a sustainable forest management standard targeting large industrial operations in Canada and the United States.	www.sfiprogram.org
Australian Forestry Standard (AFS)	The standard is developed and managed by a steering committee, while a technical reference committee of 19 decides on the content of the standard. It is voluntary, subject to verification by third-party accredited auditors and is intended to apply to both native and planted forests regardless of tenure or scale of ownership. There is also a chain of custody (COC) standard for verifying the origin of certified raw material.	www.forestrystandard.org.au
Brazilian National Forest Certification Program	Is a voluntary initiative focusing on plantations. Additionally, the program has a COC standard for tracking certified raw materials.	www.inmetro.gov.br/qualidade/cerflor.asp
Chilean Forest Certification System (CERTFOR)	The system has standards for managing plantation forests and COC tracking of certified material as well as group and individual certification options depending on forestland size. CERTFOR is in the process of developing a natural forest management standard.	www.certfor.org
Indonesian Ecolabeling Institute (LEI)	LEI's SFM Certification System was developed with reference to the sustainable forest management principles and criteria of the International Tropical Timber Organization (ITTO) and Forest Stewardship Council (FSC), as well as the environmental management system developed by International Organization for Standardization (ISO).	www.lei.or.id
Malaysian Timber Certification Council (MTCC)	The system began operating in 2001 based on the principles of the FSC. The MTCC released a set of criteria and indicators in 2002 and field tested these indicators until June 2004.	www.mtcc.com.my

(Source: Forest Certification Resource Center, 2010)

Critics of the FSC model are especially reluctant to accept certification of large scale monoculture tree plantations. Several issues have been raised about plantations installed in Uruguay, for example, deeming plantations "environmentally inappropriate, socially damaging and economically unviable", the opposite of what FSC seeks[68]. Similar situations have been reported for African, Asian and even European countries. On the other hand, a large segment of the producer sector has been reluctant to embrace the certification movement. Companies such as Arauco and Stora Enso, are developing certification programs in Chile, where 1.1 million hectares are under FSC revision for certification.

Forest Law Enforcement, Governance and Trade (FLEGT)

This EU led initiative, was created in response to the EU´s recognition as being a major consumer of wood products from regions where illegal logging and poor forest governance occurs. The aim of this initiative is not only to reduce illegal deforestation, but to attempt to tackle poverty by supporting good governance and in those countries selling wood to the EU. High-level political commitments have been made in the EU, and companies are pursuing to responsibly source wood products from producers who are complying with local laws. This initiative is developing markets for legal wood products, promoting businesses and consumers to pay the full price of producing wood products that are not sourced

[68] http://www.guayubira.org.uy/english/WRM104.html

from areas where illegal logging occurs. Bilateral agreements are also being developed with producing countries, which are voluntary but commit EU companies to purchase responsibly harvested wood products.[69] Countries such as Liberia, Cameroon and Malaysia are working together with FLEGT, and in LAC, Bolivia, Colombia, Ecuador, Guatemala, Guyana, Honduras and Peru have expressed interest in participating in this initiative. Colombia and Ecuador specifically have created partner projects with FLEGT, in which both projects seek to strengthen institutional, social and community level mechanisms that will help guarantee compliance of regulations favoring ethnic organizations and improving the integral management and governance of the ethnic territories and their forest resources.[70]

UNDP, Global Environmental Facility (GEF), Rainforest Alliance and CONAFOR (Mexico´s National Forestry Commission) are jointly executing a project that is working to better manage the unsustainable use of Mexico´s forests by promoting biodiversity conservation. The project is building strong national and international markets for timber products from sustainably managed forests, thus garnering economic benefits and incentives to reward sustainable forest management and biodiversity conservation, while enhancing the capacity of forestry stakeholders to participate in this market. Several key barriers currently obstruct reaching this position. First, local capacity to achieve and maintain certification, to participate in the expanding market for certified products, and to manage their biodiversity endowment is low. Second, producers lack access to markets for certified products, as well as financing to invest in better technologies and product diversification. Third, though the government has instituted substantial technical assistance programs to support forest communities, central and regional national capacities need to be built to more effectively support certification and biodiversity management in production forest. Finally, there are no systems in place in Mexico to monitor and assess the impact of certification on biodiversity. Such systems are vital to improving management systems to reduce negative impacts on ecosystem services, thus ensuring that biodiversity conservation results from the achievement of certification.

The project is leveraging national and international capacities to remove these key financial and operational barriers in order to reach the desired state wherein sustainable forest management ensures biodiversity conservation, while market forces demanding certified products make investments in these processes financially attractive for forest producers. The project has four strategies: (i) build capacity of government and other partners; (ii) strengthen local capacity; (iii) stimulate economic incentives; and (iv) establish monitoring systems. The fourth strategy has an integrated innovative REDD activity is being piloted in partnership with the Mexican national REDD initiative.

Other initiatives worth mentioning are the UN forum on forests, the International Tropical Timber Organization and the World Bank; that are all working on sustainable forestry management initiatives.

Risks: Illegal logging is the largest risk to the forestry sector. In timber producing countries in the developed world, it is estimated that over half of timber production and exports are done through illegal logging[71], not to mention the billions of dollars lost both by governments and the forestry industry.

Another major risk for the UN REDD Programme is classifying the term ¨forests¨, because according to the UN REDD social and environmental safeguards Annex I: ¨that actions are consistent with the conservation of natural forests and biological diversity, ensuring that the actions referred to in paragraph 70 of this decision are not used for the conversion of natural forests, but are instead used to incentivize the protection and conservation of natural forests and their ecosystem services, and to enhance other social and environmental benefits.¨[72] In other words, no forest plantations (monocultures) can qualify to participate in REDD+ initiatives.

Summary of recommendations: Projects and initiatives such as FSC, FLEGT and UNDP forestry project are all good examples of initiatives that reduce deforestation and promote sustainable development. They can serve as good sources of information when elaborating a sustainable forestry project in any of the pilot countries or other REDD+ initiatives in the

[69] http://www.efi.int/files/attachments/publications/efi_policy_brief_2_eng_net.pdf
[70] http://www.euflegt.efi.int/portal/partner_projects/?did=191
[71] http://www.nationalaglawcenter.org/assets/crs/RL33932.pdf
[72] FCCC/CP/2010/7/Add.1 Appendix I http://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf

region. As far as engaging with companies, Table 6 mentions the main companies operating in these countries, and can serve as a reference.

BIOFUELS

Reality: Investment in biofuels has increased over the last 15 years, from approximately $5 billion in 1995 to $38 billion in 2005, and in 2010 it reached $100 billion.[73] The LAC region is emerging as major producer of biofuels. According to the NY Times, LAC has invested over $8 billion in biodiesel and ethanol in 2007 and could increase the flow of energy exports to the US. Soy and sugarcane are the most appropriate crops for biofuels in LAC based on the soil types and climate, and are more efficient than corn-based ethanol from the US. However, debates exist on whether or not plant-based fuels increase food prices and promote further deforestation.[74]

Countries within LAC are increasing their production of biofuels. Colombia was expected to produce a billion litres by the end of 2010, doubling the output of the mid 2000s, Argentina in 2007 began exporting biodiesel made from soy, and Peru just recently opened a new biofuels plant that will also process soy but as of 2010 jatropha was added to the plant´s production. Mexico has created incentives to create biofuels from beets and sorghum.[75] In 2006, Paraguay signed an agreement with Brazil to develop biofuels and new plantations, both small and large, are being planted. In addition, the most obvious tendency in relation to the emerging bio-fuel market during 2007 has been the increased interest in the purchase of grain and vegetable oil by groups of foreign businesses for biodiesel production in their own countries.[76]

Brazil is the leader in LAC for biofuel production, with mills producing 27.5 billion of litres (7 billion gallons) in 2008-2009. Mexico and Venezuela have been promoting renewable fuels as additives to gasoline for both domestic and export markets. According to the OECD, the LAC region could compete with Asian countries of China, India and Indonesia who are in the top ten of world leaders.[77] However, one of the main challenges that these other LAC countries face, is that in Brazil the government has actually committed together with an integrated system of subsidies, obligations and incentives, and large investments in infrastructure.[78]

For UN REDD pilot countries, biofuel production is summarized in the following table:

Table 9: Summary of biofuel production in UN REDD pilot and member countries

Country	Biofuel production
Bolivia	Law 3207 which was passed in 2005, which is a national mandate to add a vegetable-based component as a mix in diesel. In 2006, Law 3546 which created an association that will promote the production of ethanol, in addition to promoting the exploration of biodiesel from palm oil and jatropha.[79] (NEEDS PRODUCTION DATA) Main companies[80]: Biodiesel Biofe SA, Biodiesel Natural, Biodiesel Boliviana, Social Biodiesel de Bolivia (BSS) – None have websites
Ecuador	Law 2332 established in 2004, was the first law to promote the production of biofuels. The most prominent biofuels to be produced are jatropha and pine seed (piñón), however sugar, maize and palm oil could be other sources. The government has identified 200,000 Ha suitable for biofuel production, however only 50,000 Ha are the actual amount is designated and conflicts exist as this land is part of an indigenous community.[81] There is a pilot project in Guayaquil that is project to produce approximately 1.4 million barrels per year to reach the 10 percent mix quota of ethanol-gas. This project also includes the production of biodiesel from palm oil, but the area has yet to be determined.[82] Main companies: La Fabril
Panama	The exploration of biofuels in Panama is a recent topic that the government is exploring. It is estimated that in 2013 Panama will have mix-based of ethanol and gasoline, and with the aid of a new law being developed, by 2016 the mix will be of 10 percent.[83] Texas BioDiesel Corporation has vested interest in constructing a biodiesel plant in Puerto Armuelles, which will have the capacity of processing 100 million gallons of biodiesel per year. The first step of this

[73] http://www.time.com/time/magazine/article/0,9171,1725975,00.html
[74] http://www.nytimes.com/2008/07/22/business/worldbusiness/22iht-biofuel.1.14680893.html
[75] ibid
[76] http://commodityplatform.org/wp/wp-content/uploads/2009/06/factsheet_paraguay_final_120609.pdf
[77] ibid
[78] http://www.frost.com/prod/servlet/market-insight-top.pag?docid=87836253
[79] http://cipca.org.bo/agrocombustible/agrocombustible/documentos/documentos/1_Documentos/2_Biocombustibles%20en%20Bolivia-%20Fobomade.pdf
[80] http://bolivia.acambiode.com/empresas?find=biodiesel
[81] http://www.estudiosecologistas.org/docs/reflexion/ecologiapolitica/comentariosleyfomento.pdf
[82] http://www.comunidadandina.org/desarrollo/biocombustibles_ecuador.pdf
[83] http://www.tvn-2.com/noticias/noticias_detalle.asp?id=50130

	project is to start the financing of planting palm oil with a company called Cooperativa Empresa Productora de Palma de Aceite de Chiriquí, based in Chiriquí, Panama (as of 2009, the coop was to expand their area of cultivation from 5,700 to 10,900 Ha).[84] Other biofuels projects exist, such as there is a dutch-based NGO called Agro2 who has already constructed a pilot ethanol plant using yucca as its input. Beginning of 2012 they will open a larger plant with capacity of 5000 L/day. Another project under discussion is with the Brazilian company Pesquisa Agropecuaria, who is working in collaboration with MIDA, and will invest US $2 million in a biodiesel plant in Colon, Panama. Main companies: Odin Energy Corporation
Paraguay	In 2005, Paraguay passed Law 2748 for biofuels promotion. Since its implementation the required mix of ethanol with gas was of 7 percent, and now the percentage required has increased to 25 percent. Production of ethanol is expected to reach 180 million litres in 2012. Biodiesel production in Paraguay does not receive the same support and has costs production that are higher than the cost of imported diesel, so in 2011 production is expected to be just one million litres.[85] Main companies[86] (biodiesel): Frigorífico Guaraní, Bioenergia SAECA, Enerco, Sebo Pora-SRL, Agro Silo Santo Ángelo, Frigorífico Conecpción, Cooperativa Cosecha Feliz, Quest SA, CIMSA

(Source: various, see footnotes)

Stakeholders: In Table 9 above, various biofuel companies have been mentioned.

Opportunities: Roundtable for Sustainable Biofuels (RSB) is a global initiative bringing together farmers, companies, NGOs, governments and inter-governmental agencies concerned with ensuring that the production and processing of biofuels be conducted sustainably. The RSB has developed a 3rd party certification system for biofuels sustainability standards, conforming environmental, social and economic criteria and principles via multi-stakeholder process.[87] The RSB is still in its pilot stage, however there are already projects being developed in the LAC region. In Guatemala, a pilot project was launched and it was aimed to evaluate the feasibility of the RSB standard in Central America. On-site audits were done in four different regions, where the project looked at inter-cropping jatropha with crops such as corn, pineapple and millet. One of the main aspects of the pilot project was to evaluate the management systems to apply RSB standard across large numbers of small-scale farmers. Another pilot project was conducted in Brazil, where the aim of the project was to evaluate sustainable practices of sunflower for biodiesel, looking at multiple benefits from utilizing cover crops and non-tillage systems.[88]

Brazil already a major producer of ethanol, but soybeans and grains are on the rise. Brazilian based ethanol according to a Time Magazine article on biofuels, 45 percent of the fuel provided is grown on just 1 percent of arable land, however this number is expected to double by 2015, still with a little affect on the Amazon. However, the Brazilian Cerrado is seeing large impacts from the expansion of the agricultural frontier, where land is converted into pasture lands, and then into sugarcane and soybean fields.[89]

Risks: As an alternative energy source, biofuels are sought out to be a viable solution. However, questions from experts point towards biofuels becoming problematic because they alter food prices and are still a driver of deforestation. Sugarcane, soybeans and cereals are the crops destined to be the main source of biofuels in the LAC region.

Summary of recommendations: In conclusion, biofuels production is the LAC region is growing. Soy, sugarcane and palm oil are the most popular crops for producing biofuels. However, as this sector and the companies working in its production expand, the demand for more land converted specifically for the production of biofuels will come to surface. Governments need to work with these companies to agree on the conditions necessary to abide on the appropriate measures to comply with a given country´s mix percentage mandate, and the lands in country being used to produce these crops. Developing these crops on degraded lands is an option, also looking into what Brazil has done with their ethanol production and the low impact they have on their forests can be another. Finally, the RSB is also an emerging entity working to promote the sustainable production of biofuels, and could be an interesting partner in the region.

[84] http://www.iica.int/Esp/Programas/Innovacion/Publicaciones_TeI/B1884e.pdf
[85] http://gain.fas.usda.gov/Recent%20GAIN%20Publications/Biofuels%20Annual_Buenos%20Aires_Paraguay_6-30-2011.pdf
[86] http://www.iica.int/Esp/Programas/Innovacion/Publicaciones_TeI/B1884e.pdf
[87] http://rsb.epfl.ch/
[88] http://rsb.epfl.ch/files/content/sites/rsb2/files/Biofuels/Annual%20Reports/Annual%20Report%202010.pdf
[89] http://www.time.com/time/magazine/article/0,9171,1725975-2,00.html

MINING

Reality: The extraction of minerals has been a consistent driver of deforestation. It is estimated that mining, together with oil prospecting, threatens 38 percent of the globe´s remaining primary forests. This is true since in order for a mining project to emerge, there are various steps that are taken that lead to deforestation. Some of the more obvious stages include the construction of roads to transport the minerals to market, prospecting and exploration, mine development and mine exploitation.

The WRM released a comprehensive report on the impacts of mining taking into consideration deforestation, and it is said that 60 percent of minerals mined in the world are extracted using an opencast method; a method used to extract rocks or minerals from the earth by removing them from an open pit.[90] When mining methods such as opencast mining (i.e. extraction of hard rock metals) and quarries (e.g. sand, granite, slate, marble, gravel, etc.) are used, vegetation and ecosystems need to be cleared to extract these minerals.

The following is a brief description of some of the major impacts from the mining sector:

Table 10: Environmental impacts of mining

Impact	Description
Deforestation	• Road construction and access routes to mines, deposit prospecting and exploration, mine development and preparation, opening up of trenches and pits, opencast mining causes the clearing of large areas of vegetation • Topography and land scenario changes due to excavation of open pits and dumping of overburden rock mass in the form of land heaps.
Water	• The land-use in the surrounding areas may get affected due to the impacts of mining on water regime. • The enormous consumption of water required by mining activities generally reduces the water table around the site drying up wells and springs. • In the mines having mineral concentration/processing plants, it is required to make tailing ponds that store the tailings generated from the processing plants. These tailing ponds require massive area and may cause pollution of ground and surface water bodies, if proper care is not taken • The drainage pattern of the area undergoes a change due to the alterations in the surface topography due to mining and associated activities
Soil erosion	• Leachates from overburden dumps and other rock masses and polluted water from the pits affect the characteristics of the top-soil affecting the land-use. • The land-use pattern undergoes a change due to the use of the land for mining, dumping, and other mining and associated activities.
Biodiversity	• Clearing of vegetation affects habitat of endemic species • Disrupt biological corridors which reduces species migration
Ecosystem	• Ecosystem services are damaged from clearing of vegetation (e.g. which can lead to rapid runoff of rainwater which can cause flooding)

(Source: Various, see footnotes[91])

Countries such as Bolivia, Brazil, Chile, Mexico and Peru, to just name a few in the region, have a long history of being countries that heavily rely on mining as an important economic driver. For example, the mining sector in Brazil in 2008 made up almost 2 percent of Brazil's GDP, accounting for $23.95 billion. Growth in the sector is phenomenal, and mining is expected to reach an estimated $46.44 billion by 2014. Between 2000 and 2008, the size of the industry has grown five times. However, other countries in the LAC region are expanding their mining activities. The following table is a brief summary of the mining activities of the last decade of some of the most notable countries where deforestation is occurring at the expense of mining activities.

Table 11: Brief overview of mining in the LAC region

Country	Data on deforestation
Argentina – gold	Esquel is a small town in the south of Argentina. In the beginning of the 2000s, an opencast gold mine with a cyanide processing plant was planned to be built 8km from the town. The town fought the company through the submission of an Action for Environmental Protection, which was approved (Environmental Impact Law No. 4032) and halted all mining activities. In the same region as Esquel, a small indigenous community was notified of prospecting by Teck Argentina (Subsidiary of Canadian company Teck Gold), that they were interested in opening mines over an area of 10,000 Ha. Another small community nearby (forested area), also was approached about

[90] WRM PDF *Mining: Social and Environmental Impacts* pg. 20
[91] http://www.cpcb.nic.in/upload/NewItems/NewItem_105_iron_ore_mining_31.07.08.pdf

	interests of opening mines over another 10,000 Ha. and both have been halted. Main companies: Meridian Gold (Canada), El Desquite (Argentina), Teck Argentine (Argentina), Teck Gold (Canada)
Bolivia – gold	The Amboro and Madidi National Parks at the beginning of the 2000s were being considered under the government of the time, to be open for companies to explore oil and mining. Local communities and civil society organization, protested any exploration in these parks and it has been halted. Main Companies: Bolivian Mining Corporation (Bolivian-nationalized)
Brazil - iron ore	In a recent interview with the Minister of Mines and Energy published in Global Business Report, one of the greatest challenges the Brazilian mining sector faces is pursuing mining activities, but with a focus on environmental sustainability. The Amazon region has the potential for major undiscovered minerals, however at what costs will this expansion have, alongside the already many problems with deforestation and commodity production (eg. beef and soy).[92] Main Companies: BHP Billiton, Companhia Vale do Rio Doce, Rio Tinto
Colombia – coal	In various regions of Colombia, mining rights are being given out or sold. In Urabá alone mining rights have been granted over 1.9 million hectares, out of the region's 2.4 million hectares of land. In Boyacá, signs can be seen with advertisement of land rights for sale, such as one documented in an article from Revista Poder stating that 1,500 Ha are for sale. The mining sector currently receives more than 30 percent of all direct foreign investment.[93]
Ecuador – gold, silver and copper	In 2008, President Correa rejected nearly 80 percent of mining concessions in Ecuador, mainly affecting Canadian mining companies. However, beginning 2009, lawmakers approved several large-scale mining projects for the exploration of gold, silver and copper.[94] Main companies: Dynasty Metals (Canada), Copper Mesa Corporation (Canada), Corriente Resources (exploration counterpart of BHP Billiton – Canada, and owns 62,000 Ha of land in southern Ecuador)
Jamaica – bauxite	Bauxite mining is the second largest foreign exchange earner after tourism, and is considered the main driver of deforestation. Beginning of the 2000s, a third of the watersheds were deteriorated because of deforestation, and streams and rivers were dried up, limiting water access to local communities and cities.[95] Main companies: Kaiser (US), Alumina Alpart (US), Alcan (Canada)
Panama – copper and gold	A 13,600 Ha mining concession in Panama was given to develop opencast copper and gold mines. These mines are situated in a controversial area as it lies in the heart of the Mesoamerican biological corridor, and one of Panama´s largest indigenous populations. Road construction to access these mines, has put stress on the surrounding forests, as ecosystems need to be cleared for the development of infrastructure.[96] Main companies: Minera Petaquilla S.A., Inmet Mining (Canada)
Paraguay – uranium	The Yuty Uranium project covers a total area of 230,650 Ha located in southeastern Paraguay[97], in which currently 25,000 Ha are under exploration.[98] The same explorer who found the largest copper deposit in Chile is claiming that he has found the largest titanium deposit in the world in Paraguay (Alto Paraná). CIC Resources Inc. controls the rights to 185,000 Ha, in which there is the possibility of extracting 21 billion metric tonnes.[99] Main companies: Cue Resources (Canada), Transandes Paraguay S.A. (Paraguay), CIC Resources Inc. (Canada)
Peru – gold	Close to 200 sq kms (77 sq miles) of jungle have been lost in the evocatively named Madre de Dios (Mother of God) region. (BBC-2009)[100]. According to a study published in PLoS ONE, two large mining sites saw the loss of 7,000 hectares of forest (15,200 acres)—an area larger than Bermuda—between 2003 and 2009. (EEN-2011)[101] Main companies: GoldCorp (Canada)
Guyana, Suriname and Frech Guiana – bauxite, gold, diamonds	**Guyana**: 5,335.1 hectares of Guyana's forest was deforested due to mining activities in 2000 and this increased to 14,781.9 hectares in 2008. This was a rate of 0.02 percent in 2000 increasing to 0.06 percent in 2008, an increase of 0.04 percent. The assessment focused only on mining activities and excluded roads, agricultural activities, settlements and so on. (WWF) [102]

[92] http://www.gbreports.com/admin/reports/BrazilMining_2011.pdf
[93] http://www.rel-uita.org/agricultura/ambiente/mineria/deforestacion_y_mineria-eng.htm
[94] http://www.globalenvision.org/2009/01/29/mining-ecuador-investment-or-exploitation
[95] Mining: Environmental and Social Impacts (IUCN-2004)
[96] http://www.miningwatch.ca/petaquilla-panamanian-rainforest-communities-threatened-mining
[97] http://www.wise-uranium.org/upsam.html
[98] http://www.sedar.com/CheckCode.do;jsessionid=0000hUjftw0bDqD2lXtJjRiTTXC:-1
[99] http://www.bloomberg.com/news/2010-11-03/paraguay-titanium-find-may-be-world-s-largest-american-prospector-says.html
[100] http://news.bbc.co.uk/2/hi/8411408.stm
[101] http://www.enn.com/ecosystems/article/42603
[102] http://www.stabroeknews.com/2010/archives/10/13/mining-deforestation-nearly-tripled-between-2000-08-%E2%80%93wwf/

	Suriname: 27,258.8 Ha were deforested in 2008 for mining activities, up from 2000 where it was 8,295 Ha[103] **French Guiana**: 20,966.7 Ha were deforested by mining activities, up from 2000 where it was 6,421.9 Ha.[104] Main companies: Guyana Frontier

(Source: Various, see citations in footnotes)

Stakeholders: In Table 11 above, various companies have been mentioned.

Opportunities: Companies are making efforts to reduce their impacts from operations, such as the mining giant Rio Tinto. Rio Tinto has developed a comprehensive sustainability management plan for all their operations, which includes reducing impacts on air quality, ecosystem services, biodiversity, climate change, energy, land, water, waste and closure. One area of specific interest to this report is the work Rio Tinto is doing in regards to ecosystems services. Rio Tinto has begun to venture into using Payments for Ecosystem Services (PES) as a tool to mitigate some of the impacts from their operations and non-operational assets.

There are three areas where Rio Tinto is using PES schemes (project is called Natural Capital) to investigate the business case around designing and implementing ecosystem service offsets and investments: (i) biodiversity compensation (through offsetting); (ii) rights to access and use water; and (iii) mitigation and offsetting of their carbon emissions. With assistance from IUCN, Rio Tinto has undergone a preliminary assessment of biodiversity value of forest conservation projects in their projects in Madagascar. This work is being developed as a pilot project as part of the WBCSD Ecosystem Valuation Initiative. Rio Tinto also sponsored an IUCN paper on the cost of REDD, a paper that was published as part of the Copenhagen Climate Change discussions in December 2009.[105] Although this initiative is still under development, these types of projects need to be explored as they are another possible tool to utilize in combating deforestation.

The International Council on Mining & Metals (ICCM) was established in 2001 and is working to improve sustainable development performance in the mining and metals industry. They bring together over 21 companies with operations all over the world, 31 national and regional mining associations, and work closely with the World Bank, ILO, UNCTAD and IUCN. The members of ICCM have made commitments to improve their sustainability performance and are required to report their progress on an annual basis. The ICCM has projects that specifically focus on environmental issues such as projects that preserve biodiversity conservation and a legacy programme, which works to assure proper closure of mining sites, focusing on restoration. Some of the countries where ICCM is operating in the region are Bolivia, Brazil, Chile, Colombia and Peru.

Risks: The above description in Table 11 is just a glimpse of the mining activities that take place in the LAC region. Moratoriums, land use policies and the creation of protected areas are just a few examples of what some countries are doing to mitigate the impacts from the mining sector. Just to highlight, the above description focused on the impacts of mining from deforestation and forest degradation, however, there are multiple problems with contamination from the actual mining processes used, such as the application of cyanide, a common activity used in the refining process to leach and separate minerals from other unwanted minerals. Harmful residuals from mining activities can be released into the environment, affecting waterways, soil, biodiversity and humans.[106] Efforts to mitigate mining practices exist; however mitigating the impacts on forests still remains a problem, because of the certain types of mining techniques used, such as an opencast mining operation which does not allow any other option than clearing vegetation.

The mining industry is another one of the leading industries in the region, and many countries depend on them it as an economic driver of the country. However, there are multiple risks and challenges when assessing what areas or initiatives UN REDD pilot countries can affiliate themselves to. Some of the major risks and challenges are similar to those highlighted already in this report and here is a breakdown:

- Lack of financial commitment from companies for REDD+ initiatives in pilot countries
- Lack of UN REDD pilot countries interest to invest in mining projects
- Government counterparts lack interest in developing sustainable mining initiatives
- Private sector prefers to invest CSR-philanthropy funds into other types of initiatives non-REDD+ related such as problems with contamination

[103] http://www.stabroeknews.com/2010/archives/10/13/mining-deforestation-nearly-tripled-between-2000-08-%E2%80%93wwf/
[104] ibid
[105] http://www.riotinto.com/ourapproach/17194_environmental_stewardship_17399.asp
[106] http://ecorestoration.montana.edu/mineland/guide/problem/impacts/cyanide.htm

- Global company CSR initiatives are not applicable at a national level

Summary of recommendations: Rio Tinto´s example brings an innovative way to promote conservation by using PES schemes. Partnering with companies that promote these types of activities is fundamental to improve the impact mining sector has on the environment. Rio Tinto is a member of ICCM, and thus the ICCM could be an organization of interest to the UN REDD Programme, since they already have partnerships with other UN agencies, as is UNCTAD. The ICCM has a large list of members and multiple projects with sustainable development tools being used to reduce the impact of mining, and many of these tools are projects are operating in the region.

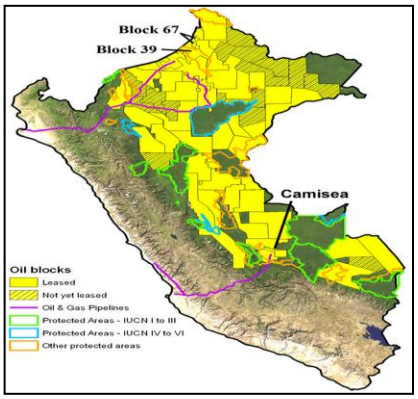
OIL AND GAS

Reality: Oil extraction in Amazonian countries is increasing (2010-Colombia produces 800,100 bbl/day; Ecuador produces 485,600 bbl/day; Peru produces 158,300 bbl/day, and Bolivia produces 53,740 bbl/day [107]) and new concessions are being given out to oil companies. In a recent Forbes article, the Brazilian oil company HRT, stated that by April 2012 they will have 13 rigs in the Amazon.

In the LAC region, the most heard of case of deforestation and forest degradation linked to energy development, has been the case of oil extraction in Ecuador. During the past four decades, Ecuador has seen much deforestation from oil production in the northern Amazonian region of the country, an area that totals 200 square miles (approximately 51,800 Ha), inhabits eight different indigenous tribes, and his home to one of the most bio-diverse regions of the country.

Companies such as Shell Oil and Texaco have been operating in Ecuador, Texaco being the primary one (operated in Ecuador from 1964 to 1992), and now Petroecuador holds the majority of the government concessions. However, because of lack of experience in country with oil extraction, the country relied mainly on Texaco to establish the industry. One of the main issues that had to be dealt with was the effluents from extraction, which were deposited back into oil pits that resided next to the wells. In contrast to other Texaco oil operations, where these effluents were injected back into the ground, they were dumped into these pits creating large quantities of harmful pollutants that eventually leaked into the Amazon River. In addition, constant counts of oil spills were recorded, specifically one that ended up in countries (Brazil and Peru-1992) declaring state of emergencies.[108]

Figure 2: Oil and gas sites in Peru



In Peru, oil and gas extraction is also increasing. 70 percent (appx. 490,000 km^2) of the Peruvian Amazon has been allocated for oil and gas extraction, with more pressure by President Alan Garcia to explore more. Figure X represents the 70 percent of allocated oil and gas sites, many of them overlap with protected areas and indigenous groups. In 2009, indigenous groups and other civil society organizations protested President Garcia´s mandate, and resulted in the deaths of indigenous civilians and several police officers.[109]

The Camisea pipeline project (agreement between the Peruvian government and Perupetro, being constructed by Technit)[110], whose construction started in 2004 and can be seen in Figure 2 in purple, extends two different pipelines, one for natural gas (714 km) and the other for natural gas and liquids (540 km).[111]

The following table is a summary of other exploration blocks being opened in Amazonian countries, extracted from a study conducted by Finer et al, who synthesized information from government sources.

Table 12: Oil exploration in the Amazon region[112]

Country	Description

[107] https://www.cia.gov/library/publications/the-world-factbook/rankorder/2173rank.html (retrieved on 10/05/2011)
[108] http://www.umich.edu/~snre492/Jones/texaco.htm (retrieved on 10/05/2011)
[109] http://news.mongabay.com/2009/0606-oil_or_death_in_the_amazon.html
[110] http://www.camisea.pluspetrol.com.pe/project3.asp
[111] http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0002932
[112] http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0002932

Bolivia	In Bolivia, two leased Amazonian exploration blocks cover ~15,000 km^2, including large parts of Madidi and Isiboro Securé National Parks and Pilon-Lajas Biosphere Reserve. Multinational oil companies operate these blocks, but now the state oil companies of Bolivia and Venezuela are joining forces to explore the region. In August 2007, Bolivian President Evo Morales and Venezuelan President Hugo Chavez created a new company composed of the state oil companies of the two nations. One of the primary tasks of this new company is to explore for oil in the newly created blocks surrounding Madidi. Main Companies: Petrobras (Brazil), Repsol YPF (Spain-Argentina), British Gas and British Petroleum (UK), Total (France)
Brazil	In 2005, the Brazilian government leased out 25 contiguous blocks surrounding the Urucu and Jurua gas fields in the state of Amazonas, bringing the total leased area to ~67,000 km^2. A nearly 400 km roadless gas pipeline is being constructed to connect the Urucu gas fields to Manaus. Another pipeline has been proposed to carry gas over 500 km to Porto Velho in the state of Rondônia. Brazil's National Petroleum Agency has also recently announced plans to look for oil and gas in the Amazonian state of Acre on the border with Peru and Bolivia. Main Companies: Petrobras (Brazil)
Colombia	In the Colombian Amazon, 35 exploration and production blocks (~12,300 km^2) are concentrated within and around Putumayo Department on the border with Ecuador. Production in Putumayo peaked years ago, but much of the oil in this region and beyond may be yet untapped or undiscovered. Colombia's Hydrocarbon Agency recently announced a new 2008 bidding round, featuring nine new blocks in Putumayo. Over 90% of the Colombian Amazon is currently free from oil activities. Main Companies: BP (UK), Occidental Petroleum (USA), Tailsman (Canada), ECOPETROL (Colombia)
Ecuador	The Ecuadorian government has zoned ~65% of the Amazon for oil activities (~52,300 km^2). Blocks overlap the ancestral or titled lands of ten indigenous groups. The oil frontier in Ecuador has now shifted south, where a quarter of Ecuador's untapped oil reserves lie in Yasuní National Park, the country's principal Amazonian national park. Unlike Peru, Ecuador permits oil and gas extraction in national parks. In January 2007, the Ecuadorian government, however, delimited a 7,580 km^2 "Zona Intangible" — an area off-limits to oil, gas, and logging activities — via Presidential Decree in the southern part of Yasuní. To the southwest of Yasuní, intense opposition from indigenous peoples has stopped exploration in two leased blocks (Blocks 23 and 24) for over seven years. Just to the east of these two blocks, the entire southeastern part of the Ecuadorian Amazon has been zoned into blocks, but not yet offered to multinational oil companies. Newer oil operations from the 1990s and this decade (Blocks 15, 16, and 31) have built new access roads into the primary forests of the Yasuní region. Main Companies: Occidental Petroleum (USA), PetroEcuador (Ecuador)
Peru	There are now 48 active blocks under contract with multinational companies in the Peruvian Amazon. The government has leased all but eight in just the past four years. At least 16 more blocks are likely to be signed in 2008. These 64 blocks cover ~72% of the Peruvian Amazon (~490,000 km^2). The only areas fully protected from oil and gas activities are national parks and national and historic sanctuaries, which cover ~12% of the total Peruvian Amazon. However, 20 blocks overlap 11 less strictly protected areas, such as Communal Reserves and Reserved Zones. At least 58 of the 64 blocks overlay lands titled to indigenous peoples. Further, 17 blocks overlap areas that have proposed or created reserves for indigenous groups in voluntary isolation. Main Companies: PeruPetro (Peru), Occidental Petroleum (USA), Petrobras (Brazil)

(Source: Various, see footnotes)

The summary above is just a brief description of the countries in the region where oil exploration will have an impact on forests. This analysis did not take go into too much depth about the many pollution related-problems that do exist alongside oil exploration activities. However in efforts to reduce the impact of oil extraction on the environment, restricting access to permits and concession rights to oil companies, and the creation of protected areas seems to be only solution. This can be seen as extremely difficult, since many countries rely on oil exploration and extraction as a large part of their GDP.

Stakeholders: Table 12 lists the main companies operating in the region.

Opportunities: The World Petroleum Council (WPC) is an international organization that represents all aspects of the petroleum sector. Within WPC, they have a specific division that focuses on the impacts the sector has on the environment, in addition to a division that focuses on human rights issues. They have multiple publications and resources available on their site, and have served as the international petroleum organization that focuses on the main issues the petroleum sector faces.

Risks: Some of the risks that could emerge are many of the same that already exist in the debate of oil and gas exploration, and the following is a list of some of them:

- Land disputes between local communities, energy companies and governments
- Areas of High Conservation Value (HCV) are vulnerable to oil exploration practices
- Contamination of waterways from certain activities of extraction and exploration

In terms of risks to that may emerge working with the UN REDD Programme, the following is brief summary of some them:

- Lack of financial commitment from companies for REDD+ initiatives in pilot countries
- Lack of UN REDD pilot countries interest to invest in oil and gas projects
- Government counterparts lack interest in developing sustainable exploration and extraction initiatives
- Private sector prefers to invest CSR-philanthropy funds into other types of initiatives non-REDD+ related such as problems with contamination

Summary of recommendations: Oil and gas exploration in the region has seen much critique from NGOs and local community activists, as are the cases of oil extraction in the Andean region. The contamination of waterways, unsustainable exploration techniques, and forest degradation that oil exploration and extraction has, is a sensitive topic, and thus should be reviewed with caution. Difficult to determine specific recommendations, however the WPC works with many companies and has multiple publications with tools on better management practices, and could be a source of information and a possible partnership.

INFRASTRUCTURE: ROADS-HIGHWAYS

Reality: The development of roads and highways in the region has had a large impact on forests. Road and highway development are often times related to mining and agriculture activities, since they are built to transport these commodities to market. In the region, there have been major highways developed that have had a positive and negative impact within the countries they reside in.

The Amazon is home to two large highways, the BR-163 and the BR-230. The BR 163 highway (Soy Highway) is a highway that runs 1,767 km from Cuiabá, Mato Grosso and extends to Santarém, Pará, in the heart of the Amazon Basin. 44 percent of the highway is unpaved, but it´s the main route that the soya industry in Brazil uses to get their product to port. The BR-230 (Trans-Amazon Highway) extends 5,300 km long, and connects Brazil to some of the more remote areas of the Amazon, connecting to the BR-163 soy highway. As is the BR-163, the BR-230 also has many areas that are unpaved, but the government is working to pave both roads completely. Both of these roads have caused deforestation in the Amazon, as settlers move into the area and squat on land that is mainly developing into agriculture production.

Figure 3: Trans-Amazon Highway (BR-230)[113]

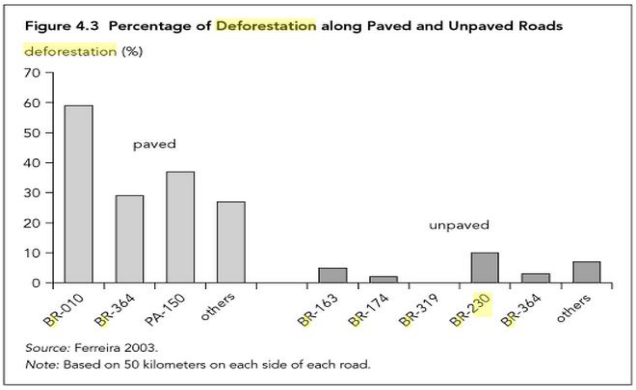
Figure 4: Soy Highway (BR-163)[114]

[113] http://www.google-earth.es/foros.php?k=52841
[114] http://www.boston.com/news/world/latinamerica/articles/2005/12/27/Map_of_BR163_Highway/

According to ¨From Inside Brazil¨ (2006-Vinod Thomas), the construction and further paving of these highways could raise deforestation alongside these roads. This means that 50km on both sides could be susceptible to more than 30 percent of forest lost within the next 30 years, affecting 250km^2.[115]

Figure 5 below shows the rate of deforestation from forests alongside paved and unpaved roads in Brazil. The left hand side shows the percentage of deforestation alongside paved roads, a substantial difference than the unpaved roads on the right hand side. The 30 percent mentioned, is taken from highway BR-364, which was more or less the average rate of deforestation for highway construction in Brazil. According to these statistics, that by 2050 less than half of the original Amazon would be left standing.[116]

Figure 5: deforestation on paved/unpaved roads



Just as an example, if BR-163 were to be completely paved, and based on the assumed calculations from Vinod Thomas´ book, where up to 50km on both sides of the roads are susceptible to deforestation, if just 10 percent of this would be paved then this could lead to a total of up t 17,670 km of deforestation of BR-163. (See footnotes for calculations)[117]

Forest in the states of Pará and Mato Grosso are at greatest risk of clearing where highways BR-230 and BR-163 intersect, and at a critical level: 72 percent of deforestation in the next year is expected in Pará, while Mato Grosso can expect 11 percent of forecast deforestation within its territory.[118] 2008-Satellite imagery from NASA supports Laurance. Data released last summer indicates that much of the recent burning is concentrated around two major Amazon roads: Trans-Amazon highway in the state of Amazonas, and the unpaved portion of the BR-163 Highway in the state of Pará.[119]

Pan-American Highway

The Pan-American Highway was proposed in 1923 and the Fifth International Conference of American States (2 years later created as an actual institution and final agreement came into effect in 1936), and it is a highway that extends from North America into South America and when completed will have a total of 32,700km.[120] The portion of the highway that goes from Northern Mexico into Panama is known as the Inter-American Highway. Between Panama and Colombia there is the Darien Gap, the last stretch of tropical rainforests that has yet to connect the North and Central America to South America. Constructing a road to connect both countries has been a topic that has been under pressure to pursue, creating a continuous road between both continents. Connecting the two countries could increase economic activities between both sides, there is a growing concern that it would also lead to increased deforestation and more settlements, most likely expanding agriculture and forestry activities. Although there is no current construction being done, Panama has experienced deforestation and settlements in the past. During the 1970s, when the highway from Tirao to Canglon in the Darien was constructed, the government banned settlement within an 8-mile radius of the newly constructed highway, and by 1984 there were close to 10,000 people living in this area.[121]

The following table is an excerpt from a case study on the impacts of roads and its link to forest clearing.

[115] From inside Brazil: development in a land of contrasts pg. 78
[116] Ibid
[117] 1767 km x 10 percent = 176.7 km. Then, 176.7 km x 100 km (both sides of highway) = 17,670 km
[118] http://news.mongabay.com/2011/0825-moukaddem_imazon_forecast.html (retrieved on 09/30/2011)
[119] http://news.mongabay.com/2008/0117-biofuels.html
[120] http://geography.howstuffworks.com/south-america/the-pan-american-highway.htm (retrieved on 09/30/2011)
[121] ¨Livestock and deforestation: Central America in the 1980s and 1990s¨ pg. 41 (Kaimovitz-CIFOR)

Table 13: Impacts from road/highway constructions

Name and road/highway location	Impacts
Roads already constructed	
Belem–Brasília Highway, Brazil	Completed in the early 1970s, this 2000-km highway has spawned a 400 km-wide slash of deforestation across eastern Amazonia
Cuiaba´ –Porto Velho Highway, Brazil	This 1500-km highway, funded by the World Bank, has promoted rampant forest loss in southwestern Amazonia
Cuiaba–Santare´m Highway, Brazil	Visible as a 'line of fire' at night, this recently paved highway cuts into the heart of the Amazon for >1200 km
Ecuadorian oil roads	Roads associated with two 400-km-long oil pipelines have opened up much of Ecuadorian Amazonia to destructive colonization, with major impacts on indigenous groups
Samling Road, Sarawak, Malaysia	This 300-km road, recently built by Samling Timber Corporation, is opening up northern Sarawak, Borneo, to industrial logging
Roads under construction	
Manaus–Porto Velho Highway, Brazil	This 900-km paved highway will link the almost pristine central Amazon to major population centres to the south
Manta-Manaos highway (Ecuador-Peru-Brazil)[122]	This project consists of constructing a highway capable of transporting large quantities of cargo from port Manta in Ecuador, to another port located in the area of Orellana in the Amazon of Ecuador. From here cargo can be placed on cargo ships that will travel on the river Napo in the Amazon of Ecuador, to the port Nuevo Rocafuerte, which is on the border with Peru, continuing navigation until reaching Manaos, then all the way to Belem. (link to map)
Villa Tunari-San Ignacio de Moxos Highway - Bolivian highway to ports in Chile, Peru, and Brazil	Highway would connect ports in both neighboring Pacific rim countries of Chile and Peru, and in Brazil. The planned construction of a highway through a national park and indigenous territory has been suspended by Bolivia's president after police clashed with demonstrators who have been marching for more than a month to protest against the plan.[123] This highway will provide a direct route between the Cochabamba and Beni regions, essentially linking the Amazonian rainforest with the Andean highlands and greatly decreasing the transportation time of food and other important resources.[124]
North–South Economic Corridor, Indochina	This 1500-km highway will provide a direct link between aggressive timber importers in China and Laos, Cambodia, Thailand and Myanmar, whose forests are rapidly shrinking
Yet to be constructed	
Pan-American highway (Panama-Colombia)	Yet to be agreed on, but the Darien Gap which is the last stretch of tropical forests that separates Panama from Colombia has on many occasions been discussed to connect via the continuation of the Pan-American highway.

(Source: Laurence et al-2009)[125]

As briefly mentioned in the table above, Bolivia is currently experiencing problems with the construction of a major highway (300km long) that will cut into a national park and an indigenous territory. The highway known as the ¨Villa Tunari-San Ignacio de Moxos Highway¨, is 300km in length, and is part of a larger transoceanic highway that will connect Brazil with ports on the Pacific Coast that can access the Asian markets. Protestors marched into the capital requesting that this highway not be constructed, which led to disputes between protestors and armed police, resulting into four deaths and many injured. With continued criticisms of the highway, as of mid-November, President Morales has halted all construction of this highway.

Stakeholders: Ministries of transportation or other relevant government entities that work with construction of roads and highways.

Opportunities: Locating opportunities where the impacts of roads were done at a minimum, where social conflicts are not an issue, and many other impacts related to road development, are difficult to find.

Risks: Some of the risks that could emerge are many of the same that already were mentioned in this analysis, and the following is a list of some of them:

- Land disputes between local communities, energy companies and governments
- Areas of High Conservation Value (HCV) are vulnerable to the construction of roads

[122] http://www.bicusa.org/es/Project.10511.aspx
[123] http://www.aljazeera.com/news/americas/2011/09/20119278844472501.html
[124] http://www.thecowl.com/world/indigenous-bolivians-protest-new-highway-construction-1.2633831#.TtQALWOBo8k
[125] Impacts of roads and linear clearings on tropical forests pg 5

- Complications when roads are associated to other sectoral activities such as agriculture and forestry, many other players at stake

Summary of recommendations: In conclusion, eliminating the construction of these highways may be unavoidable; however civil society organizations and indigenous organizations have been successful. Similar to the section on oil and gas, it is difficult to determine specific recommendations on how to precede this area within the UN REDD Programme; however roads and highways are tightly connected to other industries involved in deforestation, as are the agriculture and forestry sectors. Governments can play an important role in assuring that road/highway construction can be done at a minimal impact; however governments are also dealing with the interests of industry, who play an important role as economic drivers in country.

REGIONAL MAPPING OF INITIATIVES

During 2010 a trend in the business world began to surge, where a large number of global mega-companies began to commit to sustainability initiatives, many of them were in response to critiques from civil society organizations about their business practices. Companies such as Cargill, ADM and Mattel have been accused of production practices that directly cause deforestation. The following is a list of companies and their global sustainability commitments. (Please see annex for an overview of some of the initiatives in the region from these companies)

Table 14: Company sustainability commitments

Company	Commodity	Commitments
Archer Daniels Midland (ADM)	Soy	• Committed to not purchase soya as part of the moratorium in Brazil , and in an effort to further the moratorium's already significant successes, ADM signed on to a one-year extension in July 2010 • Formed a partnership with Aliança da Terra a Brazilian NGO, and are members of Soja Plus Program and RTRS.
American Airlines	Coffee	• AA is now serving Java City coffee, which is Rainforest Alliance certified[126]
Cargill	Palm oil, soy	• Worldwide sustainable palm oil by 2020 • Committed to not purchase soya as part of the moratorium in Brazil
Carrefour	Soy	• Committed to not purchase soya as part of the moratorium in Brazil
General Mills	Palm oil	• Commit to sourcing 100% of palm oil from RSPO by 2015
Kraft	Cocoa	• Kraft to Increase Purchases of Rainforest Alliance Certified Cocoa Ten-Fold by 2012
Mattel	Timber (paper and packaging)	• Mattel has eliminated its partnership with Asia Pulp & Paper Co., a company linked to deforestation in Indonesia from the packaging of its famous doll line Barbie.
McDonalds UK	Coffee	• Serving coffee sourced from Rainforest Alliance certified farms in its 1200 locations across the UK[127] • Committed to not purchase soya as part of the moratorium in Brazil
Nestle	Palm oil	• Nestle has a goal of only buying sustainable palm oil by 2015
Sainsbury[128]	Multiple commodities	• The retailer is also planning to revamp its supply chain, ensuring its suppliers are "leaders in meeting or exceeding our social and environmental standards." • As well as selling solely certified sustainable fish, it plans to ensure its water supply does not harm water stressed areas and double the amount of British food it sells in an effort to cut supply chain emissions. • In addition, the company said raw materials and commodities will be sourced in line with independent sustainability standards, while its own brand products will not contribute to global deforestation.
Unilever	Palm oil, tea	• Sourcing 100 percent of agricultural raw materials sustainably by 2015, including 100 percent sustainable palm oil. Unilever buys 3 percent of the world's annual supply of palm oil. • Improve standards of living by working with agencies such as Oxfam and the Rainforest Alliance to link 500,000 smallholders and small-scale distributors to the Unilever supply chain. • Source the tea in all Lipton tea bags from Rainforest Alliance Certified™ estates by 2015
Wal-Mart	Various	• Sell $1 billion in food sourced from 1 million small and medium farmers; • Provide training to 1 million farmers and farm workers on areas including crop selection and

[126] http://ecoki.com/rainforest-alliance-certified-coffee-on-american-airlines/
[127] http://thefrogblog.org.uk/2010/09/23/leaping-from-a-coffee-cup-near-you/
[128] http://www.greenbiz.com/news/2011/10/12/sainsburys-commits-%C2%A31-billion-sustainability-initiatives

		sustainable farm practices; • Increase the income of the small and medium farmers it sources from by 10 to 15 percent; • In the U.S., doubling its purchase of locally sourced produce, to reach 9 percent by 2015.

(Source: Greenbiz)

Table 15: NGO initiatives and REDD+

Organization name	Country of REDD+ initiative	Description
WWF	Peru Andean Initiative	Key national government agencies, including the new Ministry of the Environment and the Ministry of Agriculture, have committed to developing a national REDD policy framework with the support of the Forest Carbon Partnership Facility (FCPF). In addition, civil society has advocated the design and implementation of REDD efforts in Peru. Together, representatives from key governmental agencies, indigenous federations and non-governmental organizations have come together under a so-called "Peru REDD Roundtable."
TNC[129]	Bolivia	Launched in 1997, the Noel Kempff Mercado Climate Action Project was the world's first forest conservation program scientifically verified by a third party to lower carbon emissions. Protecting 642,184 hectares of forest, the project is expected to prevent 5.8 million tons of carbon dioxide emissions over 30 years, equivalent to removing 1 million cars from America's highways for one year
	Brazil	The Conservancy is working with landowners, government officials, businesses and indigenous communities to establish two large-scale forest carbon pilot projects that will cover a combined 19.2 million hectares in the Brazilian Amazon.
IUCN[130]	Guatemala	The pro-poor REDD-plus project in Guatemala has been strengthening the work with Indigenous Peoples and forest dependent communities' organisations to participate in readiness process. One of the key areas in which the project is giving direction to the REDD-plus readiness process is the preparation of Guatemala's Readiness Preparation Proposal (RPP). The project has supported the facilitation of multi-stakeholder dialogues as part of the consultation process of the RPP. Besides, a stakeholders mapping has been prepared with the government. The project also focuses on the development of legal frameworks, carbon rights and the application of the poverty toolkit to analyse forest dependency of communities.
GIZ	Central American regional REDD programme (partners: CCAD, SICA and BMZ)	At a national level this project supports inter-sectoral dialogue, the development of REDD+ national strategies and the implementation of compensation tools that have been adapted to specific situations of the country. At the regional level, this project supports the processes between countries to develop joint positions and approaches to REDD, and to keep track of deforestation (leakages) within each country.[131]

Table 16: Financial institutions and REDD+

Bank name	Countries of operation	Sustainability programmes
BNP Paribas	Global	• Became part of the UN Global Compact in 2003 and is a partner in the UNEP FI • Project financing follows the Equator Principles (link) • In 2010, BNP Paribas signed the Climate Principles, a group of financial institutions (The Climate Group) playing an active role in climate change mitigation (link). Are developing a portfolio of large REDD projects in Africa where BNP is working with Wildlife Works Ink and has invested $50 M through its Corporate & Business Banking Division (Commodity Derivatives). BNP Paribas will have the option to purchase avoided emission credits created from the portfolio.[132] • BNP Paribas is member of the Institutional Investors Group on Climate Change (IIGCC) which is a group committed to advancing the importance of CC in investing

[129] http://www.nature.org/ourinitiatives/urgentissues/climatechange/howwework/creating-incentives-to-stop-deforestation.xml
[130] http://www.iucn.org/about/work/programmes/forest/fp_our_work/fp_our_work_thematic/redd/iucns_work_on_redd_plus_/redd_pro_poor_guatemala_redd/
[131] http://www.reddccadgiz.org/elprograma.php
[132] http://www.ecosystemmarketplace.com/pages/dynamic/article.page.php?page_id=7717&section=news_articles&eod=1

Bank of America Merril Lynch: corporate and investment banking division of BoA	Global	• BoA[133] has collaborated with UNEP FI to develop best practices related to environmental credit risk. We helped contribute industry data and expertise for various UNEP FI reports, including one that analyzed climate risk and credit products. • BoA has collaborated with UNEP FI to develop best practices related to environmental credit risk. We helped contribute industry data and expertise for various UNEP FI reports, including one that analyzed climate risk and credit products. • BoA also a member of UNEP FI's Climate Change Working Group, which seeks to raise awareness and communicate the problem of climate change to financial institutions, policymakers and the public at large. In addition, the Climate Change Working Group provides input to the United Nations Framework Convention on Climate Change (UNFCCC). • Carbon Finance, 4 May 2011 | A multilateral financial institution is understood to be poised to issue a first-of-its-kind 'rainforest bond' which would repay investors based on returns from the ecosystem services provided by the area of rainforest. Bank of America Merrill Lynch (BoAML) is structuring the transaction, which has been under development since last year. Abyd Karmali, the London-based global head of carbon at the bank, confirmed: "The carbon markets team continues to work with colleagues in fixed income structuring to commercialise an innovative rainforest bond." The bond "would see institutional investors receive returns for monetised ecosystem services including REDD+ credits", referring to credits awarded to projects that reduce emissions from deforestation and forest degradation, and with the 'plus' denoting conservation, sustainable forest management and enhancing carbon stocks. Karmali declined to elaborate on the details of the bond[134]
Allianz	Global	• Partner in the UNEP FI • Allianz is working to improve the identification, quantification, pricing and mitigation of the risks involved. For example, Group Economic Research and Corporate Development (ERCD) identifies climate change-related trends, risks and opportunities, focusing on mid- to long-term time horizons and their impact on the insurance business; the Cat Management Unit at Allianz SE Reinsurance tracks scientific publications for relevant topics and plays an active role in the climate change working groups of the German Insurance Association; and Allianz collaborates with the World Wide Fund For Nature (WWF) to conduct relevant studies and internal projects.[135]
FELABAN[136]	LAC	• Partnered with the UNEP FI • FELABAN is a non-profit entity that represents the general interests of its banking associations and other agencies from 19 countries, encompassing over 500 regional banks to promote and facilitate the relations between the financial organizations of Latin America, irrespective of the internal political issues of each country. FELABAN aims to contribute by its technical services to the coordination of criteria and the unification of general banking and financial usage and practices to obtain the best development of the Latin-American banking system and contribute to the economic growth of the different countries in the region.

[133] http://environment.bankofamerica.com/partnerships/unep-fi.html
[134] http://www.redd-monitor.org/2011/05/09/redd-in-the-news-2-8-may-2011/
[135] https://www.allianz.com/en/responsibility/global_issues/climate_change/index.html
[136] http://www.unepfi.org/fileadmin/communications/felaban_media.pdf

PARAGUAY CASE STUDY: THE DRIVERS OF DEFORESTATION IN PARAGUAY

Reality: Deforestation in Paraguay has seen much advancement in the last ten years, as agriculture production has expanded, mainly from soybeans and cattle production. In an article from November 2009, the World Land Trust (partners with Guyra Paraguay) claimed that the deforestation in the Paraguayan Chaco is equivalent to over 1500 football pitches a day. Using satellite imagery to measure deforestation, the images revealed that the deforestation rate has already exceeded 228,000 hectares. By the end of October 2009, some 265,000 hectares have already been lost and Guyra

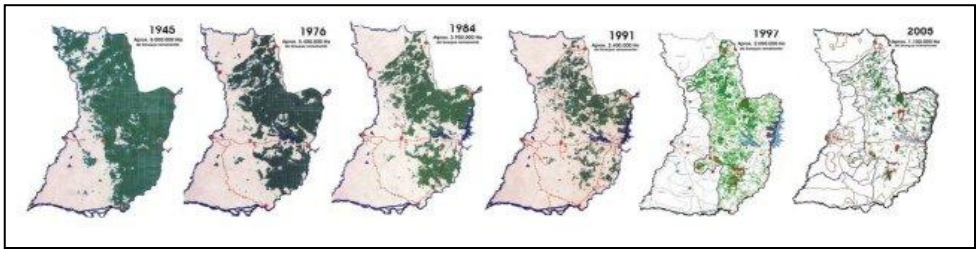
The following is a summary of the deforestation from the past couple of years[137]:

- From the December 8th, 2008 to January 5th, 2009 was equal to 509 ha. daily
- From January 5th, 2009 to March 16th, 2009 was equal to 1.000 ha. daily
- From March 16th, 2009 to April 11th, 2009 was equal to 272 ha. daily
- From April 11th, 2009 to April 27th, 2009 was equal to 854 ha. daily
- From April 27th, 2009 to May 21st, 2009 was equal to 1.291 ha. daily
- From May 21st, 2009 to June 3rd, 2009 was equal to 639 ha. daily
- From June 3rd, 2009 to June 13th, 2009 was equal to 592 ha. daily

Estimates show that 92 percent of the Atlantic Forest cover has been lost, and the map below shows the deforestation in Paraguay from 1945 to 2005.

Map 1: Deforestation from 1945-2005

Worth noting, that soybean expansion has mainly come westward from Brazil soy producing states of Rio Grande, Parana and Santa Catarina. With this expansion, there is deforestation.



(Source: Soitu)[138]

Soy Production

Over the past 30 years, soy production has expanded in the eastern region of Paraguay, in the departments of Alto Parana, Itapua and Canindeyu, where 80 percent of soy is planted. Paraguay is ranked 6th in global soy production and 4th in global exports.[139] Agribusiness in Paraguay accounts for 23 percent of country's GDP ($0.8 billion of Paraguay's $1.3 billion GDP annually comes from soy)[140], and soybeans account for approximately 70 percent of annual agricultural production. About 70 percent of the beans is exported whole,

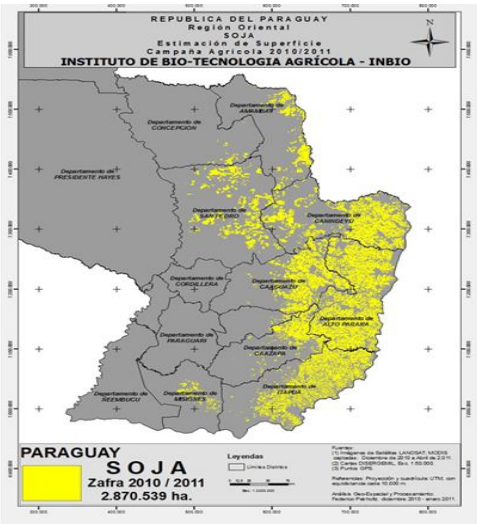
Table 1: Soy production (Source: CAPECO)

Year	Area of cultivation (Ha)	Production (tonnes)	Yield (Kg/Ha)	Exports (tonnes)
1997	1,050,000	2,771,000	2,639	2,150,000
1998	1,150,000	2,988,201	2,598	2,293,601
1999	1,200,000	2,980,058	2,483	2,298,758
2000	1,200,000	2,911,423	2,426	2,025,552
2001	1,350,000	3,502,179	2,594	2,509,948
2002	1,445,000	3,546,674	2,454	2,385,979
2003	1,550,000	4,518,015	2,915	3,167,193
2004	1,936,600	3,911,415	2,020	2,664,415
2005	2,000,000	4,040,828	2,020	2,882,182
2006	2,426,000	3,641,186	1,501	2,380,344
2007	2,430,000	5,581,117	2,297	4,136,177
2008	2,644,856	5,969,166	2,257	4,439,166
2009	2,524,649	3,647,205	1,445	2,282,705
2010	2,680,182	7,376,651	2,752	4,654,539
2011	2,870,539	(*) 8,372,941	(*) 2,917	TBD

[137] http://observadorglobal.com/deforestacion-en-el-chaco-paraguayo-n2525.html
[138] http://www.soitu.es/soitu/2008/08/04/medioambiente/1217841167_579525.html
[139] http://globalvoicesonline.org/2010/08/18/paraguay-soaring-soybean-production-prompts-clashes/ (retrieved on 09/05/2011)
[140] http://unfccc.int/files/methods_and_science/lulucf/application/pdf/080626_paraguay.pdf (retrieved on 09/05/2011)

28 percent is processed by local industry (of which 90 percent is exported), and 2 percent is retained for seed production.[141] Estimates show that 90 percent of Paraguay´s soybean production is genetically modified, mostly seeds smuggled in from Argentina.

Map 2: Soy production by region



INBIO
INSTITUTO DE BIOTECNOLOGÍA AGRÍCOLA

República del Paraguay
Región Oriental
SOJA
Estimación de Superficie Cultivada
Campaña Agrícola 2010/2011

Departamentos	Superficie Hectáreas	%
Concepción	16398,25	0,57
San Pedro	229.139,88	7,98
Guairá	14.093,06	0,49
Caaguazú	376.745,69	13,12
Caazapá	165.031,50	5,75
Itapúa	575.354,88	20,04
Misiones	33.700,69	1,17
Alto Paraná	824.716,94	28,73
Amambay	128.383,06	4,47
Canindeyú	506.975,06	17,66
Total Paraguay	**2.870.539,00**	**100,00**

(Source: CAPECO)[142]

Paraguay´s soy moratorium and forest policy

In 2004, the Paraguayan government passed a no deforestation law for the eastern region of the country, where soy production is highest. Although deforestation has historically been more pronounced in the eastern part of Paraguay, the Ministry of Environment (SEAM) has made some progress in lowering deforestation there, notably through the 2004 Law no 2524, *Ley de Prohibición en la Región Oriental de las Actividades de Transformación y Conversión de Superficies con Cobertura de Bosques*. The law prohibits most deforestation activities in the eastern region. However, the law seems to have pushed active deforestation to the western Chaco region, which is not covered by the law.[143]

In 2006, SEAM approved the Environmental Services Law no. 3000, which requires maintaining a 25 percent forest cover on most of the former forested areas in the east, and a tradable-rights mechanism for reforestation and forest cover maintenance. Presently, there are at least 250,000 Ha required to be reforested under the new law; unfortunately little progress has been made. The Paraguayan government offered a series of incentives and initiated a number of projects which lead to the reforestation and forestation of 39,278.05 hectares of land as follows:

a. The National Reforestation Plan, through law 422/73 managed the reforestation of 10,025 hectares by eliminating the taxes on rent if this amount were going to be invested in forest plantations.
b. Reforestation of 1,227 hectares through a compensation regime
c. "Model Forests" (Bosques modelo) project achieved the reforestation of 115 hectares
d. Law 536 for promotion of forestation and reforestation achieved the reforestation of 26,148 hectares of land during its first years, through an incentive of 75% of the costs of plantation and maintenance for the first 3 years. However, this mandate has been left largely unfunded.

[141] http://www.pecad.fas.usda.gov/highlights/2008/05/Paraguay/ (retrieved on 09/05/2011)
[142] http://www.capeco.org.py/
[143] http://siteresources.worldbank.org/INTLAC/Resources/Climate_ParaguayWeb.pdf

Additionally, social issues such as the ¨soybean wars¨ have emerged, where small-scale farmers have been expelled from their lands and replaced by large soybean farms. It is estimated that about 77 percent of the land in Paraguay is owned, but by only one percent of the population.[144]

Stakeholders - National company impact

Grupo Favero (owned by Tranquilo Fravero, Brazilian at birth but nationalized Paraguayan, known as the ¨Brasiguayo¨) is the largest soybean producer in Paraguay and an umbrella company for seven other soybean producing companies in the country, with a total of approximately a million hectares (other sources say 1.2 million ha)[145] of owned land (different prices per hectare range from $1,000 to $5,000 per ha, compared to $7-8,000 in Brazil)[146]. Grupo Favero is an umbrella company that oversees seven other companies: Agrotoro, Agrosilo, Toternsa, Veronica, Santa Catalina, Campobello, San Liberato and Aktra.

Some of the main beef companies operating in Paraguay are the following:

- Grupo A J Vierci (Supplies Burger King)
- Frigorífico Concepción
- Frigorífico Guaraní S.A. (Supplies McDonalds and Burger King)

Grupo Favero has seen much criticism from local indigenous communities, campesinos and civil society organizations about their methods of production, falsification of land titles, and criticized for constant deforestation and the use of agrochemicals. In 2009, Grupo Favero was given a concession to deforest 6,300 ha and ended up deforesting 17,978 ha.

Other accusations just recently emerged, where INDERT (Instituto Nacional de Desarrollo Rural y de la Tierra) is trying to recuperate 257,000 Ha (57,000 Ha are owned by Tranquilo Favero) of land situated between Alto de Paraná and Caaguazú, that were originally purchased back in 1963 by a French colonist, who only paid the first instalment of those lands.[147]

Other company involvement

- Over the next five years, Monsanto is planning to further invest in Paraguay where they plan to invest $5 million.[148] (Grupo Favero purchases Monsanto soybeans (RR), and uses the herbicide round-up fumigated from airplanes, where according to civil society organizations, contaminating rivers and streams.[149])
- Cargill Paraguay is one of the main processors of soybeans and in Paraguay has a plant with the capacity to produce 3,000 tonnes of soybeans daily and employs 560 people in their operations.[150]
- ADM Paraguay, Bunge Paraguay and Louis Dreyfus Paraguay are the 2nd, 3rd and 4th largest processors and traders of soybeans in country

Opportunities – Corporate Social Responsibility (CSR)

Of the companies working in Paraguay in soy, corporate social responsibility initiatives/activities are posted on some the main company´s websites. For example, Agrotoro (Grupo Favero) claims that of their 25,000 Ha of land, 13,000 Ha are designated as for environmental preservations, however no other information is provided no the actual activities under this designation.[151]

For the large global corporations with presence in Paraguay, (Cargill, ADM and Bunge) all have agreed to not purchase soy from the Amazon, as part of Brazil´s soy moratorium. However, these companies continue to be the leaders in

[144] http://pulitzercenter.org/blog/untold-stories/soybean-wars-then-and-now (retrieved on 09/05/2011)
[145] http://ea.com.py/%C2%BFquienes-son-los-brasiguayos/ (retrieved on 09/13/2011)
[146] ibid
[147] http://aps.org.py/index.php?option=com_content&view=article&id=40:indert-desempolva-fallo-judicial-y-reclama-las-tierras-de-favero&catid=1:noticias (retrieved on 10/06/2011)
[148] http://www.gene.ch/genet/2011/Apr/msg00021.html
[149] http://ea.com.py/%C2%BFquienes-son-los-brasiguayos/ (retrieved on 09/13/2011)
[150] http://www.cargill.com.py/default.asp?ch=2000592 (retrieved on 09/13/2011)
[151] http://agrotoro.com.py/# (retrieved on 10/06/2011)

Paraguay and production, along with the many problems from past soy expansion experiences, are being spilled over into Paraguay, as well as other soy producing countries. Although there has been a ¨zero deforestation law¨ for the eastern region of the country, the expansion is being seen westward in the Chaco region, outside the limits of this law, such as on lands classified as ¨fallow lands¨, and wetlands are being affected due to drainage.[152] No commitments have been made thus far to mitigate the impact of the soy-related deforestation by these large companies.

Beef production

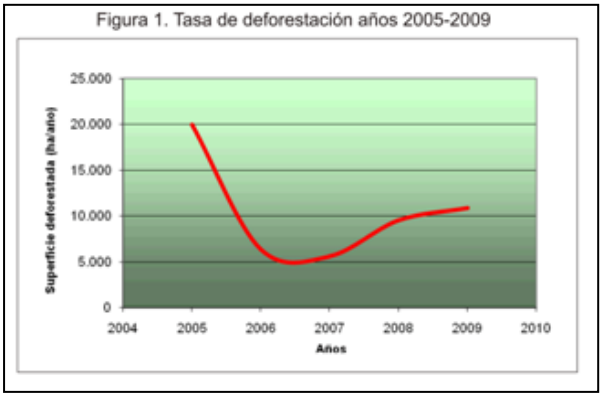
Reality: Paraguay in 2010 exported the value of 1.05 billion US dollars and during the first month of 2011, a total 17.827 tons of beef were shipped overseas equivalent to 59.3 million US dollars.[153] The cattle-raising supply chain accounts for 12.2 per cent of the country's Gross National Product (GNP) and generates approximately 500,000 direct jobs, contributing 20 per cent to Paraguay's exports. Currently, there is a Brazilian community in Paraguay of more than 500,000.[154]

According to the agriculture census conducted in 2008 by the Ministry of Agriculture, there is a total of approximately 17 million Ha of pasture land in Paraguay. A number that has grown since the last census conducted in 1991, where it was approximately 12 million Ha, and represents approximately 54 percent of the total agriculture land use in the country.[155]

Paraguay ranks eighth[156] globally in exports, and in 2010, surpassed Argentina in beef exports, of which the main exports were to Chile, of which revenues reached 19.8 million USD; Russia – 10.3 million; Vietnam – 2.3 million and Israel – 1.6 million. Chile, Venezuela and Russia have been traditionally the main markets for Paraguayan beef.[157]

Cattle expansion in the Gran Chaco region of Paraguay, has allowed for continued deforestation, and according to a civil society NGO called Guyra, in 2008 approximately 265,000 hectares were deforested, and estimates show that this was equivalent to 1500 football pitches a day.[158] Experts in Paraguay predict that the 2009 figure will exceed 300,000 hectares by the end of the year. The main reason for this drastic forest clearance is to make way for agricultural development, in particular for cattle grazing.[159]

Figure 1: Deforestation rates



There are other figures from the Chaco (April 2011 article) showing that the destruction of 3600 hectares of the Gran Chaco forest in Paraguay was done by large Brazilian cattle ranching companies.[160]

Paraguay has a cattle traceability program called SITRAP, by which approximately 750 producers, accounting for more than 2.2 million head of cattle, certify the production process at the farm level. This program is required for the exportation of beef to the European Union. Paraguay's animal health service continues working with USDA to be able to export fresh and thermoprocessed beef to that market. Local exporters believe that the US would be an interesting market especially for fresh beef, and being eligible to export to the US would facilitate the opening of other markets as well. Before the end of this year Paraguay will inaugurate its first biosecurity laboratory by which it will allow detection and rapid response to any potential disease outbreak.[161]

[152] http://commodityplatform.org/wp/wp-content/uploads/2009/06/factsheet_paraguay_final_120609.pdf
[153] http://en.mercopress.com/2011/02/28/paraguay-exported-more-beef-than-argentina-in-2010
[154] http://www.meattradenewsdaily.co.uk/news/180611/paraguay___the_beef_industry.aspx
[155] http://www.mag.gov.py/PresentacionCAN2008.pdf
[156] http://en.mercopress.com/2010/07/15/mercosur-member-paraguay-among-the-world-s-tope-eight-beef-exporters (retrieved on 09/27/2011)
[157] http://en.mercopress.com/2010/02/17/paraguay-beef-exports-in-january-total-54.8-million-us-dollars
[158] http://www.worldlandtrust.org/news/2009/11/deforestation-in-paraguay-over-1500-football-pitches-lost-a-day-in-the-chaco.htm (retrieved on 09/05/2011)
[159] http://www.worldlandtrust.org/news/2009/11/deforestation-in-paraguay-over-1500-football-pitches-lost-a-day-in-the-chaco.htm
[160] http://news.mongabay.com/2011/0412-hance_chaco_law.html

Summary of recommendations: In summary, both the soy and beef sectors in Paraguay are at constant growth, and will continue to grow over the next decade. Many problems exist because of the expansion of these two sectors, the main one, in which this analysis focused on, was deforestation, however social conflicts, GM soy, agrochemical use, land title disputes and food security, are other problems that go coincide with these two sectors.

As briefly mentioned in previous sections on soy and beef, there are various alternatives and initiatives that can play a key role in minimizing the impacts of deforestation from these sectors. For cattle, there are exist silvopastoral systems and beef certifications schemes (Aliança da Terra and Rainforest Alliance), and for soy there is the RTRS. As a pilot UN REDD country, this analysis could serve as an introductory guide to introduce these ideas and recommendations into their national REDD+ strategy, especially since these two sectors are the main drivers of deforestation in the country. A corporate engagement is recommended and the following are some of the activities that can be conducted:

1. Identify and propose top 10 to 20 agri-businesses (e.g. retailers, wholesalers, traders, importers and exporters) that the UN REDD programme should be contacting (this has been done in this analysis).
2. Prepare communication documents to present to those companies identified
3. Obtain specific key contacts in the identified 10 to 20 companies through consultations with the UN initiatives with the private sector, for the following areas:
    a. CSR departments
    b. Sustainability Business units
4. Contact through phone consultations the agreed set of agri-business companies throughout the supply chain for the following areas:
    a. Understand company interests in sustainability of agriculture products
    b. Explain the role and services of the UN REDD Programme
    c. Assess the interest of companies to:
        i. Green their sourcing in countries where UN REDD operates and identify which commodities
        ii. Work with a designated UN agency to carry-out sustainability process (i.e. UNEP Green Economy, UNDP Green Commodities Facility commodity platforms)
        iii. Indentify areas of partnerships and engagement
    d. Next steps for developing partnerships with any interested companies
    e. Outline next steps in general for corporate engagement and specify
5. Prepare a report on results of consultation phase and identifying top 5-10 companies of most interest to the UN REDD, based on the company's interest, size and impact.
6. Feedback lessons learned from the consultations into the structure and operations of the UN REDD Programme

[161] http://gain.fas.usda.gov/Recent%20GAIN%20Publications/Livestock%20and%20Products%20Annual_Buenos%20Aires_Paraguay_8-31-2011.pdf (retrieved on 09/27/2011)

Central America and Mexico

Country	Rate of deforestation from 1990-2010 (1000 ha)			
Years	**1990**	**2000**	**2005**	**2010**
Belize	1584	1487	1439	1391
Annual change rate		1990-2000 = -10	*Annual change rate*	2000-2010 = -10
Costa Rica	2269	2173	2269	2364
Annual change rate		1990-2000 = -19	*Annual change rate*	2000-2010 = +23
El Salvador	367	319	295	272
Annual change rate		1990-2000 = -5	*Annual change rate*	2005-2010 = -5
Guatemala	4697	4115	3837	3484
Annual change rate		1990-2000 = -54	*Annual change rate*	2005-2010 = -55
Honduras	8136	6392	5792	5192
Annual change rate		1990-2000 = -174	*Annual change rate*	2005-2010 = -120
Mexico	70291	65693	63184	61599
Annual change rate		1990-2000 = -354	*Annual change rate*	2005-2010 = -195
Nicaragua	4514	3814	3390	3040
Annual change rate		1990-2000 = -70	*Annual change rate*	2005-2010 = -70
Panama	3779	3325	3248	3172
Annual change rate		1990-2000 = -42	*Annual change rate*	2005-2010 = -12

(Source: FAO – State of the World´s Forests 2011)[162]

South America

Country	Rate of deforestation from 1990-2010 (1000 ha)			
Years	**1990**	**2000**	**2005**	**2010**
Argentina	34027	30785	29396	28006
Annual change rate		1990-2000 = -293	*Annual change rate*	2000-2010 = -240
Bolivia	62775	60071	58714	57176
Annual change rate		1990-2000 = -270	*Annual change rate*	2005-2010 = -290
Brazil	569855	540767	524729	512104
Annual change rate		1990-2000 = -2890	*Annual change rate*	2005-2010 = -2642
Chile	13556	13898	13980	13847
Annual change rate		1990-2000 = +57	*Annual change rate*	2000-2010 = +40
Colombia	62382	61254	60674	60094
Annual change rate		1990-2000 = -101	*Annual change rate*	2005-2010 = -101
Ecuador	13817	11680	10688	9698
Annual change rate		1990-2000 = -198	*Annual change rate*	2005-2010 = -198
Guyana	15205	15205	15205	15205
Annual change rate		1990-2000 = 0	*Annual change rate*	2005-2010 = 0
Paraguay	21134	19332	18432	17534
Annual change rate		1990-2000 = -179	*Annual change rate*	2005-2010 = -179
Peru	69893	68498	67988	66999
Annual change rate		1990-2000 = -94	*Annual change rate*	2005-2010 = -122
Suriname	14763	14763	14763	14754
Annual change rate		1990-2000 = 0	*Annual change rate*	2005-2010 = -2
Uruguay	719	743	754	766
Annual change rate		1990-2000 = +49	*Annual change rate*	2005-2010 = +33
Venezuela	52026	49151	47713	46275
Annual change rate		1990-2000 = -288	*Annual change rate*	2005-2010 = -288

[162] http://www.fao.org/docrep/013/i2000e/i2000e05.pdf

(Source: FAO – State of the World´s Forests 2011)[163]

Caribbean

Country	Rate of deforestation from 1990-2010 (1000 ha)			
Years	**1990**	**2000**	**2005**	**2010**
Barbados	8	8	8	8
Annual change rate		1990-2000 = 0	*Annual change rate*	2000-2010 = 0
Dom. Rep.	1972	1972	1972	1972
Annual change rate		1990-2000 = 0	*Annual change rate*	2000-2010 = 0
Haiti	104	89	81	73
Annual change rate		1990-2000 = -1	*Annual change rate*	2005-2010 = -1
Jamaica	336	333	331	330
Annual change rate		1990-2000 = 0	*Annual change rate*	2005-2010 = 0
T&T	226	218	213	208
Annual change rate		1990-2000 = -1	*Annual change rate*	2005-2010 = -1

(Source: FAO – State of the World´s Forests 2011)[164]

Deforestation rates in LAC (see annex I for a full overview of the region)

Country	Rate of deforestation from 1990-2010 (1000 ha)			
Years	**1990**	**2000**	**2005**	**2010**
Bolivia	62775	60071	58714	57176
Annual change rate		1990-2000 = -270	*Annual change rate*	2005-2010 = -290
Brazil	569855	540767	524729	512104
Annual change rate		1990-2000 = -2890	*Annual change rate*	2005-2010 = -2642
Colombia	62382	61254	60674	60094
Annual change rate		1990-2000 = -101	*Annual change rate*	2005-2010 = -101
Ecuador	13817	11680	10688	9698
Annual change rate		1990-2000 = -198	*Annual change rate*	2005-2010 = -198
Honduras	8136	6392	5792	5192
Annual change rate		1990-2000 = -174	*Annual change rate*	2005-2010 = -120
Mexico	70291	65693	63184	61599
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Panama	3779	3325	3248	3172
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Annual change rate		1990-2000 = -179	*Annual change rate*	2005-2010 = -179
Peru	69893	68498	67988	66999
Annual change rate		1990-2000 = -94	*Annual change rate*	2005-2010 = -122

(Source: FAO – State of the World´s Forests 1990-2011)[165]

[163] http://www.fao.org/docrep/013/i2000e/i2000e05.pdf
[164] http://www.fao.org/docrep/013/i2000e/i2000e05.pdf
[165] http://www.fao.org/docrep/013/i2000e/i2000e05.pdf

Drivers of Deforestation Mapping for UN REDD

UN REDD Pilot Countries: Bolivia, Ecuador, Panama and Paraguay

UN REDD Parnter Countries: Argentina, Chile, Costa Rica, Guyana, Honduras, Mexico and Peru

1st Tier UNREDD Country	Main Commodities	Main Companies
Bolivia	Soy	Bolivian Shoji S.R.L, ADM, Cargill
	Minerals (silver, zinc, tin)	Apogee Minerals Bolivia S.A., Black Isle Resource Corp.
	Natural gas	YPFB
Ecuador	Bananas	Chiquita, ALES
	Cocoa	Unilever
	Palm oil[166]	Palmaoriente S.A., Palmeras de los Andes
Panama	Beef (dairy)	Nestle, Estrella Azul, Bonlac
Paraguay	Soy	Grupo Favero, Monsanto, ADM, Cargill, Bunge, Louis Dreyfus
	Sugar	AZPA, ASFA
	Beef	Grupo A J Vierci, Frigorífico Concepción, Frigorífico Guaraní S.A.
2nd Tier UNREDD Country	**Main Commodities**	**Main Companies**
Argentina	Soy	ADM, Argensoja Sa, Bunge, Cargill
	Beef	JBS
Chile	Timber	Arauco
Costa Rica	Pineapples	Dole, Del Monte
	Bananas	Chiquita, Dole, Del Monte
Guatemala	Coffee	Anacafé
	Sugar	Pantaleon
	Bananas	Chiquita, Dole, Del Monte
Guyana	Sugar	GuySuCo
Honduras	Coffee	IHCAFE
	Pineapples	Dole, Del Monte
	Bananas	Chiquita, Dole, Del Monte

[166] http://www.wrm.org.uy/plantations/material/oilpalm3.html

Mexico	Coffee	Anacafé
	Beef	SuKarne, S.A. de C.V.
	Maize	Corn Products International
	Timber	GIDUSA Grupo Industrial Durango
Peru	Coffee	Junta Nacional del Café
Brazil (not a partner)	Soy	ADM, Bunge, Cargill

Company	Country	Sustainability Initiative (w/X commodity)
Cargill	Brazil	Cargill in conjunction with TNC is working to curb deforestation in the Amazon agreeing to partake in a soy moratorium, where they have committed to not purchase soy from lands that have been deforested. Cargill has partnered with WWF, CI, TNC, Greenpeace and IPAM. They have developed a mapping tool to monitor soy production in Brazil, see this link for a detailed analysis.
	Brazil, Bolivia* Colombia** Ecuador* Peru*	Cargill has awarded USD $3 million to Columbia University Center for Environment, Economy, and Society (CEES) and the Amazon Forest Carbon Partnership (AFCP), a first-of-its-kind project designed to help preserve the Amazon rainforest. This initiative will create a platinum standard for forestry carbon credits, and ensure that the money from carbon markets transparently goes to those intending to benefit from this program (i.e. indigenous people).[167] Don Melnick (Director of CEES at Columbia University) began dialogues with executives at Cargill and is the focal point for this initiative….read more at this link
Chiquita	Ecuador	Chiquita has forbidden deforestation that harms natural habitats and uses reforestation to help ecosystem functions, as is preventing soil erosion. Chiquita as of 2008 had 87% of their farms certified by Rainforest Alliance.[168]
Monsanto	Atlantic Forest (Brazil-Paraguay-Argentina-Uruguay) and Cerrado (Brazil)	Monsanto has a partnership with Conservation International to protect biodiversity in the Atlantic Forest (Northeast-meaning Brazil). The project seeks to work with Monsanto´s agriculture and livestock supply chains. As part of the partnership, CI will advise and recommend ways Monsanto can improve its environmental practices in relation to protecting the region. In turn, Monsanto will adopt the conservation of biodiversity in the *Cerrado* and the Atlantic Forest as one of the key elements of its business strategies in the region. The total value of the project is US$ 13 million, to be invested over five years.[169]
Unilever	Ecuador (cocoa)	Rainforest Alliance also works with certifying cocoa in Ecuador, a commodity which Unilever purchases for its ice cream Magnum.[170] Unilever has committed to source sustainably all soy, sunflower and rapeseed oils by 2020.
Arauco	Chile (timber), Argentina, Uruguay	Arauco is working to certify their activities through the Forest Stewardship Council (FSC) and Chilean System for Sustainable Forest Management Certification (CERTFOR). At this link, there is a full list of what areas are under FSC or CERTFOR certification. Side note, Montes del Plata in Uruguay is a joint venture of Arauco, and the Green Commodities Facility has already participated in a mission to

[167] http://www.cargill.com/connections/carbon-credit-initiative/index.jsp
[168] http://www.chiquita.com/#/BeingGreen/
[169] http://www.monsanto.com/ourcommitments/Pages/conserving-biodiversity-with-conservation-international.aspx
[170] http://www.unilever.com/sustainability/environment/agriculture/cocoa-sugar/?WT.LHNAV=Sustainable_cocoa_&_sugar

		Uruguay to discuss forestry projects.
Nestle	Global	Nestle has partnered with The Forest Trust (paper and palm oil)[171], a non-profit that assists companies and communities deliver responsible products, and provide solutions to the issue of deforestation and empowerment of forest dependent communities.
Grupo JBS	Argentina, Brazil (beef)	**Bertin, Friboi** and **Swift** (major beef producers) were recently acquired by JBS and have offices in Argentina, Australia, Brazil and the US. Grupo JBS-Friboi has a **five year sustainability** commitment plan that encompasses the following: **1.** GHG reduction **2.** Use of biomass a source of energy **3.** Use of biodiesel for JBS transportation fleet **4.** Reforestation program **5.** Commitment to ¨zero deforestation¨ **6.** Implementation of Environmental Management Systems in industrial facilities (Don´t know what this is?) **7.** Support of Brazilian traceability system (All these commitments were pulled and translated to English from their Brazilian website and no projects were specified in Argentina)
Dole	Global	Corporate Social Responsibility: ***-Member of the UNEP Climate Neutral Network***: Initiative that measures and mitigates GHG at their facilities**; 1.** Measure GHG **2. Mitigation programs (has planned to undertake research into climate-friendly agricultural practices such as minimum tillage, carbon capture in tropical agricultural soils, use of biomass to produce energy, and investigation into alternative cultivation methods such as annual cropping and organic production that have the potential of reducing climate change impacts**. **3.** Stakeholder engagement; seeking ways to **work with governments** to create a country climate change strategy -***Good Agriculture Practices* (GAP)**: are guidelines set up to ensure practices are in accordance to Integrated Crop Management **(ICM),** Integrated Pest Management **(IPM)**, and soil rejuvenation. -**Dole organics**: organic **bananas** are grown on farms in Colombia, Ecuador, Honduras and the Philippines. Organic **pineapples** are grown in Costa Rica -Nature conservation: Water program that monitors water quality and use and R&D developed a way to monitor soil moisture once a week. -***Biodiversity programs:*** work with several environmental organizations (none listed on website) to set aside land for waterway corridors for birds -***Reforestation programs***: Dole has nurseries which produces many plants that are distributed for reforestation work.
	Costa Rica	Dole´s global CSR program has a specific emphasis on working in Costa Rica with the country´s carbon neutrality pledge. Currently, there are reforestation and protected areas projects in the work.[172] Dole will be a participating member of the Green Commodities Facility´s pineapple platform in Costa Rica.
Del Monte	Global	Sustainability initiatives: *Environment:* (i) resource use and management (water, soil, energy & fuel, air) (ii) biodiversity (iii) waste *Certifications:* **GlobalGAP** standards implemented in **Costa Rica (pineapples, bananas, melons, mangoes), Brazil (pineapples, bananas, melons), Colombia (bananas), Cameroon (bananas), Chile (grapes), Philippines (bananas, pineapples)**[173] No specific information about initiatives in country, just listed as is on website.

*UN REDD Pilot Countries **UN REDD Partner Countries

[171] http://www.tft-forests.org/members/
[172] http://dolecrs.com/sustainability/carbon-footprint/carbon-neutrality/
[173] http://www.freshdelmonte.com/sustainability-intro.aspx