



Climate Change:

Agriculture, Forestry, and Other Land-Use (AFOLU) for Addressing Climate Change Mitigation and Adaptation in the Latin American and Caribbean Region

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Acronyms

AAUs	Assigned Amount Units
ACICAFOC	Coordinating Association of Indigenous and Community Agroforestry in Central America
ACTO	Amazon Cooperation Treaty Organization
AFOLU	Agriculture, Forestry and Other Land Use
Annex I	Annex I to the United Nations Framework Convention on Climate Change, listing industrialised and transitional countries
Annex II	Annex II to the United Nations Framework Convention on Climate Change, listing mostly OECD countries, with additional commitments to assist developing countries with funding and technology transfer
Annex B	Annex B to The Kyoto Protocol, listing countries with quantified emission limitations or reduction commitments
AOSIS	Alliance of Small Island States
AR4	Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report “Climate Change 2007”
A/R	Afforestation and reforestation
A/R CDM	Afforestation and Reforestation project activities under the CDM
A/R WG	Afforestation/Reforestation Working Group under the CDM
ARD	Afforestation, reforestation, deforestation (as a requirement for Annex I Parties to the Kyoto Protocol)
AWG-KP	Ad Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol
AWG-LCA	Ad Hoc Working Group on Long-term Cooperative Action under the Convention
BAP	Bali Action Plan

BCF	BioCarbon Fund
CAN	Andean Community
CAR	California Climate Action Reserve
CATIE	Tropical Agriculture Research and Higher Education Center
CBO	Country office of Bolivia
CCAD	Central American Commission on Environment and Development
CCB	The Climate, Community, and Biodiversity Standards
CDM	Clean Development Mechanism
CCX	Chicago Climate Exchange
CER	Certified emission reductions
tCER	temporary CER
lCER	long-term CER
CfRN	Coalition for Rainforest Nations
CH ₄	Methane
CI	Conservation International
CIF	Climate Investment Funds
CIFOR	Center for International Forestry Research
CO ₂	Carbon dioxide
COICA	Coordinator of Indigenous Organizations of the Amazon Basin
CONFENIAE	Confederation of Indigenous Nationalities of the Ecuador Amazon
COP	Conference of the Parties to the United Nations Framework Convention on Climate Change
CMP	Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol (also known as COP/MOP)

CPF	Collaborative Partnership on Forests (CPF); The 14 members of the CPF are: the Center for International Forestry Research (CIFOR), UN Food and Agriculture Organization (FAO), International Tropical Timber Organization (ITTO), International Union of Forestry Research Organizations (IUFRO), Convention on Biological Diversity (CBD) Secretariat, Secretariat of the Global Environment Facility (GEF), United Nations Convention to Combat Desertification (UNCCD) Secretariat, UNFCCC, Secretariat, United Nations Development Programme (UNDP), United Nations Environment Programme (UNEP), World Agroforestry Centre (ICRAF), World Bank (WB), and World Conservation Union (IUCN). The United Nations Forum on Forests (UNFF) Secretariat supports the work of the CPF.
DD	Deforestation and forest degradation
DETER	Brazil's Detection, Enforcement & Tutoring for Error Reduction Project
DETEX	Brazil's Program for Detection of Selective Logging Activities
ENCOFOR	Environment and Community-based Framework for Designing Afforestation, Reforestation and Revegetation Projects in the CDM
EO	Earth Observation
EPA	Environmental Protection Agency
ERU	Emission Reduction Unit
ESG	Environmental Safeguards Unit
EU	European Union
EU-ETS	European Union Emission Trading System
FAO	Food and Agriculture Organization
FCPF	Forest Carbon Partnership Facility
FONAFIFO	Costa Rica's National Fund for Forestry Financing
GEF	Global Environment Facility

GFP	Global Forest Partnership
GHG	Greenhouse Gas
GMES	Global Monitoring for Environment and Security
GPG	Good Practice Guidance
HWP	Harvested wood products
IDB	Inter-American Development Bank
INE	Infrastructure and Environment Sector
INPE	Brazil's National Institute for Space Research
IPAM	Amazon Environmental Research Institute
IPCC	Intergovernmental Panel on Climate Change
ITTO	International Tropical Timber Organization
IUCN	International Union for Conservation of Nature
JI	Joint Implementation
KP	Kyoto Protocol
LAC	Latin America and the Caribbean
LULUCF	Land Use, Land Use Change and Forestry
MoU	Memoranda of Understanding
MIF	The Multilateral Investment Fund, a Member of the IDB Group
MRV	Measureable, Reportable and Verifiable
N ₂ O	Nitrous Oxide
Non-Annex I	Parties to the United Nations Framework Convention on Climate Change not listed as Annex I (see above), mostly developing countries
NAMA	Nationally Appropriate Mitigation Action
NFP	National Forest Program

NTFP	Non-timber Forest Products
ODA	Official Development Assistance
ORP	Office of Outreach and Partnership
OTC	Over-the-Counter Market
PES	Payment for Environmental Services
PRODES	Brazil's Basin Restoration Program
REDD	Reducing Emissions from Deforestation and Forest Degradation
REDDES	ITTO Program on Reducing Deforestation and Forest Degradation and Enhancing Environmental Services in Tropical Forests
REDD+	REDD including the role of conservation, sustainable management of forests, and enhancement of forest carbon stocks in developing countries (as defined in the Bali Action Plan).
RND	Rural Development and Disaster Risk Management Division
SBSTA	Subsidiary Body for Scientific and Technological Advice
SFM	Sustainable Forest Management
SIDS	Small Island Developing States
TARAM	Tool for Afforestation and Reforestation Approved Methodologies
TDERM	Tropical Deforestation Emissions Reduction Mechanism
TNC	The Nature Conservancy
UNDP	United Nations Development Programme
UNEP	United National Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNFF	United Nations Forum on Forests
US	United States of America
USD	United States Dollar

VCS	Voluntary Carbon Standard
VPP	The Vice Presidency for Private Sector and Non-Sovereign Guaranteed Operations (VPP)
VPS	The Vice Presidency for Sectors and Knowledge
WG I	Working Group I (of the IPCC, see above), assesses the literature on the physical science basis of climate change
WG II	Working Group II (of the IPCC, see above), assesses the literature on the impacts, vulnerability and adaptation to climate change
WG III	Working Group III (of the IPCC, see above), assesses the literature on the mitigation of climate change, i.e., reducing GHG emissions
WMO	World Meteorological Organization
WWF	World Wildlife Fund

Units and Measures

EJ	Exajoule, 10^{18} Joule
Ha	Hectare
GtC	Gigatons of carbon
GtCO ₂	Gigatons of carbon dioxide, a billion tons CO ₂
MtCO ₂	Megatons of carbon dioxide, a million tons CO ₂
tC	tons of carbon
tCO ₂	tons of CO ₂
yr	year

Key Definitions Used in this Paper:

IPCC Definitions for AFOLU and LULUCF

The 2006 IPCC Guidelines for National Greenhouse Gas (GHG) Inventories (IPCC 2006) introduced the concept of “Agriculture, Forestry and other Land Uses” (AFOLU) which combines direct GHG emissions of all land-based activities.

The previous concept, “Land Use, Land-Use Change and Forestry” (LULUCF) introduced by the IPCC Good Practice Guidance 2003 (IPCC 2003) and adopted by the United Nations Framework Convention on Climate Change (UNFCCC) excludes parts of GHG emissions from the agricultural sector (e.g., fertilizer application, enteric fermentation, manure management, etc.).

The Use of AFOLU and LULUCF in this Report

The term AFOLU is used in this report to refer to climate change impact of all land-based activities including indirect effects on GHG emissions, such as material substitution or fossil fuel substitution from biofuels.

The term LULUCF is used to directly refer to the treatment of land-use aspects in the current UNFCCC regime.

Why the Focus on Forests?

Forests are an important component of national climate change mitigation and adaptation strategies. To respond to country needs in the context of current debates, this report strongly focuses on aspects related to forests, mainly on reducing greenhouse gas emissions from deforestation and forest degradation, including sustainable forest management and forest conservation as well as forest restoration. These activities are currently under negotiation under REDD (Reducing Emissions from Deforestation and Forest Degradation). This does not discount the importance of implementing a fully integrated and balanced land-use approach to climate change mitigation and adaptation that includes all aspects of all land-based activities.

Foreword

The agriculture and land-use sectors are key contributors to global climate change. They are both a source and a sink of the harmful, human-induced greenhouse gas (GHG) emissions that are at the heart of global warming. All nations are threatened by the predicted detrimental impacts of climate change and have a role to play in confronting and solving this problem. In order to stabilize GHG emissions at a level which is internationally accepted, and which minimizes the impacts of climate change, nations must move beyond “business-as-usual” and increase mitigation efforts. The Inter-American Development Bank (IDB) is committed to helping the Latin America and Caribbean (LAC) region prioritize its work in this area and support its efforts to mitigate climate change.

In LAC, the agriculture and land-use sectors are among the most vulnerable to the impacts of climate change. They are also key economic sectors in the region, and due to the volume of generated emissions, important sources of the climate change problem. Emissions from human-induced land-use change (land conversions and degradation), account for over 46% of overall GHG emissions in the region. This startling number is a clear indicator that mitigation efforts in the Agriculture, Forestry and Other Land Use (AFOLU) sector should be a priority for LAC.

The identification and implementation of mitigation options is imperative in the effort to minimize the impacts predicted in scenarios, including temperature increases due to decreased soil humidity, replacement of tropical forests by savannah forests, and replacement of semi-arid vegetation by arid species. Working in favor of the region is the fact that mitigation options for the AFOLU sector are numerous and that many are low-cost and available for implementation in the short and medium term. These options also tend to achieve significant emission reductions.

To assist the region with its efforts, the IDB is prioritizing its work on climate change and the agriculture and land-use sectors. The Sustainable Energy and Climate Change Unit, Infrastructure and Environment Sector (INE/ECC), in collaboration with the Rural Development and Natural Disasters Division (INE/RND) and the Multilateral Investment Fund, a member of the IDB Group (MIF/MIF), are leading the charge to facilitate strategic efforts for the Bank. These groups are building capacity from within and putting into place Bank-wide guidelines for agriculture, forests, and climate change.

In the near term, the IDB seeks to: 1) provide technical, analytical, and operational support and promote activities aimed at mitigating climate change in the AFOLU sector in LAC; 2) develop approaches to facilitate the channeling of funds to activities such as reforestation, afforestation, avoided deforestation, land rehabilitation, and soil and watershed protection; and 3) promote the expansion of the project pipeline; generate knowledge, support institutional learning, and promote best practices while supporting the development of innovative and cross-sectoral approaches.

The Bank has published this Technical Note as a contribution to building capacity in the LAC region for strong agriculture, forest, and climate change programs. It provides important background information and data, country and organization positions, and country examples and profiles.



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Executive Summary

1. Climate Change – The Challenge and the Role of Forests

There is wide agreement in scientific and policymaking circles that, in order to prevent catastrophic, human-induced impacts on the climate system, which is the ultimate goal of the United Nations Framework Convention on Climate Change (UNFCCC), global average temperatures must not rise more than 2°C. To achieve this goal, global greenhouse gas (GHG) emissions must peak in the next decade and then decrease, by 50% below 1990 emission levels by 2050.

Today, nearly 18% of global GHG emissions come from the forest sector, and are derived mainly from terrestrial carbon stocks released into the atmosphere through deforestation and forest degradation in the tropics. If emissions from the agricultural sector¹ are included, land-based activities account for 31% of total emissions. Thus, **the reduction of emissions from agriculture, forestry and other land-use (AFOLU) is key to achieving global emission reduction targets.**

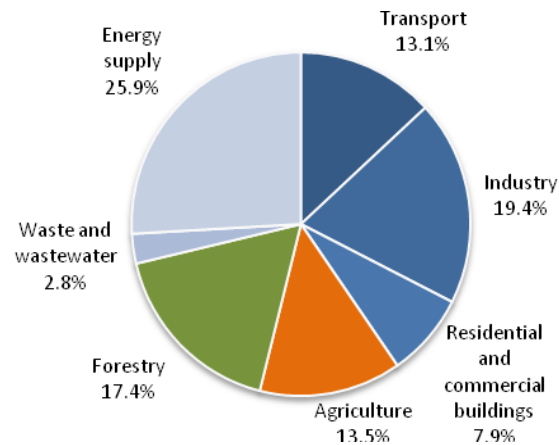
Mitigation options in land-use sectors are abundant, and cost significantly less per unit of emissions reduction than investments in infrastructure (e.g. development and introduction of clean technology) which will be required in the energy sector. These efforts can achieve significant emission reductions in the short term, especially when coupled with measures to avoid emissions from land conversions and degradation (e.g., deforestation).

2. Emissions from Forestry in Latin America and the Caribbean

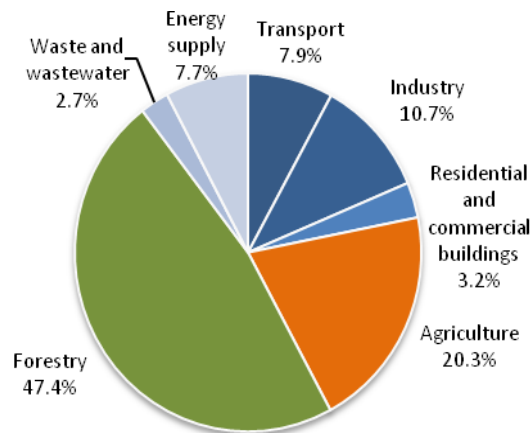
The Latin America and the Caribbean region (LAC), account for more than 40% of the world's deforestation. Between 1990 and 2005, the region lost 7% of its total forest area. The forest sector is the single highest source of GHG in the region, accounting for nearly half of total emissions. Although half of these emissions came from a single country – Brazil – emissions from the forestry sector are still the main source of GHGs in most LAC countries, in some cases significantly so. For example, in Nicaragua, Bolivia, and Panama, emissions from forestry exceed 90% of the countries' total carbon dioxide (CO₂) emissions.

¹ Mainly N₂O and CH₄, non-CO₂ GHG emissions.

Figure 1: Share of Forestry and Agriculture in Global Anthropogenic GHG and GHG emissions in LAC Countries



Global GHG Emissions



LAC GHG Emissions

Source: IPCC 2007c; Source: WRI 2003

Due to this imbalance, and compared to other regions, LAC has a relatively large potential to reduce emissions from the forest sector. Emission reductions amounting to 80 GtCO₂ are achievable by avoiding the deforestation of 121 million hectares over the next 50 years. This is equivalent to the reduction of about twice the world's annual GHG emissions and is equal to a surface area approximately the size of Peru. These emission reductions are economically feasible given the affordable price of carbon sequestration (below 20 United States Dollar (USD) per

tCO₂) and may have positive impacts on sustainable development in the region. Further options for climate change mitigation in the forestry sector include:

- Afforestation
- Reforestation
- Forest restoration
- Sustainable forest management.

The potential of afforestation/reforestation is roughly estimated at 70 million hectares and would result in the sequestration of 18 GtCO₂. The area available for forest restoration is about 335 million hectares and would sequester at least 46 GtCO₂.

3. Towards an Integrated Land-Use Approach: Agriculture, Forestry and Other Land-Use

Agriculture and forestry are traditionally treated as separate yet competing sectors. However, they are strongly inter-related and should not be addressed in isolation. An integrated and cross-sectoral approach for land-use management is needed to meet societal demands for goods and ecosystem services, mitigate climate change, respond to climate change adaptation, and secure a sustainable future.

Agricultural expansion is the main driver of deforestation in the LAC region. Therefore, measures to decrease CO₂ emissions from deforestation need to consider actions in the agriculture sector. When agricultural practices are addressed in this context, impacts on GHG emissions from activities in the agriculture sector must also be considered. For example, the replacement of fossil fuels with renewable fuels crops, the impact of agricultural practices on soil carbon, or non-CO₂ GHG emissions (i.e., methane [CH₄] and nitrous oxide [N₂O]) influenced by livestock management and fertilizer application.

Climate change mitigation options in the forest sector are also inter-linked. Afforestation and forest restoration activities, combined with sustainable forest management, can reduce the impacts of deforestation and degradation of natural forests. Additionally, forest plantations can yield products that may replace more energy intensive products. Using wood for energy production that is produced in a sustainable manner can, to some degree, substitute the use of fossil fuels. Wood is also a good replacement for CO₂ intensive materials like concrete and steel.

With regard to climate change mitigation, an optimal strategy could maintain or increase forest carbon stocks and continue to produce an annual sustained yield of timber, fiber, or energy from the forests, to generate the largest and most sustainable mitigation.

Forestry and agriculture are climate-vulnerable sectors and are susceptible to the damaging impacts of climate change. Aligning land-use strategies for climate change mitigation and measures to reduce ecosystem vulnerability will reduce the risks associated with climate change impacts. Existing synergies between land-based mitigation and adaptation offer low-cost options for addressing climate change, particularly in the LAC region. Thus, measures for land-based climate change mitigation could be designed to maximize synergies and reduce conflicts with:

- Overall climate change mitigation targets within and across the sectors
- Measures to reduce overall climate change vulnerability
- Other environmental and socio-economic services, such as biodiversity, watershed and soil conservation, and poverty reduction.

Using land-based options for addressing climate change is a cross-sectoral challenge. A concerted and multi-sectoral approach is needed for optimizing the use of land-based mitigation options, while reducing forest conversion and the overall GHG emissions from agricultural activities. Such an approach promotes effective adaptation as well as other environmental and socio-economic benefits.

4. Incentives and Challenges for Implementation

Under the current UNFCCC framework, opportunities for mitigating GHGs in the agriculture and forestry sectors in developing countries are limited. The Clean Development Mechanism (CDM) - a flexible mechanism under the UNFCCC Kyoto Protocol providing offsetting investment opportunities in developing countries for mitigation efforts - only allows afforestation and reforestation project activities in the first commitment period of the Kyoto Protocol (2008-2012).

Negotiations on a post-2012 agreement recognize the need to create incentives for reducing GHG emissions from deforestation and forest degradation (REDD) including:

- The role of forest conservation
- Sustainable management of forests
- Enhancement of carbon stocks (REDD+).

In order to halt forest cover loss by no later than 2030, investments of USD 4 billion per year, at minimum are required to compensate opportunity costs of deforestation and forest degradation in LAC (Blaser and Robledo, 2007). Several options to provide predictable, sustained and adequate funding for REDD are under discussion, including the establishment of a financial mechanism to mobilize resources from developed countries for REDD. Many other barriers to implementation exist, including political, methodological, and governance challenges.

To address the political challenges, there is a need to create a fair, balanced, transparent, and streamlined international framework for REDD. This framework would account for the diverse and varying national circumstances in countries with REDD potential and ensure transparent measuring, verification and reporting of emission reductions. This is needed to ensure equity among countries and environmental integrity. It allows for efficient implementation and broad participation, which are both major challenges in the current UNFCCC negotiations.

The methodological issues remain unclear as well, and will need to be clarified at the forthcoming Conference of the Parties (COPs). Some issues that require clarification are:

- Setting and monitoring the reference level against which emission reductions are quantified and net emission reductions calculated
- Addressing displacement of emissions and accounting of emission reductions
- Handling of issues regarding measuring, verifying, and reporting of emission reductions.

These issues are complex, but in contrast to the following issues of governance, they can be addressed through technical solutions.

Governance issues greatly impact the ability of an international agreement to implement REDD at the national and sub-national level. Implementing REDD will include the enforcement

of policies and other institutional arrangements in the forestry, agriculture, and energy sector both internationally and locally. In most developing countries, transformational changes in land-use policies and practice are necessary to enable successful REDD implementation. The main issues that need addressing are described below.

- **Horizontal and Vertical Consistency of Institutional Architecture:** This includes the harmonization of sectoral laws and regulations, integration of land-use planning, and enforcement of law at the local level. Agricultural subsidies and non-valuation of environmental services are a major cause for deforestation in LAC. They promote the expansion of the agricultural frontier while reducing the social value of the forest. Infrastructure projects slate the forests for clearing to increase the agricultural frontier. The cooperation amongst agencies and an executive directive on REDD are important to offset or eliminate factors to provide incentives for deforestation. Achieving consistency in the institutional architecture requires not only coordination between the different sectors but also effective mechanisms for cooperation.
- **Tenure, Property and Land-Use Rights:** Unclear tenure is observed in many LAC countries. This is due to a variety of issues, including conflicts between customary and non-customary rights, forest clearing as a means for getting land ownership, speculation and “informal” sub-division of land, etc. Therefore, addressing issues related to tenure, property, and land-use rights is imperative to prevent undue forest clearing. Clarification of land tenure and property, as well as ownership and access to carbon pools, has a great impact on determining the ownership of GHG emissions reduced. For example, does the same person who manages the forest own the resource (including the carbon offset credits associated with the forest)? Who owns the emissions reduced when clearing is curtailed as a means for getting land tenure? Is a long-term perspective on the management of the forest being considered?
- **Participation of all forest stakeholders in decision-making:** Successful REDD implementation depends on cooperation between forest stakeholders. Fostering and supporting an enabling environment is required. This allows for knowledge sharing, empowerment of social groups, capacity building, and development of livelihood alternatives.

- **Sharing Benefits and Responsibilities:** REDD incentives should be distributed among sub-national actors in a fair and equitable manner. They should be predictable, sustained, and adequate to ensure equity and achieve emission reductions.

5. Ongoing Initiatives and Experiences in Latin America and the Caribbean

With only a couple of pilot-projects world-wide, afforestation and reforestation activities under the CDM have been very limited. The risks associated with the long-term nature of all forest investments (market, political, operational, and financial) are linked to the marginal role forest projects play in the CDM. The complicated methodological requirements for calculating emission reductions from this sector, the temporary nature of credits, and the exclusion of forest-based credits in the European Union Emission Trading Scheme (EU-ETS) are also significant factors. The EU-ETS is currently the largest market for carbon credits. The limitation of forestry activities in the voluntary markets is attributed to the same reasons.

Recent developments at the international level are increasing interest in forest-based and other land-based climate change mitigation options. These developments include the possibility of a REDD mechanism, simplified modalities (i.e., eligibility, baseline, monitoring, etc.) for the voluntary and Kyoto carbon markets, and the role that forest based activities will play in a future mitigation regime in the United States of America (US) and other developed countries.

The launch of many multi- and bi-lateral initiatives aimed at supporting countries in their preparation for a post 2012 regime provides a framework from which to grow and share knowledge. Among the existing and relatively new initiatives are:

- **The World Bank's Forest Carbon Partnership Facility (FCPF):** Launched at COP 13 in Bali, 2007, FCPF assists countries in developing REDD strategies and preparing for REDD implementation (Readiness). A limited number of countries will be selected to implement pilot-incentive programs to test carbon finance mechanisms.
- **The UN-REDD Program (UN-REDD):** A collaborative program between three UN-agencies (the Food and Agriculture Organization (FAO), the United Nations Development Programme (UNDP), and the United Nations Environment Programme (UNEP)). Since September 2008, UN-REDD has assisted selected countries world-wide, including LAC

(Bolivia, Panama, and Paraguay), with technical issues related to REDD, such as reference-level setting and monitoring.

- **The Forest Investment Program (FIP):** Under a new package of Climate Investment Funds (CIF) (July 2008), FIP will support countries to undergo important transformational changes that will assist countries in implementing REDD. This includes helping countries to identifying investments for projects to generate understanding about the linkages between the implementation of forest-related investments and policies and measures, long-term emission reductions and conservation, sustainable management of forests, and the enhancement of forest carbon stocks in developing countries, etc.

Other multilateral organizations and initiatives support climate change as part of their ongoing activities (i.e., reducing deforestation and forest degradation, improving forest management, as well as responding to climate change adaptation, monitoring forests, etc.). These include: The Global Environmental Facility (GEF) Trust Fund, The Collaborative Partnership on Forests (CPF); and the Thematic Programme on Reducing Deforestation and Forest Degradation and Enhancing Environmental Services in Tropical Forests (REDDES) of the International Tropical Timber Organization (ITTO). Bilateral cooperation organizations also include adaptation and mitigation in their portfolios. Some organizations like Brazil's Fundo Amazonia, are seeking to create opportunities for voluntary action that halt deforestation in the Amazon without the provision of emission credits to carbon markets. Fundo Amazonia is currently seeking USD 21 billion for this purpose.

Many countries in the LAC region see mitigation options in the forestry sector, and to a lesser extent in the agricultural sector, as a priority field for climate change mitigation. They also view these options as a chance, in the land-use sector, to simultaneously address issues of climate change adaptation, environmental services (biodiversity, water, soil, etc.), and sustainable development. International payment for emission reductions as well as any other compensation scheme for REDD, are connected with strategies and initiatives designed at the country-level to address deforestation and increase forest cover. Experiences in LAC include:

- Schemes for payment for environmental services other than compensation schemes
- Government subsidies for afforestation

- Decentralized forest reforms
- Land protection protecting areas
- Land-titling, etc.

In addition, many pilot programs are ongoing, funded by multi- and bi-lateral initiatives and the private sector.

With experience in such forest governance efforts in the region, the conditions are right for countries in LAC to become leaders in addressing climate change through forestry and agriculture. Concerted and coordinated efforts, however, are still necessary to adapt international mitigation frameworks to national conditions. This holds true for the advancement of changes needed at the country level to effectively implement REDD and other land-based mitigation efforts on the ground.

Preparing LAC countries for the implementation of REDD and other land-based mitigation options is challenging and can be costly. Consequently, developing countries will require combined and coordinated support from multilateral organizations. Countries need support to translate global decisions and multilateral initiatives into national and sub-national priorities and enabling conditions. Significant upfront investments are necessary for both the transformation of policies and practices as well as the provision of financial incentives for land-based climate change mitigation. Public finance alone will not be sufficient, and as a result developing countries may need to leverage private capital investment.

6. IDB and AFOLU

Tropical forests cover close to 2 billion hectares of the earth's surface and are both a major driver (through deforestation and forest degradation) for climate change and an important part of the solution (through the sustainable management of existing forests, including forest conservation and enhancement of CO₂ sinks). Deforestation and forest degradation of tropical forests are responsible for about 18% of current global GHG emissions (IPCC, 2007). A significant part of these emissions originate in IDB member countries where vast areas of forestland are lost each year and will continue to be gravely threatened. In 2000–2005, Latin American countries accounted for over 40% of total tropical deforestation, which averaged approximately 5 million hectares per year (FAO, 2009). The AFOLU sector is responsible for a

greater proportion of CO₂ emissions in the LAC region (64.5% of total emissions) (Houghton, 2003). These startling facts make land use change and emissions resulting from deforestation a top priority for the region and for the IDB.

The Bank is committed and mandated to assist its member countries utilize and conserve their forest resources as a tool to provide long-term social, economic and environmental benefits. It has important financial role in the region and vast experience in different sectors relevant to land-based mitigation options in LAC. The IDB is preparing to scale up its efforts to assist LAC on issues related to land-based climate change mitigation and revise its operational policy for the sector to include significant recent developments including the inclusion of afforestation and reforestation as eligible activities in the Clean Development Mechanism (A/R CDM) and discussions REDD and REDD+² (broadening options for incentives to REDD including the role of conservation, sustainable management of forests, and enhancement of forest carbon stocks in developing countries) (Angelsen et al, 2009a; IPCC 2007; Myers, 2008). In doing so, the IDB is strengthening its climate change strategy and assessing its own capacities, readiness, and comparative advantages for addressing climate change in the region. It has identified five key areas to strengthen, consolidate, and focus on in support of the region's climate change agenda.³

The recent IDB Analytical Framework for Climate Change Action publication identifies land use, land use change and forestry (LULUCF) as the main contributor to emissions in the region. The impacts of LULUCF include intensive land vegetation change, destruction of forests, expansion of agriculture, and land degradation. Therefore LULUCF should be given a high priority when designing national GHG emission reduction programs, and it will be a top priority for IDB intervention in the region.

To address the IDB findings and support country needs with respect to current international developments in the sector, the Bank puts forth a cross-sectoral strategy for land-based climate change mitigation that consists of the following:

² REDD+ broadens options for incentives to REDD, including the role of conservation, sustainable management of forests, agriculture and enhancement of forest carbon stocks in developing countries (Angelsen et al. 2009a; IPCC 2007; Myers 2008).

³ The following list is taken from the IDB Analytical Framework for Climate Change (IDB 2010). 1) Expansion of the knowledge base of the Bank and the region regarding options for addressing challenges in climate change mitigation and adaptation; 2) strengthening of institutional frameworks and capacity building; 3) development of guidelines and criteria for mainstreaming climate change mitigation and adaptation in IDB operations, climate-proofing projects, and GHG reporting; 4) identification and development of lending and technical assistance potential in key sectors; and (5) development of mechanisms for scaling up investment and addressing financial gaps.

1. Improve **enabling conditions** for mitigation options in the forestry and agriculture sector in LAC countries
2. Facilitate **inter- and multi-sectoral dialogue** at the national and sub-national levels for a cross-cutting approach to REDD
3. Support **preparation of national REDD strategies**, including assistance with tools and methods for calculating and monitoring GHG emissions
4. Promote **stakeholder dialogue and participation** in the design of national and sub-national REDD mechanisms.

The development and implementation of these areas of focus is being done in consideration and within the context of the following steps:

1. **Review Existing Project Portfolios and Compile Lessons Learned** based on previous IDB experience within the forestry and agriculture sector (including bioenergy). This process will assess the potential impacts of climate change mitigation and adaptation on existing programs and result in case studies (Knowledge for Change Programmes) for distribution at the regional and national levels.
2. **Analyze Programs in Other Sectors** coordinated by the IDB with potential impacts on land-based climate change mitigation. In particular, programs that target the underlying drivers of deforestation in agriculture, energy, mining and infrastructure.
3. **Identify Funding Needs for Land-Based Climate Change Mitigation** based on country financial demands for REDD implementation or projects that foster a cross-sectoral approach to climate change mitigation and/or adaptation in the land-use.
4. **Identify Linkages and Cross-Cutting Effects of Ongoing IDB Initiatives** to increase efficiency in the implementation of land-based climate change mitigation programs by the IDB.
5. **Foster Synergies among IDB Partners** (e.g., World Bank) to work together more efficiently and effectively on existing and future initiatives as well as provide combined inputs to serve as the basis for future intergovernmental agreements.

This report begins with an assessment of GHG emissions from the AFOLU sector and identifies options and potentials for climate change mitigation within the sector.

The second section of the report describes the frameworks provided by UNFCCC and its Kyoto Protocol to address GHG emissions from the AFOLU sector in developing countries and

focuses on the key issues in the role of forests in climate change currently debated within the UNFCCC negotiations and their challenges (mainly reduced emissions from deforestation and forest degradation).

The third section gives an overview on the prospects for tropical forests to access climate change based financing for forest-based climate change mitigation and describes funding mechanisms currently available for AFOLU climate change mitigation activities.

In its fourth section, the report further analyses current positions and roles of other stakeholders, reviews institutional frameworks and experiences made with AFOLU in IDB member countries, and identifies the country needs in the sector.

Agriculture, Forestry and Other Land-Use (AFOLU) for Addressing Climate Change in the Latin America and Caribbean Region

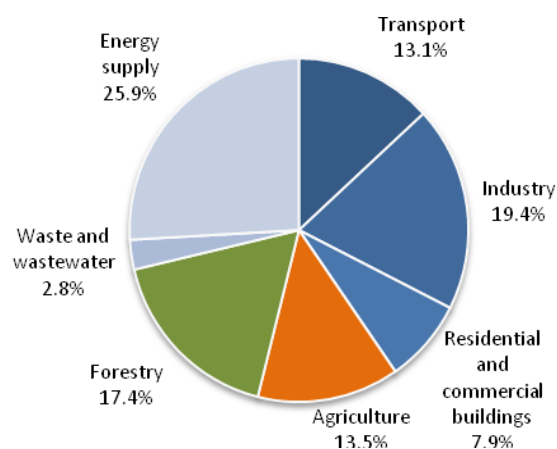
1 AFOLU in Latin American and Caribbean Countries

Climate change is considered to be one of the major threats to sustainable human development. It impacts health, infrastructure, settlements, water, agriculture and food security, and forest ecosystems. The burning of fossil fuels is the most important source of greenhouse gases (GHGs). The second largest source of GHG emissions is from activities related to land use, primarily tropical deforestation, forest degradation and forest fires. According to the last Intergovernmental Panel on Climate Change (IPCC) assessment, emissions from forestry alone are over 17% of the total global GHG emissions (IPCC, 2007). When adding all emissions from the agriculture sector to this, the figure increases to over 30% of global anthropogenic GHG emissions per year.

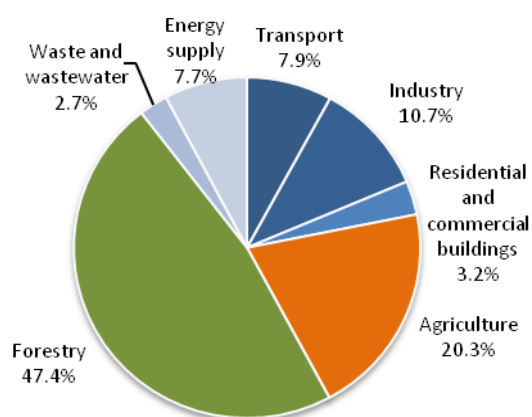
In Latin American and Caribbean Countries (LAC), land-based activities are the most important source of GHGs. Emissions from forestry represent close to 50% of total emissions. When taken together with emissions from agriculture, this figure soars close to 70% of the total GHG emissions (see Figure 2).⁴

⁴ While emissions from the forestry sector are mainly CO₂ emissions and caused by loss of carbon stocks and due to deforestation and forest degradation activities, less than 10% of the agricultural emissions are CO₂ emissions (IPCC, 2007). Agricultural emissions consist mainly of the non-CO₂ GHGs N₂O (from fertilizer application) and CH₄ (ruminants, biomass combustion, and paddy cultivation).

Figure 2: Share of Forestry and Agriculture in Global anthropogenic GHG and GHG emissions in LAC Countries



Global GHG Emissions



GHG Emissions LAC

Source: IPCC, 2007c and WRI, 2003

1.1 AFOLU Mitigation Options

In its Fourth Assessment Report, the IPCC concluded that activities in the land-use sector, especially forest-related climate change mitigation activities, can considerably reduce CO₂ emissions and increase CO₂ removals from the atmosphere at low cost. Mitigation options can be designed to create synergies with climate change adaptation and sustainable development. Climate change mitigation options in the forestry sector are numerous and include:

- Reducing CO₂ emissions from deforestation and forest degradation

- Enhancing carbon sinks through increased CO₂ sequestration rates in existing and new forests
- Providing wood fuels as a substitute for fossil fuels
- Substituting wood products for more energy-intensive materials, such as concrete and steel products.

Properly designed and implemented, climate change mitigation in the forestry sector can have substantial co-benefits in terms of employment and income generation opportunities, biodiversity and watershed conservation, food security, provision of timber and fiber, as well as aesthetic, cultural and recreational services (see Section 1.1.4). Table 1 presents a simple classification of climate change mitigation options in the forestry sector.⁵ For each option, the corresponding forest management approach is specified. A more detailed discussion of activities in LAC is provided in Sections 2.5 and 2.6.

According to the IPCC (2007c), the economic potential for climate change mitigation activities in the forestry sector, mainly through reduced deforestation, is higher in LAC countries already at prices below USD 20 /tCO₂ (see Figure 3) than in other regions, e.g. Africa. This is the result of various parameters including rate of deforestation, cost of management options, installed capacity, existing technology and recent improvements in tenure in LAC (IPCC, 2007c).

⁵ It is understood that these mitigation options consider all five terrestrial carbon pools; above-ground biomass, below-ground biomass, litter, dead wood and soil organic carbon.

Table 1: Climate Change Mitigation Options in Forestry, Impact and Timing, Inclusion in the United Nations Framework Convention on Climate Change (UNFCCC) or its Kyoto Protocol, and Specific Forest Management Options

Mitigation options (general)	Impact	Timing of impact	Timing of costs	Mitigation options in the UNFCCC or its KP	Forest Management Options
Reduction of CO ₂ emissions	↓			Reducing emissions from deforestation and forest degradation in developing countries (REDD)	Sustainable management of (natural) forests
CO ₂ sequestration ⁶	↑			Afforestation Reforestation	Committing forests for REDD, including conservation Plantation, agroforestry, agro-sylvo-pastoral systems
Carbon substitution ⁷	↓			Enhancement of sinks through forest restoration (not yet clearly defined) Substitution through harvested wood products: using forest products for electricity and fuel	In forested areas: enrichment, planting, guided natural regeneration Forest Biofuel plantations, sustainable use of wood production

Impact of cost

↑ Enhancement of sink
↓ Reduction of sources

Timing of impact

delayed
 immediate
 sustained or repeated

Timing

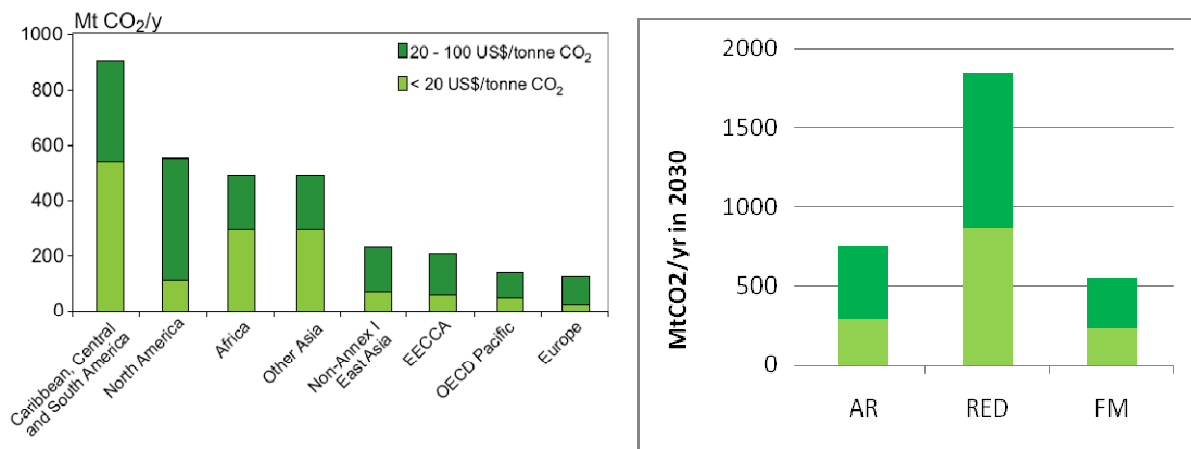
delayed
 up-front
 on-going

Source: Adapted by the authors, from Robledo and Blaser, 2008 and IPCC, 2007c

⁶ CO₂ sequestration refers to net CO₂ absorption from the atmosphere and thus an increase of terrestrial carbon pools.

⁷ Carbon substitution refers to the replacement of materials with high GHG emissions in their life-cycle (e.g., fossil fuels, concrete, plastic, etc.) by materials with low GHG emissions in their life-cycle, such as wood.

Figure 3: Annual Economic Climate Change Mitigation Potential in the Forestry Sector by Cost Class in 2030



Source: Adapted by the authors, from IPCC, 2007c

Note: The figure on the left side shows the potentials according to bottom-up modeling by region. The figure on the right side shows the potentials according to top-down modeling per mitigation option afforestation/reforestation (AR), reduced deforestation (RED) and improved forest management (FM) for the LAC region.

The opportunities in the LAC region for land-based mitigation options are enormous as well as the potential impacts of those options on economic development in the region. Since drivers of deforestation are diverse, complex, and differ among countries, measures in the forestry sector alone will not be sufficient to tackle the issue of deforestation and forest degradation. Most of the drivers of deforestation identified in LAC, such agricultural expansion and infrastructure development and mining, are external to the forest sector (De la Torre et al, 2008). To effectively address deforestation and forest degradation, a cross-sectoral approach must be applied. This requires the identification of measures to address drivers of deforestation in various sectors.

Forest based climate change mitigation options must take into consideration the overall policy framework put into place for the across-sectors. As a result, conflicting sectoral policies are commonly observed. To pursue forest based climate change mitigation options, inter-sectoral dialogue at the national and sub-national levels is required for integrated AFOLU planning. For example, agricultural expansion, which is identified as the main direct driver of deforestation in most LAC countries, is often supported by agricultural policies. Infrastructure development, bio-energy, and mining are other sectors highly important for LAC countries' economic

development. They may also cause inter-sectoral conflicts regarding sustainable land-use development.

Careful analysis of costs and benefits also needs to be included in the assessment of forest sector mitigation potential. Mitigation costs should go beyond opportunity costs and include the cost of implementing and monitoring the measures required to realize the mitigation potential of the forestry sector. These include, *inter alia*, capacity building, changes in ownership, clarification of rights to carbon pools access to sustainable products, implementation of sustainable use practices, etc. Further, the costs of estimating and monitoring emission reductions will have a great impact on the cost of climate change mitigation and on the minimum payment or compensation required for its success (IPCC, 2007). Also critical is the analysis of the impact of mitigation options on the availability and quality of forest goods and services⁸, and the overall development goals of a given country. Forest policies, both international and national, need to be carefully considered.

1.1.1 Reduction of GHG Emissions from Deforestation and Forest Degradation (REDD)

The reduction of GHG emissions from deforestation⁹ and forest degradation¹⁰ is taking on an increasingly important role at the international level in mitigating global climate change. It accounts for nearly 20% of global GHG emissions (IPCC, 2007a) and scientific evidence concludes that it is almost impossible to stabilize future GHG emissions without reducing emissions from these areas (Pacala and Socolow, 2004). REDD is now a central policy issue under on-going climate change negotiations and any post-2012 climate agreement is expected to include major provisions to deal with carbon emissions from deforestation and forest degradation.

Current negotiations are converging towards the concept of REDD¹¹ as an instrument to mitigate climate change. REDD could develop into a market mechanism that financially compensates developing countries to avoid deforestation and forest degradation. If this

⁸ Each mitigation option from conserving the forest to creating plantations has an impact on the supply of forest ecosystem goods and services and this needs to be assessed in a proper manner.

⁹ Deforestation, as defined by the United Nations Framework Convention on Climate Change (UNFCCC), is the direct human-induced conversion of forested land to non-forested land.

¹⁰ There is yet no agreed definition on forest degradation under the UNFCCC. For the purpose of this report, we view forest degradation as the loss of carbon stocks within the forest.

¹¹ The main goal of REDD is a new financial mechanism to develop economic incentives for developing countries to avoid or reduce deforestation and forest degradation. However, this policy has not been fully developed. It is still in the stage of conceptual development and negotiation by countries under the UNFCCC.

mechanism becomes operational, LAC, which accounts for more than 40% of the world's deforestation and where the forest sector is the single highest source of GHG in the region, must stand ready to make full use of the tool. The following paragraphs describe the issues and options surrounding REDD in LAC.

Reducing deforestation and degradation has the largest and most immediate impact on carbon stocks in the short term, per hectare, and year globally (Robledo and Blaser, 2008). Its potential is particularly high in Latin American countries (see Figure 3). According to the FAO, the rate of deforestation has been 7.3 million ha/yr between 2000 and 2005 (thereof 4.7 million ha/yr in LAC countries), causing significant GHG emissions, estimated at 7.6 GtCO₂ per year or about 15 to 20% of all GHG emissions in 2000 (Baumert et al., 2005). Table 2 summarizes data on carbon loss from deforestation and shows the ranges of uncertainty for the assessments of carbon loss from deforestation. Estimates on emissions from deforestation differ according to the source and the type of activity included (Schlamadinger et al., 2007). Figures on forest degradation are even less precise. The International Tropical Timber Organization (ITTO) estimates the extent of degraded forest in the tropics at about 850 million ha, corresponding to 40% of the entire forested area in the tropics (ITTO, 2002).

Table 2: Estimates of Carbon Loss from Forests Attributed to Deforestation in GtCO₂/yr

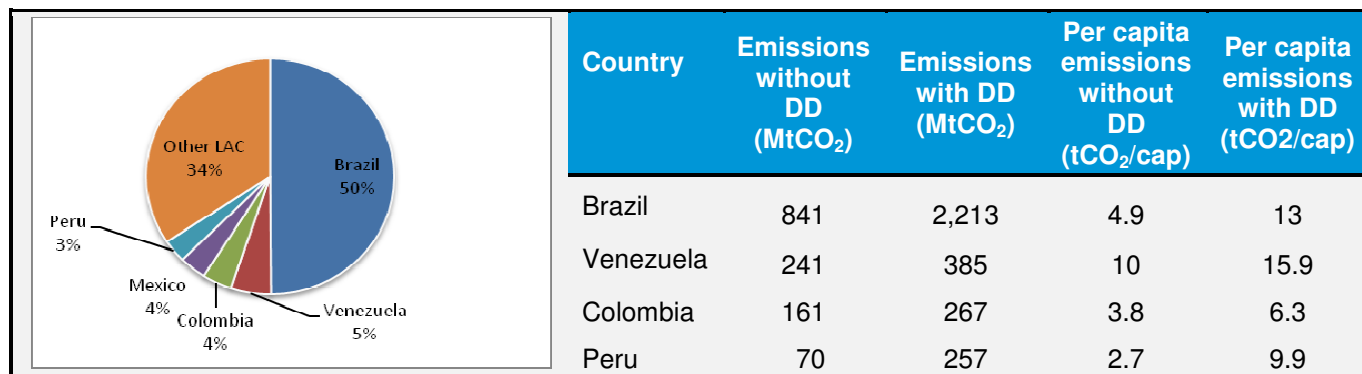
Region	Fearnside (2000) 1981-1990	Malhi and Grace (2000) 1980-1995	Houghton (2003) 1990s	DeFries et al. (2002) 1990s	Achard et al. (2004) 1990s
America	3.45	3.45	2.75	1.58	1.61
Africa	1.54	1.32	1.28	0.44	0.59
Asia	2.42	3.96	4.00	1.28	1.43
Total	7.33	8.8	8.06	3.33	3.63

Source: Adapted from UNFCCC, 2006 and IPCC, 2007a

Over 85% of GHG emissions from deforestation and forest degradation take place in the tropics, making land-use change and forestry the single most important source in these countries (Houghton, 2003; Defries et al, 2007; FAO, 2006). The regions with the highest emissions from deforestation and forest degradation are situated in the humid and semi-humid tropics, in particular in Africa, Asia and Latin America. In temperate and boreal climatic zones forest areas are stable or increasing.

About 40% of global emissions from deforestation can be attributed to Latin America, making it to the most important source of GHGs in most LAC countries (see Figure 2); 66% can be attributed to the 5 countries: Brazil, Venezuela, Colombia, Mexico, and Peru (Figure 4).

Figure 4: Distribution of CO₂ Emissions from Land Use, Land-Use Change and Forestry (LULUCF) among LAC Countries and GHG Emissions (absolute and per capita) with and without LULUCF



Source: WRI CAIT, 2009

Note: The above represent Latin American and Caribbean (LAC) countries with particularly high emissions from deforestation and forest degradation (DD) in the year 2000.

Drivers for deforestation and forest degradation differ greatly by activities, regions, system boundaries, and time horizons. Blaser and Robledo (2007), quantified the climate change mitigation potential of REDD based on the analysis of the opportunity costs of different use alternatives, using a simplified approach to characterize the six direct drivers of deforestation and forest degradation (see Table 3). Drivers of deforestation and forest degradation in the LAC are described in more detail in Section 2.2.

Table 3: Deforestation and Forest Degradation (DD)

Main direct drivers	World DD (% of total)	Area of DD (Million ha)	LAC DD (% of total)	Area of DD (Million ha)
1. Commercial agriculture				
1.1 Commercial crops	20	2.6	19	0.91
1.2 Cattle ranching (large scale)	12	1.6	20	0.96
2. Subsistence farming				
2.1 Small scale agriculture/shifting cultivation	42	5.5	40	1.95
2.2 Fuel-wood and NTFP gathering	6	0.75	6	0.27
3. Wood extraction				
3.1 Commercial timber (legal and illegal)	14	1.8	12	0.57
3.2 Fuel-wood/charcoal (traded)	5	0.7	3	0.16
Total	100	12.9	100	4.82

Source: Blaser and Robledo, 2007

Notes: Table represents DD globally and in Latin America and Caribbean (LAC) Countries in the 1990s, according to direct drivers.

According to this study, when using the opportunity cost of direct drivers as a basis for calculation, and if emissions from deforestation and forest degradation are to be reduced to zero by 2030, a minimum investment of USD 12.2 billion per year would be necessary to compensate the opportunity costs of deforestation and forest degradation (UNFCCC, 2007). According to this calculation, an average price of USD 2.80/tCO₂ will cover the opportunity cost of deforestation and forest degradation of 8.5 million of hectares yearly (65% of the area affected by deforestation and forest degradation).

When the highest marginal cost to stop deforestation - the “choke price” - is applied to future deforestation (area/yr worldwide) to estimate the cost of reduced deforestation, prices vary between USD 11 to 77 per tCO₂ (excluding transaction costs) (Sathaye and Andrasko, 2007). Applying those prices (to the projected emissions due to the loss of primary forest in each region) yields a cost of USD 25 to 185 billion per year to stop deforestation (UNFCCC, 2007 and Trines, 2007).

1.1.2 Enhancing CO₂ Sequestration through Afforestation and Reforestation, Forest Restoration and Sustainable Forest Management

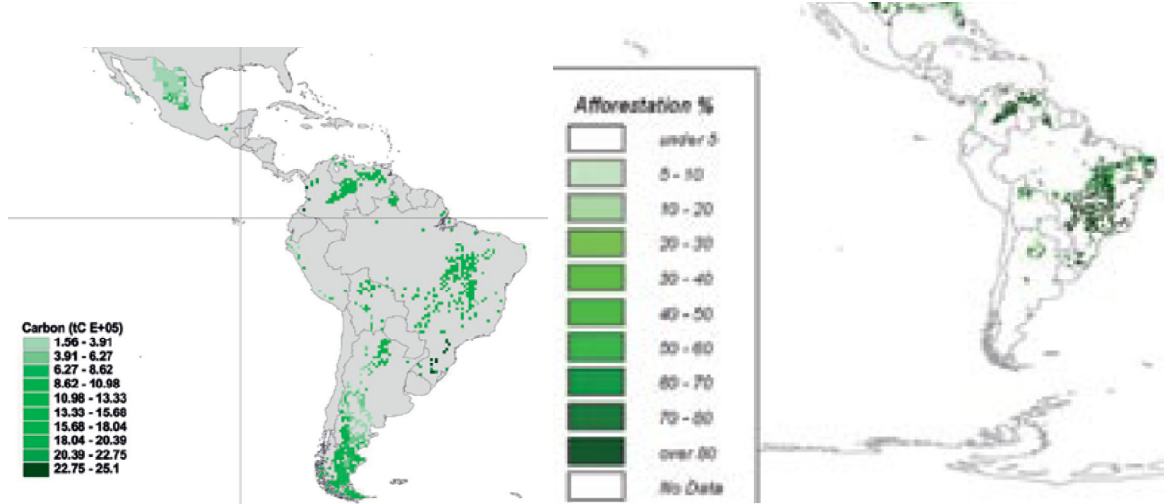
Afforestation and Reforestation

Afforestation and reforestation are the direct-human induced conversion of non-forested land to forested land through planting, seeding, and/or the human induced promotion or natural seed sources.¹² According to Canadell and Raupach (2008), the global economic potential for afforestation by 2100 ranges from 0.57 to 4.03 GtCO₂ per year, and would require up to 231 million hectares of land. Sathaye et al. (2005) projected the range of land area that could be planted by 2050 to be between 52 and 192 million ha. The carbon benefits associated with this ranged between from 18 to 94 GtCO₂. According to the same authors, the forest establishment costs would range from between USD 654 per ha to USD 1,580 per ha. Using this range, the initial investment required for mitigation equivalent to 18-94 MtCO₂ through afforestation/reforestation on 52-192 million hectares of land would be USD 34-303 billion.

Based on biophysical conditions, land available for afforestation and reforestation activities in LAC is estimated at 340 million ha, most of it in Brazil (De la Torre et al., 2008). Other countries, especially Uruguay and some Caribbean countries, also offer a significant potential, at least in terms of the share of their corresponding territory. The short-term economic potential for afforestation/reforestation (2008-2012) is estimated much lower, with 0.9 million hectares available in Latin America (IPCC, 2007c). Figure 5 shows the distribution of afforestation and reforestation potentials in Latin America according two different modeling exercises.

¹² Afforestation and deforestation within the UNFCCC have been defined in the Marrakesh Accords. The definition used in the Accords varies slightly to the definition used in the forestry sector in general.

Figure 5: Allocation of Afforestation and Reforestation Potentials in LAC Countries



Source: IPCC 2007 WG III, Ch. 9

Note: On the left: Cumulative carbon sequestration through afforestation between 2000 and 2012 in Central and South America (IIASA-DIMA, Benitez-Ponce et al., 2007). On the right: Percentage of a grid cell potentially afforested (Strengers et al., 2007).

A form of afforestation of particular interest to LAC countries is the use of agroforestry systems. These systems intersperse trees across pasture and cultivated land to achieve combined benefits of improving income and smallholders' livelihood, protecting biodiversity and increasing forest cover (RRB Leakey et al, 2005). They also sequester large amounts of carbon in biomass and soils, which can provide supplementary income to land holders (DN Pandey, 2002). Although the technical and capacity building challenges are significant, there are successful examples in LAC. Some examples include the Scolel Te project in Mexico, the San Nicolas project in Colombia, and the "Regional Integrated Silvopastoral Ecosystem Management Programme" (RISEMP) schemes in Colombia, Costa Rica and Nicaragua. (See Section 2.6 for a description of Scolel Te in Mexico).

Restoration of Degraded Forests

Forest restoration is understood here as a combination of planting trees and human-induced natural regeneration within a degraded forest area that has lost most of its carbon stock. In terms of mitigating climate change, forest restoration becomes complementary to reducing emissions from reducing forest degradation (Robledo and Blaser, 2008).

Under current conditions, there is a huge area of degraded forest that could be restored while improving overall livelihood conditions (including biodiversity, long-term income and

health). Little information is available on degraded forests and their potential for climate change mitigation. Blaser and Robledo (2007) estimated that out of 850 million ha of degraded forests in the tropics, 335 million ha are located in Latin America (see Table 4). According to Blaser and Robledo (2007), forest restoration is an issue in all Non-Annex I Parties that consider reduction of emissions from deforestation and forest degradation.

Table 4: Estimated Extent of Degraded Forest Landscapes in Tropical Asia, Tropical America and Tropical Africa, (million ha, 2000)

	Asia (17 countries)	America (23 countries)	Africa (37 countries)	Total
Degraded primary and secondary forest	145	180	175	500
Degraded forest land	125	155	70	350
Total	270	335	245	850

Source: Blaser and Robledo, 2007

Note: By category in Tropical Asia, Tropical America, and Tropical Africa

The importance of forest restoration for LAC countries is underlined by Brazil's 2008 proposal to the Conference of Parties to the UNFCCC in Poznan. This proposal included, "forests in exhaustion", i.e., forests that have been so destructively logged that they will not regenerate naturally, into a future climate change mitigation framework.

Assuming an average carbon stock of 30 tC/ha in living biomass in degraded forests, and 67 tC/ha in fully stocked forests, the maximum mitigation potential through restoration of degraded forest would amount to 46 GtCO₂ for tropical Americas and 117 GtCO₂ for the whole pantropical area.

Forest Management

Another way of mitigating climate change through forestry-related measures is by increasing the carbon pools in existing production forests through changed management techniques. Forest Management, as defined by the UNFCCC, is a system of practices for the stewardship and use of forest-land aimed at fulfilling relevant ecological (including biological diversity), economic, and social functions of the forest in a sustainable manner.

The IPCC (2007c) concludes, "that a sustainable forest management strategy aimed at maintaining or increasing forest carbon stocks in the long term, while producing an annual sustained yield of timber, fiber or energy from the forest, will generate the largest sustained

mitigation benefits.” In practice, this type of approach is not easily implemented as illustrated by the low percentage (only 7 %) of traded tropical timber that comes from sustainable forestry (Canadell and Raupach, 2008). The factors leading to this low success rate in LAC range from the adoption of reduced impact logging policies by logging companies to issues with land rights and poor design of forest concession agreements. According to Blaser and Robledo (2007), the sequestration potential in 2030 that comes from the optimized sustainable management of tropical forests is between 4 and 5.5 GtCO₂/yr. In comparison, the total carbon sequestration potential of forest management in non-tropical developing countries and countries in transition until 2030 is 1.1 GtCO₂/yr. ITTO (1995), estimated the costs of sustainable forest management for all tropical production forests in ITTO member countries (350 million ha) at USD 6.25 billion. Considering present values, this would correspond to about USD 12 per ha by the year 2030. For tropical and subtropical countries, the cost estimate for achieving sustainable forest management would therefore be around USD 7.3 billion.

1.1.3 Mitigation Options in the Agricultural Sector

Agricultural activities can cause direct GHG emissions by sources and removals by sinks. Improvement of these practices offers a potential for climate change mitigation. These emissions can be reduced through more environment friendly practices, e.g. through reduced use of fertilizers in organic agriculture. Additionally, some agricultural practices can contribute to sequester carbon from the atmosphere and to fix it over time in the carbon pools, especially carbon organic soil. Finally, some agricultural crops can have a substitution potential through the use of biofuels, especially those from second generation (Zah et al, 2007). There is a lot of discussion on the net environmental benefits of these options, and for specific circumstances an specific assessment is needed (Zah et al, 2007).

Direct Emissions and Mitigation Options

CO₂ accounts for only a small proportion of the agricultural GHG emissions. Large fluxes of CO₂ passing from farmland into the atmosphere are counterbalanced by agricultural photosynthesis. The net CO₂ emissions from agricultural lands are estimated at less than one per cent of global anthropogenic CO₂ emissions (IPCC, 2007c). The anthropogenic non-CO₂ emissions from agriculture constitute as follows:

- 38% N₂O from soil (mainly by fertilizer application)

- 32% CH₄ from digestive processes of ruminants
- 12% CH₄ from combustion of biomass
- 11% CH₄ from paddy cultivation
- 7% CH₄ from dung.

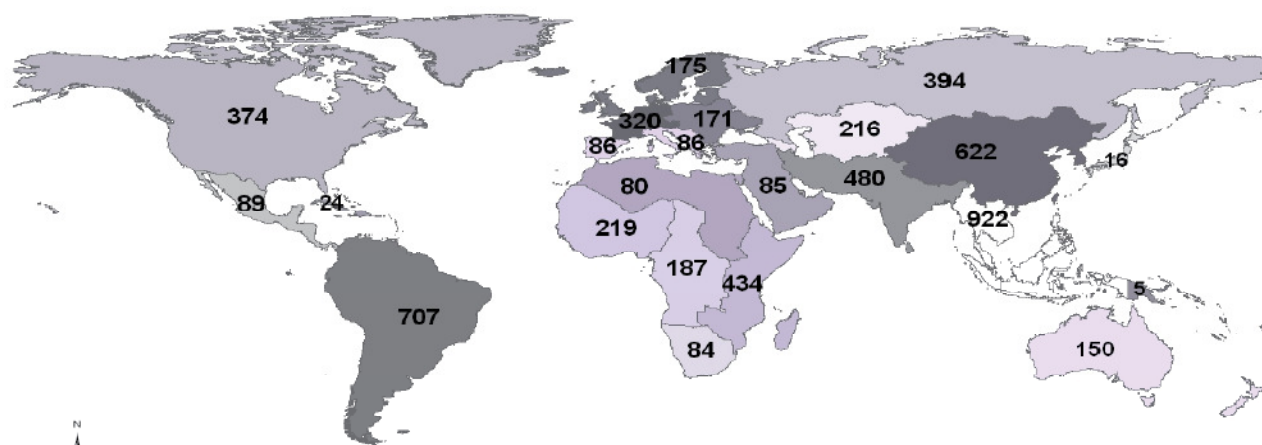
In the majority of regions, N₂O from the use of fertilizers in the production of food and feed crops, especially commercial crops, is the main source of GHG emissions in agriculture. In Latin America and some other countries, CH₄ from ruminant digestion is the main source (Smith et al., 2007). It is expected that agricultural GHG emissions will further increase N₂O emissions by 35% in 2020 and 60% by 2030 due to increased fertilization. Livestock related CH₄ emissions are expected to increase by 20 and 60% in the same time period. CH₄ emissions by paddy cultivation are expected to rise by only a few percent or may even show a reduction (IPCC, 2007c).

Agriculture can contribute to climate change mitigation through reductions in CO₂, N₂O and CH₄ emissions, through increased carbon storage in soil or biomass, the use of agricultural products, and the use of residues to generate biofuels (IPCC, 2007c). Mitigation options include improved cropland management, grazing land management and pasture improvement, management of organic soils, restoration of degraded lands, livestock and manure management, and bioenergy (IPCC, 2007c).

According to the IPCC, one of the most effective methods of reducing emissions in agriculture is the conversion of cropland into land with semi-natural vegetation. In LAC, this could be applied to land with low economic return and high global environmental impact by avoiding the restoration of lands with low agriculture potential that were previously or scheduled for conversion to agricultural or pasture fields.

Figure 6 shows the technical mitigation potential of the world's regions in the agricultural sector. However, large uncertainty still exists about the economic mitigation potential of the sector.

Figure 6: Total Technical Mitigation Potentials in the Agricultural Sector for each Region by 2030, Showing Mean Estimates. (all practices, all GHGs: MtCO₂-eq/yr¹³)



Source: IPCC, 2007, based on data from Smith et al., 2007

Indirect Emissions and Mitigation Options

The main driver of deforestation in Latin America is agricultural expansion (Geist and Lambin, 2002), including both commercial and subsistence cultivation. Hence, agricultural intensification has significant potential to reduce pressure on forest land by meeting demand more efficiently. For example, Gallagher (2008) found that 50-70 million hectares of pasture land could be made available in Brazil if the productivity rate of pasture land in São Paulo was extended to the rest of the country. Agricultural intensification has the potential to help increase global food security and support livelihoods, as well as reduce pressure on forests (Eliasch Review, 2008). Linking agricultural programs to forest protection, and possibly carbon finance, would require far more integrated consideration and planning of land use at national and local levels, including forest and agriculture authorities. However, agricultural intensification bears the risk of increasing agricultural profitability and thus increasing the pressure on forests again (Eliasch Review, 2008). “If agricultural intensification were an economic success, not only would individual farmers increase the proportion of their land devoted to the system, but additional investors would be attracted to take advantage of the opportunity (Fearnside, 2002; Angelsen, 2009).”

¹³ CO₂-eq stands for CO₂-equivalent and includes non-CO₂ emissions such as CH₄ and N₂O considering their relative Global Warming Potentials (http://unfccc.int/ghg_data/items/3825.php).

Agricultural extension of non-forested land not currently being used for agriculture (e.g., fuel crops on wasteland), may also offer possibilities in some areas. In Brazil, it is estimated that 25% of the deforested area is either abandoned or under-used. This land would be suitable for agriculture outside of forested land. Estimates also indicate that there are at least 16 million hectares of land that were converted to agriculture and cattle ranching in the Brazilian Amazon and have now been abandoned (Eliasch, 2009).

1.1.4 Synergies with Adaptation and other Co-Benefits of AFOLU Climate Change Mitigation¹⁴

When considering the AFOLU sector in regard to climate change, most countries will face both mitigation and adaptation challenges. It is thus important to assign a high priority to mitigation actions that have strong adaptation benefits and a lower priority to mitigation activities that have no adaptation benefits. Combined mitigation and adaptation activities are expected to substantially reduce transaction costs. A first step toward achieving this combination is to ensure that mitigation programs or projects do not increase the vulnerability of forest ecosystems (i.e., increase rate of tree mortality or changes in species composition) (Robledo and Forner, 2005). A second step is to identify relevant adaptation practices that could be applied to further reduce the system's vulnerability and increase its adaptive capacity (Ravindranath, 2006).

Climate change is likely to affect all forest landscapes. Predicted changes in climate variables will place severe pressure on forests' ability to maintain the current level of diversity and productivity. With rising temperatures, changes in water availability, and the expected doubling of carbon dioxide levels, it is anticipated that forests will change physiologically and metabolically. This will impact forest ecosystem functioning. These changes will have significant impacts on the availability and quality of forest goods and services, including the capacity of forests to sequester carbon from the atmosphere (IPCC, 2007).

The Fourth Assessment report of the IPCC (2007b) indicates that although there is still uncertainty on predictions, negative climate change impacts may be stronger than previously projected and positive impacts are being over-estimated. Also, the projected potential positive effect of climate change as well as the estimated carbon sink in mature forests may be

¹⁴ This section largely based on an internal, unpublished report prepared by Robledo and Blaser for ITTO, 2009.

substantially threatened by changes in the regime or increased occurrence of disturbances. Disturbances may include fire, pests, drought, and heat waves and affect forestry production, including timber and non-timber forest products, as well as forest ecosystem services (both environmental and social). Global climate change can also affect the mitigation potential of the forestry sector by either increasing or decreasing the potential for carbon sequestration.

The International Union of Forest Research Organizations (IUFRO), in the name of the Collaborative Partnership on Forests (CPF), conducted a global assessment process on the adaptation of forests and people to climate change.¹⁵ The main findings are:

- Climate change has already affected forest ecosystems
- Climate change will have increasing effects on them in the future
- Changes in temperature and rain patterns affect the adaptation capacity of forest ecosystems and therefore the capacity to provide goods and services in future
- A few forest services will be enhanced, but many will be lost. This has a major impact on forest dependent livelihoods as well as on biodiversity hotspots
- Carbon sink services may turn into a disservice.

Climate change will affect all forestry activities, including those within the formal and the informal sector of the economy. It will also impact the livelihood related forest activities not considered to be part of any economy (e.g., subsistence agriculture or forest products gathering for home consumption).

Impacts on forest dependent livelihoods cover a wide range of possibilities. These include direct impacts from extreme events (e.g., loss of housing), impacts on health and welfare, loss or reduction of income, loss of employment or changes in working conditions, reduction in availability of food, impacts on health and loss or changes of cultural habitat (IPCC, 2007b).

These impacts will increase the existing vulnerability of poor communities that are directly or indirectly dependent of forest ecosystems. Currently, many of these communities are already suffering disproportionately from the ongoing impacts of climate change. Their

¹⁵ A comprehensive report on "Adaptation of Forests and People to Climate Change – A Global Assessment Report" was formally presented at the 8th session of the United Nations Forum on Forests (UNFF) in April 2009 in New York (<http://www.iufro.org/science/gfep/>).

livelihoods are extremely vulnerable to any stress (IISD, 2002). Changes in the climatic conditions often become an insurmountable burden for such communities and result in decreased living conditions.¹⁶

The challenge is how to reduce climate change-related impacts on forest dependent people, and economic activities, while increasing the ability to create new business opportunities. There are different ways in which the forest sector can reduce vulnerability to climate change and improve the adaptive capacity of forests, which provide benefits beyond the sector. Forests play a key role during extreme events because they provide food during droughts, they reduce the impacts of cyclones in coastal areas, and they reduce the risk of landslides during storms in mountain regions (Robledo et al, 2004). Furthermore, forests provide food and shelter when climate-related risks have reduced agricultural and livestock yields and overall production, or when extreme events have destroyed houses and infrastructure (Robledo et al, 2004).

In addition to helping reduce net GHG emissions, forest conservation efforts also play important roles in supporting sustainable development in the corresponding areas, as well as in helping ecosystems and communities adapt to climate change (Osman-Elasha et al, 2010). In particular, forest conservation efforts can foster climate-resilient sustainable development by helping regulate hydrological flows, restore soil fertility, reduce erosion, protect biodiversity, and increase the supply of timber and non-timber forest products (De la Torre, 2008). These vital services provide resilience against climate change, often to the communities most vulnerable to its impacts.

The United Nations Development Programme (UNDP) has developed a methodology for establishing the cost of climate change mitigation and adaptation in the forest sector.¹⁷ This methodology is a tool that facilitates the identification of synergies between mitigation and adaptation in forestry activities and the quantification of cost and benefits of these synergies.

¹⁶ Up to 40% of the Amazonian forests could react drastically to even a slight reduction in precipitation; this means that the tropical vegetation, hydrology and climate system in South America could change very rapidly to another steady state, not necessarily producing gradual changes between the current and the future situation (Rowell and Moore, 2000). It is more probable that forests will be replaced by ecosystems that have more resistance to multiple stresses caused by temperature increase, droughts and fires, such as tropical savannas.

A high risk of forest loss is shown for Central America and Amazonia, more frequent wildfire in Amazonia, more runoff in north-western South America, and less runoff in Central America. More frequent wildfires are likely (an increase in frequency of 60% for a temperature increase of 3°C) in much of South America. Extant forests are destroyed with lower probability in Central America and Amazonia. The risks of forest losses in some parts of Amazonia exceed 40% for temperature increases of more than 3°C.

¹⁷ Set of methodologies to assess investment and financial flows necessary for Climate Change Mitigation and Adaption (http://www.undpcc.org/content/inv_flows-en.aspx).

1.2 Existing UNFCCC Framework for LULUCF in Developing Countries¹⁸

Several Articles of the Kyoto Protocol make provisions for the inclusion of land use, land-use change and forestry (LULUCF) activities by Parties as part of their efforts to implement the Kyoto Protocol and contribute to climate change mitigation.

1.2.1 LULUCF in the Convention and its Kyoto Protocol

Under the Convention, much of the initial discussion relating LULUCF focused on GHG inventories. The main issues of concern were how to compile activity data (a particular difficulty for poorer countries with problems in accessing satellite imageries, inventories or historic data) and how, based on this information, to accurately estimate emissions and removals by sinks. During the negotiations that led to the Kyoto Protocol in 1997, many countries highlighted the importance of including sinks and emissions from LULUCF in the Protocol's commitments. The inclusion was subject to concerns about definitions, timing, and scope. At the time, questions regarding LULUCF were considered too complex and a lack of scientific evidence increased the difficulties during the negotiations.

Under the Kyoto Protocol, developed countries (Annex I Parties¹⁹) agreed to quantitative targets (quantified emission limitation and reduction objectives). LULUCF activities are eligible for achieving these objectives. Annex I Parties must report and quantify emissions and removals by sinks in the LULUCF sector as part of their potential achievement of their emission reduction targets.

The Marrakesh Accords provided modalities to implement the Kyoto Protocol and were adopted at the COP-7 in 2001. The agreement defines forests based on a specific set of national “thresholds” (crown cover, tree height, and minimum area) that each Party must follow to calculate their total national forest cover and subsequent emission reductions.²⁰ Each Party is

¹⁸ To a large extent, this section is based on Robledo and Blaser. Key issues on Land Use, Land Use Change and Forestry (LULUCF) with an Emphasis on Developing Country Perspectives (2008).

¹⁹ The distinction between Annex I Parties (i.e., developed countries) and non-Annex I Parties (i.e., developing countries) corresponds to the UNFCCC. Under the Kyoto Protocol, countries with quantified emission limitations or reduction commitments (38 developed countries and countries with economies in transition) appear in Annex B to the Kyoto Protocol. Over the years the terms have been used interchangeably. In this document, when referring to countries included in Annex B of the Kyoto Protocol, the term Annex I Parties is used. Non-Annex I Parties have no quantified emission limitations or reduction commitments under the Protocol and are not included in Annex B.

²⁰ In the Marrakesh Accords “Forest” is defined as a minimum area of land of 0.05-1.0 hectares with tree crown cover (or equivalent stocking level) of more than 10-30 per cent with trees with the potential to reach a minimum height of 2-5 metres at maturity in situ. A forest may consist either of closed forest formations where trees of various storeys and undergrowth cover a high proportion of the ground or open forest. Young natural stands and all plantations which have yet to reach a crown density of

asked to define their national thresholds, based on the set parameters, for use in the first commitment period (2008-2012). In some countries, the definition does not cover all national different forest ecosystems and therefore has a great impact of the climate change mitigation potential it can achieve. This and other similar requirements agreed under the Marrakesh Accords, presented challenges to all decision makers.²¹

The Marrakesh Accords also provided modalities for the Annex I Parties to buy emission reductions (or enhancement of removals) from developing countries and meet part of their emission reduction targets under the Kyoto Protocol, through the Clean Development Mechanism (CDM). The CDM, one of three flexible mechanisms under the Kyoto Protocol, emission-reduction (or enhancement of removals) projects in developing countries to earn certified emission reduction (CER) credits. These CERs can be traded and sold, and used by Annex I Parties to a meet a part of their emission reduction targets under the Kyoto Protocol. LULUCF projects are eligible through the CDM, but limited to afforestation and reforestation (A/R CDM) projects. The limit on LULUCF activities under the CDM was subject to much debate among Parties.

1.2.2 LULUCF Activities in Non-Annex I Parties

According to Article 4 of the UNFCCC, both Annex I Parties and Non-Annex I Parties have to report their LULUCF emissions as part of their national communications. Information is to be provided using common report formats and in accordance with guidance given by the IPCC. Providing LULUCF information in the national communications is not an easy task for many non-Annex I Parties.

With regard to the climate change mitigation strategy, the CDM is the only flexible mechanism that allows non-Annex I Parties to assist²² Annex I Parties in their efforts to achieve their GHG emission reduction targets under the Kyoto Protocol. LULUCF activities included in the CDM are limited to afforestation and reforestation (A/R CDM). While CDM procedures for the other five sectors were already agreed upon between before 2003, rules and procedures that

10-30 per cent or tree height of 2-5 metres are included under forest, as are areas normally forming part of the forest area which are temporarily unstocked as a result of human intervention such as harvesting or natural causes but which are expected to revert to forest

²¹ Other important requirements for Non-Annex I Parties are the need to create a Designated National Authority and, to define how to handle proving sustainable development in the CDM.

²² The term “assist” the Annex I Parties is the exact wording in article 12 of the Kyoto Protocol.

govern A/R CDM for the first commitment period were only finally decided in 2004. Hence, it is only since the year 2005 that forest sector stakeholders in non-Annex I Parties can undertake A/R CDM projects according to defined rules. This partly explains the “delay” that LULUCF projects have compared with projects in the other sector eligible in CDM.

The most important elements of the rules and procedures for A/R CDM regulate:

- The market size for A/R CDM projects, which is limited during the first commitment period (2008-2012) to 1% of the emissions of each Annex I country in 1990, multiplied by five²³
- The type of projects eligible for implementation. Forest management and reduced emissions from deforestation are not eligible forestry activities under the CDM
- The agreement on modalities and procedures for CDM projects in forestry and the process for proposing and getting approved corresponding methodologies
- The definition of small-scale projects and their first simplified methodology
- The baseline and monitoring methodologies for the CDM, which are presented by project developers and approved by the Executive Board of the CDM.

A/R CDM has stimulated new interest for planting trees, especially in seriously degraded areas. This can be a new opportunity for the forest sector, as it can open the possibility to promote long-term activities such as restoration of forestland or tree plantations. Nonetheless, the forest sector in many countries is reacting very slowly to the opportunities provided by the CDM (see Section 1.4.1 for an overview of current A/R CDM market).

A/R CDM, especially small-scale projects, offers a possibility to low-income communities to get involved, particularly through the promotion of community forestry, which could have an important developmental impact in rural areas. However, for the time being, small-scale A/R projects have proven largely out of reach for local communities. There are several reasons for this, which include the complexity in the design of projects, the legal requirements with respect to property rights of land, carbon pools and carbon credits, and the transaction costs involved in project preparation. Currently, almost all existing A/R CDM

²³ “For the first commitment period, the total additions to a Party’s assigned amount resulting from eligible LULUCF project activities under Article 12 shall not exceed 1% of base year emissions of that Party, times five,” (FCCC/CP/2001/13, Decision 11/CP.7).

projects target either publicly owned reforestation areas or plantations promoted on privately owned land.

In conclusion, climate change mitigation activities in the forestry sector under the CDM have been limited to date. Opportunities to increase activities include simplifying procedures, developing certainty over future commitments, reducing transaction costs, and building confidence and capacity among potential buyers, investors and project participants (Robledo et al., 2008).

1.2.3 Lessons Learned from LULUCF Negotiations

Negotiating LULUCF in the framework of the UNFCCC and its Kyoto Protocol has proven to be very difficult for both Annex I and Non-Annex I Parties. While in previous years there was considerable scientific uncertainty about the potential of LULUCF activities in mitigating climate change, substantial progress has been made recently by the IPCC, including the publication of the IPCC Good Practice Guidance (GPG) in 2003 and the IPCC 2006 Guidelines for National Greenhouse Gas Inventories. In addition to these resources, a number of tools and instruments to design A/R CDM projects are available (e.g., ENCOFOR toolbox²⁴ or TARAM for A/R CDM²⁵).

There remain some important issues related to the potential of the A/R CDM projects. These are related to:

- Technical issues relevant only to forestry activities (carbon accounting, leakage, treatment of environmental and socio-economic impacts, etc. See next section for more information)
- Lack of accurate information available in many developing countries
- Link to other critical development issues given wider environmental and social impacts
- Lack of governance in the forest sector, especially in developing countries

²⁴ Environment and Community-based Framework for Designing Afforestation, Reforestation and Revegetation Projects in the CDM (ENCOFOR) (<http://www.joanneum.at/encofor/>).

²⁵ Tool for Afforestation and Reforestation Approved Methodologies (TARAM) (<http://carbonfinance.org/Router.cfm?Page=BioCF&FID=9708&ItemID=9708&ft=DocLib&CatalogID=40526>).

- Some Parties argue that LULUCF mitigation options could be used to delay emission reductions in the energy and transportation sectors. This has had a negative influence on how LULUCF activities have been considered in the climate change negotiations over time.

Based on the first experiences with LULUCF, stakeholders directly involved in the implementation of LULUCF activities from Annex I and non-Annex I Parties expressed a desire for simpler and more cost-effective ways to support the overall objective of the Convention through forestry activities. Some Annex I Parties want more flexibility to achieve their emission reduction targets, while some developing countries would prefer larger markets for CDM or other credits. For non-Annex I Parties, the issue is about creating appropriate incentives. Negotiations on a post-2012 agreement provide an opportunity to reassess procedures, to extend the list of eligible LULUCF activities, and possibly to simplify the manner in which LULUCF activities are included in the future climate change regime.

The fact that the contribution of LULUCF to Annex I Parties' reduction commitments was agreed after the establishment of Kyoto targets, created obstacles to achieving the whole potential of LULUCF as a means for mitigating climate change. This was due to perceptions during past negotiations that LULUCF was a way to offset emissions, i.e., to avoid changing energy and consumption paths of the major emitters. A post-2012 mitigation regime will require a wider set of eligible activities in non-Annex I parties, including agriculture, forestry, and other land uses.

1.3 UNFCCC Negotiations: Challenges for AFOLU/LULUCF²⁶ in a Post-2012 Regime

The agenda item on “reducing emissions from deforestation in developing countries and approaches to stimulate action” was first introduced into the COP agenda (by a proposal of Costa Rica and Papua New Guinea)²⁷ at its eleventh session in Montreal (December 2005). After a

²⁶ What has been known as LULUCF in the first commitment period of the Kyoto Protocol might be expanded with other AFOLU activities in a post-2012 agreement. Going forward we will refer to any post-2012 UNFCCC regulations regarding AFOLU as AFOLU/LULUCF.

²⁷ Indirectly it referred to compensated reductions, as proposed by a group of Brazilian authors. This model foresees emission reduction certificates to help industrialized countries in fulfilling their emission targets. As opposed to the project-based CDM, implementation would take place on a country level. Developing countries that elect to reduce their national emissions from deforestation during the 5 years of the first commitment period (taking average annual deforestation over some agreed upon period in the past as a baseline) would be authorized to issue carbon certificates. Those certificates might be similar to the Certified Emissions Reductions (CERs) of the CDM, which could be sold to governments or private investors.

two-year process, the Bali Action Plan²⁸ was elaborated. It proposes to strengthen the role of forests in non-Annex I Parties through the “development of policy approaches and positive incentives on issues relating to reducing emissions from deforestation and forest degradation in developing countries; and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries.” In December 2007 (Decision 2/CP.13), climate change policy makers endorsed Reducing Emissions from Deforestation and Forest Degradation (REDD).

The term REDD+ was introduced after the reference to various forest based climate change mitigation options under paragraph 1 (b) (iii) of the Bali Action Plan (BAP). REDD+ takes the definition of REDD “reducing emissions from deforestation and degradation” a step further. REDD+, includes the role conservation, sustainable management of forests, and enhancement of forest carbon stocks in developing countries.²⁹

The issue of REDD is taken up through two parallel working group sessions under the UNFCCC. One group falls under the Subsidiary Body for Scientific and Technological Advice (SBSTA) and the second under the Ad Hoc Working group on Long-term Cooperative Action (AWG-LCA). Topics related to AFOLU/LULUCF and the CDM are covered by the Ad Hoc Working Group on Further Commitments by Annex I Parties under the Kyoto Protocol (AWG-KP).

A shift in the negotiation process came about at the June and August (2009) climate meetings in Bonn. During previous meetings, delegates only exchanged ideas and stated their positions on REDD, in Bonn, delegates worked to elaborate specific proposals, and in some cases, clarify areas of convergence and divergence. Further progress came about later on in 2009 in Bangkok. Delegates began drafting rules for AFOLU/LULUCF and in November 2009, in Barcelona and the AWG meetings in Copenhagen resulted in revised draft negotiation texts.³⁰ Section 2.8 of this report, gives an overview of LAC positions on REDD and interventions of LAC countries on REDD and LULUCF in the UNFCCC negotiations during the Bonn, Bangkok, and Barcelona meetings.

²⁸ The Bali Action Plan charts the course of a new negotiating process designed to tackle climate change, with the aim of completing this by 2009. It focuses, inter alia, on the role of forests (UNFCCC-COP 13).

²⁹ The term REDD, as it is used in the remainder of this document comprises both options, REDD and REDD+.

³⁰ The reports of AWG-KP 10 and AWG-LCA 8 held in Copenhagen in December 2009:

(<http://unfccc.int/resource/docs/2009/awg10/eng/17.pdf>).

(<http://unfccc.int/resource/docs/2009/awglca8/eng/17.pdf>).

To the extent possible, modalities for forest-sector based mitigation actions should fit into the generic modalities being developed for Nationally Appropriate Mitigation Actions (NAMAs), referred to in paragraph 1b(ii) of the Bali Action Plan.³¹ Recent developments in the negotiations on NAMAs indicate convergence around a number of ideas, including:

- Three types of NAMAs:
 - Actions undertaken by developing countries and not enabled or supported by other Parties (“unilateral NAMAs”)
 - Actions supported by developed countries (“support path”)
 - Actions undertaken to acquire carbon credits (“accreditation path”).
- A NAMA register to facilitate funding, monitoring, reporting, and verification of actions and financial assistance
- The registration of national mitigation activity and/or action schedules with the UNFCCC that would list particular goals, long-term national GHG limitation or reduction pathways, and underpinning policies and measures. Parties would establish, regularly update, and implement these schedules.

The negotiations around REDD have progressed faster than the discussion of NAMAs. Some Parties are reluctant to discuss REDD alongside NAMAs until the discussion on NAMAs becomes more concrete.³² The comparatively advanced status of the REDD negotiations is expected to enable a constructive exchange around the institutional arrangements governing REDD and on financial mechanisms in general.

1.3.1 REDD Methodological Challenges

Methodologies to account for GHG emissions or removals are a critical component to the success or failure of REDD. Without accurate and systematic methodological approaches, environmental integrity is at risk. A standardized methodology for REDD is necessary to ensure transparent, measurable, and verifiable reporting and tracking of REDD activities by the UNFCCC.

³¹The following paragraphs on NAMAs are from REDD+ Institutional Options Assessment (http://www.redd-oar.org/links/REDD+IOA_en.pdf/).

³² See for example interventions from Paraguay and Colombia in UNFCCC negotiations (Section 2.8).

The international community seeks guidance on these issues from the COP. The guidance should be straightforward and user-friendly. It should provide some level of flexibility for Parties with respect to implementation (e.g., national or sub-national) and accounting (e.g., reference level setting) that takes into account the unique circumstances of each country. A system that is too onerous and expensive to implement will prevent widespread introduction by all Parties. The balance between accuracy and flexibility in the methods for accounting carbon represents a major challenge for the success of a post-2012 mitigation agreement.

Reference Levels or Baseline?

This discussion refers to the methods required for *ex-ante* estimation of potential emission reductions/enhancements of removals and at which level this estimation should be done: global, regional national, and/or sub-national.

Reference levels and baselines provide the necessary reference against which performance of REDD activities can be assessed. They are an essential part of any future REDD mechanism. Historically, the following terms are used in reference to REDD, and are defined as follows.

Baseline was defined for the CDM as “the scenario that reasonably represents the anthropogenic emissions by sources or anthropogenic removals by sinks of greenhouse gases that would occur in the absence of the proposed project (Decisions 16/CP.7 and 17/CP.7).” There are three approaches to estimate the baseline for an afforestation or reforestation project:³³

- Current or past changes in carbon stocks in the carbon pools within the project boundary
- Changes in carbon stocks in the carbon pools within the project boundary from a land use that represent an economically attractive course of action, taking into account barriers to investment
- Changes in carbon stocks in the pools within the project boundary from the most likely land use at the time the project starts.

Reference level was introduced in 2009, as part of a report prepared for the Government of Norway on REDD. The term is based on the recognition of a “crediting baseline” that is understood as “the benchmark for rewarding the country if emissions are below that level (and

³³ (Decision 5/CMP.1 Article 22).

not giving any reward or—depending on liability— invoking debits if emissions are higher”) (Angelsen et al., 2009b, chapter 3.1.)

For estimating the baseline/reference level in REDD activities, two issues should be considered when analysing, scale and time period. For scale, multiple levels are considered, including global, local, regional or national, or project level. For time period, two possible approaches are applied. The first time period approach only considers past trends, and the second approach considers historical and future trends. The first option favours countries that have high historically high rates of deforestation. These countries have the greatest potential for claiming emission reductions in the future (e.g., Guatemala). At the same time, this approach prevents other countries with zero or negative historic deforestation rates (see Figure 9, Section 2.1 from participating in REDD activities (e.g., Suriname, Guyana, Costa Rica, and others). These countries would essentially be punished for their progress on deforestation prior to REDD (Kaimowitz, 2008).

Leakage or Displacement of Emissions?

For afforestation and reforestation in the context of the CDM (A/R CDM), leakage is “the increase in GHG emissions by sources which occur outside the boundary of an afforestation or reforestation project activity under the CDM, which is measurable and attributable to the afforestation or reforestation project activity” (Decision 5/CMP.1). In the discussion on REDD, some are referring to “displacement of emissions” (i.e., the displacement of deforestation and forest degradation) when referring to leakages. As displacement of emissions has not yet been defined in any of the existing decisions, there is a lack of clarity about the differences between “displacement of emissions” and “leakages.”

A key aspect in the discussion on leakage/emission displacement is how to define what “outside the boundary” means. It is unclear if it is meant to consider any displacement of GHG emissions within the region, the country or international level. Therefore, the main discussion on leakage revolves around differences on how to deal with it, depending on whether a national and/or a sub-national approach used for accounting.

There is some literature that analyses potential international leakage for forest based climate change mitigation. International leakage is not yet considered for any other sector under mitigation even though it could be higher in the energy and transport sectors than in the forestry

sector. There are different reasons why other sectors are currently not included in this discussion. One of the most important may be that quantifying and monitoring international leakage has strong technical and legal implications (e.g., on international liabilities) and therefore difficult to implement.

Permanence and Additionality

The issue of permanence is related to the possibility that carbon in reservoirs can be emitted at any time, making emission reductions/enhancement of sinks non-permanent. Permanence relates to the period of time that carbon remains in the biosphere. Due to different risks, including fires and pests, carbon can be released into the atmosphere, thereby reducing the climate change mitigation effect.

The current approach, using temporary credits³⁴ for A/R CDM projects, has not been well received by the marketplace due to a number of issues related to replacement liability, liquidity, and valuation. Thus, the AWG-KP is currently considering a number of proposals for dealing with non-permanence in future AFOLU/LULUCF. The options include:

- Using temporary credits
- Banking credits and debits from one commitment period to the next
- Reducing future financial incentives to take into account emissions from deforestation above the agreed level
- Making it mandatory to set aside a share of the emission reductions as a safeguard.

Furthermore, some Parties consider sustainable forest management as a means to promote the permanence of emission reductions.

The options for addressing permanence issues in REDD will depend on the financing approach. The treatment of permanence is especially relevant if Parties agree on a market mechanism for REDD. Experiences under the A/R CDM have shown that the current approach of addressing permanence with temporary credits is not well perceived by the market, and thus has significant impact on the economic viability of the projects (see Section 1.4.1).

³⁴ Temporary CERs expire at the end of the commitment period subsequent to the commitment period for which they were issued; long-term CERs are valid until the end of the project's crediting period up to a maximum of 60 years.

Additionality³⁵ is the result of the GHG emissions reduced by a project (project scenario) minus the emissions that would have occurred in the absence of the same project (baseline), minus the leakage caused by the project. It is a term used within the CDM and therefore applies only to project activities undertaken in non-Annex I Parties. Currently, additionality is estimated and monitored using the approved A/R CDM methodologies.

The application of additionality to REDD projects remains open for debate, as current negotiations are not conclusive on this issue. The perception amongst negotiators is that REDD will include additionality.

Environmental and Socioeconomic Impacts

Until recently, consideration of environmental and socio-economic impacts was limited to only negative aspects and solely within the context of A/R CDM. Currently, positive socio-economic and environmental impacts (or co-benefits) are not considered in the modalities and procedures, and therefore not reported.

In Annex I Parties, socio-economic or environmental impacts regarding LULUCF activities or activities in other sectors are not addressed under the Kyoto Protocol. Furthermore, CDM projects outside A/R CDM do not need to take into account social impacts. This means, e.g., that many potential negative impacts of biofuel project activities on social systems are simply not considered, addressed or monitored. This is an issue of concern, especially when discussing the potential of biofuels as a substitute for fossil fuel.

Monitoring, Verification, and Reporting

Maintenance of carbon reservoirs (pools) for meeting climate change mitigation targets requires monitoring and verification on a regular basis. These data must be consistently reported to accurately quantify global emission reductions. To do so, Parties need reliable methods to accurately assess emission reductions over time. While such methods exist, they can be expensive to implement. The experience in the ongoing A/R CDM shows that monitoring costs can be very high (in some cases 25% of the total project cost). Annex I Parties report similar

³⁵ The definition of additionality, as in Decision 17/CP.7, para. 43: A CDM project activity is additional if anthropogenic emissions of greenhouse gases by sources are reduced below those that would have occurred in the absence of the registered CDM project activity.

costs for monitoring and reporting. An agreement on monitoring and reporting requirements should provide for:

- Accurate quantification of the emission reduction over time
- Transfer of technology and know-how to developing countries.

1.3.2 REDD Governance Challenges (Institutional Architecture, Legal Aspects, Participation and Empowerment)

A REDD mechanism would provide financial incentives to countries to reduce emission from deforestation and forest degradation. The eventual agreement and operation of a REDD mechanism raises many questions. In particular, there are questions with respect to the distribution of incentives at the sub-national level, like: who owns the carbon stored by the forests; method to distribute direct and indirect benefits; and how to distribute responsibilities and liabilities. Incentives for reduced deforestation and forest degradation will impact the local level, potentially causing either displacement or transformation of existing activities.

If a REDD mechanism succeeds, competing pressures on forests must be effectively addressed. In addition, there are a variety of drivers to overcome, like: bad planning; lack of law enforcement; illegal logging; lack of clear tenure; lack of accountability; and lack of capacity of institutions to manage forests sustainably.

Governance issues are essential for using REDD as a climate change mitigation option in a post 2012 agreement. An important difference between methodological and governance issues is that governance challenges cannot be fully addressed by any centralized authority and UNFCCC COP only. Governance issues are to be addressed at the global, national, sub-national and local levels and are to be coordinated with other sectors. Facing governance challenges needs to be a very high priority for successfully realizing the mitigation potential offered by REDD (and obtaining the financing required).

The following key messages are from a joint policy brief prepared by ITTO and FAO, presented at the World Forestry Congress in Buenos Aires, October 2009:

1. Five factors give rise to a lack of forest law compliance:
 - Failings in the policy and legal frameworks failures
 - Insufficient enforcement

- Lack of information gaps
 - Corruption
 - Market distortions.
2. In many countries, policy and legal frameworks need reform, including the elimination of inconsistencies and contradictions and harmonization of forest-related laws with those in other sectors.
 3. Compliance with forest laws is best achieved as an outcome of forest governance reform processes that involve stakeholders and include their views.
 4. The successful mitigation of climate change through REDD requires effective forest governance.
 5. REDD cannot be achieved without clarifying rights to land, forests and carbon.
 6. As a starting point, efforts to improve forest governance should address the most critical elements for the successful implementation of REDD.
 7. REDD initiatives should build on the lessons learned from other processes, including forest law enforcement, governance and trade initiatives.

Institutional Architecture

In this document, the term institutional architecture refers to the future agreements required for REDD activities in the context of the UNFCCC. The term includes agreements among different stakeholders, and public sector regulations. It covers the global, national, sub-national and local levels.

At the *global level*, the institutional architecture should be consistent with existing Conventions and treaties and multilateral agreements. For example, the Universal Declaration of Human Rights (UDHR) and its related agreements, Conventions concerning Indigenous and Tribal Peoples in Independent Countries – especially the Declaration on the Rights of Indigenous Peoples (DRIP)³⁶, United Nation Conventions on Biological Diversity (UNCBD) and Desertification (UNCCD). The design of a REDD agreement should ensure that countries comply with other social and environmental concerns to prevent eventual perverse impacts from REDD activities.

³⁶ The United Nations General Assembly (GA) adopted the Declaration on the Rights of Indigenous Peoples on September 13, 2007. The Declaration has been negotiated for more than 20 years between nation-states and Indigenous Peoples.

At the *national level*, countries define national regulative frameworks to implement international, multilateral, and bilateral agreements. Some relevant examples include national regulation on tenure, use and access to forest and carbon pools, as well as national regulation on environmental services. Ideally, agreements and regulation at the national level are coherent among sectors. An issue of concern for REDD, is that not all Parties to the UNFCCC are signatories to same global agreements. To not consider this in the design a potential REDD system risks the integrity of the mechanism. A strong institutional architecture will identify these gaps and safeguard the system against them.

At the *sub-national and local levels*, it is necessary to facilitate agreements among relevant forest stakeholders and, when necessary, to promote appropriate regulation on tenure, use and access of/to forest and carbon pools, as well as on environmental services. Awareness on customary rights and rights of local communities is as strongest as this level, but regulations are not always in line. Ideally, agreements and regulation at the sub-national and local levels are coherent among sectors and with the other levels.

Legal Aspects: Tenure, Property and Use Rights

The implementation of REDD in developing countries could be complicated due to unclear ownership rights of land, forests, and carbon. Land titles are often not vested in the local population, and often there is a lack of adequate record keeping with regard to changes in land ownership arrangements. Investments in REDD are made difficult in cases where there is a lack of clarity with regard to land ownership, particularly when local users do not have titles or when there are gaps in national or local regulatory systems which define the ownership of carbon. Unclear land titles make it complex to distribute the benefits of any REDD scheme and may make the high investment costs of such schemes very risky. Thus, it is crucial to discuss land ownership and use rights, as well as the ownership of the carbon sequestration services that forests provide when contemplating any REDD scheme (Savaresi and Morgera, 2009).

Due to the fact that land is often subjected to multiple uses by different groups of stakeholders, such as grazing, cultivation, hunting, access to forests and underground resources, and that groups of users apart from the land owners may have rights to land, such as passage and harvesting, it is often difficult to define which land owner has the rights, and the power, to change the levels of stored carbon.

Historically, the lack of tenure, property and use rights has been an important driver of deforestation in LAC. In an effort to reduce deforestation rates in the region, progress has been made to protect public forests and recognize the rights of indigenous people (Chomitz et al, 2007; Hatcher, 2009). Even with programs in place to address the issue, there are still people living in and making use of forests who have few or no secure rights and tenure over the land. This can both promote and inhibit continued deforestation and carbon emissions.

Reducing GHG emissions from AFOLU in LAC may result in benefits in the form of financial incentives and carbon credits for emissions avoided or reduced in the sector. These potential benefits bring to the forefront the distribution of revenues as related to land use and title rights. Who owns the reduced carbon emissions or enhanced carbon sequestration and resulting carbon credits, certificates, or other benefits? Further, potential benefits might have limit the execution of customary rights on land use not secured by law and thus negatively impact forest dependent communities. In order to ensure proper equitable distribution of benefits these issues must be addressed at the national level to properly compensate people and communities as relevant and should be considered in the design of any REDD mechanism. REDD initiatives should neither provoke new conflict between stakeholder groups nor exacerbate existing inequalities and asymmetries of power.

Participation and Empowerment

Civil society is made up of many different groups with different interests. Effective REDD activities require participation from all civil society stakeholders whose livelihoods depend on forests. Bringing these groups into the planning stages and well implementation of REDD is imperative to the success of its activities. Participation in the process goes far beyond simply being informed. It requires that social groups are able to articulate their priorities and expectations clearly, and that they are included in decision-making process. They must also obtain benefits, assume responsibilities, and be fully recognized for their involvement in the REDD process. Civil society participation is likely to be stronger in communities where forest rights and tenure are transparent and strong.

The following are the important elements in ensuring participation of local social groups (including indigenous people and local communities) in REDD:

- **Empowerment** is a complex process. The first step toward empowerment is the recognition that there is currently lack of (decision making) power. The second step requires the acknowledgement of the inherent right to access power and the decision making process. Through empowerment, new social groups can actively participate in REDD, i.e., accessing new governance spaces.
- **Knowledge Sharing** should ideally consist of at least two processes: valuing local and traditional knowledge and disseminating scientific knowledge. In terms of addressing climate change, it is important to value local knowledge. The role of local knowledge in managing forests is highly relevant for REDD. The dissemination of scientific knowledge is essential to build capacity at the local levels and to encourage informed participation in REDD discussions and activities. In other words, without access to scientific research, forest dependent social groups, will not understand the new innovations created for REDD.

Sharing Benefits and Responsibilities

REDD activities can bring many collateral benefits, including income improvement. The question here is: who will get this income? What is necessary to ensure that indigenous people and local communities participate as beneficiaries in REDD? How will this income be disbursed and reinvested sustainably and equitably to local communities?

In addition to sharing the benefits resulting from REDD, the responsibilities associated with REDD must also be divided. In some cases, there are unforeseen long term effects and liabilities that result from REDD. For example, a forest is lost due to a forest fire. In case of such an event, who is liable for the GHG emissions or for the reduction in forest goods and services aimed at reducing vulnerability? Clarification concerning liabilities is, therefore, extremely important when considering REDD.

1.3.3 REDD Operational Challenges

Developing countries will face operational challenges around the implementation of REDD and other AFOLU/LULUCF activities in a post-2012 regime. There are significant hurdles to overcome at the national and sub-national levels where AFOLU activities are implemented and dependent on the strength of local conditions. These issues must be addressed to build capacity and ensure that stakeholders are well equipped to participate in REDD. National legislation,

programs, incentives, and monitoring related to REDD rely, to some extent, on solid application and enforcement at the sub-national and local levels.

Government role in the implementation of REDD is critical. The national government must create enabling conditions for activities at a sub-national level, especially regarding:

- Setting up necessary national-level rules and rights for actors
- Facing other land use pressures on forests (including revision of land-use related fiscal and other incentives)
- Mapping and planning current and future land-use and identifying priority areas for REDD implementation
- Establishing reference levels and monitoring systems of deforestation, degradation, and leakage
- Clarifying tenure, use rights, and access to carbon pools, etc. (Maura Costa, 2008).

Recognizing these issues, a “nested” approach has been proposed by the Tropical Agricultural Research and Higher Education Center (CATIE) and supported by several Latin American countries. It draws upon the pioneering experience of Costa Rica and Colombia (see Section 2.8). It aims to address project-level risk within national-level accounting mechanisms (i.e., that individual carbon projects would not be credited unless the overall country emissions reductions were below the national reference level). While this is a hybrid/market-linked approach, it also represents an example of joint public and private sector engagement in implementing REDD.

Developing countries will have to face specific challenges once a decision on REDD is taken under the UNFCCC (Herold, 2009):

- Developing countries start from a diverse set of backgrounds in terms of historical drivers and changes in forest carbon (Lambin and Geist, 2003), expected future land use changes due to their development objectives, and current capabilities for measuring and monitoring forest carbon on the national and local level (Herold, 2009). The need for comparable data among countries will require that this information becomes harmonized. Developing countries will need support in harmonizing data.

- Lack of national capacities for measuring, verifying and reporting on changes in carbon stocks in the forests at various levels (including, carbon accountability and monitoring, capacities for managing ecosystems, etc). Currently, the approach used in the international negotiations looks at the impacts on emissions. However, in order to be able to monitor changes, an approach looking at the impact of policies on drivers is also required. This means a great challenge for local expertise and technology for getting and assessing data for an accurate measuring, reporting and verification (MRV).
- Lack of modalities and procedures for REDD+ as well as the lack of methodologies for carbon accounting and monitoring.
- Inadequate monitoring approaches and systems that ensure consistency in monitoring at all relevant levels.
- Insufficient standards for official national and international reporting formats.
- Lack of data at the national and sub-national levels. According to Herold (2009), current monitoring capabilities have limitations in their ability to provide a complete and accurate estimation of GHG emissions and forest loss.
- Lack of general enabling conditions, including, deficient regulatory frameworks or lack of enforcement of the existing regulatory frameworks.
- Lack of funds.

1.3.4 Financing REDD in a Post 2012 Agreement

Current thought is that REDD funding will substantially increase over time, and vary in nature. Interim funding (such as FCPF and UN-REDD) is needed in the short term as a gap-filler to build REDD Readiness and test pilot implementation. This means financial and technical assistance for the development of reference level and monitoring systems, the design of national strategies, policies and measures, and other institutional arrangements for REDD implementation. Further funding (such as proposed by the Forest Investment Programme (FIP), see Section 1.4.2) is needed to foster capacity building, and to finance the transformational changes necessary for effective REDD implementation. Full implementation of REDD will require the leveraging of other financial sources, including the private sector. In order to secure

the enabling conditions for a full implementation adequate, steady, and secure funding for REDD is required to ensure a sustainable and effective mechanism. The certainty and predictability of REDD funding is particularly crucial to the success of the initiative.

A diverse portfolio of financing resources will play a positive role to providing both adequate and sustainable funding for REDD. This portfolio may include multi-resources, including, grants, loans, multilateral banks (guaranteed financing), and carbon markets (auctions and sales). Over the long term, REDD activities in developing countries can be financed through three main options (Parker et al., 2009):

- **Voluntary fund:** This type of fund could operate at the national (i.e., uni- or multi-lateral) or international scale, raising funds, for example, from official development assistance (ODA) and other public and private sources.
- **Direct market mechanism:** REDD credits would be traded alongside existing certified (or verified) emissions reductions (CERs), and could be used by companies in Annex I Parties to meet emissions targets in their national cap-and-trade systems.
- **Hybrid/market-linked mechanism:** This system would generate finances through either an auction process or by establishing a dual-market in which REDD credits are linked to, but not fungible, with existing CERs. Examples of these market-linked mechanisms are Norway's proposal to auction Assigned Amount Units (AAUs), the Center for Clean Air Policy's "Dual Markets" approach, and Greenpeace's Tropical Deforestation Emissions Reduction Mechanism (TDERM).

An analysis of strengths and weaknesses of each approach suggests that a combination of approaches is required. With this combined approach will address the specific forest and socio-economic conditions as well as the unique needs of developing countries. Good governance is imperative for all options to make contractual, performance-based REDD financing effective in practice.

In general, as it pertains to the UNFCCC, non-Annex I Parties call for new and additional financial contributions from developed countries. The voluntary approach outlined above, does not necessarily meet this criteria due to the constrictions that follow. In addition, the investment incentives for Annex I Parties are low because emissions reductions generated through a

voluntary fund cannot be used for compliance by participating developed countries (Moura Costa, 2009). Overall, a voluntary approach could limit the amount of funds invested for REDD as well as the sustainable flow of funds for REDD activities. This is why many stakeholders have emphasized the need for market-based approaches.

Market-based approaches also have potential flaws. A key argument against them is the possible risk that the international carbon market will flood with REDD credits, if REDD credits are fungible with other carbon credits. The theoretical potential supply of REDD credits is large, their delivery costs are estimated to be low³⁷, and they could depress international carbon prices. This would have a negative impact on overall carbon emission reductions from other sectors and activities. Experience demonstrates that in practice, this is not a real threat. Real conditions and previous experience in the sector demonstrate that reaction time to new innovations is typically slow. To safeguard against this, a quota of REDD equivalent could be established to address the remaining risk of market flooding. If REDD credits were limited to the historic yearly emission from the sector, approximately 20% of global emission reductions could be achieved through REDD. There are other options tabled for discussion and decision by the COP.

The Coalition of Rainforest Nations³⁸ has proposed that developing countries acquire AAUs from Annex I Parties against REDD credits and sell them. The US Waxman-Markey Bill proposal³⁹ also includes the sale of Annex-I country AAUs by developing countries. Greenpeace has proposed a Tropical Deforestation Emissions Reduction Mechanism (TDERM).⁴⁰ This approach is a hybrid market-linked fund that would trade REDD credits. The REDD credits would not be interchangeable with other credits, such as current CDM credits, and the price of these credits would be set by either auctioning or by setting a price linked to the price of Kyoto credits. The European Union (EU) has proposed a EU Global Carbon Mechanism.⁴¹ This would be financed by proceeds from the EU Emissions Trading Scheme (EU-ETS) and, in the short

³⁷ The costs would vary between countries and forestry situations. The lowest estimates based on opportunity costs start from less than USD 0.10/tCO₂ (Woods Hole, 2007).

³⁸ (www.rainforestcoalition.org/).

³⁹ See also Section 1.4.1

(www.energycommerce.house.gov/index.php?option=com_content&task=view&id=1560&Itemid=1).

⁴⁰ (www.greenpeace.org.uk/media/reports/tropical-rainforest-emissions-reduction-mechanism-tderm-a-discussion-paper).

⁴¹ (<http://ec.europa.eu/environment/forests/deforestation.htm>).

term, would make up the EU contribution to a REDD fund. A REDD bond scheme has also been proposed by the Prince's Rainforest Project.⁴²

Towards an Ideal System: The 3-Phased Approach

Elements for an 'ideal' system of REDD financing mechanisms could include (Angelsen et al., 2009b):

- Effectiveness in achieving climate change mitigation objectives
- Due consideration of co-benefits
- Predictable, sustained, and adequate funding to cover the large-scale needs of implementing forest based mitigation options
- Integration of financing from a variety of sources, in order to meet these funding needs, including from the private sector
- Phased approach starting with capacity building
- Equitable access
- Flexibility of entry in different phases of implementation
- Possibility for performance-based payments from early implementation.

A document prepared for the Government of Norway, provides an example of phased approaches for REDD financing:

- **Phase 1:** An initial support instrument that allows countries to access immediate international funding for national REDD strategy development, including national dialogue, institutional strengthening, and demonstration activities.⁴³
- **Phase 2:** A fund-based instrument that allows countries to access predictable REDD financing, based upon agreed criteria. Continued funding under this instrument would be results-based. However, performance would not necessarily just be monitored or measured on the basis of emissions and removals against reference levels. Performance would be related to the implementation of National REDD Strategy Policies and Measures.

⁴² (www.princessrainforestproject.org).

⁴³ FCPF and UN-REDD are already providing assistance to several countries for readiness capacity building.

- **Phase 3:** A GHG-based instrument that rewards performance on the basis of quantified forest emissions and removals against agreed reference levels. In this phase, transition from a global facility to integration with compliance markets would take place.

In addition to the need for a phased approach, other issues that are important to the discussion on how to finance REDD activities are the size of the market and the availability and accessibility of funds. These and other important issues depend on the outcome of future negotiations on REDD, in particular, with respect to Nationally Appropriate Mitigation Actions (NAMAs).

1.4 Funding Mechanisms for AFOLU in LAC countries

Although AFOLU projects (mainly A/R and REDD) already attract some private sector participation, investment flows for projects are insignificant when compared to other sectors. Existing investments are small relative to the amount of financing required for REDD.

The world's largest institutional investment market for forestry is in the US, including more than USD 30 billion invested in Timber Investment Management Organisations (TIMOs). Less than 20% of TIMO investment is overseas. Paralleling underinvestment in tropical forestry in the private sector, less than USD 1 billion a year has been made available for tropical forestry through ODA (Clenaghan, 2009).

Factors contributing to this underinvestment in the AFOLU sector stem from a number of market failures and associated risks (Neeff, 2007 and Clenaghan, 2009):

- **Carbon market risk:** There is substantial uncertainty regarding future carbon markets for AFOLU credits. Without certainty on long-term revenues, it is difficult for Annex-I Parties to evaluate investment opportunities and, at the same time, for developing countries to implement required reforms.
- **Political risk:** AFOLU projects require political commitment to wide-ranging reforms, which could be undermined if AFOLU does not deliver economic benefits, or if social unrest develops. As AFOLU projects require the active cooperation of local communities, local politics constitute additional risk.

- **Operational risk:** AFOLU projects bear the risk of non-permanence and thus non-performance. Further, sourcing qualified personnel and managing logistics in remote regions is a challenge.
- **Financial risk:** Projects hosted in developing countries bear financial risks relating to currency and interest rate movements and counterparty credit worthiness. Furthermore, AFOLU projects will be largely dependent on revenues from domestic markets.
- **Other:** Liquidity risks, illegal logging and clearing for agriculture, counterparty financial risks, threat of government intervention, and risks related to property rights are also factors.

The AFOLU sector is sensitive to these risks. In some instances, upfront investment may be high and returns may take many years to develop. As a result, investor appetite for AFOLU projects is currently limited. In cases where capital is tied up for long periods of time, the risk factors for investors are magnified and it can be difficult for project developers to access upfront investment. This is especially true as financial markets are under-developed in many developing countries and bank loans or equity finance is either expensive or impossible to obtain for loans. This is not so much of a concern for REDD projects. These projects can potentially generate large volumes of credits early on in the project life cycle, which investors find attractive.

At present, no liquid market for forestry credits exists because these credits can generally not be used for compliance purposes (except for in California). Therefore, demand and financing for these credits are limited to voluntary offsetting and specialized equity funds and large emitters betting on the inclusion of permanent forestry credits under future US and international regulatory frameworks.

1.4.1 Carbon Markets

Kyoto Market (CDM)

In the first commitment period of the Kyoto Protocol (2008-2012), the scope of LULUCF activities eligible for the CDM is limited to afforestation and reforestation projects (A/R CDM). In contrast to Certified Emission Reductions (CERs) generated by energy and other emission reduction projects, CERs from LULUCF projects⁴⁴ are of limited validity. This is due to the non-permanent nature of vegetation as a sink and fact that they have to be replaced upon expiry. For an investor, the effect of buying expiring credits is thus equivalent to postponing compliance with reduction obligations to a future commitment period (Neeff, 2007). The maximum price of a temporary CER (tCER) can be obtained by subtracting the discounted cost for a replacement CER at time T from the price of a permanent CER:

$$P_{tCER} = P_{CER} - \frac{P_{CER_T}}{(1 + d)^T}.$$

See Table 5 for relative values of temporary CERs depending on time till expiration and discount rate.

Table 5: Relative Value of Expiring CERs over Time and with Different Discount Rates

Discount rate (%)	5 years	10 years	15 years	20 years	25 years	30 years	60 years
3%	14%	26%	36%	45%	52%	60%	84%
5%	22%	39%	52%	62%	70%	79%	95%
7%	29%	49%	64%	74%	82%	89%	99%
9%	35%	58%	73%	82%	88%	94%	100%

Source: Neef, 2007

Presently, the markets for forestry CDM are still at a pioneer stage. While the total market volume of primary CDM transactions in 2008 was 389 MtCO₂ -- with a value of USD 6.5 billion - the share of LULUCF credits was negligible (World Bank 2009).

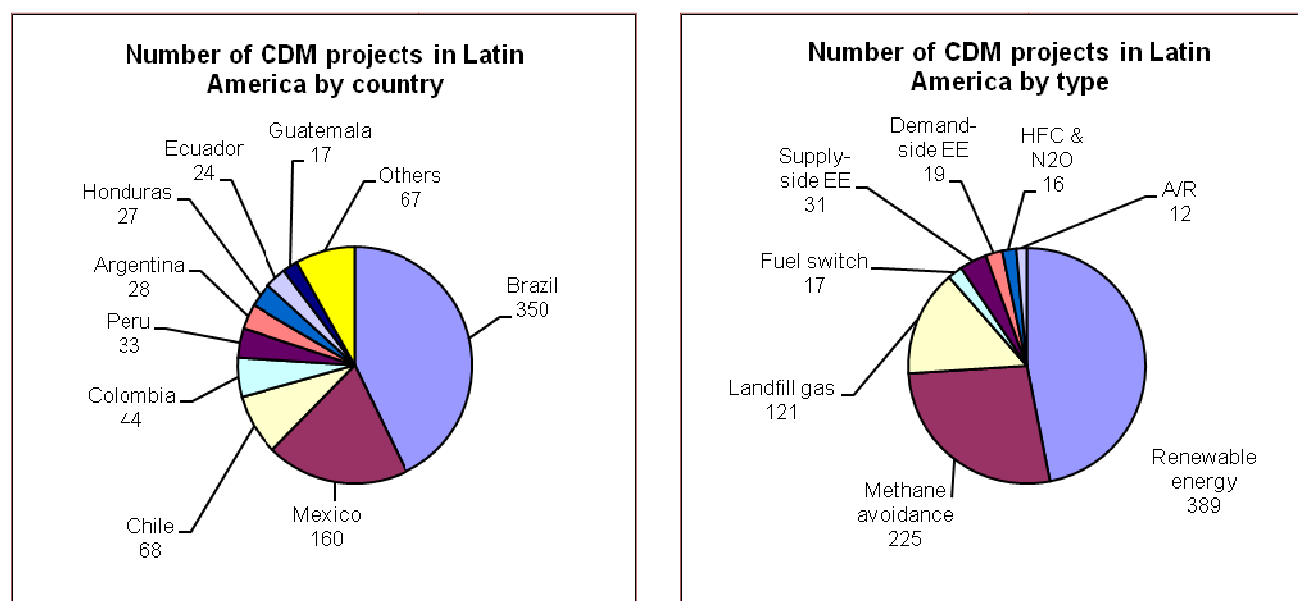
In November 2009, there were 4,734 CDM projects either registered or in the pipeline, only 47 projects are A/R CDM projects. Of those, only eight (8) projects are registered (UNEP 2009). According to the projected emissions reductions, credits from A/R CDM projects are

⁴⁴ The regulations of the CDM define two types of credits from forestry projects as temporary credits (tCERs – “temporary Certified Emission Reductions”) and long-term credits (lCERs – “Long-Term Certified Emission Reductions”). Each has different durations of validity. In the other sectors in the CDM length of the validity of the credits is not defined as the emission reduction in this sector are assumed to be “permanent”.

expected to have a market share of 0.5% in 2012 and 0.9% in 2020. The World Bank currently drives the A/R CDM market. Out of 47 A/R CDM projects in the pipeline, 30 have a buyer. Thereof, 22 are either contracted with the BioCarbon Fund or the International Bank for Reconstruction and Development (UNEP, 2009) (see Section 1.4.2).

LAC is host to 17.3% of CDM projects worldwide. The region has a total of 818 CDM projects as of November 2009. Out of that total, only 12 projects are A/R CDM. There are three A/R CDM projects in Colombia, two each in Brazil and Chile, and one each in Argentina, Bolivia, Nicaragua, Paraguay and Peru. Figure 7 shows distribution and types of CDM projects in LAC Countries.

**Figure 7: Number and Distribution CDM Projects in the LAC Region
(Host Country and Project Type)**



Source: UNEP/RISOE CDM Pipeline November 2009 (www.cdmpipeline.org)

Besides the specific risks perceived with investments and the lower prices paid for forestry CERs (see above), the share of LULUCF in the CDM market is mainly determined by demand. The biggest demand for CERs currently comes from the EU Emission Trading Scheme.

EU Emission Trading Scheme (EU-ETS)

The EU-ETS is Europe's domestic greenhouse gas cap and trade system. The market allows for the sale of emission allowances amongst private sector companies. The emission allowances are

capped and allocated by the Government to the private sector. The EU-ETS is currently the largest carbon market worldwide (World Bank, 2009). In 2008, its market volume was more than 3,000 MtCO₂ and value more than 90 billion USD.

The EU-ETS *Linking Directive* connects the carbon trades between the EU-ETS system and the Kyoto Mechanisms. To a certain extent, it allows CDM credits to meet EU-ETS GHG reduction commitments. The EU-ETS is currently the main driver of the CDM market. In its current form (until 2012), however, the EU-ETS *Linking Directive* excludes carbon credits from CDM forestry projects (EU, 2004). This is primarily due to liability risks that arise from the temporary and reversible nature of LULUCF credits. The exclusion from the EU-ETS system has delayed the development of markets for forestry CDM in the last years.

The EU anticipates the inclusion of AFOLU credits in the EU-ETS. This inclusion depends on the outcome of international negotiations on climate change (EU, 2009). The EU commission recommends the inclusion of AFOLU credits after 2020. In the interim, it suggests that AFOLU activities should be financed indirectly (e.g., through auction of allowances).

Outlook on a Regulated National US Market

The United States (US) has not yet ratified the Kyoto Protocol, and there is no national regulation of CO₂. Many states and their cities, however, have established sub-national commitments through Climate Action Plans, etc. There are state and regional trading mechanisms that are in full operation. Through these, most credits are achieved within the US and generated from measures in the energy sector. There are some, like the Oregon Standard, that include emission removals from sink projects. Recently, the purchase of some carbon offsets is being achieved outside of US borders through CDM projects.

At the national level, a comprehensive draft bill on energy and climate (by Henry Waxman and Edward Markey, W-M) was approved by the House of Representatives on 26 June 2009 (H.R. 2454). In response to the bill, Senators John Kerry and Barbara Boxer (K-B) issued a Senate bill on 30 September 2009, but the bill was not approved. Therefore, in May 12, 2010, Senators John Kerry and Joseph Lieberman (K-L) issued a draft for discussion of the American Power Act.

Both bills would establish a domestic GHG cap and trade system, seeking emission reduction targets set out as 17% (W-M) and 20% (K-L) by 2020, 42% by 2030, and 85% by 2050 compared to 2005 levels. In both bills, surplus emissions can be compensated by either national or international offsets.⁴⁵ Total offsets are limited to 2 billion credits annually. Thereof, international offsets are limited to 50% in W-M and 25% in K-L. Both include an option to increase this share if the domestic ceiling is not reached.

REDD plays a dominant role in both bills for international offsets.⁴⁶ The inclusion of REDD would include stringent conditions and agreements the between the US and project country. These would include issues of generation, monitoring, and tracking of credits as well as the establishment of national deforestation baselines. Following the enactment of a finalized bill, the US Environmental Protection Agency (EPA) has two years to develop regulations stipulating how REDD activities will generate offset credits.

The core elements regarding REDD are identical in both bills. They include:⁴⁷

- **Develop standards, tools, and capacity building programs focused on developing the standards, tools, and capacity.** In particular, developing national deforestation baselines. Sub-national implementation of projects during the pilot phase is under consideration. The program will use incentives in the form of reserved emission allowances for REDD activities, to entice developing countries to participate and implement pilot projects.⁴⁸ The program should achieve emission reductions of 720 million tonnes of CO₂ in 2020, and a cumulative total of 6 billion tons of CO₂ by the end of 2025.
- **Establish principles for long-term commitment to reduce deforestation.** Establish bilateral or multilateral agreements with select developing countries. Under this, the US would issue “international offset credits” for emission reductions measured against a national deforestation baseline. The responsibility lies with the host country to determine domestic distribution of carbon revenue.

⁴⁵ Conversion of offsets in both US bills: 1 offset credit = 1 allowance until 2018, 1.25 international offset credits = 1 allowance.

⁴⁶ The focus is on deforestation but the administrator may add degradation in rulemaking.

⁴⁷ (<http://www.nortonrose.com/knowledge/publications/2009/pub23849.aspx?lang=en-gb&page=all>).

⁴⁸ Only those countries emitting less than 1% of global GHG emissions and less than 3% of global emissions from land use change and forestry may generate credits from project activities in the long term.

- **Create innovative financing mechanism to generate funds.** Available financial resources enable the purchase of offset credits, including “international offset credits.” The process involves:
 - Auctioning of reserved emission allowances
 - Using revenue/monies to purchase offset credits
 - Retiring the purchased credits and replacing them with an equal volume of US emission allowances (which will then be available for further auctions).

Voluntary Markets

The Ecosystem Market Place reported transactions amounting of 54 MtCO₂ in “Over-the-Counter Market” (OTC) trades for 2008. Together with the 69 MtCO₂ transacted on the Chicago Climate Exchange (CCX), an estimated total volume of 123 MtCO₂ was transacted in the voluntary carbon market in 2008.

Chicago Climate Exchange (CCX)⁴⁹

The CCX is a voluntary, but legally binding cap and trade system for greenhouse gases launched in the United States in 2003. CCX Members make voluntary, but legally binding commitments, to meet annual GHG emission reduction targets. In 2008, the CCX added four new forestry project protocols (for afforestation, improved forest management, long-lived wood products, and REDD). Eleven projects have been verified in these categories so far. In the AFOLU sector, CCX further provides a protocol for agricultural soil carbon sequestration.

In 2008, 22% of the 31.1 Mt CO₂ offsets registered at CCX were from forestry projects (1% in 2007) and 15% from agricultural soil projects (48% in 2007). In terms of project location, the trend moved from mainly domestic offsets (79% in 2007) toward increased offsets in Asia (5.8 MtCO₂ or 19%) and Latin America (6.5 Mt CO₂ or 21%) (Hamilton et al., 2009).

The Over-the-Counter Market (OTC)⁵⁰

Unlike the CCX, the OTC is not driven by any specific emissions cap trading scheme. It is an active market for land-based credits. Over the years, their share in this market has increased. In 2006, they accounted for 29% of trades on the OTC market. Recently, this share has decreased

⁴⁹ For more information regarding the Chicago Climate Exchange visit (<http://www.chicagoclimatex.com/>).

⁵⁰Over-the-counter (OTC) trading signifies that financial instruments are traded directly between two parties (in contrast to exchange trading).

(16 % in 2007 and 11% in 2008) due uncertainty in the market. The same issues that keep forestry and other land-based projects from playing a major role in the Kyoto markets -- market, political, operational, and financial risks of AFOLU projects – influence their success in other markets like the OTC. The latest developments in UNFCCC negotiations with respect to REDD are sparking renewed interest in forest based climate change mitigation.

In LAC, the average price of OTC transactions ranged from USD 3.4 per tCO₂ for agricultural soil projects, to 6.3 for avoided deforestation, 6.4 for commercial plantations, and USD 7.5 per tCO₂ for conservational afforestation (Hamilton et al., 2009). The volume of credits there remained steady over the past three years. At the same time, the regions' share of the OTC market saw a decrease from 19% (1.9 MtCO₂) of the market in 2006 to only 4% (2.1 MtCO₂) in 2008. Some of the reasons cited by project developers as primary hurdles in the region are:

- Lack of government involvement
- Less efficient systems for project implementation in LAC compared to other regions (mainly, China and India), including stakeholder processes, resolution of land conflicts, DNA approval, project authorization, and finally land preparation and reforestation (Hamilton et al., 2009).

Most of the region's credits originate in Brazil (56%) and Mexico (21%). Renewable energy and forestry comprised most of the region's transaction volume in 2008. This is notably different from the project mix in 2007, which was dominated by energy efficiency projects. Among Latin American countries, only two sold REDD credits into the voluntary carbon market in 2008: Brazil and Ecuador (Hamilton et al., 2009).

Standards

The Climate, Community, and Biodiversity Standards (CCB)⁵¹ and the Voluntary Carbon Standard (VCS)⁵² are the most promising and recognized standards for voluntary markets with respect to AFOLU mitigation projects. Nearly half (48%) of the credits transacted in the OTC in 2008 were issued under VCS and 3% under CCB. (Hamilton et al., 2009)

The CCB Standards are a set of project-design criteria specially designed for evaluating AFOLU mitigation projects. They focus on community and biodiversity co-benefits. The CCB

⁵¹ (<http://www.climate-standards.org>).

⁵² (<http://www.v-c-s.org>).

Standards do not generate tradable offset certificates. They are frequently applied together with a carbon accounting standard like the CDM or VCS. Several REDD projects are registered under the CCB.

The VCS standard launched in November 2007 by the Climate Group, the International Emission Trading Association, and the World Economic Forum, covers mitigation projects in all sectors and provides an integrated guideline for AFOLU projects. Several VCS REDD methodologies are under development and their approval is expected by the end of 2009.⁵³ Besides VCS, the World Bank's BioCarbon Fund (see Section 1.4.2) provides another REDD methodology, the Bio-Carbon MOSAIC RED Methodology.

California Climate Action Reserve (CAR)⁵⁴

The California Climate Action Registry is a program of the Climate Action Reserve and serves as a voluntary greenhouse gas (GHG) registry to protect and promote early actions to reduce GHG emissions by organizations. The California Registry provides leadership on climate change by developing and promoting credible, accurate, and consistent GHG reporting standards and tools for organizations to measure, monitor, third-party verify and reduce their GHG emissions consistently across industry sectors and geographical borders.

California Registry members voluntarily measure, verify, and publicly report their GHG emissions, are leaders in their respective industry sectors, and are actively participating in solving the challenge of climate change. In turn, the State of California offers its best efforts to ensure that California Registry members receive appropriate consideration for early actions in light of future state, federal or international GHG regulatory programs. Registry members are well prepared to participate in market based solutions and upcoming regulatory requirements.

The California Registry is regarded as a leading international thought center on climate change issues and an intersection where business, government and environmental organizations meet to work together to implement practical and effective solutions.

⁵³ (http://www.v-c-s.org/public_comment.html).

⁵⁴ (<http://www.climateregistry.org/about.html>).

1.4.2 Multilateral Cooperation (World Bank Funds, including FCPF, UN-REDD, FIP, ITTO): Existing Support Mechanisms to Introduce REDD

BioCarbon Fund (BCF)

At the multilateral level and since 2004, the World Bank has pioneered the role of forest and agro-ecosystems to sequester or conserve carbon through the BioCarbon Fund.⁵⁵ The Fund, a public/private initiative, aims to deliver cost-effective emission reductions, while promoting biodiversity conservation and poverty alleviation. The Fund is composed of two Tranches: Tranche One started operations in May 2004, has a total capital of USD 53.8 million; Tranche Two was operationalized in March 2007 and has a total capital of USD 36.6 million. Both Tranches are closed to new fund participation. Currently, 20 AFOLU projects are registered with the BioCarbon Fund. Thereof, four are in Latin America (two in Colombia, and one in both Costa Rica and Honduras). Two further projects from LAC countries are in the pipeline (Brazil and Nicaragua).

The BioCarbon Fund can consider purchasing carbon from a variety of land use and forestry projects; the portfolio includes A/R and REDD. It is also exploring innovative approaches to agricultural carbon.

Since 2006, the BioCarbon Fund has supported REDD projects. Currently, the BioCarbon Fund has three REDD projects in its Tranche One portfolio. Two of the projects are in LAC. The first, the San Nicolás Agroforestry project, is in Colombia⁵⁶ and the second, the Pico Bonito Forest Restoration, is in Honduras.⁵⁷ Examples of AFOLU projects are outlined in Section 2.6. Other REDD projects are currently being reviewed by the BioCarbon Fund for inclusion in its portfolio.

With the Bio-Carbon MOSAIC RED Methodology, the BioCarbon Fund has also been developing an innovative project-based REDD methodology.⁵⁸ The methodology will allow project developers to establish a project reference scenario and adopt monitoring measures for accurately assessing emissions reductions from reduced deforestation resulting from the project's activities.

⁵⁵ (<http://www.worldbank.org/biocarbonfund>).

⁵⁶ (<http://wbcarbonfinance.org/Router.cfm?Page=BioCF&FID=9708&ItemID=9708&ft=Projects&ProjID=9630>).

⁵⁷ (<http://wbcarbonfinance.org/Router.cfm?Page=BioCF&FID=9708&ItemID=9708&ft=Projects&ProjID=9637>).

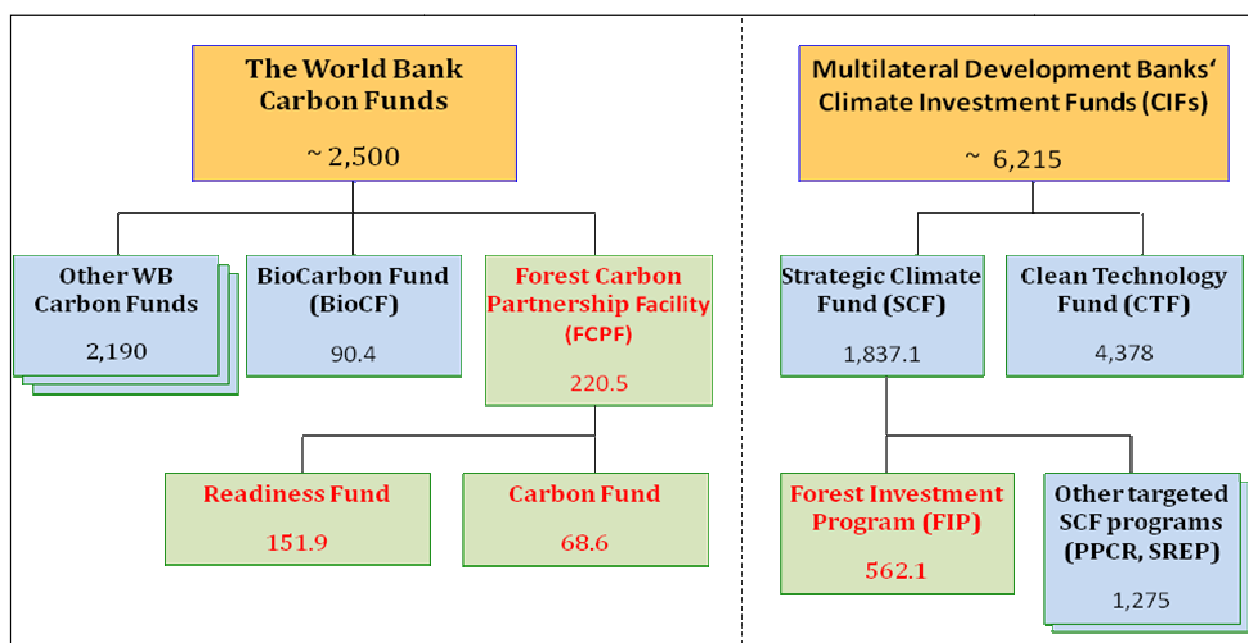
⁵⁸ (<http://wbcarbonfinance.org/Router.cfm?Page=DocLib&CatalogID=49189>).

In 2008, the Government of Kenya, with support from the World Bank BioCarbon Fund, started two AFOLU soil carbon sequestration pilot projects. Together with partner organizations, the projects use VCS methodologies. One project promotes the adoption of mulch application, agroforestry, and soil erosion control activities in small-holder coffee and mixed cropping systems. The other pilot project uses a landscape/watershed approach. It employs Sustainable Agricultural Land Management (SALM)⁵⁹ practices, including agroforestry, to improve people's livelihood and to enhance the resilience of farmers to cope with climate change.

Forest Carbon Partnership Facility (FCPF)

The FCPF⁶⁰ was launched at COP-13 in Bali. It is one of the World Bank's Carbon Funds (see Figure 8 below) and has been operational since July 2008. It assists developing countries in their efforts to introduce REDD as a climate change mitigation option.

Figure 8: Forests and Climate Change



Source: World Bank, 2010, compiled by: www.wbcarbonfinance.org and www.climatefundsupdate.org

Note: i) The World Bank managed instruments of carbon funds; ii) An Administrative Unit for the CIFs has been established in the World Bank, and the World Bank is the Trustee of SCF and CTF Trust Funds. The indicated numbers are pledged amount in million USD.

⁵⁹ (<http://www.v-c-s.org/methodology.salm.html>).

⁶⁰ (<http://www.forestcarbonpartnership.org>).

The FCPF has the dual objective of building capacity for REDD in developing countries and testing a program of performance-based incentive payments in some pilot countries. Two separate mechanisms have been set up to support FCPF objectives:

- **Readiness Mechanism:** The facility assists participating countries in estimating their national forest carbon stocks and sources of forest emissions. It also aids countries in defining their reference level. A reference level is based on historical deforestation figures and future deforestation projects that are adjusted taking into consideration national circumstances. The Readiness Mechanism offers participating countries technical assistance in calculating opportunity costs of possible REDD interventions and designing a REDD strategy that takes into account country priorities and constraints. Approximately USD 107 million is available in the Readiness Fund. This initial financing came from 11 donor countries. The funding target for the Readiness Fund is USD 185 million. The monies will go to support REDD Readiness efforts in 37 countries selected by the FCPF. REDD Readiness refers to the work countries do to prepare their national reference scenarios for emissions from deforestation and forest degradation, adopt and complement national strategies for deforestation and forest degradation, and design national monitoring, reporting and verification systems for REDD.
- **Carbon Finance Mechanism (CFM):** Through the Carbon Fund, the FCPF will support a few countries to test and evaluate incentive payments for REDD programs. Participating countries must have successfully participated in the Readiness Mechanism and have an accepted Readiness Package. This program will take place in approximately five developing countries. The Carbon Fund will remunerate the selected countries in accordance with negotiated contracts for verifiably reducing emissions beyond the country's reference scenario. According to the FCPF, "the Carbon Fund's payments are intended to provide an incentive to the recipient countries and the various stakeholders within each of these countries to achieve long-term sustainability in financing forest conservation and management." (FCPF, 2008). The Carbon Fund would deliver emission reductions from REDD+. This process would verify and validate the GHG emission reductions resulting from REDD+ activities, launched by the participating countries. The funding target for the CFM is USD 200 million. Approximately USD 51 million has already been pledged.

Of the 37 countries participating in the FCPF as of November 2009, 15 countries are from LAC. They are: Argentina, Bolivia, Chile, Colombia, Costa Rica, El Salvador, Guatemala, Guyana, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru and Suriname. Under the Readiness Mechanism, participants are developing a Readiness Plan Idea Notes (R-PIN) and a Readiness Preparation Proposals (R-PP). As part of this capacity building effort, countries are receiving assistance to adopt or refine their national strategy for REDD.

UN Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (UN-REDD)

The UN-REDD programme⁶¹ as launched in September 2008. The UN-REDD is a collaborative programme between three UN-agencies: FAO, UNDP and UNEP. Together, these organizations implement the UN-REDD programme to:

- Assist developing countries in the preparation and implementation of national REDD strategies and mechanisms; and
- Support the development of normative solutions and standardized approaches, based on sound science, for a REDD instrument linked with the UNFCCC.

UN-REDD will help empower countries to manage their REDD processes. It will also facilitate access to financial and technical assistance tailored to the specific needs of the countries. The programme focuses on monitoring technology, mainly based on the analysis of satellite imagery and the use of Geographic Information Systems (GIS).

In its initial phase, UN-REDD will assist nine developing countries (Latin America: Bolivia, Panama and Paraguay; Africa: Democratic Republic of Congo, Tanzania and Zambia; Asia: Indonesia, Papua New Guinea and Vietnam) in establishing systems to monitor, assess, and report forest cover. Norway donated USD 52 million to finance the initial phase of UN-REDD. Additional donors, bilateral and others, are interested in contributing UN-REDD.

Forest Investment Program (FIP)

Through a collaborative effort among the Multilateral Development Banks (MDBs)⁶² and countries⁶³, a new package of Climate Investment Funds (CIF) was launched in July 2008. It was

⁶¹ (<http://www.un-redd.org/>).

meant to bridge the financing and learning gap between now and a post-2012 global climate change agreement (see Figure 8). The CIFs combine significant concessional financing with international financial institutions, public and private sector flows, the Global Environment Facility (GEF), and other climate financing (such as carbon finance). Designed through extensive consultations, the CIFs are governed by balanced representation of donors and recipient countries, with active observers from the UN, GEF, civil society, indigenous peoples and the private sector. The Forest Investment Program (FIP) is one of three targeted programs of the CIF's Strategic Climate Fund.

The main purpose of the FIP is to support developing countries' REDD efforts, providing up-front bridge financing for readiness reforms and investments identified through national REDD readiness strategy building efforts. This is done while taking into account opportunities to help countries adapt to the impacts of climate change on forests, and to contribute to the multiple benefits, such as biodiversity conservation and rural livelihood enhancements. The FIP will finance efforts to address the underlying causes of deforestation and forest degradation and to overcome barriers that have hindered past efforts to do so. Other multilateral REDD programs, such as the FCPF as well as the UN-REDD, are not designed to cover the transformational investments necessary to achieve emission reductions.

The FIP is designed to achieve four specific objectives (FIP, 2009):

- To initiate and facilitate steps towards transformational change in developing countries forest related policies and practices
- To pilot replicable models to generate understanding and learning of the links between the implementation of forest-related investments, policies and measures and long-term emission reductions and conservation, sustainable management of forests and the enhancement of forest carbon stocks in developing countries
- To facilitate the leveraging of additional financial resources for REDD, including through a possible UNFCCC forest mechanism, leading to an effective and sustained reduction of

⁶² African Development Bank (AfDB), Asian Development Bank (ADB), European Bank for Reconstruction and Development (EBRD) and the Inter-American Development Bank (IDB).

⁶³ By the end of 2009, Australia, Canada, Denmark, France, Germany, Japan, Netherlands, Norway, Spain, Sweden, Switzerland, United Kingdom, and United States pledged a total of USD 6.3 million.

(<http://www.climateinvestmentfunds.org/cif/sites/climateinvestmentfunds.org/files/CIF%20pledges%20as%20of%20Dec%2031%202009.pdf>).

deforestation and forest degradation, thereby enhancing the sustainable management of forests

- To provide valuable experience and feedback in the context of the UNFCCC deliberations on REDD.

The FIP is in a stage to become operational in short. It is being established with a view to mobilizing significantly increased funds (in the order of magnitude of USD 500-800 million). As of end of January, Australia, Denmark, Norway, United Kingdom and the United States have made pledges to the FIP to an amount of USD 354 million. FIP pilot countries were selected in February 2010. Peru was the only country from the LAC region selected.

GEF Trust Fund

Since its inception, the GEF has provided USD 1.5 billion in incremental finance to initiatives dealing with forest protection and sustainable forest management (SFM), emphasizing the multiple benefit character of forest ecosystems.

The GEF-4 SFM strategy encompasses a mix of traditional forest management approaches, such as protected areas and integrated watershed management. It also piloted new and emerging aspects to forests, such as biomass production for biofuels and the role of forests in climate change mitigation. The GEF-4 replenishment will fund activities until June 30, 2010. The GEF-5 replenishment is expected to fund four years of GEF operations and activities, beginning July 1, 2010 and ending June 30, 2014 (FY11-FY14).

The investment strategy for GEF-5 in SFM will build on experience. These experiences will come from its GEF-4 portfolio as well as reflect and include the latest developments in new and innovative financing opportunities for REDD. Because of the increased attention given to AFOLU in the context of mitigation of climate change, the GEF-5 strategy will pay particular attention to this aspect of SFM.

Thus, the GEF-5 strategy for SFM will support investments to control and prevent deforestation and forest degradation as an essential and cost-effective way to deliver multiple global environmental benefits. Such benefits include the protection of habitats and other forest ecosystem services, including the mitigation of climate change and the protection of water bodies.

Collaborative Partnership on Forests Strategic Framework on Forests and Climate Change

The 14 members of the Collaborative Partnership on Forests (CPF) developed the so-called Strategic Framework for Forests and Climate Change (CPF, 2008) and presented it together with the FAO and Center for International Forestry Research (CIFOR) in a side event at COP-14 in Poznan (December 2008).⁶⁴ The document is a coordinated forest sector response to climate change. The strategic framework includes seven core messages addressed to the climate change negotiators:

1. SFM provides an effective framework for mitigation and adaptation
2. Mitigation and adaptation measures should proceed concurrently
3. Inter-sectoral collaboration, economic incentives & alternative livelihoods are needed to reduce deforestation and forest degradation
4. Capacity-building and governance reforms are urgently required.
5. Accurate forest monitoring helps decision-making but requires coordination.
6. CPF members are committed to collaborative and comprehensive approach.
7. CPF members are requested to mainstream this agenda in all climate change work they undertake.

International Tropical Timber Organization: Reducing Deforestation and Forest Degradation and Enhancing Environmental Services in Tropical Forests

The International Tropical Timber Organization (ITTO) has initiated a new thematic programme called Reducing Deforestation and Forest Degradation and Enhancing Environmental Services in Tropical Forest (REDDES).⁶⁵ The REDDES Programme aims to prevent and reduce the loss of environmental services from tropical forests due to deforestation and degradation.

The REDDES Programme contributes to the implementation of the CPF Strategic Framework for Forests and Climate Change (CPF, 2008, see above) in those areas of assistance, which are relevant to ITTO's work.

- Incorporate climate change adaptation and mitigation into national forest programmes and other development strategies
- Build capacity for SFM and forest-based climate change mitigation and adaptation

⁶⁴ (<http://www.fao.org/climatechange/media/16609/0/0/.pdf>).

⁶⁵ REDDES Programme Document (http://www.itto.int/files/user/pdf/TPD_REDDES_Final_noApp.pdf).

- Enhance the biophysical adaptation of forests to climate change, while safeguarding the livelihoods of forest-dependent communities and small forest owners and protecting forest biodiversity and other essential forest services
- Reduce and eventually eliminate unsustainable forest activities
- Enhance capacity to design, monitor, verify, and report on climate change mitigation and adaptation efforts
- Explore ways of securing international and national financing and private-sector investment.

ITTO's comparative advantage is capacity building at the implementation level, demonstration and scaling up through dissemination of information on technical aspects, and lessons learned on payments for environmental services (PES) under the REDDES Programme.

ITTO is receiving proposals for the first rounds of financing under REDDES. An interesting first observation is that many of these are proposals that include activities on REDD under the framework of SFM.

Fourteen (14) projects were submitted to the REDDES fund in its first call for proposals in June 2009; and 23 project proposals were submitted in the second call for proposals in September 2009. Four LAC countries have presented proposal to REDDES: Brazil, Mexico, Peru and Guatemala.

In the framework of REDDES, the ITTO secretariat established a collaborative effort with the UN-REDD programme. In the selection of proposals for funding, preference is given for those in common ITTO / UN-REDD members countries, which contribute to the implementation of the country's REDD readiness plan. Common actions have been explored in Papua New Guinea and Democratic Republic of Congo related to forest inventory for assessing carbon stocks.

1.4.3 Bilateral Cooperation

Donor countries provide financial assistance in many forms. Cooperation agencies in donor countries provide a mechanism to fund various programmes. In some cases, CDM activities and CERs trades are facilitated through this funding channel. In the context of these activities, forestry activities may be included in various ways (see Annex 2).

Development and cooperation agencies also fund projects to assist countries with adaptation to climate change. This is increasingly the case, for countries like Switzerland, Holland, and the US. Adaptation to climate change is a development issue and directly tied to sustainable human development. Taking this into consideration is a critical. It provides a holistic approach that produces more efficient outcomes across issues and sectors. To assist donor and recipient countries the Organization for Economic Co-operation and Development (OECD) is preparing guidance on this issue. Its publication, *Integrating Climate Change Adaptation into Development Co-operation: Policy Guidance*, provides guidance to donor countries on how best to mainstream development cooperation and adaptation to climate change. It also seeks to *align* donor support with the strategies, institutions, and procedures of partner countries.

Fundo Amazonia - Brasil

Concerning the LAC region, an important initiative is the Fundo-Amazonia Brasil. This Brazilian fund aims to reduce emissions from deforestation, mainly in the Brazilian Amazonas. It seeks funding in the amount of USD 21 billion to achieve its mission. The Government of Norway contributed USD 1 billion to the fund. According to the Brazilian President, Ignacio “Lula” da Silva, Fundo-Amazonia Brasil can allocate up to 20% of its resources to projects outside the Amazon and Brazilian borders. The Banco Nacional de Desarrollo Económico y Social (BNDES) created and manages this fund. BNDES is accountable to two committees: the “Guidance Committee” and the “Technical Committee”.⁶⁶ The Ministerio de la Casa Civil, directly dependent of the President’s Büro, coordinates the allocation of fund resources. Government officials proclaim that the fund is made up of only voluntary contributions and will not issue carbon credits for compensation or for meeting any GHG reduction commitments.

⁶⁶ (<http://www.amazonfund.gov.br/>).

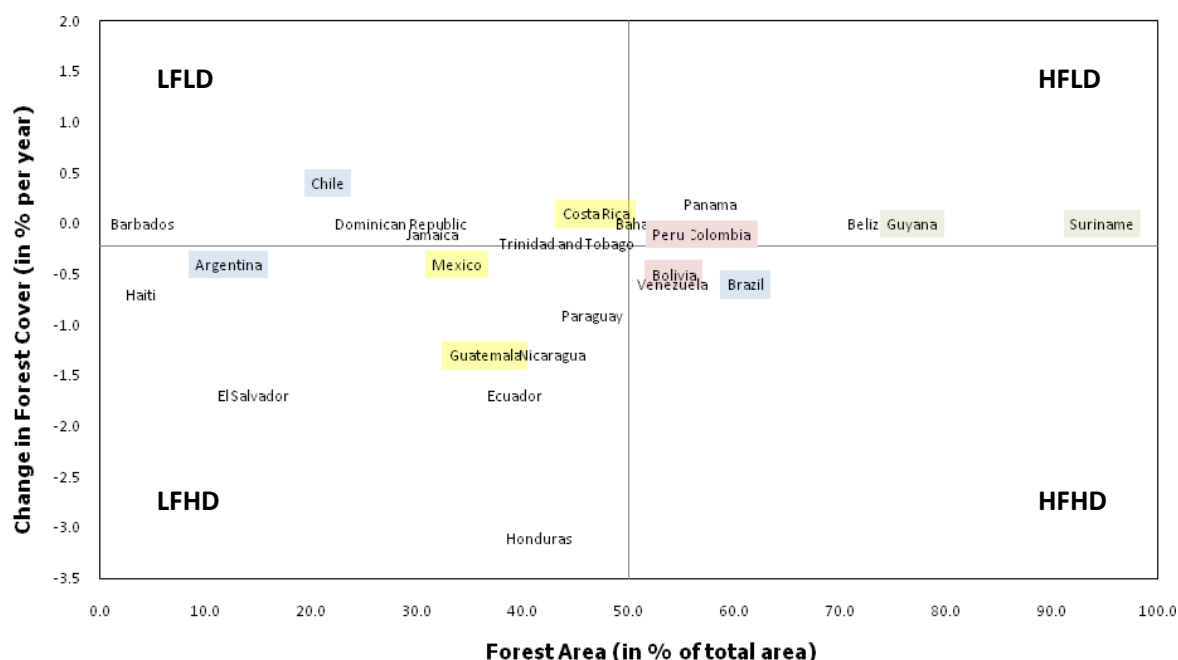
2 AFOLU Positions and Institutional Frameworks of LAC

REDD is an important element of the UNFCCC negotiations for a post-2012 agreement. The following section focuses on REDD in LAC, the drivers of deforestation in the region, existing legal and institutional frameworks, and national/regional strategies to prepare for REDD.

2.1 Land-Use Change in the LAC region

As illustrated in Figure 9, the situation regarding forest cover and rate of deforestation differs significantly among LAC countries. Suriname and Guyana are nearly completely forested, while countries like Barbados, Haiti or Argentina have lost most of their forest cover. Some countries like Chile and Uruguay show an increase in forest area, while countries like Honduras, El Salvador, Ecuador, and Guatemala have particularly high rates of deforestation. In this context, deforestation rates may differ significantly from absolute deforestation, where Brazil is leading with -3.1 million ha/yr, followed by Venezuela (-288,000), Bolivia (-270,000), Mexico (-260,000) and Ecuador (-196,000 ha/yr) (Please see Table with country information in Annex 1).

Figure 9: Forest Cover and Deforestation Rates in LAC Countries



Source: FAO, 2009, adapted by authors.

Note: The lines demarcate countries into the categories LFLD (low forest cover, low deforestation), HFLD (high forest cover, low deforestation), HFHD (high forest cover, high deforestation) and LFHD (low forest cover, high deforestation). Our area of focus for this report covers 11 countries. These countries are highlighted by region (South Cone: blue, Central America: yellow, Andean: purple, Caribbean: green).

Section 1.1 describes the climate change mitigation potentials in the forestry and agricultural sector for the LAC region. Detailed and consistent figures on country level potentials are not available. An initial assessment, however, of a country's mitigation potential in the forest sector can be done according the country's forest cover and rate of deforestation (see Table 6). The World Bank will publish further information on LAC country potentials for reduced emissions from deforestation.⁶⁷

Table 6: Initial Qualitative Assessment of Forest Mitigation Potentials by Country Groups*

Forest dynamics	Low-forest cover countries	High-forest cover countries
Countries with high deforestation rate	REDD: medium to high potential (depending on the definition of degradation) A/R: medium to high potential Restoration: medium to high potential Forest-based bioenergy: medium	REDD: high potential A/R: low to medium potential Restoration: high potential Forest-based bioenergy: medium to high potential (availability of wood)
Countries with low deforestation rate	REDD: low to medium potential (low if conversion concerns high opportunity costs for REDD) A/R: medium potential Restoration: high potential Forest-based bioenergy: medium potential.	REDD: medium to high potential (depending of the future DD scenarios) A/R: low potential Restoration: low to medium potential Forest-based bioenergy: high potential
Countries with zero deforestation rate and with net increasing forest area	REDD: no potential A/R: medium to high potential (high potential if land is available) Restoration: medium potential Forest-based bioenergy: high potential (if technology standard is high)	REDD: low to medium potential** A/R: low potential (particularly if natural forest management is practiced) Restoration: low potential Forest-based bioenergy: high potential (if technology standard is high)

Source: UNDP, 2009

Notes: * Based on an approach proposed for qualitative assessment of investment potentials, modified (Simula, 2008).

**High potential when existing carbon pools are maintained and considered as a REDD option.

⁶⁷ The Winrock Report will, "Estimate climate mitigation opportunities from reducing deforestation across Latin America and the Caribbean."

(<http://www.winrock.org/programs/ProjectsbyPartner.asp?agencyID=12127&agency=World%20Bank#>).

Table 7: Forest Cover and Deforestation Rate: CO₂ Emissions from the Forestry Sector and Status of Ongoing Multilateral REDD Initiatives (FCPF and UN-REDD) in IDB Member Countries

	Forest cover and annual rate of deforestation	Forestry emissions and share total CO ₂ emissions in 2000		Participation in Forest Carbon Partnership Facility (FCPF)		UN-REDD
		MtCO ₂	%	R-PIN	R-PP	
CID	LF HD (36 / -0.6)					
Belize	HF LD (73 / -0.0)	-	-	-		
Costa Rica	LF LD (47 / +0.1)	9.9	66.0	03-08-08		
Dominican Republic	LF LD (28 / -0.0)	-	-	-		
El Salvador	LF HD (14 / -1.7)	4.1	41.4	02-20-08		
Guatemala	LF HD (36 / -1.3)	56.6	85.2	12-15-08		
Honduras	LF HD (42 / -3.1)	17.6	77.5	12-05-08		
Mexico	LF HD (34 / -0.4)	96.8	20.1	03-08-08		
Nicaragua	LF HD (43 / -1.3)	53.7	93.4	07-23-08		
Panama	HF LD (58 / -0.1)	47.5	90.3	04-07-08	05-16-09	yes
CCB						
Bahamas	HF LD (52 / -0.0)	-	-	-		
Barbados	LF LD (4 / -0.0)	-	-	-		
Guyana	HF LD (77 / -0.0)	-	-	02-20-08	09-07-09	
Haiti	LF HD (4 / -0.7)	2	58.8	-		
Jamaica	LF LD (31 / -0.1)	2.6	20.6	-		
Suriname	HF LD (95 / -0.0)	-	-	02-16-09	08-24-09	
Trinidad and Tobago	LF LD (44 / -0.2)	-	-	-		
CAN	HF HD (54 / -0.4)					
Bolivia	HF HD (54 / -0.5)	83.8	90.6	02-20-08		yes
Colombia	HF LD (59 / -0.1)	106.1	61.5	07-15-08		
Ecuador	LF HD (39 / -1.7)	58.9	73.6	-		
Peru	HF LD (54 / -0.1)	86.7	46.3	06-30-08		
Venezuela	HF HD (54 / -0.6)	144.1	50.4	-		
CSS	LF HD (44 / -0.6)					
Argentina	LF HD (12 / -0.4)	55.1	28.5	07-29-08		
Brazil	HF HD (57 / -0.6)	1372.1	80.7	-		
Chile	LF LD (22 / +0.4)	15.5	22.0	12-15-08		
Paraguay	LF HD (47 / -0.9)	-	-	07-30-08		yes
Uruguay	LF LD (9 / +1.3)	-24.4	130.5	-		

Source: FAO, 2009; WRI CAIT, 2009; World Bank/FCPF, 2009; and UN-REDD, 2009.

Note: IDB member countries: Forest cover and annual deforestation rate (HF/LF: high or low forest cover, HD/LD: high or low deforestation rate); Emissions from the forest sector and share on total CO₂ emissions; Submission dates of FCPF Readiness Plan Idea Note (R-PIN) and Readiness Preparation Proposal (R-PP); and UN-REDD participation. For details and sources of information, please refer to Annex 1.

2.2 Drivers of Deforestation

Deforestation is a global, national, and local issue. Its impacts cut across borders and affect climate change and biodiversity conservation as well as a range of social, economic, and other environmental issues. The underlying causes differ from country to country and between regions.

The discussion below offers insight into the principle drivers of deforestation in LAC. Each country and case is unique and will have its own combination of drivers that cannot be adequately addressed if not properly identified.

Successful implementation of AFOLU policy in LAC depends on a clear and thorough understanding of the factors driving deforestation and forest degradation at the country and case level. This is the absolute first step toward developing effective forest conservation projects that produce real and measurable results. Without this knowledge, projects fail to grasp and address the underlying causes of deforestation, waste resources and do not achieve desired outcomes (Chomitz, 2007).

Addressing deforestation and forest degradation in LAC is a priority and an integral part of reducing emissions in the region from AFOLU. According to an FAO assessment, LAC is losing forests at a considerably high rate. In the period ranging from 1990 to 2000, the LAC region lost 4.1 million hectares of forests following by another loss of forest cover of 4.5 million hectares between 2000-2005.

Social scientists and economists have been studying the causes of deforestation since the mid-1980s and there has been a steady progress in the analysis of deforestation (Kaimowitz and Angelson, 1998; Cochrane and Laurance, 1999; Houghton, 2005). In Latin America deforestation came about due to the conversion of forests to large-scale permanent agriculture (FAO, 2005), but other drivers exist and contribute to continued deforestation in the region. These include (Kaimowitz and Angelson, 1998; Chomitz, 2007; Angelson et al, 2009):

- Expansion of agricultural and pasture frontier (e.g. clearing land for cash crops [Soybean, palm oil etc], cattle ranching, sugar cane, subsistence farming)
- Unsound infrastructure development (Hydroelectric or irrigation dams, road construction)
- Extractive industry activities (e.g. oil, gas and mining, river bank mining in Amazonian countries)
- Forest fires (e.g. challenges for tropical forest countries)
- Forest products extraction (e.g. illegal logging, unsustainable firewood extraction linked to poverty, etc.).

The economic drivers of deforestation are more significant in some areas than in others. The largest area of deforestation comes from South America in countries such as Brazil, Bolivia, Colombia and Peru, but the highest rates of deforestation are mostly found in the Central America and Caribbean countries (FAO, 2005). Honduras and Haiti have the highest deforestation rates per year (2.9 and 0.9 % respectively in the period of 2000-2005) as does Brazil, Ecuador and Paraguay (0.6, 1.7 and 0.9 % in order). The solution to deforestation in countries that still see big financial gains in clearing will be different from strategies in countries where little to no forest remains. Understanding the differences and identifying the appropriate solutions based on the known drivers will assist countries in implementing sound forest conservation projects.

Economic incentives are not the only cause of deforestation in LAC. Legislation surrounding the establishment of land rights and land values is also an important driver of deforestation in the region. This is in part because many countries require land clearing as a prerequisite for land ownership. In other countries land clearing is a way to prevent squatters from using land or avoiding agrarian reform by claiming “idle” land (Kaimowitz, 2008). Related to land rights is land values. In some countries, land values are a main driver of deforestation. Owners may keep their land clear in hopes of selling it to government in the future at a profit.

Overexploitation of land is another driver of deforestation. Logging firms are gaining legal concessions on usually large tracts of land and at an increasing rapid pace. In Bolivia, for example, 70% of the closed productive natural forest (about 30 million hectares) is under concession (Keipi, 1999).

Although not direct causes of deforestation in LAC, commercial logging and firewood collection can contribute to deforestation when carried out over a long period of time or in an unsustainable fashion. This is also the case for infrastructure and mining projects where the activity is less of a problem than the access to land the activity provides to colonists and land speculators. The result is gradual land fragmentation and uncontrolled development in these areas, especially when they do not form part of any overall regional or land use planning scheme (Keipi, 1999).

Burning of lands as a method of clearing is the preferred and cheapest method for clearing land. The proper infrastructure to extract timber in a profitable manner to clear land is

mostly not in place. As a result, a large amount of potentially valuable timber is lost. A good example of this is in Andean countries (Bolivia, Colombia, Ecuador, Peru, and Venezuela) where most wood is burned. Out of the total estimated annual wood loss of about 190 million cubic meters, 150 million are burned and only eight million are used for industrial purposes. The remaining 32 million are used for fuel wood (Risotto, 1994).

Large-scale industrial plantations are another source of agricultural conversion. The impact on deforestation is less impressive than other forms. Planting of illegal crops is also a driver of forest degradation in countries like Colombia, Bolivia and Peru. Ecuador, Venezuela, Panamá and Brazil are also affected by this, but to a lesser extent.

Further incursions are made by mining and infrastructure development in forest frontier areas. These result in increased access to forests and conversion to agricultural use by colonists and land speculators (Keipi, 1999). Recently, discussions between indigenous peoples and country representatives have taken place to address the acceptability of undertaking oil exploitation in areas with high forest cover within the context of REDD (e.g., Ecuador).

2.3 Legal and Institutional Frameworks

The cause and effect of deforestation and forest degradation vary across countries in LAC depending historic and existing national circumstances. A country challenged by weak governance and poor implementation capacity will have different investment and financing needs than a country with stronger and more viable institutions (World Bank, 2008).

Many countries in the LAC region have designed good laws and regulations in the land-use and forestry sector. However, effectively implementing them and ensuring that they achieve forest conservation objectives is challenging. Several of the main constraints to halting deforestation are (De la Torre, 2009):

- The fact that politically difficult policy actions are required
- The need for adjustment to development strategies that go well beyond forests but impact forests (including agriculture, transportation, mining, and energy)
- The pressure related to rise in population pressure.

Protected areas and regulated concessions on privately owned land are two prominent approaches to management of forests. Privately owned forests, include areas managed by local communities, local governments, or individual owners. Management of a relatively small, but growing, share of forests in LAC is being decentralized to local governments and indigenous communities. This is increasingly the case since the recognition of indigenous land rights has found strong support in this region. Lower deforestation rates are being seen in indigenous territories throughout Central America and in areas with consolidated community forest management, such as Mexico and Guatemala (Kaimowitz, 2008).

The share of privately owned forests in LAC by far exceeds private forest ownership in other regions. Private ownership is 56% in Central America, 17% in South America, excluding Brazil, and 15% in the Caribbean. The global is 13%. Community-based forest management in Mexico has reached a scale unmatched anywhere else in the world; an estimated three-fourths of Mexican forests are communally owned either by “ejidos” or indigenous communities. Countries in the LAC region are the world’s leaders in implementing incentive-based payment schemes for forest conservation (De la Torre, 2009).

There are several legal and institutional measures that the LAC region’s governments could take to diminish deforestation. First, they could adopt policies and implement institutional and infrastructural supports that would make sustainable forest use financially competitive with alternative uses such as agriculture and ranching. Second, they could revise the trade policies and export bans as well as the use of tariffs that have kept many forestry operations from becoming competitive in international markets. Third, they could redesign forest concessions that have traditionally been doled out with relaxed standards for environmental impacts, replanting, and good management practices. Finally, a lack of land tenure security has contributed significantly to a short-term, open-access approach, to resource use and exploitation. These result in negative impacts on sustainability. Unclear land tenure is another outstanding feature of several of the region’s countries that needs to be addressed (Keipi, 1999).

Technology is not readily used by LAC countries, except for Brazil (Costa Rica comes close), to monitor forest cover on a regular basis and in a rigorous and systematic way. This is in spite of large investments in Geographic Information Systems (GIS) and environmental information systems as well as in the development of sustainability indicators. As a result, most

of the region's countries, especially those with significant deforestation, do not have a baseline from which to measure the impacts of REDD activities on deforestation. The lack of systematic monitoring is largely due to weak coordination between government agencies, frequent changes in government policies and institutions, a preference for funding short-term consultancies, and the purchase of equipment and software rather than recurrent expenditures. In addition, without monitoring tools and the ability to measure deforestation rates, policymakers avoid being held accountable for continued deforestation (Kaimowitz, 2008).

Countries that are interested in moving forward with a REDD strategy may wish to consider the following steps (De la Torre, 2009):

- Fine-tuning the estimation of emissions from land-use change at the sub-national level using high-resolution imagery (for example, Landsat with a 30-meter resolution)
- Conducting a national forest inventory to estimate carbon stocks
- Adopting a spatially explicit modeling approach to predict future deforestation
- Establishing a national monitoring, reporting and verification system capable of tracking changes in deforestation and forest degradation and resulting GHG emissions.

Only a concerted and multi-sectoral approach can make forest conversion less attractive relative to other land-use options and, at the same time, reduce pressure from the land-use sectors (agricultural sector, mining, forestry, etc.). Country-specific approaches to deforestation are needed to address the unique social and economic situation of each country surrounding forest use and resources. In this regard, LAC offers a very broad range of situations: from high deforestation (for example, in Nicaragua), to net reforestation (for example, in Costa Rica), and to historically low deforestation (for example, in Guyana) (De la Torre, 2009).

2.4 Planned REDD Strategies⁶⁸

LAC countries participating in the Forest Carbon Partnership Facility (FCPF)⁶⁹ report that most of their planned REDD programs and activities fall into five categories. Their Readiness Plan Idea Notes (R-PINs) include:

- General economic policies and regulations
- Forest policies and regulations
- Economic mechanisms for forest conservation
- Rural development programs
- Social programs.

Examples of **general economic policies and regulations** for REDD include Guyana's willingness to promote less destructive practices in mining and road development, and Mexico's efforts to mainstream forest conservation in agriculture and transportation.

Forest policies and regulations are likely to form the bulk of LAC's REDD programs and activities. Argentina, Mexico, and Nicaragua are establishing alternative forest management practices, fostering the creation of economic opportunities for forest-dependent communities. Bolivia and Mexico are promoting community forestry. Colombia and Guyana favor reduced-impact logging. Costa Rica, Guyana, Mexico, Nicaragua, and Panama provide incentives for reforestation and plantations to relieve pressure on natural forests. Costa Rica and Mexico see the need to reinforce the protection and management of their system of protected areas. Several countries emphasize the need for better forest law enforcement. Paraguay wishes to decentralize forest management to empower local governments in the conservation and sustainable use of forest resources. Guyana relies on log tagging and tracking to reduce illegal logging.

Several types of **economic mechanisms for forest conservation** are in use or in preparation in LAC countries. Costa Rica and Mexico will continue to rely on payments for environmental services as a means of financing the protection of forests, reforestation, and forest regeneration. Colombia may also start a similar program. Guyana uses forest concessions,

⁶⁸ Section 2.4 is based on De la Torre (2009).

⁶⁹ IDB member countries in FCPF: **CID**: Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Nicaragua and Panama; **CCB**: Guyana and Suriname, **CAN**: Bolivia, Colombia and Peru, **CSS**: Argentina, Chile and Paraguay.

Panama may scale up its experience with debt-for-nature swaps, and Bolivia is thinking about experimenting with tradable deforestation permits.

With respect to **rural development programs**, Bolivia recognizes the need for silvopastoral systems as a more efficient and less destructive alternative for cattle ranching. These systems also allow for the development of income generating activities in the highlands, which reduce migration to the lowlands of the Amazon region. Guyana proposes to foster ecotourism, creation of handicrafts using non-timber forest products, aquaculture, and rural electrification. Panama will improve its land administration and continue to promote investment projects at the sub-national level to improve rural livelihoods. Peru is launching a number of REDD pilot projects to identify the activities that are necessary to reduce poverty.

Finally, several LAC countries are proposing a range of **social programs** expected to generate direct or indirect benefits in terms of REDD. Argentina proposes to confer ownership rights over forest land to indigenous and rural communities and halt the internal displacement of indigenous peoples. Bolivia seeks to promote the sustainable use of non-timber forest resources, wildlife, and environment services by peasant communities and indigenous populations, according to their knowledge, uses, and customs. Guyana will engage with Amerindian communities to use their titled lands in sustainable ways. Panama will rely on the ongoing Sustainable Rural Development program of the indigenous Ngöbe Buglé Region in an effort to reduce poverty and poverty-related deforestation.

2.5 Focus Countries

2.5.1 *Central America and Mexico*⁷⁰

It is generally agreed that between 1970 and 1990 Central America experienced some of the highest deforestation rates in the world. All eight countries in the region lost much of their forests in that period. The 1990 FAO Forest Resources Assessment estimated the region lost 1.5% of its forest annually between 1980 and 1990 (FAO, 1993). Most of that forest was converted into pasture and crops. Large and medium-sized ranchers, small farmers, and government agricultural colonization schemes also played a role in the deforestation there. In

⁷⁰ Based on Kaimowitz (2008).

densely populated areas of Central America and Mexico, the poor have played a greater role in deforestation and in degrading marginal lands (Lopez, 1996).

Of all the regions where one might promote REDD, Central America would seem like a logical place to start. There are several reasons:

- Extensive forest cover
- Strong institutional capacity
- Clear forest tenure rights
- Strong system of protected areas than many tropical regions
- Historic high rates of forest loss
- Large areas of forests managed by indigenous peoples and other community groups
- Pioneer of the use of Payment for Environmental Services (PES).

Few regions in the world have given protected status to a higher percentage of their forest than Mesoamerica. Over half of Central America's forest was in protected areas in 2006, covering 14.3 million hectares (Kaimowitz, 2008). However, certain policies continue to favor deforestation. The recently negotiated Central American Free Trade Agreement may make cattle ranching in agricultural frontier areas more profitable, by opening up new markets for beef and biofuel subsidies have encouraged forest clearing to plant oil palm.

Despite the relatively favorable conditions in Central America, the application of REDD in the region will neither be easy nor straightforward. There is still a need for more targeted and efficient PES schemes, clearer tenure rights, better monitoring and analysis of forest cover change, and a more holistic approach to reducing deforestation.

The Central American region is actively involved and having an influence through its work with Comisión Centroamericana de Ambiente y Desarrollo (CCAD) on forests. In early 2000, the CCAD, with FAO, launched a project to clarify the mitigation potential of the forest sector (mainly afforestation and deforestation at this time) for the region. The project included Costa Rica, Guatemala, Nicaragua, Honduras, El Salvador, Panama and Belize. It facilitated the development of a regional proposal for adaptation in the forest sector. In addition to technical

support, this project provided a pre-negotiation space on forest and climate change issues for the participating countries.

There are major trade-offs between fairness and efficiency with respect to the forest sector. If greater priority going forward is given to heavily threatened forests, wealthy cattle ranches, responsible for a large portion of deforestation, could benefit unduly. Small-holders, that clear forests on the agricultural frontier, would consequently have more difficulty participating in PES programs as many of them have no title or clear legal claim to their land. Attempts to target REDD initiatives at forests at greater risk would probably negatively affect indigenous peoples and community forestry groups. These groups have and continue to conserve most of their forest.

For details on Costa Rica, Guatemala and Mexico, please refer to the country reports in Annex 3.

2.5.2 Caribbean Region

The Caribbean region also shows great diversity with regard to stage and management of its forests. There are countries in this area like Suriname or Guyana that have very low deforestation and degradation rates and other countries like Haiti that have very low to no forest cover left.

In the insular Caribbean, forests, particularly tropical forests, face a variety of challenges. In most of the small, densely populated countries, there is intense competition between forest conservation and other human needs such as agriculture. Forest management planning in this area is complicated by topographical and geographical factors that have led to the existence of a relatively diverse set of forest species located far from mainland seed sources. Forest degradation is also an issue. It is the result of both man-made and natural disaster, including large-scale land clearances dating back to the colonial era, frequent mismanagement of natural resources, and regular exposure to disturbances such as hurricanes and tropical storms. These occurrences have made it difficult to protect forests in this region (Lugo et al., 1981).

In recent years, the insular Caribbean region has shown a modest increase in forest area mainly due to trade liberalization and tourism. Abandoned agricultural land is reverting to secondary forests as agricultural exports such as sugar and bananas become uncompetitive trade commodities. The increasingly important tourism industry is also a driver for greater protection

of the natural environment. As a result, forest area is expected to remain stable or to expand in most Caribbean countries (FAO, 2009). Despite real progress being made in the area, the reality is that it will take many centuries to regenerate the dry mahogany forest of the smaller and lower islands. These forests were logged off by the eighteenth century and have not been restored anywhere in the region (UNEP, 2004) as seen the Virgin Islands National Park. Among the sub region of Caribbean group in the IDB (Bahamas, Barbados, Guyana, Haiti, Jamaica, Suriname and Trinidad & Tobago), Guyana and Suriname have very low rates of deforestation (FAO, 2006) and are characterized as countries with high forest cover and low rates of deforestation (HFLD). Fewer than 10 developing countries that have this status are estimated to store 18% of the world's tropical forest carbon (Fonseca et al, 2007). While these countries have historically low rates of deforestation, these rates may not remain low in the future. In some cases, this will be the result of growth in both populations and economies. In other cases, the cause may be drivers of deforestation that shift across borders as countries with higher rates of deforestation start to cut emissions.

Box 1: Low Carbon Development Strategy (LCDS) in Guyana

The Government of Guyana is making climate change a national priority and is working together with the World Bank and the Government of Norway to address national issues and support international negotiations on climate and forests. In June 2008, Guyana formally entered into partnership with the World Bank's Forest Carbon Partnership Facility (FCPF) and in February 2009, Guyana and Norway issued a joint statement on cooperation on climate and forest issues. The countries commit to working together to ensure the establishment of a REDD mechanism under a future UNFCCC post-2012 climate change agreement (Office of the President, 2010).

At the national level, Guyana is pursuing a low emission future through its recently launched Low Carbon Development Strategy (LCDS). LCDS provides a broad framework for Guyana's response to climate change with a focus on reducing emissions from REDD. Its approach is holistic and acknowledges that adequate involvement of all those affected by the national REDD strategy, especially the people living in and from the forests, is crucial to the effectiveness of a REDD regime. Implementing LCDS will represent a transformation of Guyana's economy (Office of the President, 2010) and its long-term success depends on both successful international partnerships and broad-based domestic support on LCDS.

Source: (<http://www.iadb.org/en/projects/project,1303.html?id=GY-T1068>).

Box 2: Environment and Sustainable Forestry Program in Suriname (SU-L1017)

More than 90% of the land area in Suriname is covered by forests. If managed well, this resource has the potential to serve as an important catalyst for positive change throughout the country. It can be used to improve the livelihoods of the poor living in the interior of the country, develop a strong private sector based on sustainable forest management, and preserve the thriving ecosystems supported by the forests. Until recently, this potential was not fully realized by Suriname.

Currently, the IDB is working with the Government of Suriname (GoS) to develop an environment and sustainable forestry program to assist the country in making full use of the economic and environmental potential of its forest resources. The main goal of the program is to build institutional capacity within the GoS to: i) sustainably manage the production of timber, non-timber forest products, and ecosystem services from the state owned forests in a sustainable; and ii) better protect the environment.

In the short-term, the program is expected to improve the quality of forest administration, surveillance, and control and promote the implementation of clear environmental licensing procedures for the main industries in Suriname. Over the long-term, the program should result in the increase the contribution of the state owned forests to the national economy and livelihoods of traditional communities that depend on forest resources.

Source: (<http://www.iadb.org/projects/project.cfm?id=SU-L1017&lang=en>).

2.5.3 Andean Region

Deforestation in this region, especially in the mountain areas, took place during the second half of the 20th century as a consequence of the expansion of the agricultural frontier. There are still vast areas of primary forest in the low lands. Certain succession to secondary forest occurred in the region during the 1980-1990s as a consequence of the violent conflicts, resulting in of abandonment of land, especially in Peru and Colombia. Degradation due to illegal crops is very important in the region.

Since the 1980s, and as a consequence of national structural adjustments, decentralization of natural resource management policies was promoted. The level of enforcement, however, differs from country to country. In the past decade, there has been a tendency in CAN countries to promote legislation on rights for indigenous peoples. CAN countries recognize that customary rights should be respected and observed.

Box 3: Alternative Financing Model for Sustainable Forest Management in San Nicolas

The San Nicolas Project in Colombia, financed by the International Tropical Timber Organization (ITTO), is an innovative pilot project that is testing a long-term financing method for sustainable forest management that includes payments for climate mitigation through the CDM and REDD. The project is located in the north-east Andean region of Antioquia with altitudes of 800-3000 metres.

Based on a participatory scheme, project partners and the local community designed a forest management plan for the next decades. The management plan includes CDM eligible activities, such as agroforestry and small bio-energy plantations on land that was non-forest in 1990.

Additionally, the forest management plan defines activities for forest conservation and enrichment. The corresponding emission reductions have been calculated using a methodology developed by the BioCarbon Fund of the World Bank; they reduce greenhouse gas emissions, particularly CO₂. Altogether the project will reduce 1.8 million tonnes of carbon over 40 years.

The vulnerability analysis for the project region demonstrates that the significant fragility of the Andean mountain forests as well as intense human pressure, fragmentation, biotic losses and degradation, means that this ecosystem is one of the most vulnerable to climate change in Colombia. Adaptation could only be proposed as an immediate measure, with wide ranging programs for conservation of the residual forests, ecological restoration and the creation of conservation corridors, together with the general ecological improvement of the surrounding agricultural systems. The forest management plan in San Nicolas, which is being currently implemented, corresponds entirely with this adaptation option.

Source: (http://www.tropicalforests.ch/PD_240_03.php)

Note : For details on Bolivia, Colombia and Peru please refer to the country reports in Annex 3.

2.5.4 South Cone Region

The five countries that make up the IDB sub region of the South Cone group (Argentina, Brazil, Chile, Paraguay, and Uruguay) have different ecosystems and institutional frameworks. Most strategies for the tropical areas of the sub-region differ from strategies for the temperate areas. In Chile and Argentina, for example, there is a long tradition of plantations (mainly monocultures) for wood exploitation, while in the northern part of Brazil the exploitation of natural Amazonian forest dominates. Brazil is a key player in the sub-region when considering emission reduction schemes from deforestation and forest degradation. Almost half of the global deforestation between 2000 and 2005 took place in Brazil and about 70% of the country's emissions come from the destruction of its forests, making it one of the top greenhouse gas emitters, just behind the United States, China and Indonesia (FAO, 2006).

The tenure and use rights allocated to local communities and indigenous peoples in this sub-region also vary. Currently, there are no regional institutions that focus on the forest sector across countries. MERCOSUR, the regional trade organization, has a presence and an influence over development of the region.

Box 4: Acre Program to Prevent and Combat Deforestation

In 2002, the IDB approved an integrated, large-scale operation to reduce deforestation and forest degradation in Brazil. With a total cost of USD108 million and IDB financing of USD64 million, the Acre Sustainable Development Program (BR-0313) aimed to improve the quality of life of the population of the State of Acre while contributing towards the protection and sustainable management of its natural forests. To achieve this dual goal, the Program was designed with two complementary lines of action.

First, it limited agriculture expansion by reducing access to unclaimed public lands through land property rights clarification and improved environmental surveillance and control capacity of the State Government. Second, the Program fostered economic growth of the State by promoting investment in sustainable forestry so as to sustainably utilize forest resources as well as consolidating the occupation of already-deforested rural areas by developing economic alternatives to extensive livestock ranching and low-yield farming through modernization of agricultural services and improved public infrastructure.

In this way, the Program contributed to reduce the deforestation rate in Acre from 111,000 ha/yr in 2005 to 22,000 ha/yr in 2008, while increasing the contribution of agricultural and forestry to the State Gross Domestic Product (GDP) in the State at annual rate of 8.6%, in real terms, between 2002 and 2007. A second phase for this operation is expected to be approved in 2011.

Source: (<http://www.iadb.org/en/projects/project,1303.html?id=BR0313>)

Note: For details in Argentina and Chile please refer to the country reports in Annex 3.

2.6 Some LAC Experiences

2.6.1 AFOLU Pilot Projects/Programmes

*Bolsa Floresta: REDD Demonstration Activity in Brazil*⁷¹

Bolsa Floresta rewards communities for their commitment to halt deforestation by distributing payments for ecosystem services to families, communities, and family associations. To qualify for “payments,” families must attend a two-day training programme on environmental awareness and make a zero deforestation commitment. In addition, they must enroll their children in school. Once these two requirements are met, they receive a monthly payment of USD 30. Community associations can also receive payments of up to USD 2,500 to support legal income generation activities that do not produce smoke (i.e., beekeeping, fish-farming or forest management). Cooperative investment for administrative support to family associations makes up 10% of the total paid for the families during the year and is aimed at empowering the community, strengthening the Bolsa Floresta organization. Bolsa Floresta funds are generated by interest on a core fund, first established with contributions from the Amazonas government and Bradesco (Brazil’s largest private bank).

⁷¹ Based on Eliasch (2009).

Deforestation monitoring will take place on a yearly basis by the Amazonas Sustainability Foundation and the Amazonas State Secretariat for the Environment and Sustainability Development (SDS) team. Partner institutions will assist with this task by analysing satellite images for the team. The programme currently covers 5,737 families in 14 Amazonas State Conservation Units.

Plan Vivo Agroforestry Programme: Mexico⁷²

The Plan Vivo programme aims to:

- Sequester carbon through forest and agricultural practices which contribute to sustainable livelihood systems
- Assist farmers and communities to develop more sustainable land management and better livelihoods through the provision of carbon services
- Target low-income farmers who often live in marginal areas, bringing together smallholders and communities to deliver benefits in the markets for environmental services.

An example of Plan Vivo in action is the Scolel Te programme in Southern Mexico. It includes over 2,000 families of indigenous farmers in 30 communities. The programme provides support to develop sustainable forestry and agroforestry techniques to improve livelihoods. It includes supplementing landholders' income with carbon finance from offsets sold on voluntary markets. It has the potential to sequester around 100,000 tCO₂ per year. Several forestry systems are used in the Scolel Te project to sequester carbon:

- The establishment of tree plantations on areas previously used as pasture may increase carbon stored in vegetation by about 440 tCO₂/ha
- The growth of timber and fruit trees interspersed with annual crops such as corn or perennial crops such as coffee, results in the sequestration of around 256 tCO₂/ha
- The protection of closed forests can prevent emissions of up to 1,100 tCO₂/ha; and where forests are degraded, careful management and restoration can increase carbon storage by around 440 tCO₂/ha.

In 2006, more than USD 30,000 in carbon payments was made to Scolel Te producers across around 20 communities.

⁷² Based on Eliasch (2009).

Table 8: Examples of Project Experiences in Climate Change Mitigation in the Forest Sector

Country	Size (ha)	Emission Reductions	Partners	Short Description
Belize	21,000	8.8 MtCO ₂	TNC, Programme for Belize, Cinergy, Detroit Edison, Nexen, PacifiCorp, Suncor, Utilitree Carbon Company, Wisoncsin Power Company	The name of this project is the Rio Bravo Climate Action Project . It prevents the loss of forest cover in 13,400 ha and sustainable forest management in 36,000 ha. Management practices include the creation of undisturbed buffer areas and protection zones and reduced impact logging. (http://www.nature.org/initiatives/climatechange/work/art4247.html)
Bolivia	642,500	5.8 MtCO ₂	TNC, Fundacion Amigos da Naturaleza, Government of Bolivia (GOB), American Electric Company, BP America, PacifiCorp, and Winrock International	The Noel Kempff project was designed to protect 642,500 ha from illegal logging and deforestation. As a result of this work, rights to logging were ceased in the area and most of the area was allocated to a nearby National Park. This project was the first forest emissions reduction project verified by third parties using international standards employed in the Kyoto Protocol. (http://www.nature.org/initiatives/climatechange/work/art4253.html)
Brazil	64,000	47 MtCO ₂	TNC, American Electric Power, Society for Wildlife Research and Environmental Education	The name of this project is Guaraquecaba Action project . This project is located in Southern Brazil. It involves the acquisition of farm followed by reforestation of degraded land and protection of the natural forests. (http://www.nature.org/initiatives/climatechange/work/art4254.html)
Brazil	589,612	190 MtCO ₂	Climate, Community and Biodiversity Alliance, Sustainable Amazonas Foundation, Government of Amazonas State, Marriott International	The name of this project is the Juma Sustainable Development Reserve Project . It involves the establishment of protected area in region of high deforestation rate. The income generated is used for planning, monitoring, law enforcement, and improving the social welfare of local communities. http://www.forestsnow.org/casestudies_full.php?csid=15
Colombia	6,400	0.20 MtCO ₂	Corporation for Sustainable Management of the Forests, The Autonomous Regional Corporation for the Rio Negro-Nare Region, BioCarbon Fund.	The name of this project is San Nicolas Agroforestry . Its main goal is to avoid land degradation in the project area. This will be done by: (i) afforestation and reforestation of 1,400 ha; (ii) sustainable forest management of 5,000 ha; and (iii) capacity building and land-use planning. (http://wbcarbonfinance.org/Router.cfm?Page=BioCF&FID=9708&ItemID=9708&ft=Projects&ProjID=9630)
Guatemala	150,000	Not set	Conservation International, Guatemalan	The Maya Biosphere Reserve was established in 1990. It is a tri-national system of protected areas in Guatemala, Mexico, and

Country	Size (ha)	Emission Reductions	Partners	Short Description
			government, Wildlife Conservation Society IDB Multilateral Investment Fund	Belize. The reserve is under severe threat from agricultural encroachment and illegal logging. Both activities result in serious degradation and emissions of CO ₂ . The goal of this project is to reduce deforestation, uncontrolled fires, and illegal logging in the area. (http://www.rainforest-alliance.org/resources/documents/avoided_deforestation.pdf)
Honduras	N/A	0.5 MtCO ₂	Pico Bonito National Park Foundation, Ecologic Development Fund, Bosques Pico Bonito, and Brinkman Associates, BioCarbon Fund	Pico Bonito is an essential part of the Meso-American Biological Corridor. However, it is under severe pressure from agriculture expansion, cattle ranching, and illegal logging. The project's goal is to: (i) reforest degraded lands in the buffer zones of the park and (ii) strength law enforcement and monitoring. (http://wbcarbonfinance.org/Router.cfm?Page=BioCF&FID=9708&ItemID=9708&ft=Projects&ProjID=9637)
Peru	180,000	Not set	Conservation International, INRENA, PEAM, and GTZ.	The Alto Mayo River Protected Forest is under threat of illegal logging and deforestation by smallholders. This project's goals are to reduce deforestation by: (i) negotiating conservation agreements with local population encroaching on forests; (ii) reforestation; and (iii) establishment of agroforestry.

Source: Adapted from IDB (2008).

2.6.2 REDD Technological Experiences

Detecting and Monitoring Deforestation in the Brazilian Amazon

Brazil's National Institute for Space Research (INPE) is assessing the extent and rate of deforestation in the Brazilian Amazon. The Institute is using satellite images to cover the approximately 500 million hectares that make up the Brazilian Amazon. INPE produces this data in partnership with the Ministries of Science and Technology, Ministry of Environment and the Brazilian Institute of Environment and Renewable National Resources (IBAMA), the environmental enforcement agency of the Brazilian government.

- **Deter (Near Real Time Deforestation Detection):** Deter estimates deforestation based on data gathered every few days. It uses high frequency observation satellite in order to reduce complications due to cloud cover. DETER to supplies IBAMA with bi-monthly information

on deforestation. The data is published monthly on the DETER website.⁷³ DETER's sensors do not provide an image with high enough resolution to estimate the total area of cleared land. For this purpose, INPE employs better resolution images produced by PRODES.

- **PRODES (Annual Deforestation Rate Assessment):** PRODES calculates the yearly consolidated deforestation rate in the Brazilian Amazon. The Landsat satellites used work on a 16 and 26 day re-visit and provide precise images (within a range of 20-30 m), making it possible to detect any deforested area larger than 6 hectares.
- **DETEX (Forest Exploitation Detection System):** This programme was established in 2007 and allows for rapid intervention by members of the federal environmental agency. The system collects images of 20 x 20 m areas, in contrast to PRODES (30 x 30 m) and DETER (250 x 250 m), to detect clearings in the forest due to selective logging activities.

INPE has a stated policy of free public access to all its deforestation data. Brazil is one of only few forest nations with the capacity to analyze satellite data. Brazil has the potential to share this expertise with other tropical forest countries and to support the development of their own forest monitoring capacity (Elias, 2009).

REDD Reference Level Pilot Project in Bolivia

The Global Monitoring for Environment and Security (GMES) initiative, a joint initiative of the European Space Agency and European Union (EU), is working with Bolivia to test the establishment of scientifically valid reference scenarios/baselines for deforestation and, where possible, forest degradation. This will use Earth Observation (EO) technologies and other quantification methods (including field measurements). It also aims to estimate potential future emission reductions by assessing the carbon dynamic of various forest management strategies (e.g., traditional logging practice versus reduced-impact logging). The five main components of its work are: undertaking needs assessments; using EO to obtain data on deforestation rates and spatial information on deforestation over a historical period; modelling biomass accounting; analyzing policy scenarios; promoting technology transfer through capacity building (Elias, 2009).

⁷³ (<http://www.obt.inpe.br/deter>).

2.6.3 Visions and Economic Mechanisms for REDD

Guyana's Low Carbon Development Vision and Marketing of Ecosystem Services

The Government of Guyana is working on a low-carbon development strategy that identifies how to:

- Harness low carbon opportunities to stimulate job creation, investment, and economic growth
- Work with the global community to create financial incentives to make the value of Guyana's 16 million hectares of rainforests higher than the cutting them down
- Protect Guyana's people and productive land from climate change – in 2005, floods caused damage equivalent to 60% of Guyana's gross domestic product.

In this strategy, climate change and sustainable national human development are addressed simultaneously. It seeks to fuel successful economies that avoid the high carbon development of the past. The Government is facilitating a national consultation on the development strategy, to reach a broad national consensus on how to achieve the vision (Eliasch, 2009).

In March 2008, the private company Canopy Capital Limited bought a 5-year license to market ecosystem services for the Iwokrama International Centre in Guyana.⁷⁴ The ecosystem services include rainfall production, water storage, weather moderation, biodiversity, as well as carbon storage and sequestration. Canopy Capital is attempting to create a market for ecosystem services through the listing and sale of ecosystem service certificates. Canopy Capital is also seeking ways to underwrite a minimum price floor for traded certificates. This would provide investors with confidence and would help fast-track investment into forests ahead of agreement on an international framework. Proceeds of any sales of ecosystem services will be invested in supporting Iwokrama's 370,000 hectares of pristine rainforest, providing for enhanced livelihoods of local communities, and making contributions to Guyana's low carbon development vision (Clenaghan et al., 2009).

Costa Rica's Payment for Environmental Services Scheme

The Costa Rica Payment for Environmental Services (PES) scheme is an example of a successful nationwide PES scheme, involving payments to individual landowners, and linking both

⁷⁴ (<http://canopycapital.co.uk/faq/index.html>).

payments for carbon and poverty to deforestation (Pfaff, et al. 2007). Landholders volunteer to participate and undertake to preserve various environmental services – including forest cover – through sustainable forest management, reforestation and restoration processes, and agroforestry. Payments are not made for the provision of the environmental service per se, but rather for the land-use that provides them. The funding for the scheme comes from tradable offsets sold on international markets, donor funds (including a GEF grant), and a national fuel tax.

The National Fund for Forest Financing (FONAFIFO), part of the Ministry of Environment, is the organizing institution responsible for reviewing applications, conducting verifications, making payments, and monitoring programmes. The Joint Implementation Office channels carbon credits. Landholders can have bilateral contracts with credit buyers, but all credits must be registered centrally.

Between 1997 and 2005, half a million hectares of land were covered by environmental service payments, the majority for forest protection, and USD 120 million delivered in ecosystem payments (Eliasch, 2009).

2.7 Main REDD actors in LAC⁷⁵

Beside the bi- and multi-lateral initiatives launched specifically to support countries preparedness for REDD (see Section 1.4.2), additional organizations were identified as main regional actors for REDD implementation in the LAC region. With a wide range of actors at national as well as regional and international, this chapter provide a brief summary of some of the main regional and international actors from four different levels:

- Intergovernmental organizations
- Indigenous and forest dependent people
- Non-governmental organizations
- Research institutes.

⁷⁵ Section 2.7 is largely based on (http://cmsdata.iucn.org/downloads/actores_y_posiciones_redd.pdf).

2.7.1 LAC Intergovernmental Organizations

The **Andean Community (Comunidad Andina de Naciones, CAN)**⁷⁶ included climate change as one of three thematic pillars in its Environmental Agenda 2006-2012 for the Andes (together with biodiversity and water resources). The secretariat of CAN has strongly promoted the inclusion of climate change into the national and regional agendas. Noting that land-use change, especially deforestation, is the major source of GHG in many of its member countries (see Annex 1). CAN recognises the importance of CO₂ emissions from deforestation in its “21 recommendations for the 21st century”. Recognizing the limited responsibility of Andean countries to contribute to climate stabilization, CAN recalls the necessity of “effective incentives to control GHG emissions (particularly in the energy sector and emissions arising from deforestation) without compromising economic growth, and also effective mechanisms of support and financing to increase the levels of resilience of CAN countries to the risks and impacts caused by climate change.” In this context, CAN recognizes the indigenous communities’ ancestral wisdom and emphasizes the importance of their participation in local, national, and regional climate change adaptation and mitigation strategies (CAN, 2007).

The **Amazon Cooperation Treaty Organization (ACTO)**⁷⁷ has not included climate change as a strategy or priority for intervention in its Strategic Plan 2004-2012 (see ACTO Strategic Plan). Although deforestation and land-use change is recognized as a major problem of the Amazonian forests, neither explicit relation to GHG emissions nor to the UN Climate Change regime is mentioned. ACTO seeks to address the reduction of deforestation and the conservation of forests by “identifying and developing alternative technologies and methods that are feasible, economically competitive and environmentally sustainable, and that would allow for replacing the regional agricultural economy based on traditional crops and subsistence farming, which have low competitiveness in regional and local markets (ACTO, 2004).”

2.7.2 Indigenous and Forest Dependent People

Indigenous people and traditional communities are key actors in the design and implementation of REDD mechanisms. This holds true both within and outside of the United Nations framework. REDD has a great potential to bring benefits to indigenous peoples and the traditional

⁷⁶ CAN: Bolivia, Colombia, Ecuador and Peru.

⁷⁷ ACTO: Bolivia, Brazil, Colombia, Ecuador, Guyana, Suriname and Venezuela.

communities in LAC. To realize this potential national and sub-national must be coherent with the principles of respect for the individual and collective rights of these communities. These include rights to land tenure, land access, and decision-making on land management. There is an important discussion going on in the region regarding the capacities of the LAC countries to ensure these rights. In recent UNFCCC talks, indigenous peoples' organizations, together with environmental NGOs, underscored that forests are "worth more than carbon," and highlighted the need to respect the UN Declaration on the Rights of Indigenous Peoples.

Adverse impacts of carbon forestry projects on indigenous communities in Ecuadorian Andes have been reported by Griffiths 2009. In August 2009, the Confederation of Indigenous Nationalities of the Ecuadorian Amazon (CONFENIAE), the Ecuadorian member organization of Coordinator of Indigenous Organizations of the Amazon Basin (COICA), rejected the UNFCCC negotiations on forests "because they try to take away our freedom to manage our resources and also because they are not a real solution to climate change, on the contrary, they only make it worse."⁷⁸

COICA and the Amazon Alliance: Climate Change is one area of strategic intervention for Amazon Alliance. The indigenous people from the Amazon recognize the importance of climate change for the planet's future and the fundamental role it plays for indigenous people in maintaining the region's health and vitality. Therefore, it is essential to ensure equal and appropriate participation of these communities in the process. Alianza Amazonica recognizes that REDD can have crucial impacts in the development of the indigenous peoples in the region. The main concerns are (Alianza Amazónica 2008):

- The lack of understanding by the World Bank of the contribution of the indigenous peoples to climate change
- The importance of the United Nations Declaration on the Rights of Indigenous Peoples
- The recognition of customary rights bestowed on the indigenous people to own the forest
- The potential transfer of REDD funds to governments and not to communities/indigenous peoples
- The legitimacy of the consultation processes of the World Bank.

⁷⁸ (<http://www.redd-monitor.org/2009/08/11/indigenous-peoples-in-ecuador-reject-redd/>).

The members of COICA were formally notified of these concerns. The members of Amazon Alliance re-emphasized the importance of recognizing their territorial and collective rights; the active participation in taking decisions related to climate change and forest conservation at national, regional and global level; and guarantees for direct and fair compensation of forest dependent people.”

Coordinating Association of Indigenous and Community Agroforestry in Central America (ACICAFOC) is a non-profit, social community-based organization from Central America. ACICAFOC groups associations, cooperative societies, federations and grass roots organizations lead by small and medium agroforestry producers, indigenous peoples and farmer peasants. In May 2008, ACICAFOC brought together over 300 civil society representatives at a Summit⁷⁹ in San Pedro Sula, Honduras, held parallel to the Central American Presidential Summit on Climate Change and Environment. ACICAFOC presented the following recommendations to government representatives.

- Legalize land tenure of indigenous and peasant families
- Generate regional incentives to favor climate change adaptation
- Rescue traditional peasant and indigenous knowledge for resiliency measures
- Rescue the use of landraces for organic production
- Strengthen and create appropriate and adapted technologies
- Create a harvest insurance for small and middle size farmers
- Strengthen local and national organizational structures
- Encourage civil society’s participation in designing and implementing mitigation and adaptation programs.

2.7.3 Non-Governmental Organizations

The Nature Conservancy (TNC) is a conservation organization with more than 10 years’ experience in forestry related climate change mitigation and projects in six countries. Within its Climate Change Initiative, TNC strongly supports the inclusion of reduced deforestation in a

⁷⁹ (http://www.rightsandresources.org/documents/files/doc_672.pdf).

comprehensive global climate change solution that addresses all major sources of carbon emissions. In 1996, TNC, together with other organizations, initiated the Noel Kempf Mercado Climate Action Project in Bolivia.⁸⁰ It is the world's first project to reduce emissions from deforestation through the issuance of carbon credits. Further, related TNC projects in LAC are the Rio Bravo Climate Action Project⁸¹ in Belize and the Guaraqueçaba Climate Action Project⁸² in Brazil (see Table 8, Section 2.6.1). TNC supports the World Bank's FCPF with USD 5 million (see Section 1.4.2).

Conservation International (CI) is committed to integrating human development and biodiversity conservation into national and international climate change mitigation and adaptation policies. To this end, CI supports indigenous people and local communities in strengthening their representation, roles, and capacities in climate change discussions and negotiations. Regarding forest conservation, CI focuses its efforts on developing appropriate policies and financial incentives for High Forest Cover, Low Deforestation (HFLD) countries. CI seeks compensation in HFLD countries like Guyana, Suriname, and others for their work to protect forests to mitigate climate change. To demonstrate how REDD policies and mechanisms can work, CI has created an extensive REDD training and education program; developed tools of engagement and benefit sharing to ensure that REDD can benefit vulnerable communities; worked with partners in developing decision-making tools for policy development and economic planning, such as the OSIRIS economic model; and set up pilot forest carbon projects around the world (in LAC e.g., Alto Mayo Forest Carbon Project in Peru or the Maya Biosphere Reserve Conservation Carbon Initiative in Guatemala, see Table 8, Section 2.6.1). CI is also a leading proponent of the Climate, Community and Biodiversity Alliance, which has developed voluntary standards to maximize the many benefits of projects that reduce deforestation (see standards for voluntary markets in Section 1.4.1).

The World Wildlife Fund (WWF) includes the forest carbon sector as one of the four pillars of its Climate Change Strategy. Through its Green Carbon Initiative (Green Carbon Guidebook 2008), WWF is deeply involved in the process of developing a credible and comprehensive meta-standard system for forest carbon projects. WWF's Forest Carbon Initiative

⁸⁰ (<http://www.nature.org/initiatives/climatechange/work/art4253.html>).

⁸¹ (<http://www.nature.org/initiatives/climatechange/work/art4247.html>).

⁸² (<http://www.nature.org/initiatives/climatechange/work/art4254.html>).

aims to make the role of forests in mitigating climate change a central part of the global climate solution. It seeks to reduce net GHG from deforestation and forest degradation to zero by 2020. Through its offices in key forested countries, WWF is identifying and supporting country-level implementation through capacity, testing approaches, and implementing activities to achieve national REDD programmes. These will be used as case studies to provide insight on the feasibility, opportunities, and challenges of implementing REDD at the national and sub-national level. Several WWF activities with focus on forest conservation and restoration are ongoing in LAC countries, among them, implementation of a REDD project in the Andean Amazon (Peru). WWF Colombia is involved in the Climate Change and Biodiversity Initiative, which is funded by IDB and supports the Colombian government in conserving biodiversity and reducing deforestation in the area affected by the Pasto-Mocoa road (an infrastructure project in which IDB is involved).⁸³

The International Union for Conservation of Nature (IUCN) believes that REDD can significantly contribute to the reduction of GHG emissions if it is based on sustainable forest management and integrated into broader carbon emission reduction strategies. Under these circumstances, REDD will not only help to reduce GHG emissions, but also contribute to the maintenance of biodiversity and the wellbeing of forest dependent communities. IUCN emphasizes that REDD has to:

- Complement a broader strategy for deeper cuts in fossil fuel emissions
- Integrate with ongoing forest governance reform processes
- Integrate with ecosystem-based approaches that address the drivers of deforestation and degradation at a landscape level and take into account the multiple functions and values of forests.

At national level, IUCN investigates how to integrate REDD mechanisms into national forest governance reform initiatives; promoting the equitable participation of local marginalized stakeholders in the establishment of REDD mechanisms; and is building capacity for, and supporting the establishment of, credible institutional arrangements. At international level, IUCN is: co-leading and supporting the activities of The Forest Dialogue (TFD) to develop a road map

⁸³ (<http://www.iadb.org/projects/project.cfm?id=CO-L1019>).

for the comprehensive treatment of forests within international post-2012 climate policies; and working with the CPF to provide leadership and guidance on how REDD activities can build on, and be incorporated within, sustainable forest management activities. IUCN conducted some background papers on REDD opportunities in South America.⁸⁴

The Katoomba Ecosystem Services Incubator was launched in late 2007 to address the *supply* side of the current disconnect in ecosystem service markets, with early emphasis on carbon markets. It aims to link local producers and communities to ecosystem services markets and multiply successful transactions. The Incubator strategically invests in the project development phase. This enables projects to effectively engage private investors or buyers to increase opportunities for equitable outcomes. Its priority investment lines are:

- Reduced emissions from deforestation and ecosystem degradation
- Integrating ecosystem services with certified sustainable forestry and agriculture
- Using carbon finance to leverage or bundle emerging ecosystem services markets
- Utilizing aggregation vehicles for small-scale producers and projects.

The Incubator is involved in several AFOLU projects in LAC:

- Establishing an ecological corridor by reforestation in the Atlantic Forest of Monte Pascoal, Pau Brasil (Brazil)
- Combining REDD and FSC-certified forests in Pico Bonito (Honduras, see Table 8, Section 2.6.1); Community afforestation in the Sierra Gorda Biosphere Reserve (Mexico)
- Restoring of the Amazon rainforest in the Surui indigenous territory (Brazil)
- Combining biodiversity incentives and REDD for the protection of indigenous territories, Gran Reserva Chachi (Ecuador).

2.7.4 Research Institutes

Latin American and Caribbean forest research institutes have not yet established strong networks that could promote AFOLU related research cooperation at the regional and global levels. Although it has been recognized the importance of closer collaboration of national research

⁸⁴ (http://www.iucn.org/es/sobre/union/secretaria/oficinas/sudamerica/sur_trabajo/sur_bosques/mecanismos_redd/).

institutions and universities in LAC region, effective support for such an initiative has not been realized to support regional networking efforts in LAC region. Despite of some constraints, several research institutes and universities are working on topics related to LULUCF. Some of the most important regional ones are:

The Amazon Environmental Research Institute (IPAM): IPAM is a research organization that works in the Brazilian Amazonas Basin. Its research focuses on deforestation and development in the region and aims to promote sustainable development. It includes research programs on climate change, biodiversity, forest and communities, development scenarios for the Amazonian region, and development planning. As part of its climate change program, IPAM undertakes research activities and promotes compensation schemes for reducing emissions from deforestation. IPAM is in favor of including REDD in a post-2012 mitigation regime, with the possible inclusion of voluntary commitments at the national level (IPAM, 2008).

Center for International Forestry Research (CIFOR). CIFOR has a long tradition of research on topics related to the management of forest and sustainable development. Its CarboFor Platform⁸⁵ serves as a regional hub to provide access to information and build capacity on LULUCF issues. CIFOR plays an important role as an international research institution operating in Africa, Asia and Latin America and partners with organizations across the globe (ODI, IPAM, CATIE, Intercooperation, etc.) on research projects related to forest and climate change adaptation and mitigation. To address the research gaps in the tropics related to AFOLU, CIFOR is implementing policy-relevant research, strengthening developing country research capacity, and promoting REDD/REDD+ initiatives.

Tropical Agriculture Research and Higher Education Center (CATIE). CATIE is a regional learning and research centre in LAC. It is working with its 13 member countries to improve the effectiveness of its research and include collaborative research networking. CATIE promotes and facilitates discussion and dissemination widespread of knowledge and bridge scientific knowledge to policy making. With this approach, CATIE undertakes research activities in global change adaptation and mitigation and offers capacity building on mitigation, adaptation, CDM and REDD. CATIE also offers technical and scientific advice to organizations in the LAC region and worldwide (CATIE, 2008).

⁸⁵ (<http://www.cifor.cgiar.org/carbofor/>).

2.8 LAC Positions on REDD-Plus⁸⁶

2.8.1 *National vs. Sub-National REDD: “The Nested Approach”*

The Central American countries, Costa Rica, El Salvador, Honduras, Mexico, Nicaragua and Panama, Chile, Ecuador, Paraguay, and Peru, support the “Nested Approach” for REDD proposed by CATIE in May 2009. This approach aims to combine the respective advantages of project- and national-level accounting and crediting mechanisms.⁸⁷ It allows for national-level GHG accounting, but also allows for crediting of GHG reductions achieved by individual projects. Project level emission reductions must be calculated conservatively, meaning that they should be equal to or less than total resulting emission reductions. Credits issued for projects must be deducted from national level credits. Allocation of credits is only permissible to projects with support of their respective REDD country. A share of credits resulting from REDD activities could be used to create a “leakage and permanence buffer” by the respective REDD country. This approach may give authorization for projects in countries that do not yet qualify for national accounting systems.

2.8.2 *Proposal of the Coalition for Rainforest Nations*⁸⁸

All of IDB’s Central American member countries (excluding Mexico), including Chile, Colombia, Ecuador, Guyana, Paraguay, Peru, Suriname and Uruguay, participate in the Coalition for Rainforest Nations (CfRN). Recognizing that national circumstances vary across developing countries, CfRN proposes stepwise implementation to maximize participation in REDD activities. Movement between categories is voluntary and activities between categories may occur simultaneously in some cases.

- Readiness and Capacity Building would use new and additional ODA to strengthen capacity and support demonstration activities.
- Expanding Implementation under the Convention could be funded by revenues generated from the auction of AAUs and carbon taxes within Annex I Parties. This proposal would support the scaling-up of demonstration activities, including a range of national, sub national, local and project-level activities in developing countries under the Convention.

⁸⁶ Proposals on REDD from Little REDD Book (Parker et al., 2009) (<http://www.globalcanopy.org/main.php?m=117&sm=176&t=1>).

⁸⁷ Pedroni, L., M. Dutschke, C. Streck and M. Estrada (2009).

⁸⁸ (FCCC/AWGLCA/2008/MISC.5, FCCC/AWGLCA/2009/MISC.1/Add.4).

- MRV of Emissions Reductions through a Market Mechanism would use global carbon market funds that could be supported by the auction of AAUs and carbon taxes to finance REDD.

CfRN proposes a national reference emissions or removal level using historical data over a period of at least five years. This level can be either elevated or reduced using a development adjustment factor that takes into account both national circumstances and capabilities, and historic national rate of deforestation and forest degradation.

2.8.3 *Proposal of Panama, on behalf of Costa Rica, El Salvador, Honduras, Nicaragua and Panama*⁸⁹

Panama proposes a flexible two-track REDD mechanism that aims to accommodate the multiple activities contemplated under REDD.

- **Track 1:** Establishes a compliance market that would allow emissions reductions from REDD activities to be sold in international markets and used by Annex I Parties to meet their own emissions reductions targets. Acceptable activities under Track 1 would be those in which a differential in emissions or carbon stock could be measured, such as REDD, as well as increases in forest carbon stocks.
- **Track 2:** Would obtain finance through international funds (not a market-based approach) and support capacity building, fund conservation efforts, and SFM. REDD activities could also be financed through funds depending on host countries' preferences. Annex I Parties would pledge a percentage of auctioned national emissions trading allowances or a percentage of AAUs auctioned on the international market to generate stable and sufficient source of replenishment for a REDD fund.

Reference scenarios on GHG emissions from deforestation should take into account historical trends and must insure that countries with traditionally low deforestation rates do not have a disadvantage. Countries with historical high rate of deforestation should not be rewarded. A possible mechanism to ensure equitable treatment is to use the global deforestation baseline for the developing world as a reference point.

⁸⁹ (FCCC/SBSTA/2006/MISC.5, FCCC/AWGLCA/2008/MISC.5).

2.8.4 *Proposal of Mexico*⁹⁰

To maximize cost effectiveness, REDD activities should, in part, be financed through a market-based approach. Funds will also play a critical role, but to finance activities such as capacity building, conservation, and SFM, which need non-return funds in order to be deployed. Reference emissions levels, at all scales of implementation, should be based on historical data of GHG emissions. It should also take into account national circumstances. Mexico strongly encourages a national accounting system to facilitate reporting and to avoid double counting of emission reductions or removals. The implementation of activities at the national or sub-national level will be determined by each country on a voluntary basis, as their sovereign right, taking into account their specific national circumstances and requirements. Sub-national approaches for some countries, however, might constitute a step towards the development of national approaches.

2.8.5 *Proposal of Brazil*⁹¹

Brazilian government agencies have been active in REDD discussions. Their proposals to the UNFCCC advocate a scheme embedded within the UNFCCC framework and outside the Kyoto protocol. The Brazilian position is that the reduction of emissions through REDD must be additional to Annex I Parties' commitments.

Brazil proposes the establishment of a voluntary fund. Contributions to this fund would come from developed countries and meet a “new” and “additional” requirement.⁹² This fund entitles developing countries to ex-post financial incentives if they demonstrate, in a transparent and credible manner, reduced emissions from deforestation. Incentives should be based on a comparison between the rate of emissions from deforestation over a “past time period” and a “reference emissions rate”. A credit will be issued for after comparing the effective rate of deforestation over a certain period with the projected and presumably pre-defined reference emission rate. The price per ton of carbon for incentives will be negotiable and reviewed periodically. Accounting will be at the national level. Incentives will be distributed in the same ratio as the emissions reductions each country has achieved. The reference emission rate is the average rate of deforestation over the previous 10-year period starting from the time of

⁹⁰ (FCCC/SBSTA/2007/MISC.2, FCCC/SBSTA/2008/MISC.4/Add.3).

⁹¹ (FCCC/SBSTA/2006/MISC.5, FCCC/SBSTA/2007/MISC.2, FCCC/SBSTA/2007/MISC.14).

⁹² The bilateral initiative “Fundo Amazonia” initiated by Brazil, and presented in Section 1.4 of this document, is in line with this position.

implementation within the UNFCCC, and will be recalculated every 3 years as the average of the last three years emissions from deforestation.

The Brazilian government agencies have been active in REDD discussions. Their proposals advocate a scheme embedded in the UNFCCC, but outside of the Kyoto Protocol. They do this to stress the fact that funding for REDD must be new and additional and not come under additional commitments from Annex I Parties.

Related, but not part of the official Brazilian position on REDD, is Brazil's push in 2008, during the climate negotiations in Poznan, to include for "forests in exhaustion" under the CDM. Currently, any plantation established on land that was forested after 1 January 1990 is excluded from the CDM. Brazil hopes to overturn this ruling by arguing that severely degraded logged-over forests store little carbon and that the only way of storing more carbon on the land is by planting trees.

2.8.6 Proposal of the Alliance of Small Island States⁹³

IDB's Caribbean member countries, including Belize and the Dominican Republic, participate in the Alliance of Small Island States (AOSIS). It is a coalition of small islands and low-lying coastal countries, formed as an ad hoc lobby and negotiating voice for Small Island Developing States (SIDS) within the United Nations system. AOSIS believes that consideration of all actions under the REDD agenda should ensure that there are no adverse consequences for biodiversity, the livelihoods of indigenous peoples, or local communities. It should also explore demand side measures relating to the drivers of deforestation (e.g., export of timber and forest products) noting, however, possible implications for discriminatory trade measures.

Recognizing that further work is required to develop methodologies to assess degradation, AOSIS states that REDD should include both deforestation and forest degradation. The definition of forest degradation should also relate to the loss of carbon stocks in remaining forest land. REDD could be addressed at both the national or sub-national level, although countries should be encouraged, where possible, to undertake national measures to reduce the likelihood of national leakage. Approaches to establishing national reference levels should be flexible depending on national circumstances. AOSIS proposes that *financing for* forest conservation should come both REDD and adaptation funds. There should be no mixing or

⁹³ (FCCC/AWGLCA/2008/MISC.5/Add.2 (Part 1)).

fungibility of market-based mechanisms under the Kyoto Protocol or any market mechanisms developed related to REDD.

2.8.7 Proposal of Colombia⁹⁴

Colombia believes that each Party should be able to choose from either a sub-national or national reference level and recommends project level management for leakage issues. A methodology for determining leakage is proposed that deducts displaced emissions from project credits. In this proposal, reference levels are calculated using one of three methods:

- Extrapolation of past trends into the future
- Prevailing technology or practice
- Logical arguments made by activity participants based on observed trends.

Tradable and fully fungible emission reduction credits would be issued against the reference levels. A special climate change fund would be established by the COP to finance activities, programmes, and measures related to REDD. These funds would complement existing funding for climate change activities from the GEF and bilateral and multilateral donors. In particular, for: enhancing developing country capabilities to monitor changes in national forest cover and associated carbon stocks; designing and implementing policies that reduce deforestation and degradation; supporting ongoing forest conservation and forest carbon stock enhancement efforts in developing countries.

⁹⁴ (FCCC/SBSTA/2007/MISC.14, FCCC/SBSTA/ 2008/MISC.4).

Table 9: Interventions of LAC Countries on REDD and AFOLU/LULUCF during the Climate Change Talks in Bonn (June 2009 & August 2009) and Bangkok (September/October 2009)

Brazil	<ul style="list-style-type: none"> • Addressed incomplete reporting of data and scientific uncertainties of measurement • Stressed that NAMAs⁹⁵ are separate from the CDM • Considered only afforestation and reforestation under the CDM • Supported REDD in the context of NAMAs and opposed offsetting • Called for a quick and simple establishment of REDD • Highlighted the three-phased approach (see Towards an Ideal System: The 3-Phased Approach, Section 1.3) • Discouraged use of terminology that links REDD to the flexibility mechanisms • Suggested discussions on mechanisms should be avoided until the full implementation of REDD • Stated that a safeguard to avoid forest conversion does not prohibit sustainable management of forests
Bolivia	<ul style="list-style-type: none"> • Expressed preference for the use of public funds as opposed to market mechanisms • Addressed REDD in the context of NAMAs, and opposes offsetting • Requested reference to the UN Declaration on the Rights of Indigenous Peoples • Supported need for a safeguard to avoid forest conversion
Colombia	<ul style="list-style-type: none"> • Noted REDD should reflect national circumstances and be flexible, • NAMAs and REDD were not necessarily “mixed.” • Supported Measuring, Reporting, and Verification (MRV⁹⁶) of finance for readiness by developed countries • Supported strengthening of language on finance for REDD and specific resources for REDD identified. • Questioned what would be financed by the fund and from where finances would come • Supported a multi-window financial mechanism that includes a funding window for REDD activities • Considered the relationship of permanence and leakage with operational language
Ecuador	<ul style="list-style-type: none"> • Drew attention to gender considerations, as well as social inequality globally and within countries • Highlighted an ecosystem-focused approach, community-level adaptation and financing • Called for the need for a safeguard on avoiding forest conversion • Called for language on “respect for traditional knowledge”
El Salvador	<ul style="list-style-type: none"> • Expressed preference for the use of public funds as opposed to market mechanisms
Guyana	<ul style="list-style-type: none"> • Called for a three-phased approach to REDD, from a fund-based to market mechanism • Emphasized the importance of identifying REDD activities and actions • Referenced the need for sustained and predictable funding and the need to address permanence and leakage
Mexico	<ul style="list-style-type: none"> • Proposed introducing language on the co-benefits of REDD actions • Took into account the distribution of benefits to local and indigenous communities • Supported need for a safeguard to avoid forest conversion

⁹⁵ NAMAs: Nationally Appropriate Mitigation Actions (see Section 1.3).

⁹⁶ MRV: Measuring, Reporting and Verification.

Panama	<ul style="list-style-type: none"> Expressed that REDD and NAMAs should be kept separate to reflect the importance of REDD
Paraguay	<ul style="list-style-type: none"> Had a preference for the use of public funds (under control of the COP) as opposed to market mechanisms Expressed that REDD and NAMAs should be kept separate to reflect the importance of REDD Supported reference to the role of indigenous peoples, and coordination with related agreements. Addressed the socio-economic consequences of REDD requires reflecting the underlying causes of Deforestation and emissions, which are linked to consumption patterns. Stated that there would be an increase in costs created by the proposed MRV, commitments to cover these costs are necessary Highlighted the three-phased approach Noted that terminology that links REDD to the flexibility mechanisms should be avoided
Peru (including Colombia, Costa Rica)	<ul style="list-style-type: none"> Stated that the inverse relationship between mitigation targets and adaptation costs should be clarified, Supported developing country mitigation through, inter alia, the CDM, and action on forests and agriculture. Stated that REDD should be part of a flexible and equitable mechanism Supported a safeguard on avoiding forest conversion does not prohibit sustainable management of forests

Source: Earth Negotiations Bulletin and Robledo et al 2010.

3 Conclusions

3.1 Moving the AFOLU Agenda Forward in Latin America and the Caribbean

The IDB publishes this technical note as a contribution to discussions on options for mitigating climate change in the LAC region, especially on AFOLU sectors. It is meant to inform policy-makers on the state of AFOLU in LAC and provide an overview of the issues and options available in the forest sector in the context of climate change adaptation and mitigation.

Considering the important role that AFOLU can play in addressing climate change in LAC, this publication serves as a capacity building tool to help prepare countries to make full use of options in the sector that result from international negotiations (financial and other). Although this document does not cover recent developments related to the forest sector in climate negotiations at Copenhagen or beyond, it does address current trends and emerging mechanisms in the forest sector (e.g., REDD and REDD+). This limitation does not impact the value of the document to stakeholders in understanding the main issues and options related to AFOLU in LAC. It does, however, leave room for further Technical Notes on this subject.

This publication aims to be used as a starting point for supporting countries to prepare for AFOLU in a post-2012 international climate change regime. Knowledge enables countries to overcome the many challenges they face currently and will continue to face in addressing AFOLU in the region. In LAC, deforestation is by far the most significant barrier to effectively managing climate change and rendering any international agreement on AFOLU operational and it is also the most difficult to adequately address.

The drivers of deforestation are diverse, complex, and vary between countries. They are also cross-sectoral in nature and originate both inside and outside of the forest sector (e.g., agricultural expansion, infrastructure development, mining, etc.). Tackling the problem therefore requires a cross-sectoral approach, which in many cases results in multiple unexpected benefits to countries. A cross-sectoral approach can create synergies between programs in different sectors that would otherwise not be made and pave the way for the most efficient use of financial resources to build stronger programs that meet both climate change and sustainable development needs of LAC countries.

There are vast opportunities in LAC, given the contribution of the AFOLU sector to overall CO₂ emissions in the region, to reduce GHG emissions from AFOLU. The main mitigation options include:

- Reducing GHG emissions from deforestation and forest degradation
- Enhancing CO₂ sequestration through afforestation and reforestation, forest restoration and sustainable forest management
- Substituting carbon intensive materials through the use of wood for building
- Substituting carbon intensive energy sources through bio-fuels
- Implementing mitigation options in the agricultural sector
- Creating synergies with adaptation and other co-benefits of AFOLU climate change mitigation.

The region faces institutional challenges as it prepares to make full use of emerging adaptation and mitigation options in the forest sector, and therefore capacity building across sectors and stakeholders groups is critical to the success of AFOLU in LAC. Currently, many countries are engaged in one or more international initiatives (FCPF, UN-REDD, FIP, ITTO REDDES, etc.) to build a solid knowledge base from which to implement AFOLU mitigation options. This is a good first step, but it is not a seamless process because frequently initiatives are working independently and are not coordinating efforts. As institutions build capacity and become stronger, communication between programs and stakeholders will improve increasing the overall efficiency of various efforts. This will help countries to move the AFOLU agenda forward in LAC.

LAC has many opportunities to mitigate climate change and benefit from substantial investments in the region through AFOLU. In order to take advantage of financial flows associated with the forest sector countries need to improve their understanding of the issues and learn what options best suit the range of national circumstances. Countries also need to strengthen their institutions and improve communication and collaboration across sectors to maximize their potential and readiness to implement adaptation and mitigation options.

The IDB is in a strong position to assist countries in overcoming obstacles and preparing for a post-2012 agreement on AFOLU. The Bank takes a cross-sectoral and holistic approach to AFOLU mitigation and has proven expertise supporting strategic programs and initiatives in the forestry sector and other sectors (mining, industrial development, transportation, energy, and rural development) that impact AFOLU (and vice-versa). IDB programs ensure that progress made in one sector is not at the expense of another sector, and to the extent possible, respond to climate change in the context of sustainable development. The IDB brings a unique set of expertise and understanding to LAC region and is well positioned to provide continued support.

3.2 IDB Support to Member Countries on AFOLU and Climate Change

The IDB is committed to supporting member countries on AFOLU and climate change and as one of the region's main sources of multilateral financing for economic, social, and institutional investments in development it is already providing assistance to member countries in the forestry and related sectors. The IDB is set-up to work with countries on the ground to build capacity and promote clear and effective strategies for addressing AFOLU-LULUCF in LAC. In addition, the Bank is well placed to assist and complement the work of other multilateral agencies in the region. With existing and new funding sources for this important sector, the IDB can play a pivotal role in ensuring synergies between existing and new work and efficient and streamlined approaches to project implementation and assisting countries to access new sources of funding for AFOLU (e.g., FCPF, BioCarbon Fund, UN-REDD, etc.) to begin new activities and identify opportunities for future work.

3.3 Next Steps

Once countries build capacity on the issues and options surrounding AFOLU/LULUCF adaptation and mitigation options, they need to address the many next steps and challenges related to implementation. In part this will entail the translation and application of global decisions to national frameworks and policies to set up a functional system for implementation. Further, countries will need to manoeuvre through the web of multilateral initiatives in support of emerging options to identify programs that best meet national and sub-national priorities. Building this type and level capacity within countries will require assistance from the

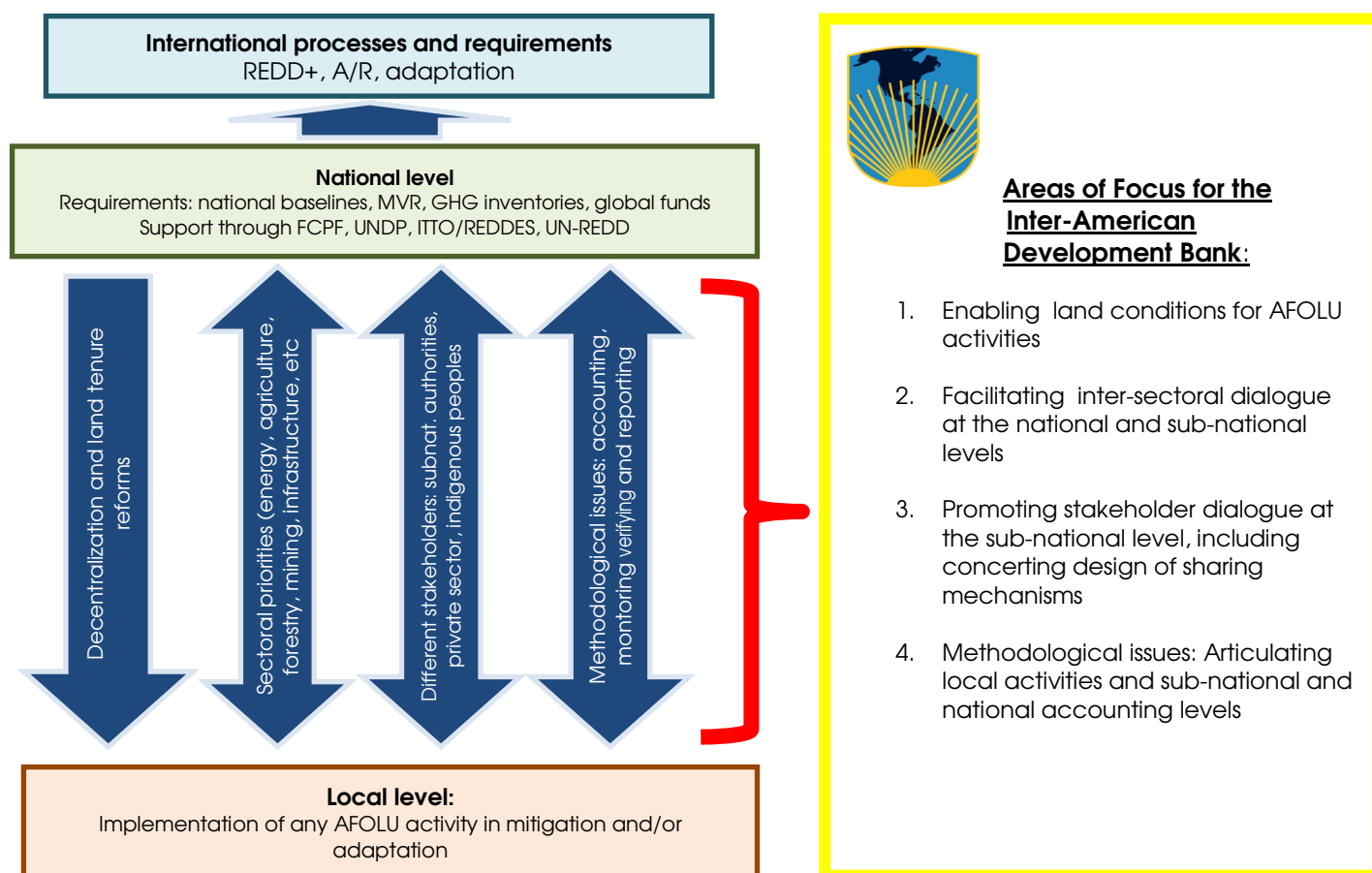
international community and is key to making any international agreement in AFOLU/LULUCF within the UNFCCC operational.

The IDB has identified four major areas of tension between the national and local level that will affect the application of AFOLU/LULUCF:

- Decentralization in the management of natural resources and reforms in the land tenure agreements
- Coordination of different sectors at different levels
- Participation and concerted decision-making among the different social actors involved in the management of natural resources
- Creation of methodologies and tools for accounting, measuring, validating, and reporting changes in carbon stocks.

In response, the IDB has adopted four new areas of focus to help make international agreements in AFOLU/LULUCF fully operational in LAC and maximize the region's potential to mitigate and adapt to climate change while promoting sustainable development.

Figure 10: Potential areas of work on AFOLU-LULUCF for the Inter-American Development Bank



1. **Enabling Land Conditions for AFOLU/LULUCF:** Action in this area will require intervention related to land tenure, access to land, and decision-making on land management. In order to manage land sustainably, local stakeholders need long-term assignment of lands. Whereas most LAC countries have appropriate policies in place to enable this condition, tenure conflicts and delay of titling processes are still common in many countries. Moreover, ownership and access to different carbon pools is often not clarified or considered in the national laws. Unclear land tenure and ownership and access to carbon pools is not only an institutional prerequisite for any AFOLU/LULUCF activity, it is also identified as a main cause of deforestation in LAC.
2. **Facilitating Inter-Sectoral Dialogue at the National and Sub-National Levels:** Land use and land-use change is affected by many sectors. As a result, conflicting sectoral

policies are commonly observed. Inter-sectoral dialogue at the national and sub-national levels is required for integrated AFOLU planning. For example, agricultural expansion, which is identified as the main direct driver of deforestation in most LAC countries, is often supported by agricultural policies. Infrastructure development, bio-energy, and mining are other sectors highly important for LAC countries' economic development. They may also cause inter-sectoral conflicts regarding sustainable land-use development. In order to harmonize policies and measures affecting land use and land-use change, it is necessary to apply integrated land-use planning and take into account national and sub-national sectoral conditions and priorities.

3. **Promoting Stakeholder Dialogue at National and Sub-National Level:** Land-use planning is complex and affects many stakeholders. It impacts private and public sector entities as well as the livelihood of communities. Stakeholders must be involved in the development and implementation of national land-use strategies. There is still lack of stakeholder participation in the sector, despite national level stakeholder dialogues taking place for REDD preparation. Existing multilateral initiatives such as FCPF and UN-REDD are not enough to address participation in land-use planning and the national strategy implementation at the sub-national/local level. Furthermore, stakeholder dialogue for other mitigation options like adaptation barely exists in LAC.
4. **Articulating Local Activities and Sub-National and National Accounting Levels:** Design of national and sub-national mechanisms that ensure proper distribution of costs and benefits of any AFOLU/LULUCF strategy in the LAC countries should receive special consideration. In this context, the redistribution of financial incentives and costs for the reduction of GHG emissions and the increase of GHG sequestration, i.e., their allocation to local AFOLU activities for covering costs of mitigation to sub-national actors is a key issue. If incentives were applied in the same way and amount for all national forest carbon stock, incentives would be lower for forests that are in threat of deforestation. Such a system would not be efficient in tackling deforestation.

The above areas of focus organize assistance to countries around the main issues of tension they are most likely to encounter as they prepare to embrace global climate decisions that affect the forestry sector. The IDB puts this forth as a modular approach, which gives countries maximal flexibility in addressing the areas of tension and designing their capacity building

efforts and allows the IDB to tailor support and accommodate the needs of all countries regardless of their stage of AFOLU/LULUCF readiness. Broad stakeholder participation is encouraged at every stage to enhance the process and ensure incorporation of local conditions and experiences into national plans.

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Annexes

Annex 1: Information on IDB Member Countries

Annex I Table 1: Information on IDB Member Countries

	Forest Cover 2005		Annual change of forest cover (2000 – 2005)		CO ₂ emissions from the forestry sector (in MtCO ₂)			LULUCF emissions and share total CO ₂ emissions in 2000		Relative Importance LULUCF	UN-REDD *) FCPF (R-PIN / R-PP)
	Ha	%	Ha	%	Gross	Net	Year / #	MtCO ₂	% of total		mm-dd-yy
CID	88,025	35.7	-545	0.6							
Belize	1,653	72.5	0	0.0	2.0	-4.2	1994 / 1	-	-	High	-
Costa Rica	2,391	46.8	3	0.1	3.4	-1.0	1996 / 1	9.9	66.0	Low	03-08-08
Dominican Republic	1,376	28.4	0	0.0	4.9	-15.2	1994 / 1	-	-	Low	-
El Salvador	298	14.4	-5	1.7	4.6	3.9	1994 / 1	4.1	41.4	Low	02-20-08
Guatemala	3,938	36.3	-54	1.3	3.2	-39.7	1990 / 1	56.6	85.2	High	12-15-08
Honduras	4,648	41.5	-156	3.1	54.1	1.3	1995 / 1	17.6	77.5	High	12-05-08
Mexico	64,238	33.7	-260	0.4	99.8	86.9	2002 / 3	96.8	20.1	Low	03-08-08
Nicaragua	5,189	42.7	-70	1.3	57.6	-14.8	1994 / 1	53.7	93.4	High	07-23-08
Panama	4,294	57.7	-3	0.1	20.5	8.9	1994 / 1	47.5	90.3	High	*) 04-07-08 / 05-16-09
CCB	31,067	76.3	-1	0.0							
Bahamas	515	51.5	0	0.0	-	-	-	-	-	-	-
Barbados	2	4.0	0	0.0	0.0	0.0	1997 / 1	-	-	-	-
Guyana	15,104	76.7	0	0.0	2.5	0.0	1994 / 1	-	-	High	02-20-08 / 09-07-09
Haiti	105	3.8	-1	0.7	-	1.0	1994 / 1	2	58.8	Low	-
Jamaica	339	31.3	0	0.1	0.1	-0.2	1994 / 1	2.6	20.6	Low	-
Suriname	14,776	94.7	0	0.0	5.3	1.5	2003 / 1	-	-	-	02-16-09 / 08-

	Forest Cover 2005		Annual change of forest cover (2000 – 2005)		CO ₂ emissions from the forestry sector (in MtCO ₂)			LULUCF emissions and share total CO ₂ emissions in 2000		Relative Importance LULUCF	UN-REDD *) FCPF (R-PIN / R-PP)
											24-09
Trinidad and Tobago	226	44.1	0	-0.2	-	-1.5	1990 / 1	-	-	Low	-
CAN	246,776	54.1	-897	0.4							
Bolivia	58,740	54.2	-270	-0.5	38.6	34.1	1994 / 1	83.8	90.6	High	*) 02-20-08
Colombia	60,728	58.5	-47	-0.1	16.5	14.5	1994 / 1	106.1	61.5	Low	07-15-08
Ecuador	10,853	39.2	-198	-1.7	45.5	45.5	1990 / 1	58.9	73.6	Low	-
Peru	68,742	53.7	-94	-0.1	82.5	37.2	1994 / 1	86.7	46.3	High	06-30-08
Venezuela	47,713	54.1	-288	-0.6	35.8	-14.4	1999 / 1	144.1	50.4	Low	-
CSS	546,821	44.1	3,356	0.6							
Argentina	33,021	12.1	-150	-0.4	20.6	-43.9	2000 / 2	55.1	28.5	Low	07-29-08
Brazil	477,698	57.2	3,103	-0.6	-	776.3	1994 / 1	1372.1	80.7	High	-
Chile	16,121	21.5	57	-0.4	23.1	-29.7	1994 / 1	15.5	22.0	Low	12-15-08
Paraguay	18,475	46.5	-179	-0.9	27.6	17.8	1994 / 1	-	-	High	*) 07-30-08
Uruguay	1,506	8.6	19	-1.3	0.0	-9.2	2000 / 2	-24.4	130.5	Low	-

Source: FAO, 2009; WRI CAIT, 2009; De la Torre, 2009;

Notes: This table gives information on forest cover and deforestation (FAO, 2009), LULUCF emissions according National Communications to the UNFCCC (including rating year and number of National Communications submitted), share of LULUCF emissions and share on total CO₂ emissions (WRI CAIT, 2009), relative importance of LULUCF for climate change mitigation (De la Torre, 2009), participation in UN-REDD (marked with an asterix*) and in World Bank's FCPF (date of R-PIN and R-PP submission).

Annex 2: Selected Examples of Cooperation Programs including Forestry Mitigation Options

Austria

Austria has established a JI/CDM Programme, which has been in operation since August 2003. It has a budget of about €300 million for 2003 to 2012 to acquire Emission Reduction Units (ERUs) and Certified Emission Reductions (CERs). The programme is managed by the Kommunalkredit public consulting (<http://www.ji-cdm-austria.at>). Austria also contributes to the World Bank's Community Development Carbon Fund (CDCF), the Ecoscurities Facility, as well as the South Pole Carbon Procurement Facility.

Australia

The International Forest Carbon Initiative is a key part of Australia's international leadership on reducing emissions from deforestation. The Initiative will support international efforts to reduce deforestation through the United Nations Framework Convention on Climate Change (UNFCCC). It aims to demonstrate that reducing emissions from deforestation and forest degradation can be part of an equitable and effective international agreement on climate change. A central element is the Initiative's focus on developing practical demonstration activities in the region, particularly in Indonesia and Papua New Guinea. In addition, Australia participates in other initiatives as the Indonesia-Australia Forest Carbon Partnership, the PNG-Australia Forest Carbon Partnership. Australia also contributes to the World Bank's Forest Carbon Partnership Facility (<http://www.aisaid.gov.au/keyaid/mitigation.cfm>).

Belgium

Belgium has established funds at the federal and regional levels. The federal government launched two tenders for projects from individual project developers. It further acquires carbon credits from the market through the so-called Kyoto fund, established in 2002. The Walloon government also invested in the World Bank's Community Development Carbon Fund (CDCF). The Flemish Ministry of Economy utilizes two channels, tenders and its participation in the Multilateral Carbon Credit Fund (MCCF), the Carbon Fund for Europe (CFE) and the Asia Pacific Carbon Fund (APCF).

Denmark

Besides its participation in the EU Emission Trading Scheme (EU-ETS), Denmark has developed two national carbon credit purchase programs. The DanishCarbon.dk, is one. It purchases CO₂ credits from Central and Eastern Europe (www.danishcarbon.dk). The Ministry of Foreign Affairs offers another program for CDM credits. The Ministry purchases credits from CDM projects in developing countries (www.danishcdm.dk). In addition, Denmark participates in two carbon funds, the Danish Carbon Fund managed by the World Bank and the Nordic Environment Finance Corporation (NEFCO) Baltic Sea Region Testing Ground Facility.

Finland

Finland's mechanism-related activities can be divided into two categories: (i) bilateral CDM and JI project activities; and (ii) investments in carbon funds. Finland has thus far invested in three multilateral funds: the Prototype Carbon Fund (PCF) of the World Bank, the Baltic Sea Region Testing Ground Facility, and the Multilateral Carbon Credit Fund (MCCF) of the European Bank for Reconstruction and Development. Bilateral project activities are managed by the Finnish Environment Institute and through the Finnish Carbon Procurement Programme (Finnder) (<http://www.environment.fi/finnder>).

France

France is providing direct support to the preparation and development of climate-friendly projects and activities, including CDM and JI projects, using a variety of tools dealing with institutional strengthening, project documents design and project funding.

Germany

Germany plans to meet its target primarily through domestic measures and has no public procurement programme. Nevertheless, since Germany has the highest number of installations taking part in the EU-ETS, German companies will be major participants in the private carbon market. In addition, the German Government will extend the maximum cap to which CERs and Emission Reduction Units (ERUs) can be used within the EU-ETS up to 20% for each facility during the period 2008-2012. Germany currently has a broad variety of international activities to foster private sector engagement through workshops, the development of project portfolios, start-up financing of Carbon Funds and the bilateral co-operation within Memoranda of Understanding (MoU).

Italy

Italy has invested in World Bank Carbon Funds as well as in bilateral programs. Italy contributed to the World Bank's CDCF and to the BioCarbon Fund. The Italian Carbon Fund has its own capitalization.

Japan

The government of Japan has been cooperating with host countries and providing comprehensive support for capacity building necessary for sustainable CDM/JI projects. Japan has activities aimed at facilitating projects through its program on project development assistance. Further, Japan has created the Japan Carbon Finance, which combines two modalities:

- Acquisition as a project participant (participate in projects, sign Emission Reduction Purchasing Agreements (ERPA) with project implementers)
- Acquisition from project implementers (purchase credits with ERPA from project implementers who have acquired or will acquire credits in the future).

Luxembourg

Luxembourg has established a “fund to finance Kyoto mechanisms” in 2005. The government also contributes to the World Bank's CDCF.

The Netherlands

The Netherlands has governmental purchase programs for the acquisition of greenhouse gas (GHG) reductions through the flexible mechanisms of the Kyoto Protocol. It facilitates private sector participation in EU-ETS through its CDM/JI approval policy. In addition, the country has purchase agreements with the Governmental Agency SenterNovem, the International Bank for Reconstruction and Development, the International Finance Corporation, the European Bank for Reconstruction and Development, the Latin-American regional bank, Corporación Andina de Fomento, the private bank Rabobank, and the government of Indonesia. The government of the Netherlands also participates in two World Bank carbon funds: the Prototype Carbon Fund (PCF) and the CDCF. As a follow-up to the UNFCCC CMP-2 in Nairobi, the Netherlands decided to strengthen its CDM efforts in Africa through cooperation with the Netherlands Development Finance Company.

Portugal

Portugal has created the Portuguese Carbon Fund (PtCF) for use in Kyoto Mechanisms. The PtCF has invested in the Luso Carbon Fund a private trust fund regulated by the Comissão do Mercado de Valores Mobiliários, and has subscribed to the Carbon Fund for Europe launched by the International Bank for Reconstruction and Development, the World Bank, and the European Investment Bank. It is examining further investments such as the Asian Development Bank's Carbon Facility.

Spain

Spain has designed an overall strategy for the use of the Kyoto Protocol's flexible mechanisms. The first actions implemented, among others, are: the establishment of the institutional framework needed to use the flexible mechanisms, the design of a multilateral and bilateral approach with non-Annex I Parties, the evaluation of the existing financial tools for the acquisition of credits in the international markets, and enhancing cooperation with private sector and financial institutions. Spain participates in several funds including the Spanish Carbon Fund, BioCarbon Fund, the CDCF and the CF Assist. Spain has also signed an agreement with the Andean Development Corporation (CAF) for the establishment of the *Iberoamerican Initiative for Carbon* (IIC). Spain participates in the *Multilateral Carbon Credit Fund* (MCCF) through an agreement with the European Bank for Reconstruction and Development and the European Investment Bank. Finally, the latest initiative undertaken by the Spanish government is the participation in the Asia Pacific Carbon Fund managed by the Asian Development Bank. Additionally the government has signed a Technical Cooperation Programme with the IDB.

Sweden

The Swedish Energy Agency is managing the Swedish CDM and JI programme (SICLIP). Through the Energy Agency, Sweden participates in the Asian Development Bank's Asia Pacific Carbon Fund. Moreover, Sweden participates in the World Bank's Prototype Carbon Fund (PCF), and in the European Bank of Reconstruction and Development's (EBRD) Multilateral Carbon Credit Fund (MCCF).

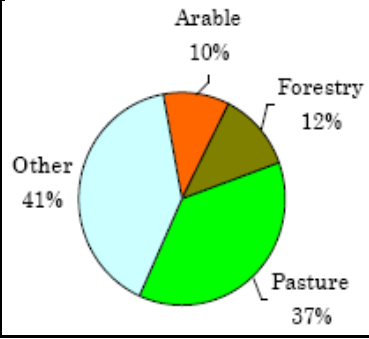
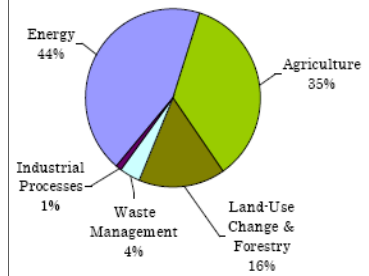
United Kingdom

The UK has become a substantial centre for carbon trading. This includes UK private investors and also bodies like the European Carbon Fund who are managing their CDM investment

operations in London. The UK has also established a Climate Change Projects Office, which promotes private investment in the CDM and Joint Implementation (JI) project sectors in the UK and provides general and bespoke advice to potential project investors (<http://www.dti.gov.uk/sectors/ccpo/index.htm>).

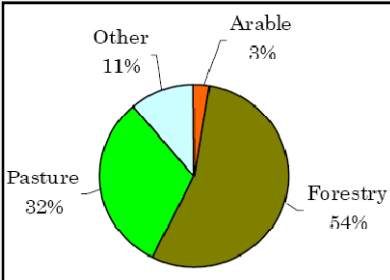
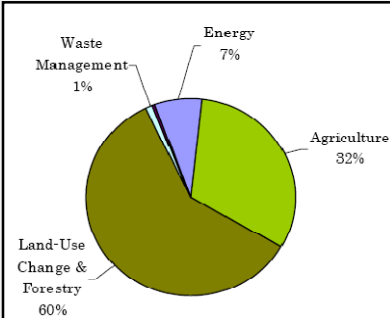
Annex 3: Fact-Sheets with Information on AFOLU Focus Countries

Annex 3 Table 1: Argentina

ARGENTINA	FCPF R-PIN July 2008 2 nd UNFCCC Nat. Comm. 2007																						
<p>Description of Land-Use, Forest Cover, Deforestation, Forest Degradation, Land tenure, etc.</p> <p>33.0 million hectares or 12.1% of Argentina's surface is covered with forests (FAO, 2009). Annual loss of forest cover was 0.4% or 150,000 ha during 2000 - 2005.</p> <p>Replacement of the native forests is ongoing at a rapid rate. Recently, deforestation increased dramatically in regions with highest forest cover. The remaining forests showing a high degree of degradation.</p> <p>Presently, the replacement of native forest is mainly due to the expansion of soy plantations. The underlying causes are increase in profits from crops, increase in precipitation and limited control and enforcement of existing regulation.</p> <p>About 75% of the forest area is privately owned. Most of the forest lands are inhabited by indigenous people and peasants, whose situation regarding their land property rights is critical. It is becoming threatened by the advance of large agriculture enterprises, resulting in serious conflicts and land claims.</p>	<p>Land Use (2005)</p>  <table border="1"> <caption>Land Use (2005)</caption> <thead> <tr> <th>Category</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Other</td> <td>41%</td> </tr> <tr> <td>Pasture</td> <td>37%</td> </tr> <tr> <td>Forestry</td> <td>12%</td> </tr> <tr> <td>Arable</td> <td>10%</td> </tr> </tbody> </table> <p>GHG emissions by sector (2000)</p>  <table border="1"> <caption>GHG emissions by sector (2000)</caption> <thead> <tr> <th>Sector</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Energy</td> <td>44%</td> </tr> <tr> <td>Agriculture</td> <td>35%</td> </tr> <tr> <td>Land-Use Change & Forestry</td> <td>16%</td> </tr> <tr> <td>Waste Management</td> <td>4%</td> </tr> <tr> <td>Industrial Processes</td> <td>1%</td> </tr> </tbody> </table> <p>Sources: WB WDI and WRI CAIT, 2009</p>	Category	Percentage	Other	41%	Pasture	37%	Forestry	12%	Arable	10%	Sector	Percentage	Energy	44%	Agriculture	35%	Land-Use Change & Forestry	16%	Waste Management	4%	Industrial Processes	1%
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<p>Legal Framework</p> <p>Law No. 26.160, passed in 2006, established priority for addressing issues regarding property rights of forest lands. Land tenure / titling processes are ongoing.</p> <p>Law No. 26.331, passed in 2007, defines minimum requirements for the environmental protection of forests. Beside rules for enrichment, restoration, conservation, use and sustainable management of forests, the law provides fund for environmental services (USD 25 million in 2009). It creates the National Program for Native Forest Protection (-> SAYDS); proceeds for law implementation are still under elaboration.</p> <p>Law No. 25.080, passed in 1998, promotes the investment for cultivated forests and provides subsidies for plantations (USD 14 mln during the last 5 years)</p> <p>Law for the conservation of soils promotes increase of soil carbon stocks and sustainable management of soils is under development.</p>																							
<p>Institutional Framework</p> <p>Argentine Office for the Clean Development Mechanism (OAMDL). The CDM Designated National Authority (DNA), responsible for CDM projects and inter-sectoral coordination (various ministries represented in executive board)</p> <p>Forest Department, together with provincial institutions: forest monitoring and inventories, forest law enforcement, forestry and conservation; Forest Evaluation System Management Unit (UMSEF) responsible for detecting deforestation and forest fragmentation. > Secretariat for Environment and Sustainable Development (SAYDS) > Climate Change Unit (UCC): UNFCCC National Focal Point.</p>																							

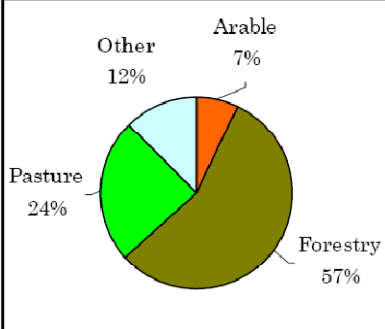
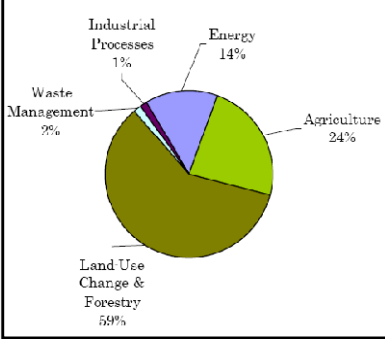
ARGENTINA	FCPF R-PIN July 2008 2 nd UNFCCC Nat. Comm. 2007
<p>Climate Change issues > Working Group on Forest and Climate Change: cross-sectoral coordination of land-use issues with regard to Climate Change. There are about 100 people working on forestry and climate change at national level. Provincial forest departments actively participate discussions.</p> <p>Secretariat for Agriculture, Livestock, Fisheries and Food (SAGPyA) > Office for Farm Risk (ORA): responsible for specific climate change activities and initiatives in agriculture, livestock, fisheries and forestry.</p>	
<p>Programmes / Activities</p> <p>UNFCCC National Communications (NC): 1st NC in 1997, with 1990 and 1994 inventories and vulnerability; Revision in 1999 with 1997 inventory. 2nd NC in 2007, with 2000 inventory (including AFOLU), adaptation, mitigation measures. Having submitted 2 NCs shows strong UNFCCC commitment by government</p> <p>Programs for Adaptation: National Program for Climate Change Impacts, National Climate Scenarios Program</p> <p>Programs for Education, Participation: Program for Civic Participation in Climate Change Agenda, National Program for Environmental Training and Education in Climate Change, Action Plan 2006 for Climate Change Distribution and Training of Civil Society Organizations (-> programs developed and implemented by SAYDS)</p> <p>Forestry Programs: National Program for Native Forest Protection, Programs to support sustainable forest management for communities, Programs to monitor deforestation and to compile and analyze forest statistics (developed and implementation by SAYDS)</p> <p>Argentine Carbon Fund (FAC): created in 2005 and overseen by SAYDS, facilitating CDM projects by arranging institutional and financial support. Portfolio of more than 70 projects in various sectors, agriculture counting for 4%</p>	
<p>Some AFOLU Experiences</p> <p>First experience with Payments for Environmental Services (PES) ongoing within the new forest-law</p> <p>Experience with AFOLU project design and implementation within the Provincial Agricultural Service Programme (PROSAP), with more than 200 professionals, supported by the World Bank and the IDB. Climate Change strategy is under development</p> <p>Upper Parana Atlantic Forest Restoration by Small-Farmers, supported by the World Bank</p> <p>Sustainable Forest Management in the Gran Chaco Americano Ecosystem, supported by GEF</p>	
<p>Challenges and Needs for AFOLU / REDD</p> <p>Legislation seems to be adequate, but faces problems with implementation (especially with regard to monitoring and control, but also land tenure irregularities). Therefore, coordination of different agencies and key institutions as well as private owners is necessary. There is a lack of knowledge on REDD issues among policy makers.</p> <p>Currently, no comprehensive national program for forest monitoring exists. Additional finance would be necessary to strengthen provincial and local capacities to provide knowledge and equipment for monitoring deforestation and degradation.</p> <p>There is no provincial territory planning strategy, especially with regard to land-use change and thus a lack of Information related to factors driving deforestation. Analyzing drivers and provision of incentives and activities for competitive sustainable use of forests would be necessary at local level. Land tenure issues have to be resolved. Further, addressing drivers needs cross-sectoral coordination (e.g., tax exemptions introduced by the law for the promotion of biofuel, ley 26.093, are expected to increase the area under soy production by 10%, mainly replacing native forests).</p>	
<p>Country Priority (Questionnaire)</p> <p>Argentina just started participating in UNFCCC negotiations on LULUCF, although mitigation in agriculture, REDD and forest restoration have been a high priority for the country</p>	

Annex 3 Table 2: Bolivia

BOLIVIA	FCPF R-PIN February 2008 1 st UNFCCC Nat. Comm. 2000																				
<p>Description of Land-Use, Forest Cover, Deforestation, Forest Degradation, Land tenure, etc.</p> <p>58.7 million hectares or 54.2% of Bolivia's surface is covered with forests (FAO 2009). Annual loss of forest cover was 0.5% or 270,000 ha during 2000 - 2005.</p> <p>Today's main driver of deforestation is large-scale agricultural expansion for soy bean and other industrial crops, further slash-and-burn agriculture (migration of Andean communities to lower lands), forest fires, infrastructure development and mining.</p> <p>Approximately 53% of the forest estate are publicly owned and administered by the state; another 32% are publicly owned but under specific user rights or ownership (mainly indigenous community lands); 5% were privately owned by social groups and 10% owned by individuals and industries.</p> <p>Reform processes for forest decentralization and assigning property rights to rural and indigenous communities have been launched but are delayed (approximately 50% of indigenous lands are titled). In case of land tenure conflicts, ancestral rights of local communities have precedence over forest concessions.</p>	<p>Land Use (2005)</p>  <table border="1"> <caption>Land Use (2005)</caption> <thead> <tr> <th>Category</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Forestry</td> <td>54%</td> </tr> <tr> <td>Pasture</td> <td>32%</td> </tr> <tr> <td>Other</td> <td>11%</td> </tr> <tr> <td>Arable</td> <td>3%</td> </tr> </tbody> </table> <p>GHG emissions by sector (2000)</p>  <table border="1"> <caption>GHG emissions by sector (2000)</caption> <thead> <tr> <th>Sector</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Land-Use Change & Forestry</td> <td>60%</td> </tr> <tr> <td>Agriculture</td> <td>32%</td> </tr> <tr> <td>Energy</td> <td>7%</td> </tr> <tr> <td>Waste Management</td> <td>1%</td> </tr> </tbody> </table> <p>Sources: WB WDI and WRI CAIT, 2009</p>	Category	Percentage	Forestry	54%	Pasture	32%	Other	11%	Arable	3%	Sector	Percentage	Land-Use Change & Forestry	60%	Agriculture	32%	Energy	7%	Waste Management	1%
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<p>Legal Framework</p> <p>The New Constitution of 2009, emphasis on sustainable use on natural resources and highlights the importance to avoid the conversion of forest lands (Art. 389)</p> <p>Forest Law 1700 of 1996, regulates management and conservation of forest resources</p> <p>Environmental Law 1333 of 1992 and Law of Agrarian Reform 1715 of 1996</p> <p>Afforestation / Reforestation Policy, including incentive schemes and considering CDM as additional source of income, is under development</p>																					
<p>Institutional Framework</p> <p>Ministry of Sustainable Development and Planning responsible for commitments to UNFCCC and other climate change related actions. > Directorate General of Forests responsible for forest policy with > Forestry Superintendent regulating organization, with responsibilities in forest monitoring, inventories, conservation, law enforcement etc. > National Forestry Development Fund (FONABOSQUE) financing mechanism (under implementation)</p> <p>Ministry of Rural Development, Agriculture, and Environment (MDRAyMA) > Vice-Ministry of Biodiversity, Forest Resources and Environment (VBRFMA) coordinates climate change adaptation activities, UNFCCC National Focal Point and CDM Designated National Authority, signed an agreement of cooperation with the Government of the Netherlands. > Vice-Ministry of Territorial Planning and Environment > Office for Clean Development (ODL) is in charge of mitigation activities, promotion of CDM</p> <p>Inter-Institutional Climate Change Council (CICC), forum for climate change related dialogue among social, government, non-government sectors, since 1999. Agency proposing policies and strategies for UNFCCC implementation. Members are the Vice-Ministries of Environment and Natural Resources, Agriculture, External Policy, Public Investment, Energy and Hydrocarbons, as well as the NGO LIDEMA, the National Science Academy, and the Confederation of Private Enterprise</p>																					

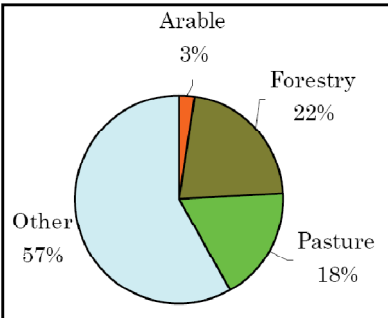
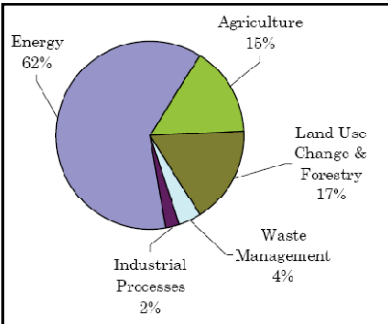
BOLIVIA	FCPF R-PIN February 2008 1 st UNFCCC Nat. Comm. 2000
<p>Programmes / Activities</p> <p>National Climate Change Program (PNCC), created in 1995 under VBRFMA for research activities and national GHG inventories, analysis of mitigation options, vulnerability and adaptation of forest, agriculture, livestock. Development of National Climate Change Action Plan (2004 – 2009), including capacity-building, knowledge transfer, and development of National Mitigation Strategy.</p> <p>National Program of Combined Implementation (PRONIC) established in 1998, seeks technical assistance and financing in order to undertake projects aiming to reduce GHG emissions in cooperation with Annex I Parties (e.g., Project of Climatic Action Noel Kempff Mercado).</p> <p>UNFCCC National Communications: 1st NC in 2000, with 1994 inventory, vulnerability for forest, water and farm sector, mitigation options and description of projects in the various sectors. 2nd NC is under development and submitted on 2 December 2009. Among its objectives is to establish strategic relationships with local governments and institutions for all aspects related to climate change.</p> <p>National Implementation Strategy of the UNFCCC (ENI), approved by CICC in 2002. Four pillars: a) clean development in agriculture, forestry, and industry; b) cooperation on the reduction of emissions in forests and other ecosystems; and c) increased effectiveness of energy and infrastructure, and d) observation and investigation of climate and environmental changes.</p> <p>National Mitigation Strategy (2006), prepared by ODL: strengthening institutional capacity for CDM, mitigation activities in compliance with National Development Plan, facilitating access to information on the CDM. Mitigation actions in the AFOLU sector include: promoting forestation with multiple benefits, enforcing sustainable forestry according forestry law, promotion of environmental services, sustainable agricultural land-use, improved use of agro-forestry, and others.</p> <p>Departmental, municipal and sectoral strategies for efficient use of natural resources are currently being elaborated. IDB financed the regional land-use zoning plan for the Amazonian region. In addition, departments are starting to develop regional climate change mitigation and adaptation plans as well environmental services plans.</p> <p>UN-REDD participation interest expressed in September 2008. The programme document is currently being elaborated and will be finished by the end of 2009.</p>	
<p>Some AFOLU Experiences</p> <p>Climate Action Plan Noel Kempff Project protects 642,500 ha from illegal logging and deforestation, the first REDD project verified by third parties using international standards (Bolivia, TNC, others)</p> <p>Programa Indígena REDD de la Amazonia Boliviana (FAN, Danish and Netherland Governments, CIDOB, CIRABO, CPIB, CMIB)</p> <p>Small-Scale CDM Reforestation Project of the Federación de Comunidades Agropecuarias de Rurrenabaque (FECAR) and Reforestation and restoration activities under the National Climate Change Program 2006/07</p>	
<p>Challenges and Needs for AFOLU / REDD</p> <p>Lack of financing and capacity for forest monitoring and enforcement of land-use plans</p> <p>Weak low enforcement: Dispersed institutional setting and low coordination and inconsistencies among entities involved in land use planning, law enforcement, and land titling. Adjustment of institutional responsibilities and vertical and horizontal integration of entities will be necessary for strengthening forest governance (land tenure, monitoring, prosecuting illegal deforestation). Procedures have to be simplified linking near real-time monitoring, prosecution and penalization.</p> <p>Migration and Poverty: Encourage community forestry; promote the sustainable use of timber and non-timber forest resources; programs to reduce migration to forest lands (e.g., income generation activities in highlands)</p> <p>Opportunity cost of forest conservation: Combined scheme of deforestation permits and incentives scheme to cope with agricultural enterprises (soy industry); associated programs to promote silvipastoral systems for cattle ranching</p>	

Annex 3 Table 3: Brazil

BRAZIL	Not in FCPF 1 st UNFCCC Nat. Comm. 2004																						
<p>Description of Land-Use, Forest Cover, Deforestation, Forest Degradation, Land tenure, etc.</p> <p>477.7 million hectares or 57.2% of Brazil's surface is covered with forests (FAO, 2009). Annual loss of forest cover was 0.6% or 3.1 million ha during 2000 - 2005.</p> <p>According to the Brazilian government, recent efforts have reduced deforestation in the Amazon drastically from about 2.7 million hectares in 2004 to 1.9 in 2005, 1.1 in 2007 and 0.8 million ha in 2009.</p> <p>Main drivers of deforestation in are expansion of cattle-raising and commercial agriculture, in particular soybeans. Other drivers are illegal logging, mining, oil extraction, subsistence agriculture, and forest fires (new phenomena, mainly human-induced).</p> <p>Currently 29% of the Brazilian Amazon is designated as protected (most of it indigenous land). 25% is privately owned and 46% is untitled public land. The bulk of timber comes from private land. Ownership and tenure disputes are a major problem.</p> <p>There is an increasing trend in community-based forest management. Forest area designated for use or owned by communities and indigenous peoples (103 million hectares) increased by 56 per cent between 2002 and 2008.</p>	<p>Land Use (2005)</p>  <table border="1"> <caption>Land Use (2005)</caption> <thead> <tr> <th>Category</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Forestry</td> <td>57%</td> </tr> <tr> <td>Pasture</td> <td>24%</td> </tr> <tr> <td>Other</td> <td>12%</td> </tr> <tr> <td>Arable</td> <td>7%</td> </tr> </tbody> </table> <p>GHG emissions by sector (2000)</p>  <table border="1"> <caption>GHG emissions by sector (2000)</caption> <thead> <tr> <th>Sector</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Land Use Change & Forestry</td> <td>58%</td> </tr> <tr> <td>Agriculture</td> <td>24%</td> </tr> <tr> <td>Energy</td> <td>14%</td> </tr> <tr> <td>Waste Management</td> <td>9%</td> </tr> <tr> <td>Industrial Processes</td> <td>1%</td> </tr> </tbody> </table> <p>Sources: WB WDI and WRI CAIT, 2009</p>	Category	Percentage	Forestry	57%	Pasture	24%	Other	12%	Arable	7%	Sector	Percentage	Land Use Change & Forestry	58%	Agriculture	24%	Energy	14%	Waste Management	9%	Industrial Processes	1%
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<p>Legal Framework</p> <p>Constitution of 1988: decentralization of natural resource management, but institutional complexity</p> <p>Extensive forestry regulations: covering environmental impact assessments, deforestation, burning and clearing permits, property-specific and geography-specific cutting restrictions, forest management requirements, protection areas, indigenous reserves, reforestation, resources exploration, among others. Requirements for deforestation were easier to fulfill than additional bureaucratic requirements for the approval of forest management plans.</p> <p>Law on the management of public forests for sustainable production (Lei 11.284, 2006): regulates the allocation of timber concessions in public forests for sustainable production and addresses the safeguarding of environmental, social and economic values. Creates Brazilian Forest Service for its implementation and a National Forest Development Fund.</p>																							
<p>Institutional Framework</p> <p>Ministry of Environment (MMA) > Climate Change Unit (DEMC) responsible for the development of policies and strategies for climate change mitigation and adaptation to climate change effects. > Executive Group for Climate Change (GEx) responsible for the elaboration and implementation of the National Climate Change Program. > Brazilian Institute of Environment and Renewable Resources (IBAMA), responsible for implementation and coordination of national forest policy, forest administration, controlling and monitoring forestry programs, detecting deforestation with PRODES, DETEX and DETER monitoring systems > Indian National Foundation (FUNAI), responsible for the preservation of Indian culture, controls the 113 million ha indigenous lands. Interministerial Working Group for the Reduction of the Rate of Deforestation in the Legal Amazonia established by a presidential decree in 2003.</p> <p>National Coordination of Global Climate Changes (CGMCG) created in 1994 to advise the Ministries on global climate change issues, coordinate the implementation commitments to the UNFCCC, promote awareness and actions on the issue of climate change. > Inter-Ministerial Committee on</p>																							

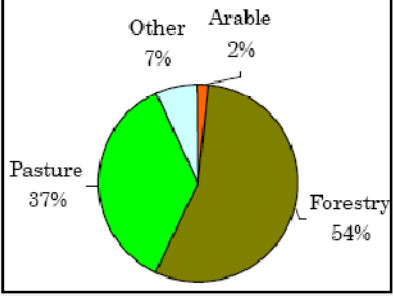
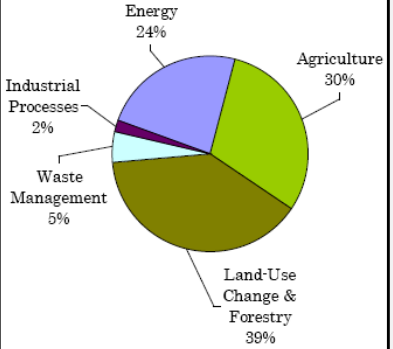
BRAZIL	Not in FCPF 1 st UNFCCC Nat. Comm. 2004
<p>Global Climate Change (CIMMCG) created in 1999 to mainstream climate change in development policy and it serves as CDM Designated National Authority (DNA). It is comprised of representatives from various Ministries, including the Ministry of Agriculture, Environment, Science and Technology. It is responsible for producing proposals for sectoral policies and legal instruments that contain a relevant climate change mitigation and adaptation component.</p> <p>Further are relevant, the Ministry of Agrarian Development (MDA) responsible for the formulation of agricultural policies, > National Colonization and Agrarian Reform Institute (INCRA) conducts largest resettlement program in history and the Ministry of Agriculture, Livestock and Supplies (MAPA) promotes soybean production.</p>	
<p>Programmes / Activities</p> <p>UNFCCC National Communications (NC): 1st NC in 2004, with 1994 inventory incl. agricultural and forestry sector, policies and programmes related to climate change, inclusion of climate change in planning. 2nd NC is under development and will include revised inventory for 2000.</p> <p>The National Climate Change Program created in 1996 with GEF funds and bilateral agreement with the US, to support the development of scientific information related to GHG emissions as the basis for the creation of a policy for responding to climate change.</p> <p>National Climate Change Plan (PNMC) is under development. Its objective is to identify, coordinate and plan the actions and measures to be taken to mitigate the emissions of GHG in Brazil as well as those to adapt to future climate change. It also targets to reduce the Amazonian deforestation rate.</p> <p>National Forest Programme (PNF) of 2000 aims to achieve better cooperation between federal and state governments, the creation of national forest reserves, removing incentives for deforestation, controlling illegal activities, sustainable forest management, reforestation, control of forest fires.</p> <p>Action Plan for Prevention and Control of the Legal Amazon Deforestation (PPCDAM): implemented in 2004, comprising 13 Ministries. Includes 162 activities in three categories: a) territorial and land-planning; b) monitoring and control; and c) promotion of sustainable activities (a fourth category environmentally sustainable infrastructure has been withdrawn). For the first time, the Brazilian government recognized that deforestation has complex causes. However, implementation is delayed due to lack of disbursement of funding and support from key ministries e.g., Ministry of Agriculture.</p>	
<p>Some AFOLU Experiences</p> <p>Fundo Amazonia: USD 21 billion REDD fund for REDD payments, 1 billion pledged by Norway.</p> <p>Projects: Bolsa Floresta REDD project (Bradesco Bank, Amazonas State Secretariat for Environment and Sustainable Development); Juma Sustainable Development Reserve Project (CCBA, Sustainable Amazon Foundation), Guaraquecaba Restoration, Conservation Project in Southern Brazil (TNC).</p> <p>Monitoring: Long experience with PRODES, DETEX, DETER monitoring system. Brazil supports the FCPF with advice on forest inventories, monitoring and remote sensing techniques.</p>	
<p>Challenges and Needs for AFOLU / REDD</p> <p>Institutional weaknesses and an inadequate capacity for enforcing policy and policy instruments have been a significant constraint. Several categories of challenges have been identified at an International workshop on solutions to deforestation and GHG emissions caused by cattle expansion in August 2009, São Paulo.</p> <p>Technological Challenge: How to increase productivity in existing cattle areas.</p> <p>Policy Challenge: How to ensure higher productivity does not simply lead to further expansion of cattle in the region but instead leads to net reductions in deforestation and land devoted to pasture.</p> <p>Financial Challenge: How to redirect the substantial amount of existing credit to the above goals.</p> <p>Markets Challenge: How to adopt positive procurement policies, including implementation of the upcoming Brazilian System for Certification of Agriculture and Livestock.</p>	

Annex 3 Table 4: Chile

CHILE	FCPF R-PIN December 2008 1 st UNFCCC Nat. Comm. 2000																						
<p>Description of Land-Use, Forest Cover, Deforestation, Forest Degradation, Land tenure, etc.</p> <p>16.1 million hectares or 21.5% of Chile's surface is covered with forests (FAO, 2009). Almost every type of temperate forest native to the Southern Hemisphere is found in Chile. These forests are of great ecological and conservation value. Annual loss of forest cover was 0.4% or 57,000 ha during 2000 - 2005.</p> <p>Deforestation is considered a consequence of a continuum process of forest degradation. The natural cool-temperate rain forest, an endemic forest ecosystem recognized by UNESCO, is the main source for firewood in the southern part of the country. Every year about 77,000 hectares are used under destructive management. Forest fragmentation and progressive forest degradation is accentuated with the inclusion of cattle into the overexploited forest areas avoiding suitable forest regeneration.</p> <p>About 70% of the land's forest areas are privately owned. Land tenure is clear and ownership is registered. However, there is still a proportion of forest dwellers with land tenure problems, this particular situation generally produce areas with intensive forest degradation.</p>	<p>Land Use (2005)</p>  <table border="1"> <caption>Land Use (2005)</caption> <thead> <tr> <th>Category</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Other</td> <td>57%</td> </tr> <tr> <td>Forestry</td> <td>22%</td> </tr> <tr> <td>Pasture</td> <td>18%</td> </tr> <tr> <td>Arable</td> <td>3%</td> </tr> </tbody> </table> <p>GHG emissions by sector (2000)</p>  <table border="1"> <caption>GHG emissions by sector (2000)</caption> <thead> <tr> <th>Sector</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Energy</td> <td>62%</td> </tr> <tr> <td>Land Use Change & Forestry</td> <td>17%</td> </tr> <tr> <td>Agriculture</td> <td>16%</td> </tr> <tr> <td>Waste Management</td> <td>4%</td> </tr> <tr> <td>Industrial Processes</td> <td>2%</td> </tr> </tbody> </table> <p><i>Sources: WB WDI and WRI CAIT, 2009</i></p>	Category	Percentage	Other	57%	Forestry	22%	Pasture	18%	Arable	3%	Sector	Percentage	Energy	62%	Land Use Change & Forestry	17%	Agriculture	16%	Waste Management	4%	Industrial Processes	2%
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<p>Legal Framework</p> <p>Decree of Law 701, 1974 and Law 19.561 regulate activities and provide incentives for afforestation of degraded agricultural lands, and land suitable for forest. Current industrial development based mainly on exotic plantation species.</p> <p>Natural Forest Law 20.283: passed in 2008 provides subsidies for some forest operations to protect, recover and improve native forests to support sustainable management of natural forests.</p>																							
<p>Institutional Framework</p> <p>National Advisory Committee on Global Change (CNAG) created in 1996 advises the Ministry of Foreign Affairs, Focal Point to the UNFCCC, on climate change issues. Acts as a coordinating body among all the organizations whose work is linked to climate change or global change. One of its main duties has been the creation of the strategic guidelines on climate change in Chile.</p> <p>Council of the National Environmental Commission (CONAMA), responsible for UNFCCC communications; approved the National Climate Change Strategy in 2006, which allows for a more coordinated, multi-sectoral and multidisciplinary approach to the issue of climate change. Three components: adaptation to climate change impacts, mitigation of GHG emissions and creation and fostering of climate change capacity. The Action Plan of the Strategy is in the approval stage.</p> <p>Ministry of Agriculture (MINAGRI), responsible for agriculture and forest policy. > National Forest Service (CONAF) Forest monitoring and inventories, forest law enforcement, forestry and forest conservation > Forest Research Institute (INFOR) implementing the Continuous Forest Inventory in some southern regions of Chile since 2001 under the Forest Ecosystems Monitoring Program. For the detection of forest degradation at big scales, a new high resolution satellite will be operating in Chile by the end of 2009. > Climate Change and Agriculture Council created in 2008 to design response to the effects of global climate change i.e., delineating actions for consideration with regard to climate change mitigation and adaptation in the agricultural sector.</p>																							

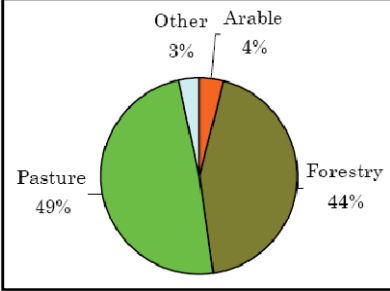
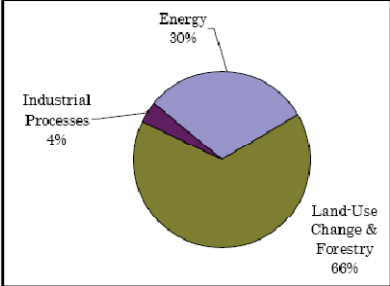
CHILE	FCPF R-PIN December 2008 1 st UNFCCC Nat. Comm. 2000
<p>Programmes / Activities</p> <p>UNFCCC National Communications (NC): 1st NC in 2000, with 1994 inventory including agriculture, land-use change and forestry, climate change vulnerability, adaptation and mitigation options in farm, forestry and water sector. 2nd NC is scheduled for submission by 2010, including revised inventories until 2007, vulnerability studies, strategies and measures for regional and sectoral adaptation.</p> <p>National Adaptation Plan is currently being developed and scheduled for implementation by the year 2012. Furthermore, there is an agreement between the Office of Agrarian Studies and Policies (ODEPA), Foundation for Agrarian Innovation (FIA) and CONAMA to study the adaptation of the forestry sector to climate change and to formulate an adaptation policy for the sector by 2009.</p> <p>Capacity building on forest management for natural forests, cooperation between governments of Germany and Chile. After 15 years of operation cooperation ended during the year 2007. The key issue was to break the economical barrier by increasing the value of forest by management through the simulation of the presence of a subsidy (Germany government funds).</p> <p>National System of Firewood Certification (SNCL). Created in 2006 to address the informality of firewood market, one of the main causes of social and environmental problems related to air pollution and the forest deterioration. SNCL is sought to create a formal and differentiated market that adds value to products and improve the profits of forest management.</p>	
<p>Some AFOLU Experiences</p> <p>Forests and Carbon Markets: CONAMA sponsored several pilot projects in the forestry sector: i) "Rio Condor Carbon Sequestration" in collaboration with Fundacion Chile; ii) "Measuring Carbon Capture in Chilean Forests and its Promotion in the World Carbon Market" in collaboration with the Southern University of Chile; and iii) "Demonstrating the increase in carbon capture in Chilean forests by inoculating seedlings" in collaboration with the Forestry Institute.</p> <p>Three-year project to sustainable forest management among indigenous people, being developed by the Agrarian Research Group (GIA). Sustainable management of its forest and non-forest resources, contributing to increase the incomes of more than 600 indigenous families. "Evergreen GEF Project" funded by GEF and started in 2008 to design a system of protected areas.</p> <p>Besides, several NGOs such as WWF, TNC are developing regional programs to protect forest biodiversity and local flora.</p>	
<p>Challenges and Needs for AFOLU / REDD</p> <p>Financial support is required for addressing several barriers:</p> <p>Strengthening of human and institutional capacities for law enforcement and control should be considered to <i>inter alia</i> improve baseline and monitoring capacities in forest degradation; increase frequency of monitoring; increase fines and sentences for illegal cuts; promotion of governmental forest institutions; promotion of practices of sustainable management and human capacities; etc.</p> <p>Socio-cultural Barriers (social conflicts in some regions, land tenure conflicts between small and median size owners) Increase Indigenous and forest owner consultations; Increase coordination between public and private sectors; Promote land property programs through government institutions; Know vision and knowledge relate to forest management in indigenous people.</p> <p>Economic Barriers (land owners with lack of financing, rural poverty, sustainable forest management) Develop studies related to underlying causes of forest degradation; adopt performance-based payment on priority areas; Coordinate social programs between public Institutions; conduct studies on underlying causes of forest degradation and land use change; promote other ecosystem services payments to improve financial issues; and develop of capacities for carbon trade and support to forest owners.</p>	
<p>Country Priority (Questionnaire):</p> <p>Chile has been strongly involved UNFCCC AFOLU negotiations. Especially climate change mitigation in the forest sector, including biofuels, has high priority for the country.</p>	

Annex 3 Table 5: Colombia

COLOMBIA	FCPF R-PIN July 2008 1 st UNFCCC Nat. Comm. 2001																						
<p>Description of Land-Use, Forest Cover, Deforestation, Forest Degradation, Land tenure, etc.</p> <p>60.7 million hectares or 58.5% of Colombia's surface is covered with forests (FAO 2009). Annual loss of forest cover was 0.1% or 47,000 ha during 2000 - 2005.</p> <p>Deforestation is highest in the foothills of the Andes where colonists are concentrated and the majority of coca is produced. To some extent, deforestation is compensated by plantations. In 2000 the area of planted forest was 141,000 ha (FAO 2005).</p> <p>Main drivers of deforestation are in the following order the expansion of agricultural frontier, colonization, infrastructure projects, forest fires, extraction of wood for energy purposes, selective logging or high-grading for valuable forest species. Further, low governability due to the armed conflict limits the authorities' capacity to manage the forest resource.</p> <p>Forest ownership is public and private. Private land included private and collective property. 37.8% of the country's forest area is collective property of indigenous or Afro-colombian communities. Many forest areas in the Andean region, in particular planted forests, are privately owned.</p>	<p>Land Use (2005)</p>  <table border="1"> <caption>Land Use (2005)</caption> <thead> <tr> <th>Category</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Forestry</td> <td>54%</td> </tr> <tr> <td>Pasture</td> <td>37%</td> </tr> <tr> <td>Other</td> <td>7%</td> </tr> <tr> <td>Arable</td> <td>2%</td> </tr> </tbody> </table> <p>GHG emissions by sector (2000)</p>  <table border="1"> <caption>GHG emissions by sector (2000)</caption> <thead> <tr> <th>Sector</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Land-Use Change & Forestry</td> <td>39%</td> </tr> <tr> <td>Agriculture</td> <td>30%</td> </tr> <tr> <td>Energy</td> <td>24%</td> </tr> <tr> <td>Waste Management</td> <td>5%</td> </tr> <tr> <td>Industrial Processes</td> <td>2%</td> </tr> </tbody> </table> <p>Sources: WB WDI and WRI CAIT, 2009</p>	Category	Percentage	Forestry	54%	Pasture	37%	Other	7%	Arable	2%	Sector	Percentage	Land-Use Change & Forestry	39%	Agriculture	30%	Energy	24%	Waste Management	5%	Industrial Processes	2%
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<p>Legal Framework</p> <p>Law on National Forest Economy and Natural Resource Conservation (Ley 2) from 1959 has been complemented by a number of decrees, the most important ones being the Forest Code on Renewable Resources and Protection of the Environment (Decree No 2811) of 1974 and the Decree on Forest Use (No 1791) of 1996.</p> <p>General Forestry Law (Ley 1021), enacted in 2006, seeks to expand the sustainable use of natural forests and make the control more rigorous; further promote forest plantations and create financial mechanisms for investments; and to regulate and further develop forest concessions in the country.</p>																							
<p>Institutional Framework</p> <p>Ministry of Environment, Housing and Territorial Development (MAVDT): defining resource policy, including forests protection and use. Responsible for commitments to the UNFCCC and other climate change related actions. Designated National Authority (DNA) on CDM and climate change in general > Climate Change Mitigation Group, structuring and marketing of a portfolio of GHG mitigation projects. > Technical Inter-Sectoral Committee on Mitigation of Climate Change (CTIMCC) established in 2003, elaborates proposals related to mitigation of the National Climate Change Policy, proposes CDM projects for national approval and overviews the implementation of the CDM.</p> <p>Institute of Hydrology, Meteorology and Environmental Studies (IDEAM): Performs research on global change and its effects on Colombia, including agricultural sector. Coordinated preparation of the First National Communication. IDEAM and National Environmental Information System (SINA) with its Autonomous Regional Corporations (CAR) are responsible for forest law implementation, forest inventories and monitoring on national and regional level.</p> <p>Ministry of Agriculture and Rural Development (MARD): Policies for the development of the agricultural sector, fisheries and rural development. Supports research projects on climate change and agriculture. Responsible for the formulation and implementation of policy related to forestry plantations for commercial use.</p>																							

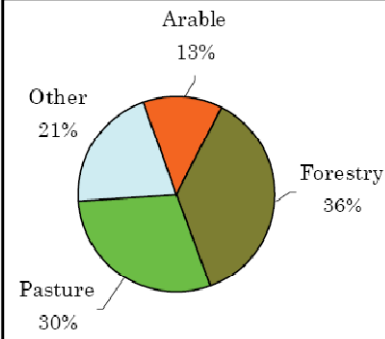
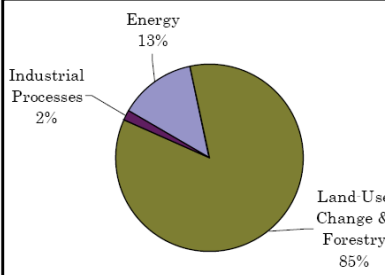
COLOMBIA	FCPF R-PIN July 2008 1 st UNFCCC Nat. Comm. 2001
<p>Programmes / Activities</p> <p>UNFCCC National Communications (NC): 1st NC in 2001, with 1990 and 1994 inventories, actions taken and further mitigation actions planned, vulnerability and adaptation of coastal area, water resources, agriculture and land management. 2nd NC is scheduled for submission by 2010, including revised inventories for 2000 and 2004, information on vulnerability, adaptation and mitigation.</p> <p>National Forestry Development Plan (PNDF), developed in a multi-sectoral and participative process, adopted as official state policy in 2000, provides strategic vision for forest management through 2025. One of its programs is aimed at conservation, management and restoration of forest ecosystems. It results in the restoration of 95,400 ha and protection of 120,000 ha forestlands.</p> <p>Strategic Plan for the Recovery and Establishment of Forests in Colombia (Plan Verde), approved in 1998. With the to reach a total area of 1 mln ha of reforested or restored land, the plan promotes the recuperation of degraded ecosystems and protective reforestation in areas which generate basic environmental services to the population and encourages the control of deforestation and the implementation of agro-forestry.</p> <p>National Strategy for Payment for Environmental Services has recently been formulated as a result of several activities, in which international NGOs such as TNC, WWF, and CI participated along with the private sector, regional environmental authorities, and research institutes.</p> <p>National policy on climate change, incl. agriculture and forestry sector, is under development at the highest level of Ministerial consultations. It will result an adaptation and a mitigation plan.</p>	
<p>Some AFOLU Experiences</p> <p>Climate Change Mitigation: San Nicolas Agroforestry small-scale pilot project financed by the World Bank, avoiding land degradation through afforestation, sustainable forest management and improved land-use planning. Three reforestation projects are currently under CDM validation: Argos commercial reforestation project (3,000 ha teak), Procuencia project watershed restoration of Chinchina River, and Reforestation project in the Cinchina river basin.</p> <p>Adaptation to climate change of the San Andres Island and the pilot project on climate change adaptation in the "Macizo Colombiano", in cooperation with UNDP and Spanish government.</p> <p>Payment for Environmental Services: Several PES projects, mainly for watershed protection, have been developed. Colombia is one of the most experienced countries in LAC with respect to PES.</p>	
<p>Challenges and Needs for AFOLU / REDD</p> <p>The difficult governance situation in regions involved in armed conflicts and the variation in the control exercised by autonomous regional corporations (lack of finance, capacity) cause huge differences in the way in which management standards are applied in different parts of the country.</p> <p>Further Challenges: Involvement of small-holders, most vulnerable to climate change; Ensure coordination between different governmental entities, policies, plans and legislation of different sectors; Extractive forestry culture and Acceptance of illegal forest products by the industry; Lack of capacity for diagnosing, project design and monitoring of carbon in forests at a national and regional level; Lack of updated information on forests, forest change and forest carbon; Limits to technology; Implement sustainable forest management alternatives; Take advantage of incentives schemes for REDD.</p> <p>The continuation of the National Forestry Development Plan implementation with its different programs and sub-programs, addresses many obstacles mentioned in the prior question, directly and indirectly. The policy is there, but it is crucial to have enough economic resources for its correct development.</p>	
<p>Country Priority (Questionnaire):</p> <p>Colombia has been strongly involved in UNFCCC AFOLU negotiations for a long time. AFOLU, especially afforestation, REDD and forest restoration is a key sector for the country.</p>	

Annex 3 Table 6: Costa Rica

COSTA RICA	FCPF R-PIN July 2008 1 st UNFCCC Nat. Comm. 2000																		
<p>Description of Land-Use, Forest Cover, Deforestation, Forest Degradation, Land tenure, etc.</p> <p>2.4 million hectares or 46.8% of Costa Rica's surface is covered with forests (FAO 2009). Annual loss of forest cover was 0.1% or 3,000 ha during 2000 - 2005.</p> <p>During the 1960's and 1970's Costa Rica was experiencing one of the highest rates of deforestation in the world and forest cover decreased to 24% in 1985. Main drivers have been clearing for agriculture and cattle pastures, maintained by policies including cheap credit for cattle, land-titling laws that rewarded deforestation, taxes to "unproductive" lands and rapid expansion of the road system.</p> <p>These policy incentives have been removed and deforestation rates decreased dramatically. Nevertheless, forests still face threats from illegal timber harvesting in protected areas and conversion for agriculture and pasture in unprotected zones.</p> <p>About 75.7% of the forest land is privately owned. Costa Rica is one of the region's most centralized countries. In recent years, important bills have been formulated to decentralize power to the municipal governments, and there is growing awareness of the need of local participation in natural resource management.</p>	<p>Land Use (2005)</p>  <table border="1"> <caption>Land Use (2005)</caption> <thead> <tr> <th>Category</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Pasture</td> <td>49%</td> </tr> <tr> <td>Forestry</td> <td>44%</td> </tr> <tr> <td>Other</td> <td>3%</td> </tr> <tr> <td>Arable</td> <td>4%</td> </tr> </tbody> </table> <p>GHG emissions by sector (2000)</p>  <table border="1"> <caption>GHG emissions by sector (2000)</caption> <thead> <tr> <th>Sector</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Land-Use Change & Forestry</td> <td>66%</td> </tr> <tr> <td>Energy</td> <td>30%</td> </tr> <tr> <td>Industrial Processes</td> <td>4%</td> </tr> </tbody> </table> <p><i>Sources: WB WDI and WRI CAIT, 2009</i></p>	Category	Percentage	Pasture	49%	Forestry	44%	Other	3%	Arable	4%	Sector	Percentage	Land-Use Change & Forestry	66%	Energy	30%	Industrial Processes	4%
Category	Percentage																		
Pasture	49%																		
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Arable	4%																		
Sector	Percentage																		
Land-Use Change & Forestry	66%																		
Energy	30%																		
Industrial Processes	4%																		
<p>Legal Framework</p> <p>Forest Law 7575, enacted in 1996, recognizes environmental services i) GHG mitigation, ii) hydrological services, iii) biodiversity conservation and iv) provision of scenic beauty. Together with the Public Services and Regulatory Authority Law, the General Law of the Environment, the Soil Conservation Law and the Biodiversity Law, it provide the framework for the execution of the payment for environmental services system (National Fund for Forest Financing, FONAFIFO) through a special tax ("ecotax") on the consumption of any crude-oil derivatives.</p>																			
<p>Institutional Framework</p> <p>Ministry of Environment and Energy (MINAE) the country's environmental authority, it oversees commitments to the UNFCCC and other climate change related actions > Costa Rican Office for Joint Implementation (OCIC) Designated National Authority on climate change and, in particular, on CDM. > National Climate Change Plan, coordinated by the National Meteorological Institute (IMN) and OCIC, is conducting research related to the GHG inventory, vulnerability, analysis of mitigation and adaptation measures and preparing for the National Communication to the UNFCCC.</p> <p>> National Fund for Forest Financing (FONAFIFO) administers the national payment for environmental services system (PSA).</p> <p>Consultative Commission on Climate Change (CCCC) created in 1994 under the National System for Sustainable Development (SINADES) as a national entity for dialogue between all sectors of the Costa Rican society, about adaptation and mitigation policies and measures for climate change.</p> <p>Ministry of Agriculture and Livestock (MAG) responsible for the development of the agricultural sector in the country, for the adoption of policies, plans and programs aimed at the preservation of natural resources and the general improvement of the environment.</p> <p>National Strategy for Climate Change (ENCC) , its creation has been marked as a top priority for governments 2006-2010 agenda.</p>																			
<p>Programmes / Activities</p> <p>Most programs and policies are nationally designed due to the characteristics of the political and</p>																			

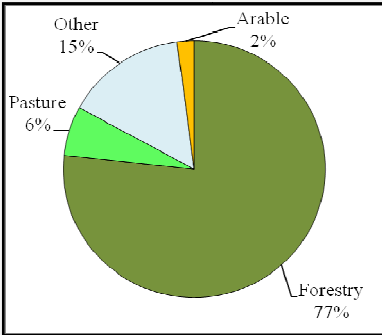
COSTA RICA	FCPF R-PIN July 2008 1 st UNFCCC Nat. Comm. 2000
<p>administrative structure, which is executive-oriented and highly centralized.</p> <p>UNFCCC National Communications (NC): 1st NC in 2000, with 1990 inventory, including an identification of climate change adaptation and mitigation options for the water sector, coastal areas, as well as agriculture and forestry. The 2nd NC submitted in December 2009.</p> <p>Protected Areas Project (PAP): Consists of the international commercialization of emission reduction units resulting from diminishing of emissions from deforestation in territory considered national parks or biological reservations. The potential of net emission reduction units of this project by 2015 is 642,738 metric tons of carbon.</p> <p>The Private Forestry Project (PFP): Takes place between the government and small owners of forests through the National Payments for Environmental Services Program (PSA) established in 1997 providing financial incentives for reforestation, conservation and sustainable management of forests. Only about one third of demand can be satisfied with the funds available. By the year 2006, there are 270,000 mln ha contracted under PSA for a period of five years.</p> <p>Ecomarkets II: Program recently launched with the objective to improve PSA programme's sustainability by institutional strengthening, market development, improvement of access to the small and medium landowners to the PSA programme, monitoring of biodiversity and social indicators (financed by GEF and World Bank).</p> <p>Strategy to control illegal logging: MINAE commissioned a series of studies to analyse the root causes of illegal logging and propose measures to overcome the problem. In 2002, MINAE developed a comprehensive five-year strategy consisting of a wide range of measures to prevent, detect and control illegal forest activities.</p> <p>Project of Regularization of Register and Cadastre: Increase the juridical security in the country and guarantee the rights of real-estate property for all citizens (financed with an IDB grant).</p> <p>Regional Climate Change Strategy for Central America is currently in preparation and will include five areas: i) vulnerability and adaptation; ii) mitigation; iii) institutional and capacity development; iv) education, public awareness and v) international management. The strategy will represent a key instrument for future climate change adaptation and mitigation actions in the region.</p>	
<p>Challenges and Needs for AFOLU / REDD</p> <p>The National Plan of Forest Development (PNDF) 2001-2010, based on consultations of many sectors and stakeholders, identifies 6 main areas of action which the country has to address to seek and reach sustainable forest development: 1) the classification of forest lands; 2) the competitiveness and positioning of the forest sectors; 3) control and evaluation of the sustainability; 4) instruments and financing mechanism; and 5) information system and 6) the strengthening and coordination of institutions.</p> <p>Although activities to address these gaps, such as the Cadastre Programme or Ecomarkets II, are ongoing, some weaknesses with respect to governance remain:</p> <p>Policies: Absence of clear policies with respect to use and ordering of natural resources. Lack of support for the promotion of the forestry industrial activity.</p> <p>Institutional: Shortage of personnel in the institutions that conduct the controls makes it impossible to follow-up logging permits, the types of forests where the extractions will take place and preventive activities.</p> <p>Legal: Applicability of legislation related to the prohibition in the change of land use; this requires laws with stronger punishing measures (prison, fines, etc.) and clearer state policies that favor the rational use of forests. The practice of the <i>socola</i> (gradual elimination of understory species) as the technique applied in the change of land use has become more and more frequent.</p>	

Annex 3 Table 7: Guatemala

GUATEMALA	FCPF R-PIN August 2008 1 st UNFCCC Nat. Comm. 2001																		
<p>Description of Land-Use, Forest Cover, Deforestation, Forest Degradation, Land tenure, etc.</p> <p>3.9 million hectares or 36.3% of Guatemala's surface is covered with forests (FAO 2009). Annual loss of forest cover was 1.3% or 54,000 ha during 2000-2005. Guatemala has lowest forest cover per capita in Central America after El Salvador and has one of the highest deforestation rates among the IDB member countries.</p> <p>Today most deforestation takes place in the Petén, which was an intact and inaccessible forest area up to the 1960s. Migratory agriculture, through the practice of slash and burn, accounts for 78.5% of deforestation activities in the country, livestock accounts for 10% and commercial agricultural accounts for 0.5%.</p> <p>Enormous efforts have been made since the end of the civil war in 1996 to decentralize management and monitoring of forest resources. But support for existing community forest management institutions remains weak and the complicated system of land tenure has led to many overlapping rights</p> <p>An estimated 38% of the forest lands are privately owned. 34% are national forests and 23% municipally/communally owned. Because of the civil war (which ended formally in 1996), the ownership of the remaining 5% of the forest area is obscure.</p>	<p>Land Use (2005)</p>  <table border="1"> <caption>Land Use (2005)</caption> <thead> <tr> <th>Category</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Forestry</td> <td>36%</td> </tr> <tr> <td>Pasture</td> <td>30%</td> </tr> <tr> <td>Other</td> <td>21%</td> </tr> <tr> <td>Arable</td> <td>13%</td> </tr> </tbody> </table> <p>GHG emissions by sector (2000)</p>  <table border="1"> <caption>GHG emissions by sector (2000)</caption> <thead> <tr> <th>Sector</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Land Use Change & Forestry</td> <td>85%</td> </tr> <tr> <td>Energy</td> <td>13%</td> </tr> <tr> <td>Industrial Processes</td> <td>2%</td> </tr> </tbody> </table> <p><i>Sources: WB WDI and WRI CAIT, 2009</i></p>	Category	Percentage	Forestry	36%	Pasture	30%	Other	21%	Arable	13%	Sector	Percentage	Land Use Change & Forestry	85%	Energy	13%	Industrial Processes	2%
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Sector	Percentage																		
Land Use Change & Forestry	85%																		
Energy	13%																		
Industrial Processes	2%																		
<p>Legal Framework</p> <p>Forest law (Decree 101-96) of 1996, emphasizes the importance of reforestation and forest conservation and makes reference to sustainable forest management.</p>																			
<p>Institutional Framework</p> <p>Ministry of Agriculture, Livestock and Food (MAGA) development of agriculture and livestock by formulating, monitoring and evaluating the policies, strategies and programs of the farming and livestock sector. Forest policy formulated in 1999 promotes productive management of natural forests and makes specific reference to restoration and rehabilitation as major elements of forest development. The strategic plan includes new financial mechanisms, such as incentive payments for reforestation, the CDM and payments for environmental services, particularly water.</p> <p>Ministry of Environment and Natural Resources (MARN) shares authority over natural resources with MAGA, but the relative responsibilities of the two ministries for forest management are not clear. Designated national authority on climate change and in particular, on CDM. > National Climate Change Program / Climate Change Unit (UCC) created in 2001, analysis of climate change, carbon sequestration, technical and scientific support to institutions in charge of areas affected by climate change (forests, water, basic grains), etc.</p> <p>National Forest Institute (INAB), created in 1996, independent and decentralized state agency, responsible for developing sustainable management practices in natural forests and for the establishment and management of planted forests, for forest inventories and the preparation of forest management plans in both planted and natural forests, diagnostics on the current state of CDM, research on the effects of forest fires.</p> <p>National Council on Climate Change (CNCC) created in 1997, national consultation entity between MARN, other sectors and civil society, on issues related to climate change. Formed of officials from the various Ministries, among these MAGA and the National Environmental Commission (CONAMA).</p> <p>National Commission on Joint Implementation (OGIC), created in 1997, technical follow-up on projects of climate change mitigation projects as well as to create a multitude of actions designed to</p>																			

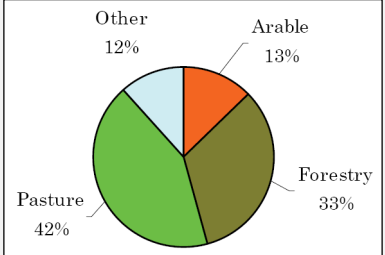
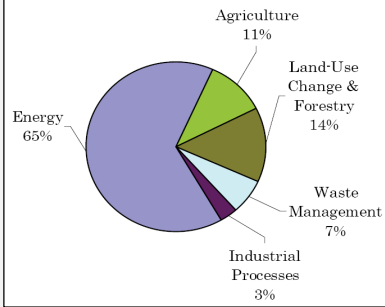
GUATEMALA	FCPF R-PIN August 2008 1 st UNFCCC Nat. Comm. 2001
facilitate the development of projects within the framework of the UNFCCC.	
<p>Programmes / Activities</p> <p>Forestry incentive program (PINFOR): Policy instrument of INAB. Started in 1997 and ends 2016. 125 million USD invested until now, 80% for reforestation and maintenance (84,500 ha) and 20% for management of natural forests (162,000 ha).</p> <p>Guatemalan System of Protected Areas (SIGAP): Based in the management and sustainable use of natural resources in all forms of protected areas (3.3 million hectares). Many of these areas are not fully protected mainly due to the lack of adequate human, technical and financial resources.</p> <p>Small Stakeholders incentive program (PINPEP): Financial incentives for small stakeholders with secured property rights for a) natural forest management and b) agroforestry systems. Program started in 2006 and will end in 2012. 1,617,500 USD invested up to 2008 for 410 ha reforestation, 540 ha agroforestry systems, 671 ha low management forests and 3,265 ha forest protection.</p> <p>Pilot program of Direct Support to Forest (PPAFD): Promoted by MAGA, paying conservation activities to protect forest and water resources. It is seen as national payment for environmental services system. 33,400 ha of natural forest and 3,000 water sources under protection. Started in 2002 and will end by 2009.</p> <p>Registry of Cadastral Information: Supports the regularization of the holding of the land, as a mechanism to have legal certainty of the land, which will influence to improve the management of natural resources and in some areas, to stop the advance of the agricultural frontier and the invasions in protected areas.</p>	
<p>Some AFOLU Experiences</p> <p>PES project in the Maya Biosphere Reserve in Péten. The goal of the project is to protect up to 470,000 ha from deforestation and to reduce emissions thereby by 2.5 million tons CO₂ per year. These efforts are smaller and less institutionalized than those in Costa Rica or Mexico. Nevertheless, they will create at least an incipient capacity to implement further PES activities in Guatemala. (Involvement of Guatemalan government, IDB, CI, Wildlife Conservation Society).</p>	
<p>Challenges and Needs for AFOLU / REDD</p> <p>Adequate mechanisms for environmental law enforcement: Current capacities of the entire system of institutions are very limited and there is a lack of forest law enforcement. Scarce allocation of public budgets for the forestry-related institutions which in consequence are limited in their capacities to work in the field and particularly to guarantee the integrity of protected areas which often suffer from invasions by different social groups.</p> <p>Land tenure rights: There are still lands in the country where property rights are not clearly defined and owners do not feel full responsibility to conserve forests or to invest in their sustainable management since there is no certainty on their capacities to enjoy future returns of investments.</p> <p>Integral valuation of the forests: Forests continue to be seen mainly as a source of wood. Policies are not defined to highlight the full range of values included in forest and forest ecosystems. In addition, there are a lot of constraints related to the capacity of forest monitoring and evaluation, in particular in national protected areas that need to be reinforced.</p> <p>Capital market instruments: One constraint is the lack of economic-financial information needed to properly estimate the value of forest assets and of future forest earnings. Another constraint is the lack of methodologies to assess forest investment risks (Profor Dokument).</p> <p>Stakeholder involvement Key forest stakeholders have negligible influence on important decisions that relate to sector financing (e.g. international financing mechanisms like FCPF, national government programs like PINFOR, PINPEP and PPAFD that are in the process of being discussed and reformulated, and private instruments).</p>	

Annex 3 Table 8: Guyana

GUYANA	FCPF R-PP September 2009 1 st UNFCCC Nat. Comm. 2002
<p>Description of Land-Use, Forest Cover, Deforestation, Forest Degradation, Land tenure, etc.</p> <p>15.1 million hectares or 76.7% of Guyana's surface is covered with forests (FAO 2009). Annual loss of forest cover was 0% during 2000 - 2005.</p> <p>Although the great majority of Guyana's forests are suitable for timber extraction and currently over 50% of the forest is allocated to some form of production, most forests are still intact, unexploited and not threatened by the expansion of agriculture.</p> <p>Growing demand for agricultural products and tropical timber, planned infrastructure projects and a strong presence of international logging companies indicate, that if no measures are taken to particularly control deforestation and forest degradation, both of these rates will significantly increase.</p> <p>90% of the national territory is owned by government. 75% of the indigenous communities have legal titles. To avoid potential problems, no commercial activities will be allowed on areas currently a part of the titling process until titling is finalized by the Government and community.</p>	<p>Land Use (2005)</p>  <p>Source: FAO STAT, 2009</p> <p>GHG emissions by sector (2000) Data not available</p>
<p>Legal Framework</p> <p>Forest Law of 1953 very limited in scope, does not address sustainable forest management (SFM), and other important governance and policy issues. The Guyana Forestry Commission (GFC) has encouraged SFM through development of guidelines, but formal enforcement has been challenged.</p> <p>New Forests Bill is being considered by the Parliament. Extensive consultation began in 1996 and ended in September 2007. It allows for "forest conservation activities" which include the preservation of forests for carbon sequestration or any other form of environmental services.</p> <p>Protected Areas Legislation is now being drafted. Framework for protected areas as part of the national initiative to maintain carbon reserves in areas of high biodiversity value.</p>	
<p>Institutional Framework</p> <p>Office of the President has direct responsibility for forestry, although the day-to-day administration is delegated to the Minister of Agriculture (MA).</p> <p>The Guyana Forestry Commission (GFC), created in 1979, advises the minister on issues relating to forest policy, forest laws and regulations. Responsibility to manage and control the utilization of all state forest lands to ensure sustained yield, maintenance and improvement of forest environment.</p> <p>National Climate Unit established within the Ministry of Agriculture (MA) serves as UNFCCC Focal Point. Its role is to 'facilitate the development of a sound knowledge base of Climate Change and the identification and implementation of appropriate mechanisms and actions for effective response.'</p> <p>National Climate Committee (NCC) has been re-organized and strengthened in 2007 to address the increasing dangers posed by global climate change and to take advantage of the opportunities presented by REDD and the growing carbon markets. The NCC has broad stakeholder involvement with representatives from multiple government agencies, NGOs, and the private sector.</p> <p>Land Use Committee, chaired by Guyana Lands and Surveys Commission (GLSC) meets on a regular basis to address issues that have the potential to develop into land use conflicts. It includes GFC; the Guyana Geology and Mines Commission (GGMC); and the Environmental Protection Agency (EPA).</p>	
<p>Programmes / Activities</p> <p>Cross-Sectoral REDD strategy, includes GFC (forestry planning and management including</p>	

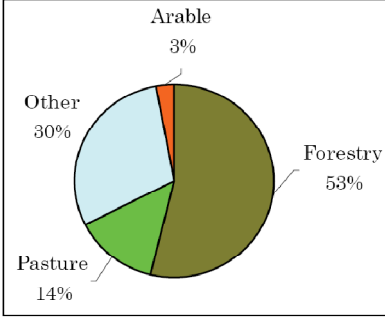
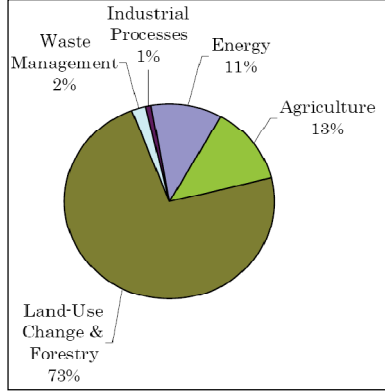
GUYANA	FCPF R-PP September 2009 1 st UNFCCC Nat. Comm. 2002
<p>monitoring, enforcement), MA (planning and coordination), GLSC (land use planning), EPA (biodiversity conservation and management), GGMC, Ministry of Local Government and Regional Development, Ministry of Amerindian Affairs (local indigenous community land titling and development), and the Guyana Energy Agency.</p> <p>Sustainable Development Strategy, launched in 1992, addresses deforestation and forest degradation through actions in sustainable forest management and forest protection i.e., reorganization and strengthening of the GFC, introduction of a Code of Practice for Foresters, promotion of Reduced Impact Logging. The strategy has 4 pillars a) cross-ministerial coordination, b) institutional capabilities, c) technical programs, and d) community and Amerindian development.</p> <p>Draft Low Carbon Development Strategy (LCDS), a document integrally linked to the FCPF Readiness Preparation Proposal (R-PP) submitted on September 2009, sets out a vision through which economic development and climate change mitigation will be enabled through the generation of payments for forest services in a mechanism of sustainable utilization and development. In early November 2009 a contract has been signed with Norway, paying up to USD250 for forest protection.</p> <p>Establishment of a national system of protected areas with a supporting trust fund is a critical element in Guyana's strategy. The Government of Guyana is working with stakeholders to establish at least two new protected areas as part of its demonstrated commitment to biodiversity conservation and climate stabilization with support from the German Government.</p>	
<p>Some AFOLU Experiences</p> <p>Diorama International Centre Forest Bonds: Canopy Capital Ltd (13 international investors) bought 5-year license to market ecosystem services of 370,000 ha pristine rainforest, not emission based. Model for PES financing. Canopy Capital is attempting to create a market for ecosystem services and to underwrite minimum price floors for traded certificates.</p>	
<p>Challenges and Needs for AFOLU / REDD</p> <ul style="list-style-type: none"> • Limited financial resources for REDD preparation and implementation; Limited expertise and technical skills; A national accounting, reporting and assessment system should be established. Guyana notes the Brazilian 'PRODES' program as a model to move forward • Limited institutional capacities for implementation including monitoring and enforcement (last national inventory in 1950s, regional inventories in 1970s); Enforcement is constrained because of outdated legislation • The Land-Use Committee must be strengthened to better harmonize legislation, national land-use policy, and national physical plan related to improve land-use planning and zoning • Efficiency improvement of the forest industry, recovery and quality control procedures, improve added value. Broaden the range of species used • State Forest Permission holders to become engaged in added value activities; Involved in activities making them more coordinated and effective e.g. formation of "clusters" • Providing viable alternatives to persons/communities who clear or degrade forest for conversion purposes, especially "slash and burn" agriculture • Encouraging changes in practices so that interventions such as setting of fires for useful purposes (restoring pasture; slash and burn) are done in a regulated and structured manner • Securing support from private forest holders and Amerindian communities on the need to comply with the GFC's guidelines for Sustainable Forest Management, incl. practical training, benefits from REDD incentives, understand how actions are related to incentives, full involvement in harmonization of land-use planning and zoning for reducing land-use conflicts • Ensuring successful resolution and prevention of land use conflicts 	

Annex 3 Table 9: Mexico

MEXICO	FCPF R-PIN March 2008 3 rd UNFCCC Nat. Comm. 2007																						
<p>Description of Land-Use, Forest Cover, Deforestation, Forest Degradation, Land tenure, etc.</p> <p>64.2 million hectares or 33.7% of Mexico's surface is covered with forests (FAO 2009). Annual loss of forest cover was 0.4% or 260,000 ha during 2000 - 2005. Further, an estimated 550,000 hectares of vegetation are disturbed each year, indicating a rapid degradation process, often the starting point for deforestation. Before 2000, land-use policy encouraged agriculture and animal husbandry. With 515,000 ha per year, Mexico has been the country with world's fifth highest deforestation in the 1990's. Deforestation is mainly caused by conversion to agricultural land (cattle-ranching and crop production) and forest fire. Further drivers include the almost complete dependence of the nation on fuel wood, uncontrolled road construction, and activities of the mining and oil industries</p> <p>An estimated 59% of Mexico's forests are owned by ejidos and local communities. Around 33.5% of the forest area is owned privately and 7.5% is classified as national land. 85% of land is titled. The remaining 15% still has persistent problems of land tenure; they are in most cases located in conflicting areas.</p>	<p>Land Use (2005)</p>  <table border="1"> <caption>Land Use (2005)</caption> <thead> <tr> <th>Category</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Pasture</td> <td>42%</td> </tr> <tr> <td>Forestry</td> <td>33%</td> </tr> <tr> <td>Arable</td> <td>13%</td> </tr> <tr> <td>Other</td> <td>12%</td> </tr> </tbody> </table> <p>GHG emissions by sector (2000)</p>  <table border="1"> <caption>GHG emissions by sector (2000)</caption> <thead> <tr> <th>Sector</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Energy</td> <td>65%</td> </tr> <tr> <td>Land-Use Change & Forestry</td> <td>14%</td> </tr> <tr> <td>Agriculture</td> <td>11%</td> </tr> <tr> <td>Waste Management</td> <td>7%</td> </tr> <tr> <td>Industrial Processes</td> <td>3%</td> </tr> </tbody> </table> <p>Sources: WB WDI and WRI CAIT, 2009</p>	Category	Percentage	Pasture	42%	Forestry	33%	Arable	13%	Other	12%	Sector	Percentage	Energy	65%	Land-Use Change & Forestry	14%	Agriculture	11%	Waste Management	7%	Industrial Processes	3%
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Land-Use Change & Forestry	14%																						
Agriculture	11%																						
Waste Management	7%																						
Industrial Processes	3%																						
<p>Legal Framework</p> <p>Law on Sustainable Forest Development 2003, for the management of production forests became effective when the decree on sustainable development in 2005. Emphasizes the importance of forest services and their inclusion in forest management.</p> <p>Inconsistency in the interpretation of the different laws that affect forest management, including the forest law, the General Law on Ecological Balance and Environment and the General Law on Wildlife. In addition, many state governments have created their own forestry/environmental laws.</p>																							
<p>Institutional Framework</p> <p>Ministry of the Environment (SEMARNAT) oversees commitments to UNFCCC and other climate change related actions, with the National Institute of Ecology (INE) as a coordinating body. Responsible government agency for natural resources, including forests and for various initiatives related to climate change aspects in forestry. > National Forestry Commission (CONAFOR), created in 2001, with the objective of integrating natural resource management into the national sustainable development program.; Responsible for forest strategies and programs.</p> <p>Ministry of Agriculture (SAGARPA), through its different public institutions, is responsible for specific response actions (programs) related to climate change aspects in livestock, land use and land management, as well as the assessment of vulnerabilities to climate change.</p> <p>Inter-Ministerial Commission on Climate Change (CICC) established in 2005 to mainstream climate change in development policy; CDM Designated National Authority (DNA). Responsible for formulating and coordinating the implementation of national climate change strategies and incorporating them in sectoral programs; Consists of seven ministries, including SAGARPA, Ministry of Finance. Receives advice from the Consultative Council on Climate Change, composed of scientists and representatives of the civil society and the private sector.</p> <p>Community organizations have a strong influence on the use and management of forest areas. NGOs play a major advocacy role on behalf of communities and are also important for information-sharing and capacity-building in respect to collaborative forest management.</p>																							

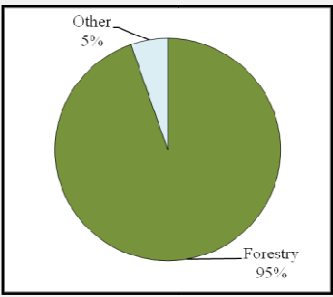
MEXICO	FCPF R-PIN March 2008 3 rd UNFCCC Nat. Comm. 2007
<p>Programmes / Activities</p> <p>UNFCCC National Communications: Only developing country submitted three NCs. 3rd NC in 2007 with updated the inventory as of 2002, including land-use change emissions estimates for 1993-2002, vulnerability assessments for forestry and agriculture. 4th NC submitted in 2009 and a 5th NC by 2012.</p> <p>National Climate Change Strategy (ENACC), 2007, identifies opportunities for emissions reductions and measures for capacity development for response and adaptation on national and local level. Builds on institutional improvements, analytical work and programs already underway. With respect to land use, key measures include significant increases in reforestation, soil restoration, and commercial plantations. > Special Program on Climate Change (PECC) since 2008, making the ENACC operational by identifying priority actions across sectors and required sources of funding. Inter-sectoral cooperation (incl. all secretariats involved in land use and rural development).</p> <p>Forestry Program (PROARBOL), introduced by ENACC in 2007, managed by CONAFOR, consolidating and complementing different federal support mechanisms to enhance the forestry sector, incl. grants for improving forest planning, forest protection, reforestation, developing commercial activities in wood processing, soil conservation, etc (i.e. National Forest Development Program (PRODEFOR); National Reforestation Programs (PRODEPLAN and PRONARE), Community Forest Development Program (PROCYMAF), developed in the 90s geared to support community forestry).</p> <p>Payment for Environmental Hydrological Services (PSAH) and Programme to Develop Environmental Services Markets for Carbon Capture and Biodiversity and to Establish and Improve Agroforestry Systems (CABSA): launched in 2003, managed by CONAFOR, pilot program in markets for environmental services to increase funding for forest conservation and management. PSAH was designed to avoid deforestation in areas where water problems are severe, but where commercial forestry was less profitable to landholders in the short or medium term than converting forests to agriculture or cattle ranching. CABAS expands the program with carbon capture and biodiversity.</p>	
<p>Some AFOLU Experiences</p> <p>Lot of experience in AFOLU sector made with national programs (incentive systems). Fourth most CDM projects world-wide and second most (after Brazil) in LAC, about 20% somehow related to agriculture, but no CDM project under “afforestation, reforestation”. Experience with voluntary carbon market e.g., Scolel Te agroforestry program (Pan Vivo) in Southern Mexico.</p>	
<p>Challenges and Needs for AFOLU / REDD</p> <p>Identified potential challenges to designing and implementing effective REDD strategies include:</p> <ul style="list-style-type: none"> • Strengthening environmental institutions • Increasing effectiveness of programs for delivering payments for maintaining natural forests • Strengthening protected areas that effectively restrict certain land uses • Supporting community and indigenous forest management • Undertaking regular and systematic monitoring and analysis of deforestation and forest degradation • Increasing effectiveness of enforcement of law, rules and regulations in order to reduce deforestation and forest degradation • Promoting infrastructure policies that prevent access to forested areas • Promoting macroeconomic and agricultural policies that make less profitable clearing additional forest lands to other uses <p>One particular problem in Mexico is that in many of the ejidos and agrarian communities that have high deforestation rates the communal authorities are relatively weak and there are high levels of internal conflict. Signing contracts with the communal authorities, as is the case with the current program, will not be sufficient. Additional efforts would be required to build consensus and local monitoring mechanisms in such communities.</p>	

Annex 3 Table 10: Peru

PERU	FCPF R-PIN June 2008 1 st UNFCCC Nat. Comm. 2001																						
<p>Description of Land-Use, Forest Cover, Deforestation, Forest Degradation, Land tenure, etc.</p> <p>68.7 million hectares or 53.7% of Peru's surface is covered with forests (FAO 2009). Annual loss of forest cover was 0.1% or 94,000 ha during 2000 - 2005.</p> <p>Within the Amazonas Department deforestation increased by 23.78% for the period 1990-2000. 81% of deforestation is caused by expansion of the agricultural frontier, mainly due to migratory slash-and-burn farming (migration from the Andes), 16% by timber and lumber for domestic use. An additional 3% is explained by action of the forestry industry and timber trade.</p> <p>Dwellers of highlands origin tend to be very active in deforesting in order to acquire rights to land possession, since the law requires evidence of land cleared and crops to obtain it.</p> <p>Forest lands are classified into public (83.1%), private (15.2%) and indigenous (1.7%) lands. Of 8.4 million hectares of forests classified as public forests reserved for communities and indigenous groups, 7.4 million hectares are titled. Still, there is uncertainty regarding the extent of ownership by community and indigenous groups. Overlap of land tenure caused considerable tension in Peru's Amazonian region. Conflicts between land granted for concessions and alleged occupation of native and not native groups are now gradually adjusted, in some cases by creating indigenous reserves for ethnic families.</p>	<p>Land Use (2005)</p>  <table border="1"> <caption>Land Use (2005)</caption> <thead> <tr> <th>Category</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Forestry</td> <td>53%</td> </tr> <tr> <td>Other</td> <td>30%</td> </tr> <tr> <td>Pasture</td> <td>14%</td> </tr> <tr> <td>Arable</td> <td>3%</td> </tr> </tbody> </table> <p>GHG emissions by sector (2000)</p>  <table border="1"> <caption>GHG emissions by sector (2000)</caption> <thead> <tr> <th>Sector</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Land-Use Change & Forestry</td> <td>73%</td> </tr> <tr> <td>Agriculture</td> <td>13%</td> </tr> <tr> <td>Energy</td> <td>11%</td> </tr> <tr> <td>Waste Management</td> <td>2%</td> </tr> <tr> <td>Industrial Processes</td> <td>1%</td> </tr> </tbody> </table> <p><i>Sources: WB WDI and WRI CAIT, 2009</i></p>	Category	Percentage	Forestry	53%	Other	30%	Pasture	14%	Arable	3%	Sector	Percentage	Land-Use Change & Forestry	73%	Agriculture	13%	Energy	11%	Waste Management	2%	Industrial Processes	1%
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<p>Institutional Framework</p> <p>National Environment Council (CONAM) national environment authority created in 1995, Designated National Authority (DNA) on climate change to the UNFCCC. Its purpose is to plan, promote, coordinate, control and watch after the environment and the natural heritage of Peru. > Ministry of the Environment (MINAM), incepted in 2008, among its mandates the coordination of the national climate change strategy incl. adaptation and mitigation measures related to it. > National System of Protected Areas (SINANPE) which covers 16.4 million hectares, or nearly 13% of the national territory. > Directorate of Climate Change (DGCC), coordinate i.a. the implementation of REDD mechanisms, and to establish the national inventories of greenhouse gases. > National Commission on Climate Change, made up by sixteen members from the public and private sector and its goal is to coordinate with the different sectors the fulfillment of the obligations to the UNFCCC.</p> <p>National Environment Fund (FONAM) non-profit institution funded with the objective of promoting public and private investment for the development of environmental projects in Peru. Promoting and registering potential CDM projects; Providing technical support to project developers through the CDM project cycle, with the aim to facilitate the application procedure for national projects.</p> <p>Ministry of Agriculture (MINAG) > National Institute for Natural Resources (INRENA) responsible for policies related to agriculture, livestock and natural resources (including water and forestry); oversees climate change related programs through its different institutions in the sector. > Regional Governments are in charge of forests management at the sub-national level.</p> <p>National Consultative Council for Forestry Policy (CONAFOR) and Supervising Organism for Timber Forestry Resources (OSINFOR), provide guidance in relation to forest policies and feedback on development plans and other sectoral issues; Supervising forest concessions for timber production.</p>																							

PERU	FCPF R-PIN June 2008 1 st UNFCCC Nat. Comm. 2001
<p>Programmes / Activities</p> <p>UNFCCC National Communications (NC): 1st NC in 2001, established GHG inventory, identifies forestry as having the highest potential of carbon capture, proposes measures to be taken and gives a description of programs and policies. A Second National Communication is in the works and scheduled to be published in 2009.</p> <p>National Climate Change Strategy (ENCC), formulated in 2003, to promote and develop policies, measures and projects that will increase capacity for climate change adaptation; Proposes measures for a more rational management of GHG emissions, reduction of deforestation, better management of forests for increased carbon sequestration. > National Strategy Study for the Clean Development Mechanism in Peru (NSS) carried out by CONAM with national and international consultants, to identify the potential for investment in greenhouse gas abatement projects and financing options; Develop national policies aimed at participating in the CDM.</p> <p>National Watersheds Management and Soil Conservation Program (PRONAMACHCS) is the institution in charge of elaborating, promoting, coordinating and supervising the programs and projects linked to reforestation and climate change, soil management and management of watersheds as part of the sustainable management of natural resources.</p> <p>National forest strategy prepared in 2002, presents an historic analysis/baseline for the forest sector; defines vision and strategic principles, strategic objectives, expected outputs, and programs for the development of the sector; and provides indicators to monitor the progress made. The document has been widely discussed in a participatory process and was officially adopted by Government in 2004</p> <p>National and Regional Forestry Dialogue and Consensus Roundtables including government institutions and other forest stakeholders, incl. national and international NGOs which are very active in forestry and influential on policy development (e.g., WWF, Foro Ecológico, CI, Red Ambiental, ProNaturaleza) as well as private stakeholders (e.g., National Forestry Chamber, National Timber Corporation) and indigenous peoples' associations (e.g., National Development Institute of the Andeans, Amazon People and Afro-Peruvians)</p> <p>Forestry becomes a major issue in the changing political context in Peru, for example in the National Governance Agreement that institutionalizes dialogue between different actors, defines approaches to development and strategies for poverty reduction, and aims to improve employment, food security, and social cohesion. The administration of forest resources will also be included in the continuing Political Decentralization from central to regional governments. Moreover, forestry is an important element in defining a Policy for Rural Development.</p>	
<p>Challenges and Needs for AFOLU / REDD</p> <ul style="list-style-type: none"> • Development and implementation of national policies at a local, regional and national level that allow the livelihood improvement of local communities as well as forests conservation. For the Implementation of these policies and demonstrative pilot projects, capacity strengthening is needed at different governmental and no governmental levels. The capacity to implement SFM at the field level is low, although considerable efforts are being made to address this through training and technical assistance. Clarify the roles and responsibilities of each stakeholder. • Limited human, institutional and financial capacities existing at a national and regional level. Thus, accomplish of an effective management of the human, institutional and financial resources at regional and local national level through the strengthening capacities in REDD subjects. • Integration of climate change and REDD in the development policies for forests management as a mechanism that contributes to poverty reduction of local communities. Preparing National Strategies from a bottom-up approach in a flexible way that considers the socio-cultural and geographic differences of the regions. Identify institutional gaps that will need to be incorporated in the Organizations and Functions Regulations of different organizations in order to implement the National Strategy. 	

Annex 3 Table 11: Suriname

SURINAME	FCPF R-PP August 2009 1 st UNFCCC Nat. Comm. 2006
<p>Description of Land-Use, Forest Cover, Deforestation, Forest Degradation, Land tenure, etc.</p> <p>14.7 million hectares or 94.7% of Suriname's surface is covered with forests (FAO 2009), most of it in intact conditions. Annual loss of forest cover was 0% during 2000 - 2005. It is estimated that less than 1% of the total forest estate has been converted so far. But many current activities and pending requests are increasing pressure on deforestation.</p> <p>The principal driver of deforestation in recent years has been mining for bauxite and gold. There has been an exponential increase in gold production, much of this activity is un-authorized and conducted at small scales, widely dispersed.</p> <p>The agricultural use of the forest is currently limited to shifting cultivation by the Indigenous and Maroon peoples, which indicated increased need for permanent agricultural land.</p> <p>Finally, pressure from neighboring countries is likely increase. Brazil, in particular, has a very large and dynamic human population that could rapidly move into Suriname for mining, logging and agricultural activities. Implementation of REDD and other conservation measures in Brazil may lead to international leakage of deforestation and degradation into Suriname if not effectively protected.</p> <p>Most forests belong to the state. Forests on private land do not cover more than a total area of 50,000 ha. The constitution does not provide for collective rights or the collective use of land, although 547,859 hectares of the forest has been granted as community forest to the Indigenous and Maroon peoples. The legal recognition of collective land rights is still in an embryonic phase.</p>	<p>Land Use (2005)</p>  <p>Source: FAO STAT, 2009</p> <p>GHG emissions by sector (2000) <i>Data not available</i></p>
<p>Legal Framework</p> <p>Constitution of the Republic of Suriname (1987) regulates ownership of forest lands Forest Management Act 1992, contains a number of requirements intended to promote sustainable forest management practice e.g., three forms of tenure: 1) timber concessions, 2) community forests, and 3) incidental cutting licenses. Takes into account the interests of forest-dwellers and the conservation of nature and biological diversity. Its provisions cover: forest classification for production, protection and conservation; regulations for forest management and harvesting; and regulations for forest transport and the processing industry.</p> <p>Nature Conservation Act 1954 Nature reserves can be established in the interest of science, recreation and education, for ethical, esthetical and economic considerations.</p> <p>Institutional Framework</p> <p>Forest Service (LBB) of the Ministry of Physical Planning, Land and Forest Management (RGB) is officially in charge of the management of all forests, including nature conservation (The Nature Conservation Division (NB) in collaboration with the Foundation for Nature Conservation (STINASU)) and law enforcement, issuance of permits and concessions for forest exploitation and timber production with the task of "sustainable management of forests for the benefit of the nation".</p> <p>The semi-autonomous Foundation for Forest Management and Production Control (SBB), established in 1998, is mandated by LBB to be responsible for forest management and the monitoring and control of logging in production forests.</p> <p>An institutional reform is ongoing and preparations are being made to establish a single Forest and Nature Management Authority (now called BOSNAS), replacing LBB and SBB.</p>	

SURINAME	FCPF R-PP August 2009 1 st UNFCCC Nat. Comm. 2006
<p>An Interdepartmental (Ministerial) Committee, comprising representatives of eight Ministries, two NGOs (Tropenbos and CI) and coordinated by RGB has been recently established to specifically oversee the process of the FCPF REDD Readiness Preparation.</p> <p>Presidential Committee on Land Rights established in 2006, which has done a study of the legislation and initiated a preliminary dialogue with the tribal peoples. The results and recommendations of this study were presented to the President in August 2008; the report is not yet available to the public.</p>	
<p>Programmes / Activities</p> <p>National Forest Policy was formulated in 2003 in a participatory process, laying down guidelines for achieving sustainable forest management. In the view of some stakeholder groups the policy is not yet concrete enough and may leave too much room for maneuvering.</p> <p>Currently, a Strategic Action Plan is being discussed in a participatory process. The objective is to enhance the contribution of forests to the national economy and the well being of current and future generations, with regard for the conservation of biodiversity. Capacity needs to be developed to use forest resources in an economically viable, socially equitable and ecologically sound manner.</p> <p>Multi Annual Development Plan (MOP) for 2006-2011 was developed through a process with limited stakeholder involvement, but describes a participatory process which will be utilized to monitor and evaluate the current plan and develop the following 5-year development plan. The Ministry of Planning and Development Cooperation (PLOS) coordinate this participatory process.</p> <p>Biodiversity Strategy (2005) and the draft Plan of Action were developed in a participatory process through individual consultations with key stakeholder groups, and a series of stakeholder consultations and workshops with wide participation, including public, private, civil society and indigenous/ maroon representatives, as well as representatives from the scientific community.</p>	
<p>Challenges and Needs for AFOLU / REDD</p> <p>In the process of elaborating the National Forest Policy, the lack of institutional capacity in both the private and public sectors was identified as one of the main constraints to achieve sustainable and rational management and use of the forest resources. An institutional reform is in planning, laws have been prepared and now require approval from Parliament.</p> <p>Challenges:</p> <ul style="list-style-type: none"> • Insufficient financial resources to implement policies, such as the National Forest Policy, and the Interim Strategic Action Plan for the forest sector; Weak law enforcement (governance) • Lack of finance for land use planning, quantification of resources, capacity building, developing a special REDD strategy and action plan • Lack of capacity in remote sensing, monitoring, carbon accounting • Organizational aspects, including coordination of REDD within the Government structures: mechanisms for transparency, equitable and viable benefit sharing <p>Needs:</p> <ul style="list-style-type: none"> • Development of a coherent land use map, baseline studies; monitoring mechanisms, sustainable forest management protocols and criteria; therefore • Research to establish and use criteria essential for sustainable logging, particularly the long-term studies that document the growth rate of key timber species, their reproductive cycles, and the ecology conditions necessary to ensure their recruitment into the forest canopy, research to develop and implement sustainable agricultural practices in areas with appropriate soils • Studies that address the cost and benefits from salvage logging as an integral part of to land-conversion projects aimed at increasing agricultural production • Capacity building to improve forest management, environment impact assessment (e.g., improvement of institutional and human resource capacity) and awareness building about REDD and the importance of sustainable management of the forests 	