

# Lessons from REDD+ for Agriculture



CLIMATE  
CHANGE  
AGRICULTURE AND  
FOOD SECURITY



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## Disclaimer

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The views expressed in this report are those of the authors and not the UK Department for International Development, the CGIAR, the ESSP or the individuals interviewed.

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## Front cover photo

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By Neil Palmer (CIAT). A vegetable farmer with his watering cans in Ghana's Upper West Region.

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# Glossary

**AFOLU** – Agriculture, Forestry and Other Land Use

**AMCEN** – African Ministerial Conference on the Environment

**Anchorage Declaration** – Declaration by the Indigenous Peoples’ Global Summit on Climate Change, which met in Anchorage, Alaska in April 2008. Representatives of indigenous peoples from across the world met to discuss climate change and messages they wished to deliver to the COP 15.

**A/R** – Afforestation/ Reforestation, usually referred to as A/R in the context of the Clean Development Mechanism.

**ARS** – The Agricultural Research Service of the U.S. Department of Agriculture

**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 UN Framework Convention on Climate Change (UNFCCC).

**BAU** – Business as usual (scenario). Also referred to as “baseline,” this is the land use and GHG emissions profile for a mitigation project area prior to intervention, which serves as a benchmark to measure the impact of REDD actions.

**Biocarbon Fund** – Part of the World Bank Carbon Finance Unit. The Fund sponsors projects that sequester or conserve carbon through forests and agro-ecosystems. The goal of the Fund is to find cost-effective ways to reduce emissions, promote biodiversity and work towards poverty alleviation.

**C-AGG** – Coalition on Agricultural Greenhouse Gases, a group of agricultural producers, scientists, methodology experts, carbon investors and project proponents that is fostering a fact-based discourse on the development and adoption of methodologies and protocols for GHG emission reductions and carbon sequestration associated with agriculture.”

**Carbon Positive** – Organization working to create environmental trading opportunities within the shipping industry and promote commercial initiatives for sustainable resource development.

**CARE** – A humanitarian organization focused on fighting global poverty.

**Carbon pools** – In terrestrial systems, these include above-ground biomass, below-ground biomass, soil organic matter, litter, dead wood, and harvested wood products.

**Cascade Program** – Aims to enhance expertise to generate carbon credits in land use, land use change and forestry (LULUCF) as well as bioenergy activities in Sub-Saharan African countries.

**CBD** – Convention on Biological Diversity

**CCAFS** – CGIAR Program - Climate Change, Agriculture and Food Security, a strategic partnership between the Consultative Group on International Agricultural Research (CGIAR) and the Earth System Science Partnership (ESSP).

**CCBA** – Climate, Community and Biodiversity Alliance, a partnership of international NGOs and research institutes seeking to promote integrated solutions to land management around the world.

**CDM** – Clean Development Mechanism (CDM) of the Kyoto Protocol. It “allows a country with an emission-reduction or emission-limitation commitment under the Kyoto Protocol (Annex B Party) to implement an emission-reduction project in developing countries.” These projects can earn the country

certified emission reduction (CER) credits, which can be used to meet their Kyoto targets. CDM is designed to motivate emissions reductions through sustainable development while providing multiple options for how developed countries may meet their targets.

**CfRN** – Coalition for Rainforest Nations

**CGIAR** – Consultative Group on International Agricultural Research

**CCX** – Chicago Climate Exchange (CCX) was a voluntary, legally binding greenhouse gas (GHG) reduction and trading system for emission sources and offset projects in North America and Brazil until mid-2010.

**CIFOR** – Center for International Forestry Research (CGIAR)

**Clinton Climate Initiative (CCI)** – Branch of the Clinton Foundation which focuses on “increasing energy efficiency in cities, catalyzing the large-scale supply of clean energy, and working to stop deforestation.”

**CI** – Conservation International

**CMP** – Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol

**Coalition of Rainforest Nations** – Forested tropical developing countries collaborating with industrialized nations “to reconcile forest stewardship with economic development.”

**Conservation and Community Carbon Fund** – A funding program of Conservation International. The program’s goal is “to support the design, start-up and implementation of forest-based carbon projects that counteract global warming and deliver biodiversity and local community benefits.”

**COP** – Conference of the Parties, governing body of the UNFCCC. A number after the acronym indicates the number of the conference.

**DOEs** – Designated Operational Entities are third-party validators under the CDM tasked with ensuring that mitigation projects produce real, measurable and long-term emission reductions.

**DRC** – Democratic Republic of the Congo

**Ecosystem Marketplace** – global market information platform for ecosystem services that provides articles and updates about the status and progress of REDD projects.

**EDF** – Environmental Defense Fund

**EU-ETS** – European Union Emission Trading System.

**FAO** – Food and Agriculture Organization of the United Nations

**FCPF** – Forest Carbon Partnership Facility of the World Bank builds capacity for REDD+ in developing countries in tropical and subtropical regions

**FIELD** – Foundation for International Environmental Law and Development International environmental law non-profit with a mission of “A fair, effective and accessible system of international law that protects the global environment and promotes sustainable development.”

**FIP** – Forest Investment Program. Objective 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.”

**FLEGT** – The Forest Law Enforcement, Governance and Trade Action Plan agreed under the European Commission in 2003 to address illegal logging and related trade through Voluntary Partnership Agreements with timber producing countries.

**Forest Carbon Portal** – Online clearinghouse of information and market analysis on forest-based carbon sequestration projects, operated by Ecosystem Marketplace

**FPIC** – Free and Prior Informed Consent

**G8** – Group of Eight. Consists of France, Germany, Italy, Japan, the United Kingdom, the United States, Canada and Russia. “G8” also refers to the annual summit meetings held by these countries.

**G77** – The Group of 77. Established on 15 June 1964 by seventy-seven developing countries signatories of the “Joint Declaration of the Seventy-Seven Countries” issued at the end of the first session of the United Nations Conference on Trade and Development (UNCTAD) in Geneva. The G77 now has 131 member countries.

**GEF** – UN Development Program’s Global Environment Facility. GEF “helps developing countries fund projects and programs that protect the global environment. GEF grants support to projects related to biodiversity, climate change, international waters, land degradation, the ozone layer, and persistent organic pollutants.”

**GHG** – Greenhouse gas

**GRA** – Global Research Alliance on Agricultural Greenhouse Gases

**GOFC-GOLD Sourcebook** – document summarizing methods and procedures for monitoring and reporting anthropogenic greenhouse gas emissions and removals caused by deforestation, gains and losses of carbon stocks in forests remaining forests, and forestation.

**GTZ** – The Deutsche Gesellschaft für Technische Zusammenarbeit – the German enterprise for technical cooperation

- ICRAF** – The World Agroforestry Centre (CGIAR)
- ICTSD** – International Centre for Trade and Sustainable Development
- IFPRI** – International Food Policy Research Institute (CGIAR)
- IIED** – International Institute for Environment and Development
- IISD** – International Institute for Sustainable Development
- International Forest Carbon Initiative** – REDD support initiative under the Australian Department of Climate Change and Energy Efficiency and AusAID.
- IPCC** – Intergovernmental Panel on Climate Change
- IPs** – Indigenous Peoples
- ITTO** – International Tropical Timber Organization
- NEPAD** – The New Partnership for Africa’s Development, a program of the African Union
- KP** – Kyoto Protocol under the UNFCCC
- LULUCF** – Land Use, Land-Use Change and Forestry
- MICCA** – Mitigation of Climate Change in Agriculture (MICCA) Project, a five-year project by FAO.
- MRV** – Monitoring, reporting and verification
- NAMAs** – Nationally Appropriate Mitigation Actions
- NGO** – Non-governmental organization
- PNG** – Papua New Guinea
- POA** – Program of Activities
- PRP** – The Prince’s Rainforest Project
- REALU** – Reducing Emissions from All Land Uses
- REDD** – Reducing emissions from deforestation and forest degradation
- REDD+** – REDD with addition of conservation, sustainable management of forests and enhancement of forest carbon stocks
- RRI** – Rights and Resources Institute
- SBI** – Subsidiary Body for Implementation under the UNFCCC
- SBSTA** – Subsidiary Body for Scientific and Technological Advice under the UNFCCC
- START** – SysTEM for Analysis, Research and Training (START)
- TFD** – The Forest Dialogues
- TNC** – The Nature Conservancy
- UNDP** – United Nations Development Program
- UNEP** – United Nations Environment Program
- UNFCCC** – United Nations Framework Convention on Climate Change. The UNFCCC is an international treaty regarding how to decrease and cope with global warming and its effects. The Kyoto Protocol is an addition to the treaty with more legally binding components.
- UN-REDD** – An interagency UN program (FAO, UNDP and UNEP) founded in 2008. Its mission is to assist developing countries prepare and implement national REDD+ strategies. Pilot countries include Bolivia, Dem. Rep. of Congo, Indonesia, Panama, Papua New Guinea, Paraguay, Tanzania, Vietnam, & Zambia. Partner countries include Argentina, Ecuador, Cambodia, Costa Rica, Kenya, Mexico, Nepal, Nigeria, the Philippines, Republic of Congo, Solomon Islands, Sri Lanka and Sudan.
- UCS** – Union of Concerned Scientists
- VCS** – Voluntary Carbon Standard. VSC is a global standard for voluntary offset projects and makes certain that these offsets are trustworthy and beneficial.
- WCS** – Wildlife Conservation Society
- WEF** – World Economic Forum
- WHRC** – Woods Hole Research Center
- WRI** – World Resources Institute
- WWF** – Worldwide Fund for Nature

# Executive Summary

The history of Reduced Emissions from Deforestation and Degradation (REDD)<sup>1</sup> can inform agricultural climate change mitigation. Drawing on interviews with 32 experts<sup>2</sup> and review of the literature, this rapid assessment study summarizes lessons in six areas necessary for a successful global mechanism for agricultural mitigation.

## 1. International Policy Support

Although proposals to include forest-based offsets were made during negotiation of implementation rules for the Kyoto Protocol from 1997 to 2001, support for REDD accelerated in 2005 at the Montreal COP11, and after the Bali Action Plan endorsed a road map for REDD in 2007.

<sup>1</sup> The authors use “REDD” in a generic sense to cover the mechanism otherwise referred to as avoided deforestation RED, REDD and REDD+. When a point requires more specificity, the authors refer to the relevant form of REDD.

<sup>2</sup> See Annex I for a list of interviewees.

Important factors included:

- (1) Recognition of the potential for significant economic gains for both developing and developed countries, sparked in part by the Coalition for Rainforest Nations;
- (2) Analysis in the 2006 Stern Review that indicated that protecting existing forests was the most efficient and cost-effective means for quickly reducing global emissions;
- (3) Financial support from Norway, which has delivered about USD 500 million per year to multilateral and bilateral initiatives, effectively catalyzing policy and on-the-ground action needed to implement REDD;
- (4) Confidence in the feasibility of REDD due to decades of experience with forest conservation and forest inventories, the establishment of pilot projects, and technical consensus around key issues and methods, although this experience also indicates persistent challenges in the area of governance.

The use of a building block approach to REDD allowed negotiators to move toward inclusion of REDD+ within the Cancún Agreements at COP16.

### Key Points: International policy support

#### Lessons from REDD

- A deliberate preparation period for REDD policy and capacity building can support technical and financial confidence and consensus.
- Demonstrating feasibility on the ground is essential. Iterative improvement in policy processes requires ongoing feedback from field-level experiences.
- Political negotiations move forward more quickly by focusing on larger strategic policies, leaving relevant experts to address technical details.
- Political participation should be inclusive and transparent.

#### Barriers for agriculture

- Developing an agricultural mitigation mechanism requires navigating politically challenging terrain and leadership has not yet coalesced.
- Agricultural mitigation is more complex than REDD and still needs to pass the “significance” and “feasibility” tests.
- Opposition to a global agricultural mechanism arises from concerns about delaying or derailing a REDD agreement, trade-offs with food security, reduced profitability and viability of agriculture, impacts on trade and competitiveness and potential for agribusiness to dominate the agenda.

#### Opportunities for agriculture

- There are policy windows for agricultural mitigation under the Kyoto Protocol, current negotiating texts and through SBSTA. Progress is also possible through intergovernmental collaboration, sub-national and national-level action, supply chain initiatives and trade policy.
- There is growing awareness of the interdependence between agriculture and forestry and global security.
- Political momentum can be accelerated by: (1) an authoritative synthesis of issues, potential and options that enables clear understanding of stakeholder interests and capacities, (2) an overall framework for dealing with agricultural mitigation, land use and food security, (3) cultivating high-level political and corporate champions and (4) building coalitions and aligning interests among countries and other stakeholders.

## 2. Implementation Mechanisms and Governance

Experience gained through the Clean Development Mechanism, voluntary markets, conservation or community forestry projects and trial REDD-style projects has informed the development of rules, methods, models, standards and guidance for greenhouse gas (GHG) accounting and project design. A vision for a phased approach to REDD has allowed countries to prepare and demonstrate feasibility, with oversight by international bodies such as the World Bank’s Forest Carbon Partnership Facility (FCPF), and enabled donors to test their involvement in stages and foresee a transition to the market. While not all issues have been resolved, experience and analysis have enabled more sophisticated efforts to develop a REDD mechanism that usefully accounts for permanence, additionality, multi-scale activity and incentives, bundling projects and methodologies and transaction costs.

Achieving clear land rights, transparency and accountability remains challenging in the forest sector, inhibiting confidence in REDD. While progress has been made on the principles of good governance, knowledge is weak for necessary rules and processes suggesting that nesting of REDD within local to national and international governance frameworks will be necessary to address interests and drivers of deforestation. Demands for safeguards and monitoring of governance have emerged from indigenous groups and other civil society stakeholders.

Key points: Implementation mechanisms and governance	
<b>Lessons from REDD</b>	<ul style="list-style-type: none"> <li>• Mechanisms for agricultural mitigation should build on innovations developed through existing programs, policies and projects. Capacity building is a priority.</li> <li>• Mechanisms and governance measures will be necessary at multiple scales.</li> <li>• Technical information should be made widely available and accessible to decision-makers early on.</li> </ul>
<b>Barriers for agriculture</b>	<ul style="list-style-type: none"> <li>• Key elements of REDD (eg, pay-for-performance incentives, additionality) may not translate easily to agricultural mitigation which is also complicated by diverse land ownership and management.</li> <li>• Standard-setting processes are not well-coordinated and there is potential for increasing fragmentation. Benefit allocation will be strongly influence by rules for reference levels and eligible mitigation practices.</li> <li>• Tensions among proponents of industrialized and smallholder agriculture inhibit development of a shared vision for the future of global agriculture.</li> </ul>
<b>Opportunities for agriculture</b>	<ul style="list-style-type: none"> <li>• An agricultural mechanism can build on experience with REDD-related standards and methodologies, emission reduction strategies in farms and mixed landscapes and experimentation with market schemes.</li> <li>• Standards and verification processes are under development through a number of venues including regulated and voluntary markets.</li> <li>• Options for a phased approach to REDD that includes agricultural modules can best be evaluated by enabling negotiators to confer with experts.</li> <li>• Analysis and pilots can assess proposed approaches (eg, aggregation of offset credits, supply chain and sectoral approaches).</li> </ul>



### 3. Tools and Technical Guidance for Monitoring, Reporting and Verification (MRV)

Development of monitoring tools and methods is well advanced, especially for tracking deforestation, and guidance by the Intergovernmental Panel on Climate Change (IPCC) has built a base of scientific credibility for REDD. The 2006 Rome UNFCCC Workshop on REDD built agreement among technical experts that existing measurement methods were sufficient to make REDD operational. Informal engagement of negotiators with technical experts and other stakeholders has helped move the technical agenda and increase buy-in for REDD.

However, capacities to use tools and technical measures as well as the practical aspects of establishing monitoring systems have posed challenges. Strict project-level MRV requirements have inhibited the initiation of forestry projects under the CDM and there is a need for stream-lined project approaches and more credible verification. Further technical convergence is needed on key issues such as balancing the need for high accuracy and precision with monitoring costs.

#### Key points: Tools and technical guidance for monitoring, reporting and verification (MRV)

##### Lessons from REDD

- A global MRV framework that is accessible and affordable to developing countries is a priority.
- An AFOLU approach that enables integration of agriculture and forestry would help to address agricultural expansion and leakage.
- A balance between measurement rigor and cost will be required to meet the needs of different incentive mechanisms or investors.
- Independent, capable, reliable verification and standards are necessary.

##### Barriers for agriculture

- A multi-scale MRV system is needed to support estimating agricultural mitigation potential, monitoring GHG outcomes, reporting and ensuring meaningful mitigation, yet relatively few countries have robust capacity.
- MRV for agricultural systems is complicated by difficulties in measuring N<sub>2</sub>O and CH<sub>4</sub> emissions, high potential for reversibility and knowledge gaps for managing N<sub>2</sub>O, fertilizer, livestock and biofuels.

##### Opportunities for agriculture

- It is possible to combine field measurements, remote sensing, conversion equations, and models to estimate changes in carbon pools.
- Technical convergence initiatives can address: (1) evaluating change in extensive areas over long time periods, (2) balancing rigor with feasibility and (3) cost-effective integration of models, ground measurements and management data.
- Investment and institutional engagement can improve: (1) regionally-relevant, whole-landscape field data and models, (2) cost-effective, user-friendly tools and methods for all GHGs, (3) data sharing across scales and sectors and (4) remote sensing information.

## 4. Finance and Incentives

REDD may be financed through market-based trading of forest-based carbon credits or fund-based mechanisms. Within the current mix of regulated and voluntary offset credit markets, biocarbon credits have had a relatively low market value, reflecting the delayed development of domestic trading frameworks as well as possible low confidence in future establishment of credible national MRV systems. Funding provided by foundations and developed country governments has been critical for supporting initial pilots, as well as activities ranging from capacity building to negotiations. Norway's role has been pivotal in supporting international institutions (e.g., UN-REDD), bilateral REDD deals and fostering cooperation.

More coordination is needed at the country level between both donors (bilateral, multilateral, and private) and, in many REDD+ countries, between domestic government agencies. The Interim REDD+ Partnership is producing a series of analyses of REDD+ financing gaps and overlaps.

### Key points: Finance and incentives

#### Lessons from REDD

- Early donor support is critical to demonstrating feasibility and building readiness. Donors have played leadership roles as champions for moving policy and operations forward.
- Coordination of finance among donors and investors is a priority.
- Finance should be mainstreamed and integrated with sustainable development investments. Distribution mechanisms for local communities and farmers need more attention.

#### Barriers for agriculture

- Opportunity costs of “normal” development (eg, deforestation, high emissions agriculture) and transition costs require compensation, yet offset credits are unlikely to be a stand-alone incentive for changing practices.
- Early financing is needed from donor governments and foundations for readiness and capacity building activities.
- Credibility and market potential of agricultural offset credits has been hindered by slow progress toward cap-and-trade markets, relatively few pilot projects and challenges in establishing national MRV.

#### Opportunities for agriculture

- Aggregating projects may reduce transaction costs and facilitate investment.
- “Assisted transitions” across supply chains can be explored with attention to regulation, insurance and best practices in addition to finance options.
- Integrated analysis of potential sources, types and magnitude of finance can compare financing approaches and assess likely impacts and opportunities.
- Several governments and foundations have signaled leadership on agricultural mitigation. A coordinated framework for government and foundation support can: (1) build momentum and foster alignment across scales and sectors, (2) leverage private sector and developing country investments, (3) improve accountability and (4) protect existing ODA commitments.

## 5. Capacity for Implementation, Especially at the National Level

There is a broad spectrum of readiness for REDD among forested developing nations and capacity building needs are significant. Two major multilateral efforts are helping to build confidence and readiness on the ground. The Forest Carbon Partnership Facility (FCPF), facilitated by the World Bank, has established 37 “REDD countries,” 11 of which have submitted Readiness Preparation Proposals (R-PP). UN-REDD, initiated in 2008, delivers readiness support to 29 countries. By creating a systematic way to prepare for REDD and providing funds, readiness programs have spurred countries to explore what a national REDD program could look like and have helped to highlight differences among countries.

In addition, a number of NGOs have undertaken independent capacity building exercises in developing countries focused on training stakeholders, engaging indigenous communities and governments and addressing technical barriers. Broad implementation of REDD-style projects may be hindered by concentration of funds at the national level or inefficiencies that arise from rapid ramp-up of programs and funding streams. Gaps in country readiness contribute to the risk of international leakage.

### Key points: Capacity for implementation, especially at the national level

#### Lessons from REDD

- Multilateral capacity building programs have quickly supported a large number of countries, but need to reach beyond national centers and more fully involve on-the-ground entities.
- Phased capacity building and implementation appear to be effective.
- Coordination in capacity building is a priority

#### Barriers for agriculture

- Many developing countries have gaps in capacity for agricultural mitigation practices, offset market participation, MRV and governance structures.
- Institutional roles for enabling agricultural mitigation are unclear and structured frameworks are needed to harmonize initiatives across scales, regions and sectors.
- Some countries are better positioned to capitalize on future agricultural mitigation mechanisms (eg, wealthier countries less susceptible to climate change impacts or food security issues).

#### Opportunities for agriculture

- On-the-ground projects in different regions of the world can demonstrate: (1) critical mass of credible emissions reductions and co-benefits, (2) adequate incentives and cost-effectiveness, (3) compatibility with national objectives.
- A step-wise, “learning-by-doing” approach can foster increasing accuracy thresholds and encourage early mitigation actions.
- Platforms for information-sharing and technical convergence can facilitate identification of agricultural mitigation practices serve multiple objectives (eg, productivity, resilience, net emissions reduction) in the full range of farming systems.

## 6. Co-benefits for the Environment and Poverty Alleviation

Co-benefits generally refer to positive environmental and social impacts beyond mitigation. Co-benefits are closely related to the concept of safeguards, which are “do no harm” rules that seek to limit negative social and environmental impacts. REDD-style projects have demonstrated the feasibility of generating tangible co-benefits for income and land rights. They have also identified the importance of distributing benefits through investments in community development rather than payments to individuals. The Climate Change, Community and Biodiversity Alliance (CCBA) has established standards against which REDD projects’ co-benefits can be measured.

Some REDD proponents are concerned that REDD will fail or mitigation outcomes will be diminished if co-benefits are explicitly included while others believe that this will generate support across multiple stakeholders and better achieve REDD aims. The 2009 Anchorage Declaration was a strong statement calling for recognition of indigenous peoples’ rights, traditional knowledge and right to formally participate in UNFCCC processes. For a REDD mechanism to achieve pro-poor outcomes, alignment is needed among definition of rights, access to finance and legal recourse, participation mechanisms and development strategies.

<b>Key points: Capacity for implementation, especially at the national level</b>	
<b>Lessons from REDD</b>	<ul style="list-style-type: none"> <li>• Standards and safeguards are important for promoting environmental and poverty alleviation aims if they implemented independently and robustly.</li> <li>• Making provisions early on for structured participation and attention to free prior and informed consent principles and procedures is a priority.</li> <li>• Delivering co-benefits will depend on improvements in mechanisms external to UNFCCC (e.g., assuring land rights in national policies).</li> </ul>
<b>Barriers for agriculture</b>	<ul style="list-style-type: none"> <li>• Farmers undertake agriculture to secure food and livelihoods; mitigation will often be a co-benefit associated with other incentives, especially adaptation.</li> <li>• To make informed decisions, producers and farming communities need to understand liabilities associated with offset credit contracts.</li> <li>• Clarity is needed for tradeoffs (eg, food security, mitigation) and controversial issues (eg, organic vs. conventional production).</li> </ul>
<b>Opportunities for agriculture</b>	<ul style="list-style-type: none"> <li>• Existing standards and certification programs can incorporate mitigation and adaptation-related principles and encourage private sector best practices.</li> <li>• Safeguards can be developed for food security, livelihoods, economic development, pro-poor outcomes and environmental impacts. Mitigation and adaptation mechanisms can be “bundled” where appropriate.</li> <li>• Facilitated stakeholder and expert consultations may help to develop robust mitigation schemes that promote good governance, transparency and equitable benefit allocation.</li> </ul>

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## Conclusions

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The policy landscape is starting to open for agricultural mitigation. According to this study's rapid assessment in mid 2010, REDD offers valuable lessons relevant to the international political process and technical development of agricultural mitigation.

**Creating policy space** for agricultural mitigation will require shared leadership that supplies vision, resources and momentum, and is informed by state-of-the-art syntheses for specific issues (such as financial mechanisms and gender-related impacts). Policy progress must be balanced with improved technology and appropriate safeguards. Agreement on policy options (e.g., whether and how to link to REDD) can emerge as communication channels are created between projects and technical experts, negotiators and policy-makers.

**Building operational feasibility** will require incentives for farmers and other land users to change their practices. Near-term investments are needed to develop capacity and experience, as well as conceptual and practical integration of emissions offsets, supply chains, and other approaches for promoting net GHG reductions from agriculture. A phased approach will enable donors and investors to develop confidence and ownership and push through roadblocks such as finance, MRV, and independent verification. As key concepts that shaped REDD (e.g., additionality, permanence) are translated to agriculture, they must be aligned with the need to protect livelihoods and basic rights to food security.

To create the policy space and operational feasibility necessary for agricultural mitigation, parallel advancement is needed on multiple intersecting tracks.

**Developing a shared vision** for achieving agricultural mitigation that reflects the highest priorities of stakeholders and major drivers of agricultural emissions is an essential and high hurdle to cross that requires:

- Acknowledging deadlocks, clarifying the basis for self-interested action at national and sectoral scales and merging top-down design with bottom-up operational experience;
- Developing a common language, increasing fluency on technical and policy concerns, and clear framing of policy options;
- Formal and informal stakeholder engagement, major events that bring diverse perspectives together, and efforts by respected thought leaders.

**Tackling high-priority analysis** to inform policy and implementation options for agricultural mitigation can be achieved through:

- Focused efforts by multilateral agencies, research consortia and other communities of practice;
- Synthetic modeling and analysis as well as meetings and platforms for technical convergence;
- An authoritative independent review that situates the issue of agricultural mitigation in a global context, rigorously outlines mitigation potential and policy and financing strategies, and sets out a mandate for further research.

**Coordinating efforts** among countries, agri-business and trade groups, farmers associations, indigenous communities and multilateral agencies are needed to avoid divisive policy blocs and fragmented technical and institutional responses. Convening efforts should:

- Be grounded in a comprehensive understanding of the drivers, actors and institutional arrangements currently influencing global agriculture;
- Identify and fill key gaps in communication;
- Clarify institutional roles and responsibilities and achieve broad agreement on an overall policy strategy.

**Getting money to flow** from donor governments, foundations and industry to support readiness, infrastructure and action on-the-ground is essential to building confidence and momentum around agricultural mitigation and mobilizing technical activity and institutional engagement. Key elements include:

- Leadership by a constellation of "anchor" donors, bilateral agreements, and multilateral programs;
- Supply chain projects, Payments for Environmental Services (PES) initiatives, and other types of market experimentation;
- Mechanisms for sharing and synthesizing findings and feeding them back into policy processes.

# 1. Introduction

The purpose of this report is to examine the lessons from the history of Reduced Emissions from Deforestation and Degradation (REDD) for advancing the policy and technical basis for agricultural climate change mitigation. We draw from this analysis to identify opportunities for advancing agricultural mitigation.

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## 1.1 Why REDD?

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Having gained significant policy momentum, REDD+ has been included in the COP16 Cancún Agreements and is poised for implementation as an international mechanism for global climate change mitigation. The 2006 Stern review concluded that reducing deforestation was the single most important way to cost-effectively and immediately reduce global carbon emissions.<sup>1</sup> The mobilization of funding, technical activity and institutional engagement for REDD has been relatively quick and broad, with at least 37 countries already preparing national REDD programs and a wide array of public and private entities investing attention and resources. A significant foundation for a terrestrial carbon program is being established through REDD, which could be extended to include agriculture. An integrated approach between forestry and agriculture would help to address issues of agricultural expansion and leakage in REDD.

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## 1.2 Scope of this Report

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This report focuses on REDD as an international agreement and the lessons REDD offers for an international mechanism for agriculture. The study does not directly address the Clean Development Mechanism (CDM), voluntary markets, bilateral agreements or other mechanisms for agricultural mitigation.

One of the central challenges of the complexity and rapid pace of REDD and agricultural mitigation is that very few people have a full view of the wide range of issues, especially for both REDD and agriculture. This report is an effort to bridge that gap by pulling together expert opinions. Given the rapidly evolving, multi-level and multi-pronged nature of REDD and agricultural mitigation developments, it is impossible to provide comprehensive analyses of either of these processes. This study is therefore a rapid assessment based on a limited number of interviews and selected literature.

While the analysis draws lessons from REDD, our focus is to inform the general development of approaches to agricultural mitigation, both in and beyond the United Nations Framework Convention on Climate Change (UNFCCC). A REDD++ mechanism that includes agriculture represents one option for an integrated policy approach to land-based mitigation; however, a coordinated set of independent mechanisms could also be developed for forests, peatlands, agriculture and other land uses. Beyond the UNFCCC process, agricultural mitigation could advance through mechanisms such as bilateral government collaboration, sub-national or national-level action, supply chain initiatives or trade policy.

The study is not intended to summarize the state of agricultural mitigation, but rather to highlight relevant issues from REDD for agriculture.

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## 1.3 Methods

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The information sources for this report include interviews and email exchanges with 32 key respondents with expertise in REDD and, to a lesser extent, agricultural mitigation (see References and Further Reading) as well as review of relevant literature. The analytical framework focuses on six main areas. Experience with REDD suggests that progress in these six areas is required for a successful global mechanism for agriculture:

1. International policy support
2. Implementation mechanisms and governance
3. Tools and technical guidance for monitoring, reporting and verification (MRV)
4. Finance and incentives
5. Capacity for REDD implementation, especially at the national level
6. Co-benefits for the environment and poverty alleviation

A confluence of these elements is required for a global mechanism, i.e., MRV cannot exist without a policy framework, and finance cannot exist without governance or technical credibility. Some developments have been particularly instrumental in advancing (and delaying) REDD+ implementation through the UNFCCC process. Analysis of these elements and their impact on REDD indicates potential priorities for further investment and attention for agriculture. Recognizing that the historical context for REDD is unique, much of the groundwork now exists for a terrestrial carbon program that could include agriculture.

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<sup>1</sup> Stern, 2006.

## 2. The History of REDD

### 2.1 REDD Policy-Making Process

#### **Key lessons for agriculture**

- Economic incentives for developing countries to engage in mitigation are essential.
- A deliberate period of preparation for REDD policy and a phased approach to capacity building can support consensus building and technical and financial confidence.
- Demonstrating feasibility on the ground is essential. Lessons demonstrated at the field level need to be linked back to the policy process. The policy process should allow for iterative improvement based on this learning.
- Political negotiations will move forward more quickly by focusing on larger strategic policies and leaving technical details to be solved by experts in relevant fields.
- Political participation should be inclusive and transparent.

REDD policy has progressed due to strong leadership (e.g., Coalition for Rainforest Nations, Norway); financing (Norway and the World Bank, see below); significant motivation within both Annex I and non-Annex I countries; alignment of diverse stakeholder interests (from the conservation community to oil and gas proponents); three decades of conservation experience that have demonstrated the possibilities and challenges for protecting forests; and demonstrated feasibility in REDD pilot projects.

The REDD policy process has been criticized for lacking attention to participation of local communities and other national or local level stakeholders, both at the international and national levels. Indigenous communities, through the Anchorage Declaration (April 2009), declared forest offsets to be a “false solution” and requested representation in the UNFCCC secretariat as well as funding for indigenous peoples’ participation “in all climate processes.” A key concern is that national-level programs will lead to recentralizing of forestry decisions and detract from decades of efforts to support forest communities’ self-determination and rights.

#### **Development of REDD in the UNFCCC**

Political support for REDD in the UNFCCC developed over a ten-year period, with targeted effort taking off in 2005. (See also the summary of the policy process leading up to COP15

by the Tropical Forest Group<sup>2</sup> for a more detailed account of the history of the negotiations as well as the Carbon Planet White Paper<sup>3</sup>).

In 1997, the Kyoto Protocol (KP) set emissions reduction targets for 2008-2012, but the rules for implementing the Protocol, including initial treatment of avoided deforestation, were only negotiated from 1997 to 2001. During this initial period, the Worldwide Fund for Nature (WWF),<sup>4</sup> Brazil and the European Union initially opposed including forestry-based offset credits. Their concerns included failing to hold developed countries accountable for mitigation of fossil fuel emissions in the North, reducing the return on investment for fossil fuel mitigation through lower carbon prices and flooding the market with offset credits. In the COP6b (2001), delegates agreed to not include forestry-based offset credits in the first commitment period.

In 2005, the Coalition for Rainforest Nations introduced the concept of avoided deforestation (see Box 1), which led to the inclusion of REDD in the Bali Action Plan in 2007 and a subsequent intensive two-year process of planning for an agreement on REDD at COP15 in 2009. From 2005 onward, efforts of the CfRN and its allies mobilized support by (1) framing REDD as an economic development strategy with clear incentives for developing countries rather than a mandatory reduction; (2) enlisting high profile academic leaders to be spokespersons and provide rigorous analysis; and (3) sustaining high-level political engagement.

Other key landmarks for REDD include:

- The 2006 Stern Review on the Economics of Climate Change that concluded that forest-based offsets were the most cost effective approach to tackling climate change in the near term;
- The 2006 Rome UNFCCC Workshop on REDD, where consensus occurred among technical experts that existing measurement methods were sufficient to make REDD operational;
- The 2007 Bali Action Plan at COP13 created a second working group (after that of AWG-KP in 2005), the Ad-hoc Working Group on Long-term Cooperative Action (AWG-LCA), to review longer-term commitments under the UNFCCC including REDD.

2 A History of Climate Change and Tropical Forest Negotiations. August, 2007

3 Holloway & Giandomenico, 2009

4 While WWF led the opposition, they were joined by all US NGOs except The Nature Conservancy. WWF’s opposition reportedly caused the entire negotiations to fail.

From 2005 to 2010, the key factors driving the shift in engagement and support for REDD in the UNFCCC were:

- Use of a building block approach that allowed negotiators to consider an agreement on REDD in COP15 apart from agreement on other climate issues;
- Early and sustained leadership and support of Norway to fund multilateral (e.g., UN-REDD) and bilateral REDD initiatives (e.g., Indonesia, Brazil, Guyana);
- Early articulation of key areas of concern such as MRV, additionality, leakage, permanence and governance. The Subsidiary Body for Scientific and Technological Advice (SBSTA), multilateral agencies, communities of practice, thought leaders and others subsequently produced focused and extensive analysis on these concerns;<sup>5</sup>
- A vision for a phased approach to REDD to allow countries to prepare and demonstrate feasibility, with oversight by international bodies such as the Forest Carbon Partnership Facility (FCPF). The phased approach enabled donors to test their involvement in stages and foresee a transition to the market (see Figure 1);
- Informal engagement of negotiators with technical experts and other stakeholders throughout the process, which helped move the technical agenda and increase buy-in for REDD;
- Shifts in domestic public opinion and leadership of governments (e.g., Australia 2006-7) and NGOs, as well as a growing recognition of the need for political compromise and pursuit of all mitigation wedges;
- Alignment of self-interest among many stakeholders who, as of COP15 in 2009, saw REDD as a low-controversy “easy win” based on appreciation by developed countries of “cheap” carbon offsets and interest among developing countries in financial incentives;
- Availability of pilot projects to demonstrate the feasibility of REDD on the ground<sup>6</sup> and the linking of these experiences to the policy making process to inform improvements;
- High-profile events that showcased REDD-related analysis and enabled open debate.<sup>7</sup>

5 For example, marshalling of three decades of forest conservation experience in the publication *Do Trees Grow on Money?*

6 Such as the first REDD-type project, Noel Kempff Mercado Project in Bolivia (started in 1996), Bolsa Floresta in Brazil or the Ulu Masen Project in Indonesia.

7 For example, the well-attended Forest Day (an annual parallel event to the COP since 2007) increased visibility and also brought governance issues into the dialogue; the 2007 G-8 meeting of environmental ministers in Potsdam with China, India, Brazil, Mexico and South Africa enabled convergence among developed and developing countries' positions).

## Box 1. The Coalition for Rainforest Nations and what happened in Montreal 2005

In 2005, Papua New Guinea (PNG) sought to introduce forest conservation at COP11 in Montreal with the direct support of the Prime Minister and critical assistance of Kevin Conrad, the country's Special Envoy and Ambassador for Environment and Climate Change. The prevailing sentiment among negotiators was still to exclude forest conservation. PNG reframed the forest issue as one of economic development for developing countries to make avoided deforestation a way for developing countries to participate and benefit from the UNFCCC. The US, Brazil and Canada tried to block PNG's initiative. As the COP11 host, Canada feared PNG's proposal would cause the COP to fail. The US was concerned that the proposal would create an appetite for further incentives and that such a role for developing countries would create pressure on the US for action in the KP. The US negotiated with larger countries like Brazil to help block the initiative. Australia sent a special envoy early on to convince PNG to drop the issue, but later became an ally. PNG felt they needed to have 20 to 30 “yes” votes for the initiative and feared that an early “no” vote from the US would cause others to follow. For Montreal, PNG formed the Coalition for Rainforest Nations (CfRN) with eight other countries, including Costa Rica as an example of a country that clearly demonstrated the feasibility and benefits of turning around deforestation.

Since Montreal, PNG and CfRN have built support for REDD in multiple ways. The significance of forest-related emissions levels allowed them to create a case for haste. The CfRN acquired the support of regional groups such as the Pacific Island Forum and the Commonwealth of Nations to enlist engagement by about 70 countries. They pressured negotiators through statements in the G77 about the support of their respective leaders for the initiative, facilitated country statements of support on paper, and offered to have the prime minister of PNG call other heads of state. They also enlisted the support of distinguished academics from Columbia University and Oxford to produce rigorous, peer-reviewed analyses. Jeffrey Sachs and Joseph Stiglitz, from Columbia University, for example, were close to the UN and widely known and respected figures. Asking countries for formal submissions of views was critical in creating a learning process that built capacity and ownership, even though the process often required significant time to facilitate.



CfRN has been described as “never-ending dance” of about 50 countries, rife with conflict, with about 25 attending any one meeting. CfRN uses majority rule rather than a consensus process to avoid blocking by any one country. While all countries’ views are encouraged and efforts have been made to meld special cases into CfRN’s positions, usually decisions are made “around the middle” and leave out the “tails.” Strategically, sometimes agreement among a significant number of countries was needed, while at other times a small group of adamant countries was enough to lead a decision if the rationale of the opposition was based on intellectual argument rather than pure political stance. A strong, credible and astute facilitating force is necessary to smooth over the inevitable factionalism and prevailing national interests

- Multilateral agency programs are building in application of free, prior informed consent principles and recognition of indigenous people’s rights;
- Divergent views generated tension over stakeholder participation rules for the Interim REDD+ Partnership meetings, culminating in the adoption of the document ‘Modalities of stakeholder participation’<sup>8</sup>

*Going forward*

Right up until the end of COP16, the future of REDD was considered fragile, and the scale of implementation remains contingent on financial flows from developed countries.<sup>9</sup> The parallel meetings in the UNFCCC to prepare for REDD have been intensive and have not always moved forward constructively.<sup>10</sup> One respondent commented that SBSTA has been a negative, political accommodation process that has not encouraged progress. Another respondent noted that technical development should be left to practitioners and that policy makers should focus on the frameworks for

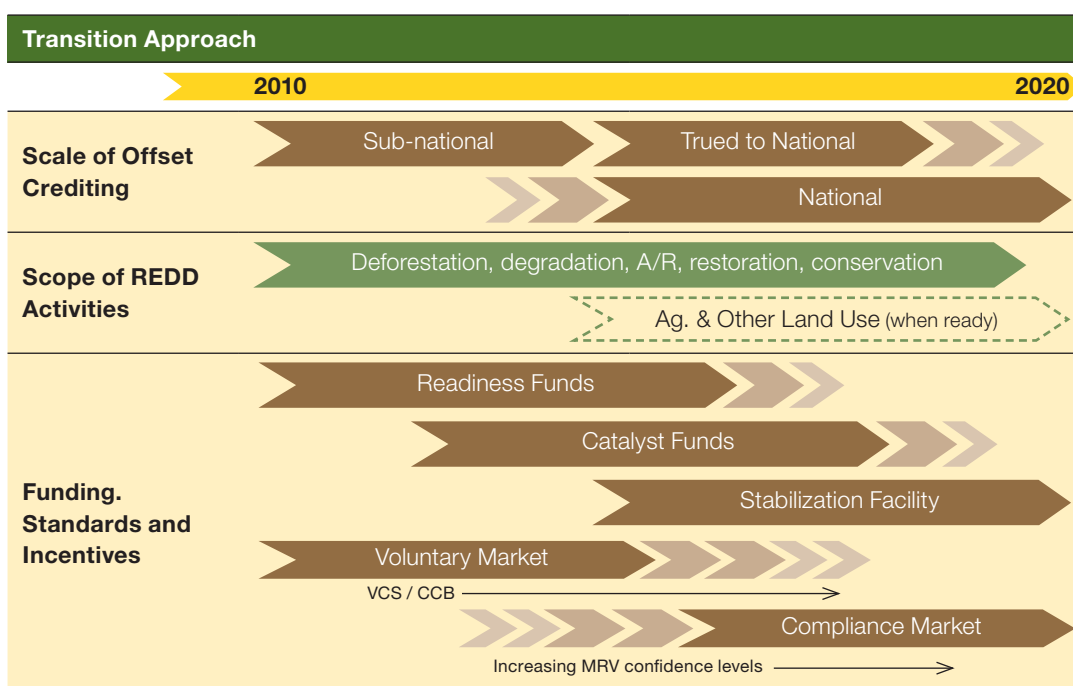
*Participation*

The development of REDD internationally has been top down, i.e., driven by international processes primarily and national processes secondarily, with little official input from the people affected at the level of forest management. A number of respondents mentioned the need for stronger participation of civil society, private sector interests and indigenous groups. Specific observations from respondents included:

- The UNFCCC process is perceived as closed to wide stakeholder input relative to the Convention on Biodiversity, which has identified 9 major stakeholder groups, including women, youth, and indigenous peoples, and formed ad-hoc expert groups or standing working groups;
- National processes have been highly centralized;

8 Available at <http://reddpluspartnership.org/65228/en/>  
 9 To some degree, REDD was “held hostage” to major schisms blocking an overall agreement, specifically, how developing countries will commit to reductions. In the absence of some basic agreement on the right model, developed countries are likely to be resistant to disperse large amounts of money.  
 10 The 2009 Copenhagen meetings involved negotiations among no less than six bodies:

- Fifteenth session of the Conference of the Parties to the UNFCCC (COP15);
- Fifth session of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol (CMP 5);
- Thirty-first session of the Subsidiary Body for Scientific and Technological Advice (SBSTA);
- Thirty-first session of the Subsidiary Body for Implementation (SBI);
- Eighth session of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention (AWG-LCA);
- Tenth session of the Ad Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol (AWG- KP).



**Figure 1. Using a phased approach enabled progressive engagement in and support for REDD. Source: The Nature Conservancy, 2009**

finance and enforcement. In 2009, efforts to be inclusive and address all stakeholders' concerns resulted in expanding a 50+ page negotiating text to 200+ pages and required multiple guides for negotiators to understand.<sup>11</sup>At COP15, the lack of a REDD agreement, attempts by the Danish COP president to substitute their own negotiating text and the lack of transparency by the US in eleventh-hour negotiations that produced the Copenhagen Accord created severe disappointment. Skepticism about the UNFCCC process increased, resulting in calls for more bilateral and voluntary processes.

The Interim Partnership on REDD+, initiated by France and Norway, has been an important voluntary process for countries to advance REDD activities and finance, although it faces legitimacy issues related to civil society participation (see 2.2 REDD Implementation Mechanisms and Governance). Also, capacity within developing countries to engage in REDD negotiations is still variable.

A serious question remains as to how international and national policies will create incentives to manage the drivers of deforestation and REDD policy implementation. Land use decisions are driven by a complex mix of sovereign interests, legal ownership issues, other social factors, biophysical events, emotions and power (Terrestrial Carbon Group 2008). The legally binding nature of "pledge and review" and "national schedules" as components of an international climate change treaty also remains to be tested and new legal structures may need to be created (Mathys et al. 2010).

Policy advancement within the UNFCCC now depends on solid financing mechanisms; realistic rule-making; institutions and safeguards; on-the-ground demonstration (e.g., pilot projects and bilateral initiatives that illustrate that pay-for-performance funds can alter forest management and attract initial public funds and larger private investment); uptake within national development planning; and perception of low opportunity costs (e.g., food security).

## 2.2 REDD Implementation Mechanisms and Governance

### **Key lessons for agriculture**

- Mechanisms for agricultural mitigation should build on existing programs, policies and projects and give attention to the innovations that arise from these efforts.
- Mechanisms and governance measures will be necessary at multiple scales.
- Capacity building is a priority for implementation to be successful.
- Effort should be made to make technical information widely available and accessible to decision-makers early on.

### **Implementation mechanisms**

Much of the policy debate has centered on how to design effective implementation mechanisms for REDD. Debates about implementation mechanisms have covered the scope of REDD (e.g., whether to include degradation or sustainable forest management); whether REDD should take the form of subnational or national programs; how to fund high upfront costs; whether to use fund or market-mechanisms; how to set reference levels and determine additionality; how to address leakage and permanence; how to share benefits; how to cover the opportunity costs of parties that have to forego use of the forest; and which entities should oversee and verify REDD credits. Equity among countries and how to reward countries with good forest stewardship also has been a concern.

Four factors have been instrumental in addressing these debates and shaping REDD mechanisms:

1. Development of standards in the voluntary and compliance markets, which has required the definition of rules for carbon accounting and project design (see Appendix VI).<sup>12</sup>
2. Experience from trial REDD-specific or REDD-type projects as well as early efforts to set national policy such as in Indonesia and Brazil. Data gathered through these early projects has helped to inform the development of methods, models, standards and manuals.
3. Facilitation of negotiators to work with experts to define options for REDD, which was critical to creating a shared vision and broader political ownership for REDD prior to COP15.<sup>13</sup>
4. Experience from related programs such as the CDM and community forestry projects.

Most projects linked to REDD have built on existing forest conservation projects and principles. Experience with such

11 The Foundation for International Environmental Law and Development (FIELD) has been a leader in providing guides for negotiators on REDD; The International Institute for Sustainable Development (IISD)'s Climate Listserv and Forest Carbon Portal have been key sources of information for negotiators and others.

12 Standards include both registries and certification-type standards such as the Climate, Community and Biodiversity Standard (see Section 2.6 Managing REDD Co-benefits). To date, the only registry with a global scope is the Voluntary Carbon Standard.

13 See Meridian Institute (2009) "Reducing Emissions from Deforestation and Forest Degradation (REDD): An Options Assessment Report."

projects is considerable.<sup>14</sup> Yet past projects and programs to halt deforestation have had mixed results (Kanninen et al. 2007). It is well known that deforestation and forest degradation often are caused by factors outside the forestry and conservation sectors. In Indonesia, the government plans to administer REDD nationally through the existing concession system that previously granted licenses for timber harvesting. Many are also self-styled REDD projects that probably would have happened anyway and therefore would not meet additionality criteria. In Madagascar, REDD has been shaped primarily by the large conservation NGOs.

Due to the newness of REDD, review or scientific analysis of REDD-specific experiences has been limited. Instead, numerous studies by groups such as the Rights and Resources Institute (RRI), World Resources Institute (WRI), the Institute for International Environment and Development (IIED), the Center for International Forestry Research (CIFOR), the Meridian Institute, World Agroforestry Centre (ICRAF) and Woods Hole Research Center, have focused primarily on design options and their implications. Existing reviews are not necessarily impartial or critical. Comparisons of case studies (see Virgilio et al. 2010, Corbera and Schroeder 2010) and syntheses of REDD program experiences (see Intergovernmental Task Force 2010) are just emerging. The Interim REDD+ partnership aims to produce in 2010 “an independent report on the effectiveness of multilateral REDD+ initiatives” and “a substantive discussion by partners and relevant stakeholders on effectiveness of multilateral REDD+ initiatives and recommendations for targeted improvements to multilateral initiatives.” These include reports on finance (See Section 2.4). More effort can be made to build on lessons learned within countries with related programs such as community forestry.

Analysis of REDD projects by Conservation International (CI), The Nature Conservancy (TNC) and Worldwide Fund for Nature (WWF) points to substantive insights for REDD implementation (Virgilio et al. 2010):

- Discounts can be applied to the value of credits to account for the risk of leakage. Default discounts generally range from 10 to 20 percent;
- Credits' permanence can be enhanced by laws and standards linked to enforcement, monitoring tools and processes in civil society and different levels of government. Where these do not exist, high investments will be necessary to build them;
- Pooled buffer systems can insure against the risk of impermanence. Registries require projects to provide extra carbon credits, which are then pooled across many projects to reduce the risk posed by failure of any one project. In the event of a failure, credits are replaced by an equal amount drawn from the credit buffer, resulting in no net loss. National scale/larger scale

portfolios can be naturally self-insuring, as they also spread the risk over many areas;

- Measuring and monitoring emissions is best done with a combination of remote sensing and ground measurement;
- Incentives need to reach actors at multiple scales who are responsible for addressing the drivers of deforestation and shifting land use. A well-defined participatory process, clear expectations and structures and strong communication are needed;
- Standards ensure REDD activities are consistent in their rigor and elicit confidence in the produced carbon benefits. Carbon standards and methodologies can provide step-by-step guidance on carbon accounting, appropriate risk calculations and deductions;
- National scale efforts can have significant impact by virtue of their magnitude of scale, use of policy levers and efficiencies in addressing technical issues including leakage and permanence.

Lessons from closely related experiences such as CDM are also relevant. The World Bank BioCarbon Fund notes the following lessons from CDM afforestation-reforestation projects (Qadir 2010):

- First and foremost, the need for capacity building;
- Need for minimum size, due to high transaction costs under current methodologies;
- High fixed costs and providing technical advice on the ground to many households can be expensive. Multiple small community plots have higher transaction costs and each plot must be taken into account separately to follow 1990 rule. Remote access increases costs;
- Need for clear land tenure and carbon rights;
- Community buy-in is key for ensuring protection of trees and for enforcement/protection;
- Carbon revenue does not replace need for economic sustainability of basic project design;
- Effective PES approach requires downstream demand;
- Economic opportunity costs to communities/land users must be covered in order to change behavior.

REDD implementation mechanisms are closely linked to technical aspects of managing emissions, carbon credit markets, and land use. Making technical information more accessible to decision makers and practitioners is critical. Decision-makers need a practical understanding of a wide range of knowledge, including mitigation potential, MRV options, and offset markets, which can take time to master. While numerous efforts have been made (e.g., REDD Source Book, UN-REDD capacity building workshops, RRI dialogues, SBSTA members attending COPs and meeting with negotiators), to make this information available, several respondents noted how difficult it was to keep up with the quickly evolving field. Some noted that a “mafia” of technical experts is developing and highlighted the need for dedicated, full-time staff members to monitor technical developments.

14 In a review of NGO REDD projects, Virgilio (2010) observes: “With 38 years of combined experience in undertaking forest carbon pilot projects on the ground, TNC, CI and WCS have built a repository of knowledge in forest carbon science and project implementation. In total, these three organizations have implemented 34 pilot projects (with 18 more in development). Of this total, 17 are REDD specific.”

Scope for further innovation in REDD implementation mechanisms should be supported. For example, the World Bank has started developing a REDD methodology for small-scale projects that will address issues such as the difficulty of estimating historical deforestation rates or demonstrating current threats to remaining forest. Another possible direction for developing innovative mechanisms might be offset credit style payments structured more like rental agreements than permanent purchases which enable temporary forest-based mitigation in critically-threatened areas, but recognize growing local pressures for forest use. While much attention has been focused on the design of projects, methods and standards to implement REDD, supporting institutions will also be necessary to track projects, develop shared project standards, independently verify emissions<sup>15</sup> and coordinate databases. One respondent noted that much effort is being focused on measuring and monitoring carbon properly, while much less effort is focusing on the more difficult task of developing the people or policies that can stop deforestation.

### Governance

The 2009 COP15 draft decision text included the need for effective national forest governance structures, respect for the knowledge and rights of indigenous peoples and local communities, and full and effective participation of relevant stakeholders. The 2010 Cancún Agreements included a request to developing countries to develop information systems for tracking how well safeguards are included in REDD+ implementation. Concerns about governance of REDD occur at two levels: (1) national- and project- level governance, and (2) the international UNFCCC, multilateral and parallel rule-making processes. Key actors supporting better REDD governance include Forest Law Enforcement, Governance and Trade (FLEGT); Chatham House; Global Witness; Forest People's Programme; World Resources Institute; Imazon; Rights and Resources Initiative (RRI); the Forests Dialogue (TFD) and CIFOR (see chapters by these organizations in Saunders and Reeve 2010).

Specific concerns include the need for good governance and transparency at national and project levels. In many developing countries, deforestation has been enabled or driven by weak overall governance, a history of corruption and lack of transparency, and weak law enforcement and accountability (Davis 2010). Early charges of corruption in REDD activities have already been made in Indonesia. High levels of finance pose risks of corrupt agents siphoning off significant resources, with little reaching communities or other intended entities. A recent FLEGT evaluation indicates a decrease in illegal logging, which is promising news for the potential of reforms. The pace of reforms is unlikely, however, to be fast enough to meet the urgency required for implementing REDD.

Selling carbon credits requires recognition of the seller's rights to that carbon. Yet land rights have been historically unclear

or disputed in many forest areas and carbon rights have yet to be defined in most countries. The emerging values associated with carbon and the need to manage carbon suggests that a new regime of rights to emit, trade and sell carbon may be necessary. Evidence suggests that carbon projects can lead to the allocation of clearer land rights (Corbera and Brown 2008), although the results may not always favor the poor. (See also Section 2.6 on Co-benefits.)

The way that interests are represented and project-level activities are linked to national and international processes has varied among countries. In Vietnam, for instance, there was a perception that REDD is being designed in a highly centralized way with little link to projects in the field. In contrast, in Madagascar, the large NGOs have been writing the national policy. While they have the field and technical capacity to do so, their representatives are taking roles that government would normally take and there could be conflicts of interest. At the international level, Madagascar has not been well represented in the official negotiations (empty chair in Copenhagen), however the pilot projects have been represented through side events and Malagasy representatives are mostly NGOs representatives. One respondent observed that NGO REDD projects tend to not communicate or coordinate well with each other because they are often in competition or conflict with each other.

Other governance issues include:

- Governance mechanisms and monitoring are needed to ensure that mechanisms reach designated beneficiaries;
- Poor oversight of CDM projects by "designated operational entities" (DOEs) has weakened the expectation of accountability and raised concerns about a viable verification system;<sup>16</sup>
- Cross-sectoral coordination and integrated knowledge at national levels among environment, finance, forestry and agriculture ministries;
- The need for a nested approach to REDD with a national accounting framework and monitoring system and subnational projects to motivate actors at multiple levels (Cortez et al. 2010);
- Coordination between the UN-REDD and FCPF in facilitating REDD governance;
- Country sovereignty: some countries, such as Vietnam, are resisting suggested REDD conditionalities, such as satellite monitoring, for reasons of sovereign control;
- Transparency and coordination of REDD actions and support. The Interim REDD+ Partnership has proposed to establish a voluntary, publicly available REDD+ Database of REDD+ financing, actions and results toward this end.

Davis (2010) reviewed 16 country proposals for REDD and found that while they identified the standard principles of promoting participation, transparency, accountability and coordination as important, there were few concrete proposed

<sup>15</sup> Several respondents observed that verification procedures and certification should not involve third parties paid by the projects being reviewed, due to the inherent self-interest of both parties biasing results.

<sup>16</sup> One respondent pointed to gaps in land use expertise in auditing entities as a key obstacle to credible verification and highlighted possible roles for regional forestry organizations in auditing.

procedures, processes and rules proposed to achieve these in practice. Davis noted that most proposals also lacked deep analysis of the underlying problems and potential solutions and most proposals focused on monitoring of carbon but not governance. Programs to build national capacities have observed that by submitting proposals and receiving expert reviews and feedback, countries appear to be revising their proposals to give more attention to gathering more diverse and field-level stakeholder input, showing the value of feedback on plans, the revision process and shared learning over time.

## 2.3 REDD MRV

### **Key lessons for agriculture**

- MRV should be simple, streamlined and cost effective.
- A global MRV framework that is accessible and affordable to developing countries is a priority.
- An AFOLU approach that enables integration of agriculture and forestry would help to address agricultural expansion and leakage.
- A balance between precision of measurement and cost will be required to meet the needs of different incentive mechanisms or investors.
- Independent, capable, reliable verification and standards are necessary.

Monitoring, reporting and verification (MRV) is required to ascertain (1) emissions reductions; (2) carbon storage and sequestration; (3) implementation of policy pledges, (4) governance safeguards, (5) impacts on local people's wellbeing, and (6) impacts on biodiversity (Mathys et al. 2010, FAO; Holmgren 2010). Considerable investment has been made in emissions-related MRV for REDD leading to advancement in the development of tools, methods and approaches; systems for data availability; accounting methods and inventories; determination of baselines, reference levels, additionality, permanence and leakage; and related technical guidance.<sup>17</sup>

Technical capability for monitoring (e.g., tools, methods) is well advanced, especially for tracking deforestation. Broad agreement about the key credibility issues to resolve for REDD – additionality, leakage, permanence – has enabled progress on methodological issues, resulting in increased confidence that REDD can deliver results. Many NGOs and others implemented concerted, academic-style analysis, resulting in conceptual advancement and creation of “communities of practice.” Policy and applied science journals and reports as well as concrete suggestions put forth by well-respected

17 Key actors range from public sector entities such as AWG-LCA, SBSTA, CDM, IPCC and UN-REDD agencies to private sector entities such as the voluntary standard-setting bodies, project developers such as ClimateFocus, and scientific companies such as Winrock International and Applied GeoSolutions.

individuals have promoted convergence regarding how to address challenges.

The development of IPCC guidelines by teams of experts has generally worked well and scientific credibility has improved with each iteration. The IPCC's 1996 greenhouse gas (GHG) accounting guidelines built on methods of accounting for forest carbon that were well-known prior to REDD. The most recent revision, the IPCC's *Good Practice Guidelines* (2006) built further confidence and created two approaches (forest inventories and an input / output based approach), although these are not scheduled to be formally approved and implemented until 2015. (One respondent attributed this to technical as well as politically motivated delays.) Pre-approval of the guidelines specifically for REDD would avoid further delay. The IPCC documents are seen as inaccessible for practitioners and implementers in developing countries which may not have the fundamentals needed to compile data and estimate uncertainties.

The practical aspects of establishing monitoring systems have posed challenges and questions have arisen concerning the definition of forests, determination of baselines, choice of appropriate tiers (1, 2, or 3), general methods for estimating carbon dioxide (CO<sub>2</sub>), stratification by carbon stock, and estimations in locations undergoing change. The setting of baselines has been critiqued as being driven by political interests. Historical rates of deforestation, commonly used to determine additionality, do not necessarily reflect current or future levels of deforestation, and yet continue to be used routinely. Also, high quality deforestation data are not always easily available in developing countries. Current models and equations are based on a limited range of sites and require broader geographic verification.<sup>18</sup> Yet ecological plot data is often poor quality or unavailable in many developing country contexts. Most soil carbon models assume equilibrium conditions that may not apply.

Determining the precision of measurement required to meet compliance standards or assure the confidence of investors is a particular challenge. The urgency of climate change mitigation requires REDD programs that can be speedily and widely implemented. Strict project-level MRV requirements have inhibited the initiation of afforestation and reforestation under the CDM (only 17 are presently operational)<sup>19</sup> while a wider spectrum of stringency in the voluntary market has not inspired market confidence.<sup>20</sup> Questions remain about how or whether to verify without ground-truthing. The granularity of satellite imagery limits its usefulness, especially for smallholder plots. There is not yet clear agreement on cost-savings that would emerge from taking REDD to scale. Although key

18 Allometric equations are mostly based on Southeast Asian and South American measurements (Goetz et al, 2010). Understanding of the influence of land use change on carbon stocks is based primarily on data from four countries: Australia, Brazil, New Zealand and the US (Goetz et al 2010).

19 There is a widespread perception that initial CDM rules lacked transparency and stakeholder input during the development of standards, were not practical and that reform efforts have been slow.

20 For example, the Chicago Climate Exchange, which was perceived to have weak technical standards for terrestrial offsets, has recently collapsed.

remote sensing improvements are in the pipeline,<sup>21</sup> satellite systems do not yet have adequate continuity or resolution. Advances in airborne approaches such as light detection and ranging (LiDAR) have been proposed as a one way to estimate aboveground carbon stocks over large areas (Asner 2009).

Areas for improvement in the future include:

- The need for methodologies, MRV, and national and sectoral level rules or strategies that are simple to use on the ground and do not create high, unaffordable transaction costs;
- Methodologies should be straightforward and accessible so as not to exceed the capacity of all but a limited number of highly specialized consultants;
- Methods should be sought that allow cost efficiencies of scale (e.g., the use of a Program of Activities approach, pioneered by the World Bank, in which clusters of activities use a similar methodology, allowing addition of sites over time and anticipated cost savings);
- Exploration of input- or practice- based approaches if current measurement technologies and monitoring are inadequate to support a national inventory;
- Building on existing monitoring systems, using clear institutional arrangements, roles and responsibilities and engaging stakeholders in adapting and implementing the monitoring system;
- Training experts and developing geographically explicit data and models for baselines;
- Developing and financing a successful MRV approach that works in both developed and developing countries and allows global comparisons of metrics (Mathys et al. 2010);
- Integration of national and sub-national (i.e., project-scale) accounting to construct a multi-scale system that allows comprehensive measurement and reduces issues of additionality, leakage, permanence and adverse selection;<sup>22</sup>
- Capable, trusted, independent verification;
- Streamlined project approval and appeal processes.

<sup>21</sup> E.g., Japanese satellites are projected to stream data by the end of 2011.

<sup>22</sup> Adverse selection is a term commonly used in insurance and risk management in which one party in a negotiation or exchange of goods and services has relevant information about the situation that the other party lacks. The lack of information causes the decision maker to choose a less optimal option and the other party to engage in further behaviour that exacerbates the negative impacts of the decision, creating a spiralling of undesired outcomes.

## 2.4 REDD Finance

### **Key lessons for agriculture**

- Early donor support is critical to demonstrating feasibility and building readiness. Donors have played leadership roles as champions for moving policy and operations forward.
- Coordination of finance among donors and investors is a priority.
- Finance should be mainstreamed and integrated with sustainable development investments.
- Distribution mechanisms for local communities and farmers need more attention.

REDD may be financed through market-based trading of forest-based carbon credits or fund-based mechanisms. Support for a regulated REDD market grew from recognition that the voluntary markets were unlikely to provide adequate demand and that existing regulated markets (i.e., CDM, EU-ETS) were not likely to be suitable for major expansion of forestry offsets. Expectations for early market activity for REDD-style projects have been unrealistic.<sup>23</sup> Within the current mix of regulated and voluntary offset credit markets, biocarbon credits have had a relatively low market value, reflecting the delayed development of domestic trading systems as well as possible low confidence in future establishment of credible national MRV for biocarbon. The European Union Emission Trading Scheme (EU-ETS) also has set a gold standard against which other offset markets trade at a discount. There appears to be greater market confidence in the regulated CDM (perceived by some as inadequate and politicized) than in the Voluntary Carbon Standard, or VCS (seen as having better standards). Lower market value for VCS, which has a relatively high proportion of biocarbon in its portfolio, raises concerns that, even with establishment of a credible market, biocarbon credits are likely to trade at a discount relative to industrial offsets.

As a result, funding provided by foundations and developed country governments has been critical for supporting initial pilots, as well as a host of supporting activities, from capacity building to negotiations.

Norway's role has been pivotal in advancing REDD and fostering cooperation. Norway has delivered about USD 500 million/year or USD 3 billion to multilateral and bilateral initiatives (approximately equal to the value of two weeks of the country's national trade surplus). Enabled by substantial oil and gas revenues and using a transparent, respectful, low-conditionality approach supported by a well-organized managing team, Norway has provided a high-credibility funding anchor and served as a bridge between developed and developing countries. The International Climate and Forests Initiative has directed funds to a wide range of needs

<sup>23</sup> This may be due, in part, to the lack of "early action" rules inhibiting pioneer efforts in nascent markets.

including international institutions (e.g., UN-REDD) and bilateral REDD deals<sup>24</sup> with a strong emphasis on feasible, robust planning.

Other developed countries, especially Australia (i.e., the USD 273 million International Forest Carbon Initiative which is attempting to demonstrate REDD in PNG and Indonesia), the UK, the US, France, and Germany, have provided financial and other important forms of support. Successful bilateral capacity building, such as between Australia and Indonesia, has taken an integrated, long-term approach.

Key foundations (e.g., the David and Lucile Packard Foundation, the Gordon and Betty Moore Foundation, the Climate Works consortium) were “champions” on the issue of REDD and have delivered a concentrated period of funding for a wide variety of studies that enabled significant capacity and progress at many levels. Informal donor coordination and relationship building was beneficial for cooperation and professionalism.<sup>25</sup>

Other important funding initiatives for REDD include (1) International Tropical Timber Organization’s (ITTO) program, Reducing Deforestation and Forest Degradation and Enhancing of Environmental Services (REDDES) established in 2008, as a three-year program with USD 18 million for activities in 2009-2011; (2) the Clinton Climate Initiative, which supports the demonstration of project design in four countries; (3) and Conservation International’s USD 4 million Carbon Fund, supporting projects in Peru and the Democratic Republic of Congo.

The World Bank took on an early role as a facilitator of funds to develop REDD readiness. Championed over several years by key individuals (at TNC and within the Bank) and the German government (as host to the G-8), the Bank launched the Forest Carbon Partnership Facility in 2008. In 2008-09 the Bank developed the Forest Investment Program to mobilize significantly increased funds for REDD and sustainable forest management.

Led by Norway, the formation of the interim financing group at the time of COP15, and subsequent momentum for the Green Climate Fund, as agreed on in the Copenhagen Accord, and confirmed in the Cancún Agreements, has been important for boosting confidence in REDD. Yet there is much uncertainty and difference of opinion about how the fund should operate relative to other funding mechanisms (Mathys et al. 2010). The World Bank was cited as the only organization with the experience and standards to oversee such a fund in the 2010 Geneva Finance Summit. As REDD unfolds in developing countries, global donors have the potential to play an oversight role to counterbalance domestic politics. Many developing countries have been attracted to REDD as a funding source, without fully appreciating that REDD will be a

performance-based payment and investments will be required to achieve outcomes. Developing country participants have also had concerns about REDD funds being additional to development assistance.

To better address coordination, the Interim REDD+ Partnership has promised to deliver in 2010 a series of analyses of REDD+ financing gaps and overlaps.

A review of REDD+ finance summarized recommendations of stakeholders (Intergovernmental Task Force 2010: 9):

- REDD+ should be integrated in countries’ overall sustainable development strategies, and finance or treasury Ministries should be better engaged;
- REDD+ should be mainstreamed into the economic development programs financed by bilateral and multilateral donors so that sectoral policies become more forest-friendly;
- Need for consistency and mainstreaming of finance in agencies such as ITTO;
- Better coordination among international agencies and donors and phased approach to development of REDD+ schemes;
- Disbursement of REDD+ funding is political, complex, slow and insufficient in scale. Efficient implementing partners are needed such as NGOs with extensive in-country experience;
- Integrate funding for continuous technical support in public REDD+ funding;
- Need for stronger guarantees and visibility on money that will be made available;
- Explore direct payment mechanisms for distribution of carbon revenues to local communities, and long-term impacts on communities in terms of improved well-being, behavior change relating to deforestation and degradation, etc;
- Greater investment in early implementation and demonstration including both significant available up-front financing to kick-start activities, and pay-for-performance mechanisms to test how such incentives will play out;
- Providing funding for deep interventions in key countries that can model how REDD+ domestic programs can work in practice. Without this investment, many developing countries will not be able to make the investments necessary to achieve fundamental reforms and transformations; nor will many potential investors be willing to invest in yet-unproven initiatives;
- More coordination at the country level between both donors (bilateral, multilateral, and private) and, in many REDD+ countries, between domestic government agencies;

<sup>24</sup> Major examples include \$5B to Brazil, \$1B to Indonesia, and pledge of \$250M to Guyana.

<sup>25</sup> For example, the Meridian Institute, at the request of Climate Works, fostered interactions among key donors to improve awareness of the range of supported activities.

## 2.5 Capacity Building for REDD

### Key lessons for agriculture

- Multilateral assistance for capacity building largely has worked to quickly support a large number of countries.
- Phased capacity building and implementation appear to be effective.
- Capacity building needs to extend beyond national centers and involve entities operational on the ground.
- Coordination in capacity building is a priority.

There is a broad spectrum of readiness for REDD among forested developing nations and the needs for capacity building are significant (Appendix VIII). Larger countries such as Brazil<sup>26</sup> and Indonesia have already poised themselves for REDD implementation. A number of other countries, such as Guyana are moving quickly to build partnerships in technical and financial arenas. Gaps in country readiness contribute to the risk of international leakage. Cross-learning among countries is emerging (e.g., Cambodia is accelerating based on lessons in Vietnam; a regional approach has been adopted in the Congo basin). Forty-eight countries and two regions are engaged in some form of donor-supported preparation for REDD (Appendix VII).

The current preparation phase is important for communicating with countries about REDD as a performance-based payment. Delayed progress on an international climate agreement may have the unintended benefit of creating incentives for countries to better prepare for REDD.

Two major multilateral efforts are helping to build readiness. The Forest Carbon Partnership Facility (FCPF), facilitated by the World Bank and launched in Bali in 2007, has established 37 “REDD countries”, 11 of which have submitted Readiness Preparation Proposals eligible for USD 3.6 million in funds (USD 165 million have been committed to the program). In 2008, Norway and Denmark helped to establish UN-REDD to advance UN involvement and leverage the programs and capacities of the UN Environment Program, the UN Development Program and the Food and Agriculture Organization. It supports nine pilot countries with funding for REDD+ readiness activities, with 8 presently eligible for USD 42.6 million in funds. Four countries are in the implementation phase and 18 other countries participate as observers. Although the co-existence of FCPF and UN-REDD was initially confusing,<sup>27</sup> this enabled multilaterals to engage a broader

range of countries.<sup>28</sup>

The FCPF and UN-REDD programs have built confidence and readiness on the ground, although approaches differ in important ways. UN-REDD governance structures are seen as engaging a broader set of civil society stakeholders. Some express concerns that the FCPF’s strategy of allocating relatively small amounts to a greater number of countries risks prioritizing inclusivity over effectiveness (e.g., amounts may be too small to get attention from World Bank country offices).

While initially perceiving each other as rivals, coordination among multilateral agencies is increasing. Successes have included technical workshops, alignment between readiness programs and informing negotiations, good geographic balance across pilots, and linking international institutions to the ground. The World Bank and UN-REDD have been working on modalities for coordination (e.g., back-to-back governance meetings; joint forum between the policy board of UN-REDD and participants committee of the World Bank). The World Bank has asked UN-REDD to help in the Democratic Republic of the Congo (Panama will be next). They are creating a national joint program, by merging the World Bank’s RPP with the National Joint Program Readiness Plan, and are both providing funds.

In addition to REDD readiness support, a number of organizations have undertaken independent capacity building exercises. For example:

- The Nature Conservancy (TNC) has been running a REDD stakeholder training program in key tropical forest countries together with the Climate, Community and Biodiversity Alliance, Conservation International, the Rainforest Alliance, the World Wildlife Fund, and GTZ. They have trained over 400 key stakeholders in six countries and hundreds more through an interactive online course;
- Conservation International (CI) has worked with indigenous peoples and community organizations to present workshops on climate change science and policy to over 145 indigenous and local community leaders. CI is also working with the governments of Indonesia, Peru, Suriname, Guyana, Madagascar, and Liberia on scenarios for national REDD+ and low GHG development planning;
- The Wildlife Conservation Society (WCS) has provided support to national governments for the development of readiness preparation proposal documents, capacity-building at site level for communities and field staff and concerned government ministries at national level, accounting and baseline analysis on landscape and regional level, and design and implementation of demonstration projects in landscapes to which WCS has made a long-term commitment;
- Forest Trends created a REDD Opportunities Scoping Exercise as a tool to prioritizing sub-national REDD+ activities.

<sup>26</sup> In Brazil, the main driver of deforestation is corporate agricultural expansion therefore it is more organized and potentially more manageable than in some other settings.

<sup>27</sup> For example, countries had to submit multiple applications and “conditionalities” (e.g., free prior informed consultation) differ across agencies and it’s unclear which apply.

<sup>28</sup> Efforts to coordinate the two programs and integrate their principles and procedures are underway.



Real implementation on the ground continues to lag in many countries, as readiness funds tend to be concentrated at the national level. A perceived need to push a large amount of funds through quickly suggests that inefficiencies are inevitable.

## 2.6 Managing REDD Co-benefits

### **Key lessons for agriculture**

- Standards and safeguards are an important mechanism for promoting environmental and poverty alleviation aims, but will only be effective to the extent they are implemented independently and robustly.
- Making provisions early on for structured participation and attention to free prior and informed consent principles and procedures is a priority.
- Delivering co-benefits will depend as much on improvements in mechanisms external to the UNFCCC process (e.g., assuring land rights in national policies) as on elements of an international agreement.

Co-benefits generally refer to positive environmental and social impacts beyond mitigation. Co-benefits are closely related to the concept of safeguards, which are “do no harm” rules that seek to limit negative impacts. REDD-style projects have demonstrated the feasibility of generating tangible co-benefits for income and land rights. They have also identified the importance of distributing benefits through investments in community development rather than payments to individuals.

For those concerned about pro-poor outcomes and protecting local people’s interests, a primary concern about REDD co-benefits is the lack of attention to rights and vagueness of language regarding rights in agreements.<sup>29</sup> Indigenous groups and their proponents view most co-benefits as non-negotiable basic rights. International government leaders have been reluctant to use rights-related language in treaties, resulting in a discourse that is only about “benefit sharing, co-benefits and participation.” Rights advocates suggest that language should be redrafted to indicate adherence to human rights and use specific language that countries “will implement” the measures. Robust rules and language also need to be established at the country level.

Recommending “a strong ‘pro-poor’ political commitment” from the start, Peskett et al. (2008: 4) summarized measures that would support pro-poor outcomes from REDD (Box 2).

<sup>29</sup> For example, the Copenhagen Accord that was recognized by the UNFCCC at the end of COP15, did not include reference to social safeguards for REDD.

These recommendations indicate that pro-poor outcomes will depend as much on how external institutions support REDD as on how REDD itself is structured. The availability of finance, how rights are defined, access to legal recourse, mechanisms for participation in decisions and development strategies will require alignment with REDD to achieve pro-poor outcomes.

Others concerned primarily with mitigation see a risk that emphasizing co-benefits will diffuse REDD’s mitigation objective. Some REDD proponents feel strongly that linking too many goals to REDD will make REDD fail or result in undesirable trade-offs with emissions goals. One respondent observed that social assessments and other safeguards often become bureaucratic hurdles and the primary cause for slow processing of funding from the World Bank. Others feel equally strongly that forest conservation will not succeed unless these multiple objectives are met.

Regardless of their functional impacts, the inclusion of co-benefits in the REDD policy making process has been essential to building the current coalition of support. The Bali Action Plan, for example states, “economic and social development and poverty eradication are global priorities.” The UN Food and Agriculture Organization (FAO) has suggested that it is necessary to monitor all co-benefits to inform policy. One respondent observed that a global REDD policy that could monitor co-benefits and the impacts of activities on their value could be informative for many and would help inform adaptation to climate change. Generating co-benefits at the ground level also is necessary to enlist local constituencies’ support for projects.

The indigenous people’s movement has been split over support for REDD. The 2009 Anchorage Declaration was a strong statement calling for recognition of indigenous peoples’ rights, traditional knowledge and right to formally participate in UNFCCC processes. Specific demands included:

- Organize regular technical briefings by Indigenous Peoples on Traditional Knowledge and climate change;
- Recognize and engage the International Indigenous Peoples’ Forum on Climate Change and its regional focal points in an advisory role;
- Immediately establish an Indigenous focal point in the secretariat of the UNFCCC;
- Appoint Indigenous Peoples’ representatives in UNFCCC funding mechanisms in consultation with Indigenous Peoples;
- Take the necessary measures to ensure the full and effective participation of Indigenous and local communities in formulating, implementing, and monitoring activities, mitigation, and adaptation to impacts of climate change.

The Declaration also rejected any climate measures that might negatively affect Indigenous Peoples’ rights, lands, air, oceans, forests, territories and waters, including agro-fuels, plantations, and market based mechanisms such as carbon trading, the CDM, and forest offsets. The REDD+ negotiating text prepared for COP16 is notable for making specific mention of Indigenous People’s knowledge and rights, as well

as their participation in decisions and right to free prior and informed consent rights.<sup>30</sup>

Setting social and environmental standards is essential for informing REDD stakeholders about potential co-benefits as well as monitoring and measuring them. The Climate Change, Community and Biodiversity Alliance (CCBA), convened by CI, has established standards against which REDD projects' co-benefits can be measured. For example, indicators of community well-being include the need of the project to demonstrate (1) net positive impacts on the social and economic well-being of communities and ensure that costs and benefits are equitably shared among community members and constituent groups during the project lifetime; (2) maintenance or enhancement of the High Conservation Values in the project zone that are of particular importance to the communities' well-being; (3) changes in community well-being due to project activities and an evaluation of the impacts by the affected groups; and (4) that project activities should at least 'do no harm' to the well-being of offsite stakeholders. A monitoring system also needs to be in place. Because these standards are higher than other credit systems, the CCB certified credits command a premium price in voluntary markets. CI and CARE are also facilitating national REDD+ Social and Environmental Standards.

One respondent was concerned that CCBA is not applying their principles rigorously (e.g., on tenure they use national laws as standards). The CCBA principles are international, but when they screen at the national level these principles are not applied. Robust independent verification is important for constraining inherent conflict of interest within certification systems that experience pressure to both uphold rigorous standards as well as generate a high volume of credits.

Donors for REDD and countries have started developing best practices rules for investments that reflect co-benefits. For example, the Inter-American Development Bank recently commissioned a report on best practices for REDD with indigenous peoples.

Several respondents mentioned that their impression from COP15 was that governments have taken social issues on board but do not know what to do about it. They mention land tenure and corruption, but do not have a strategy for addressing these issues.<sup>31</sup> There is a sense that governments accept the status quo of relying on laws and forests acts and simply reiterate concerns without looking at underlying tenure issues or identifying activities to address these concerns.

Analysis of REDD projects by CI, TNC and WWF (Virgilio et al. 2010) and the World Bank's BioCarbon Fund indicate lessons about generating co-benefits. Project experiences demonstrated the feasibility of generating tangible benefits in the form of alternative income opportunities, land tenure, capacity building, mechanisms for civil participation within government decision-making and sustaining local cultures and traditions. CDM projects often triggered smallholder farmers to obtain land rights. Where conflict and overlaps in land claims occurred, the World Bank applied the principle of pacific possession where applicable, where both parties can make a claim to the land.

Experience indicated the need for projects to include investment in community development and not just generate income directly to households. For example, the government of Madagascar, as aggregator and vendor of carbon tons committed a minimum of 50 percent of gross carbon revenues from all REDD projects to be channeled to community development. The projects found that community participation and input to decisions was needed to ensure benefits. Communities needed upfront financing. Farmers needed to be paid when they planted and to use intercropping in afforestation or reforestation projects to manage cash flows over time. The wait for validation would have been too long for small communities to remain motivated to participate in the project.

They also learned that business planning expertise was needed to best assess the feasibility of business ventures, adequately analyze supply chain issues, realistically project cost structures and help develop robust marketing plans to help achieve the desired results. Standards such as the CCB could help ensure that environmental as well as community participation and benefits occur. Some respondents expressed concern that Land Use, Land-Use Change, and Forestry (LULUCF) should encourage more native wood species, as appropriate to site conditions, and take care not to create incentives for monocultures and unwarranted introduction of exotic species. A global REDD+ policy that could help monitor these changes would help assure that decision-makers are informed about impacts and could adjust policies as needed to maintain environmental and social health.

30 The 2010 negotiating text reads (p. 57) "Respect for the knowledge and rights of indigenous peoples and members of local communities, by taking into account relevant international obligations, national circumstances and laws, [[and noting][in particular] [that] the [General Assembly has adopted the] United Nations Declaration on the Rights of Indigenous Peoples [that was adopted by the General Assembly]; (d) [Actions where there is] [Full and effective participation of relevant stakeholders [and local communities], including, in particular, indigenous peoples [rights to free prior and informed consent (FPIC)] and local communities in actions referred to in paragraphs 3 and 5 below;]

31 In a presentation at a Chatham House meeting on REDD, a Norwegian negotiator observed that 25 out of 45 REDD countries were among the most corrupt in the world.

## Box 2. Measures to support pro-poor outcomes

- Provision of information at national and local levels to ensure equitable negotiation of REDD agreements. Information should at a minimum contain basic details of how REDD mechanisms work, realistic expectations of benefits and possible implications.
- Provision of upfront finance and other mechanisms for reducing costs to help improve the equity of benefit distribution in REDD. This may help bridge the gap between project/program initiation and payments for the delivery of emission reductions.
- Use of 'soft' enforcement and risk reduction measures: 'Hard' enforcement measures such as financial penalties are likely to affect the poor disproportionately.
- Prioritize 'pro-poor' REDD policies and measures: Whilst different REDD options may give rise to similar levels of emissions reductions, impacts on the poor will be varied. A strong 'pro-poor' political commitment is required from the outset.
- Technical assistance to national and local governments, NGOs and the private sector especially on establishing reference scenarios/levels for measuring performance; improved data collection on small-scale enterprise and subsistence values; financial systems and verification services for REDD; and landscape planning approaches.
- Support to strengthen local institutions and improve access to legality: To ensure 'voice and choice' in REDD design and implementation, improved access to appropriate legal support will be crucial for poor people. This is especially the case with REDD, where new and unfamiliar legal structures may be required, and where approaches may be experimental.
- Maintain flexibility in the design of REDD mechanisms: Flexibility, for example, including the use of nationally specific standards or regular review processes, will be crucial to minimize risks such as communities being locked into damaging long-term commitments.
- Clear definition and equitable allocation of carbon rights: rights to own and transfer carbon will be essential. Consultation will be needed in their formulation. Where national governments retain carbon rights, equitable benefit sharing agreements will be needed.
- Development of social standards for REDD and application of existing extra-sectoral standards to REDD systems could improve benefits for the poor by ensuring that processes such as public consultation are thoroughly carried out. Standards should also be developed for ongoing social impact assessment at project and national scales.
- Balance rigor and simplicity: Mandating complex standards can reduce access to markets by small producers. REDD standards need to be simple, accessible, but also robust.
- Ensure broad participation in the design and implementation of REDD, for example, through improving access to international debates by developing countries and NGOs. It will be important to consider the most appropriate level at which to assign decision making powers over REDD to achieve maximum participation of the poor.
- Measures to improve the equity of benefit distribution: Issues such as risk aversion and cost-effectiveness are likely to lead to highly variable benefit distribution. Use of tools such as taxes to redistribute benefits and strengthening of local institutions may improve equity.
- Avoid perverse effects of REDD due to limited direct benefits: Incentive schemes where benefits are concentrated can create perverse effects such as in-migration and conflict. Benefits will therefore need to be distributed across wide areas and actors, and combined with strong accountability measures to ensure that beneficiaries are legitimate.
- Ensure accountability and transparency in REDD processes, for example through third party verification and strengthened democratic processes.
- Alignment with international and national financial and development strategies, such as Poverty Reduction Strategies.
- Ensure longevity in REDD mechanisms: Stable and predictable benefits associated with REDD could provide increased security to the poor. At community and individual levels, benefits need to be distributed over the lifetime of REDD projects and assumptions about the sustainability of alternative livelihood approaches should be critically evaluated.
- Use of broad definitions for land use types that can be included in REDD systems could help increase overall coverage of REDD, thereby increasing income and growth potential, and could facilitate inclusion of potentially pro-poor activities such as agroforestry.

Source: Peskett et al. (2008: 4)

# 3. Implications for Agricultural Mitigation

## 3.1 Differences between Forest- and Agricultural-based Mitigation

In contrast to reduced deforestation- and degradation-based mitigation, the agricultural sector is more complex as it involves a wider range of land uses and management practices; CH<sub>4</sub> and N<sub>2</sub>O emissions as well as carbon sequestration; more complex scales, patchiness and variability across landscapes and time scales; and more expensive and uncertain measurement and monitoring. Understanding the mitigation impact of multiple practices on farms and landscapes is more demanding than in forestry, less visible and usually less permanent. Potentially all countries can contribute to agricultural mitigation, in contrast to REDD, where the mitigation potential is highest in countries with threatened rainforests. Addressing mitigation in a way that is relevant to agricultural practices and incentives for a range of country contexts is therefore also respectively more complex.

Agriculture and forests differ biophysically in the relative importance of above and below ground carbon pools. Soil carbon is more important than above ground biomass in most agricultural systems, with the exception of some agroforestry systems. Agricultural systems also emit more nitrous oxide and methane, which are expensive to analyze, and in the case of nitrous oxides, difficult to predict and measure, even with the appropriate equipment. Although there is significant experience in conservation agriculture, restoration ecology and sustainable land management, less is known about nitrous oxide management and precision fertilizer use, reducing livestock emissions of CH<sub>4</sub> and biofuels production. Scales in agriculture will be quite different and there is a high potential for reversibility. Variability is also much greater than in forestry, since annual cropping patterns can radically differ between the many actors (farmers), and from one year to the next, based on numerous variables that are hard to predict.

The direct role of agricultural systems in producing food, especially for subsistence farmers, raises difficult issues about rights to food security and trade-offs with mitigation. While forest conservation can also limit livelihood choices and threaten basic rights to food production for farmers, especially shifting cultivators, forest conservation primarily affects land availability, rather than the choice of production methods.

On an area basis, carbon in agricultural systems is low relative to forest systems suggesting the need for involving large areas or a large number of farmers to generate sufficient mitigation impact and, where relevant offset credits, to cover initial investments and transaction costs. The GHG offset credits available from agricultural mitigation are likely to be significantly less than those from forests and sale of offset credits is unlikely to be a stand-alone incentive for farmers to change their practices. In most cases, additional incentives will be necessary and mitigation will be sought as a co-benefit associated with other incentives.

Sectoral and supply-chain approaches will be as important in agriculture as land-based mitigation approaches, although most of the impact of food systems on climate occurs at the field level. Increasingly, agri-businesses face strong incentives to generate so-called low carbon products.

Socio-economically, agriculture typically involves more owners of parcels of private land, while forest areas more often involves large tracts of public land with overlapping statutory and customary property rights. Boundary demarcation and formal rights are often lacking in forestry areas. Indigenous peoples' identities tend to be stronger and infrastructure weaker in forest areas.

## 3.2 Progress among the Six Main Elements of REDD and Agriculture

### 3.2.1 Policy progress: Getting agriculture into an international agreement

#### *Policy context*

Support for agricultural mitigation has been slow to start, but has moved rapidly since being formally introduced to the UNFCCC negotiations in 2009. While agricultural mitigation is allowable under the Kyoto Protocol,<sup>32</sup> and Annex I Kyoto Protocol Parties have to account for all non- CO<sub>2</sub> GHGs from

<sup>32</sup> The KP includes text to bring in new eligible activities – such as management of croplands, grasslands and wetlands – as compliance-grade offset credits.

agriculture, it was not until April 2009, when the AWG-LCA organized a workshop on the “opportunities and challenges for mitigation in the agricultural sector,” that parties began a concerted effort to pursue an agricultural agenda. At that meeting New Zealand, the US, the EU, Mexico and Uruguay articulated strong support for including agriculture within the UNFCCC negotiations.

The AWG-LCA subsequently began negotiations on agriculture as part of “Cooperative Sectoral Approaches and Sector Specific Actions” in October 2009 and prepared a draft decision that included a request to the SBSTA<sup>33</sup> to launch a program of work on agriculture. The decision was not adopted in COP16, but could be discussed in 2011. The plans for the IPCC’s 5<sup>th</sup> Assessment Report include an integrated analysis of all land use, including agriculture and forestry.

In October 2010, the COP16 Advance Negotiating Text, mentioned or allowed space for agriculture in a number of places:

- NAMA text (agriculture is not specified, but allowable);
- Country’s mitigation actions, for which they can seek finance (page 14 onwards) (agriculture is not specified, but allowable);
- Developed country reporting standards (page 12, etc);
- Agriculture is mentioned under cooperative sectoral approaches and sector specific actions (including the request to SBSTA to launch a program of work) (page 25, see also Chapter IX of AWG-LCA<sup>34</sup>);
- Agriculture is mentioned as a key sector in adaptation (footnotes page 31, page 34);
- Agriculture is mentioned under REDD+ as a driver of deforestation and the needs to reward farmers that intensify rather than expanding into forest land is mentioned (page 52, page 54, page 57, page 58).

These processes will likely produce important agreements; however, there are mixed views about pace at which agreements are likely to be or should be achieved. It is not yet clear how mitigation, agriculture and REDD intersect in the UNFCCC process and this inhibits countries from understanding how best to implement all land-related commitments and opportunities. Agriculture is, according to one respondent, where REDD was in 2005, with lots of work to be done on principles, credibility and coalition building. It is viewed as inconsistent and messy, similar to when UNFCCC was dominated by energy and finance issues and REDD was relatively new. One respondent mentioned that it still needs to pass the “significance” and “feasibility” tests. The need to address both adaptation and mitigation also risks sidelining mitigation.

In addition to the official UNFCCC process, progress on agricultural mitigation could continue through intergovernmental collaboration (similar to the Interim

Partnership on REDD+), national-level action<sup>35</sup> and public-private partnerships. While the lack of passage of national cap-and-trade bills in the US and Australia has also slowed progress by signaling delayed development of these large GHG credit markets, attention is shifting to sub-national markets in the US (e.g., Climate Action Reserve) and possible inclusion of agricultural credits in other markets (e.g., New Zealand’s Emissions Trading Scheme, which is scheduled to include agricultural emissions in 2015). Food labeling and supply chain initiatives are emerging and governments, farmers and food companies anticipate trade restrictions and other pressures to achieve emissions reductions.

#### *Political support*

Although activity is occurring within the UNFCCC (e.g., by the Secretary General’s High-Level Advisory Group on Mobilizing Climate Change Resources with a focus on financing) and in other venues as discussed above, discussions about agriculture are in an early stage and political leadership is at a nascent stage and focused on developing sectoral support.

Opposition to the inclusion of agriculture in a global agreement arises from concerns about trade-offs with food security, the effect of environmental regulations on trade<sup>36</sup> the potential for agribusiness to dominate the agenda to meet their own interests and reduced profitability and viability of agriculture. The farm lobby is generally concerned about costs and not supportive.

Some REDD negotiators and advocates are also concerned that adding an agricultural component will delay or derail REDD implementation, while others worry that failing to include agriculture and energy (i.e., key drivers of deforestation) could cause REDD to collapse in the implementation phase. Current environmental ministers are said to have overlooked the role of agriculture.

Among the G77 countries, there is concern about the US and Europe using an international agreement to reduce competition by restricting agricultural expansion, although the use of GHG intensity-based measures (CO<sub>2</sub> equivalents/unit of food yield) would be an alternative metric that could be used to avoid the land conversion issue and ensure that agricultural mitigation is not obtained or pursued at the expense of food security. Key countries also currently have ambiguous interest in including agricultural mitigation.

33 As a venue for reaching agreement, SBSTA is seen by some as discouragingly difficult and by others as productive and technically credible. One respondent noted a lack of agriculture expertise within the UNFCCC as a barrier to progress.

34 <http://unfccc.int/resource/docs/2008/tp/08.pdf>

35 According to some respondents, short-term progress is expected to occur more at the national level and Brazil. New Zealand is the only country that has introduced forestry into an Emissions Trading Scheme, consistent with the LULUCF rules of the Kyoto Protocol.

36 Unlike REDD, mitigation in agriculture raises concerns among developing countries and some developed countries that restrictions on agricultural expansion would be used to reduce competition in trade. The negotiating text for COP16 includes a placeholder on trade and climate change, wherein the G77/China reserve the right to provide new text in future, and one suggested version of the text reads: Alternative 1: Developed country Parties shall not resort to any form of unilateral measures including tariff and non-tariff, and other fiscal and non-fiscal border trade measures, against goods and services imported from developing country Parties, on any grounds related to climate change.

Yet, agriculture has become increasingly linked to the REDD dialogue as the importance of agricultural mitigation and the interdependence between forestry and agriculture is recognized. A number of respondents pointed out that it is crucial to manage emissions from land use and land use change, which necessarily include agriculture and forestry, to address climate change. If forestry and agriculture are addressed separately, there is a risk of not capturing full net GHG accounting, and thus, not achieving positive outcomes. African negotiators in particular have aligned around the inclusion of agriculture and linkages to poverty reduction (stimulated in part by workshops convened by the World Bank).

Progress in international negotiations will be accelerated as awareness grows of outcomes from on-the-ground demonstration projects and other enhancements to operational experience in different regions of the world. A variety of models should be tested to reflect the range of needs (and potential contributions) of different stakeholders, from large agribusiness to poor smallholders. This will be needed for all countries. Key elements will include: (1) findings about the feasibility and GHG outcomes associated with shifts in agricultural management practices; (2) experience at the national level with development of accounting systems and alignment with development planning;<sup>37</sup> (3) development of high-integrity protocols and evidence of a critical mass of credible emissions reductions; and (4) prices that are adequately high, driven by increased market demand for offsets or other factors that increase offsets' value such as reduced uncertainty or social responsibility premiums. Parallel progress in these arenas will require committed resources.

One gap noted by respondents was the lack of political capacity building to supplement technical capacity building for both developed and developing countries. Rich engagement of country experts and negotiators by international initiatives could engender knowledge and analysis (e.g., in-country mitigation potential) that would enable clear articulation of national interests and capacity and thereby more effectively cultivate high-level political champions.

Also highlighted was the need for awareness-raising through high-profile spokespersons, engagement of thought leaders in the commodity and national farm and agricultural communities, and media campaigns that build a common language, address central concerns and mobilize key communities. These efforts were as important for their political impact as for communications.

### Coalitions

In contrast to REDD which grew out of the forest conservation community, agricultural mitigation will involve navigating sophisticated issues that are politically "hot" (i.e., food security

and national security issues are interdependent and operate at national and international scales). Progress will also require serious engagement of landowners (large and small), agribusinesses and the international consumer movement.

As farmers' associations and corporate stakeholders get more involved, it is conceivable that momentum would expand or shift from a primary focus on offset credits toward supply chain mechanisms<sup>38</sup> and sectoral approaches as well as greater integration of mitigation and adaptation objectives. Respondents highlighted the importance of cultivating forward-thinking corporate champions (at the CEO and Board Chair level) who are able to mobilize their company to seize emerging opportunities and to engage in public processes.<sup>39</sup> Among other roles, multilateral agencies and NGOs can usefully contribute by investing resources in tackling key technical questions, engaging researchers in operational issues and tool development, and advancing essential building blocks, as well as convening negotiators and stakeholders for dialogue to overcome roadblocks and develop innovative approaches.

Political progress requires venues<sup>40</sup> and coalitions for developing compromise, aligning interests among countries and other stakeholders and building political, financial and technical confidence. The emerging core group of committed players will need to maintain alliances with the larger pool of countries that are willing to be involved and provide support at key moments. Respondents highlighted the importance of country submissions as a mechanism for in-depth learning and building ownership as well as the likely importance of incremental gains through smaller processes. Additional agricultural workshops held as part of the UNFCCC process will also stimulate involvement and continued engagement of countries in a constructive manner. Also, stakeholder involvement can be cultivated at the national level, which can also help to encourage constructive engagement.

### Research and analysis

As with REDD, agricultural mitigation will require high-quality analysis by communities of practice organized around clear research mandates. Several respondents called for production of an authoritative synthesis publication (i.e., an independent rapid assessment similar to the Stern report that builds on the International Agricultural Assessment) that characterizes mitigation potential by type and region and rigorously evaluates the implications (including economic) associated with the full set of options for achieving significant mitigation.<sup>41</sup>

37 For example, Guyana's work to show how REDD fits within its national development goals and to pull all key ministries together. For agriculture, it will be helpful if several examples emerge in different regions (e.g., smallholders in Africa and Southeast Asia as well as major trading countries).

38 One respondent commented that, unlike REDD where the action is "on the ground," for agricultural mitigation, the "real action is in the value chain."

39 One respondent cautioned against attempts to draw corporate stakeholders into UNFCCC dialogues too early and risking frustration and disengagement.

40 Respondents suggested a range of possible organizations and processes including the PRP, WEF, Sustainable Roundtable processes, domestic legislation processes, national low carbon development planning processes, and corporate supply chain initiatives.

41 Potential 'candidates' to take up this work include the CGIAR Challenge Program on Climate Change, Agriculture and Food Security (CCAFS), the International Food Policy Research Institute (IFPRI), the World Agroforestry Center (ICRAF), the Terrestrial Carbon Group (TCG) and the Global Research Alliance on Agricultural Greenhouse Gases.

Key topics for analytic work include:

- Feasibility of achieving credible agricultural emissions reductions;<sup>42</sup>
- Cost-effective MRV systems (see section 3.3.2 below);
- The intersection of food security, food prices and trade policies with potential agricultural mitigation incentives and mechanisms;
- Establishing a common language and mapping out the terrain of issues (e.g., land use versus land use change; sequestration versus emissions; mitigation versus adaptation; overseas development assistance versus private finance);
- Synthesis of findings and common gaps in research and project-scale activity;
- Pros and cons of different approaches (e.g., supply chain, offsets, national policies) and practices (e.g., organic versus conventional, local versus global food systems, fertilizer and seeds).

A notable side-outcome of COP15 was the establishment of the Global Research Alliance on Agricultural Green House Gases (GRA), which has the objective of addressing gaps in research on agricultural greenhouse gases and coordinate research internationally and which can serve as a platform for information-sharing and technical convergence. The GRA's initial focus will be in three broad areas of work (i.e., paddy rice, croplands and livestock) with overarching research themes (i.e., soil carbon and nitrogen cycling; inventories and measurement). While the GRA is just getting started, early indications are that it will emphasize technical advancements such as sequestration, emissions reduction, and efficiency and productivity of agricultural production, but that it will not be a venue for developing an overall framework for dealing with agricultural mitigation, land use and food security.<sup>43</sup> Going forward, the GRA will need to strike a balance for its research investments in industrial agriculture and smallholder systems in different regions of the world.

A summary of the barriers and opportunities for agricultural mitigation policy appears in Table 1.

### 3.2.2 Implementation mechanisms and governance in agricultural mitigation

Implementation mechanisms for agriculture can build on existing REDD+ frameworks and agricultural mitigation by Annex I countries.<sup>44</sup> REDD-related standards and methodologies provide models for land use-related carbon credit measurement and trading as one option for creating mitigation incentives. REDD+ can be designed to accommodate agricultural modules or integrated

into Agriculture, Forestry and Other Land Use (AFOLU) or Reducing Emissions from All Land Uses (REALU)<sup>45</sup> frameworks, even if uncertainty exists about the viability of trading agricultural credits. Special effort will be needed to bridge the forestry and agricultural communities to enable these links to happen.

However, GHG offset revenues from agriculture are likely to be small, so incentives other than offset credits and additional supportive measures will be necessary to incentivize farmers to change their practices. Understanding regionally appropriate incentives and the possibility for generating mitigation impacts as a co-benefit is essential. Analogous to the proposal in REDD debates to reward countries with strong forest conservation, incentives also can be provided to reward *existing* climate friendly practices (e.g., practices that sequester carbon such as agroforestry). Other mechanisms that could support agricultural mitigation could include certification, land use planning, development aid, payments for environmental services and voluntary international funds. One respondent suggested there is a need ultimately to link agricultural GHG offset credits, regardless of how they are awarded, with inventory-level estimates of sources and sinks; and to do that, there is a need to use a landscape-scale approaches early on and involve the players necessary to ensure the accuracy of models, such as the CENTURY model, at that landscape scale. Otherwise, transaction costs are likely to be too high to engage individual farmers and individual farms in a manner that ensures profit incentives.

Purchases or compliance measures based on emissions per unit yield, rather than land area to measure GHG efficiency in food supply chains may provide another approach to mechanisms for which there is less experience in the UNFCCC processes. Intensity measures may offer a solution for addressing additionality issues, while encouraging the increased productivity and efficiency important for food security. New Zealand, Australia and Canada favor output-based measures as intensive production systems show lower emissions per unit yield, even though overall emissions per hectare may be higher. In contrast, according to several respondents, African nations and environmental groups have preferred land area-based measures. Intensity metrics may make most sense to be used to compare emissions within a region with similar modes of land use, and thereby encourage measures of efficiency appropriate to those regions. Indigenous communities also have concerns that intensity measures will encourage policies for the intensification of agriculture.<sup>46</sup> Incentives and co-benefits should be developed for a broad spectrum of farmers and need not be the same everywhere.

How the UNFCCC deals with permanence in agriculture will be critical to the value of agricultural offset credits. Afforestation/reforestation credits are temporary and improving their exchange with other credits in the CDM or

42 Skepticism continues to surround agriculture, especially with the experience of the Chicago Climate Exchange's weak rules (no additionality requirement) and its eventual stalling in mid-2010.

43 Several respondents noted US resistance to a more integrated approach and out-of-date approach to food security.

44 Annex I Kyoto Protocol Parties already have to account for all non- CO2 GHGs from agriculture. Only three Annex 1 countries elected carbon management.

45 A term coined by the ASB Partnership for the Tropical Forest Margins at the World Agroforestry Centre, see van Noordwijk et al. (2009).

46 Most more traditional agriculture has lower emissions per area land compared to industrial agriculture, but higher emissions per unit product.

EU-ETS is desirable. More use of discounts on offset credits, insurance, or credit replacement after expiration could promote fungibility, however. Approval of draft text within the AWG-KP would add permanence options (e.g., temporary credits, VCS-reserve/buffer) related to risk assessment.

While REDD has been able to build on experience in forest conservation, agricultural mitigation can draw on implementation mechanisms associated with agroforestry; woodlot and rangeland management; degraded land restoration; sustainable land management; conservation agriculture and soil management experiences; as well as payments for environmental services related to water and

biodiversity, and certification. Implementation mechanisms can also build on farmers' access to cooperatives; crop marketing boards; and microfinance networks that can serve as intermediary institutions for aggregation of offset credits and distribution of resulting benefits. The challenge will be to develop mechanisms that support transformative agricultural systems and low GHG visions of agricultural development.

As with forestry, implementation measures will require the development of standards. Some countries are moving to develop national standards (see for example Australia's National Carbon Offset Standard<sup>47</sup>). The VCS is the only global standard to address agriculture and in 2008 established

**Table 1. Summary of implications for agricultural mitigation: Policy**

Barriers	Opportunities
<ul style="list-style-type: none"> <li>• Development of an agricultural mitigation mechanism requires navigating sophisticated and politically challenging terrain and engaging landowners (large and small), agri-businesses and the international consumer movement.</li> <li>• Agricultural mitigation still needs to pass the “significance” and “feasibility” tests. Fluctuations in agricultural production are greater and more complex than the dynamics of forest cover, deforestation and degradation and therefore more difficult to predict over the long run.</li> <li>• The policy process has been slow and there is little optimism for rapid advancement within the UNFCCC. Lack of passage of national cap-and-trade bills in the US and Australia has delayed development of these large offset markets.</li> <li>• Political leadership for framework building and principle development for an agricultural mechanism has not yet coalesced. Political capacity building for developing countries has not received the same attention as to technical capacity-building.</li> <li>• It is not yet clear how mitigation, agriculture and REDD intersect in the UNFCCC process and this inhibits countries from understanding how best to implement all land-related commitments and opportunities.</li> <li>• The need to address both adaptation and mitigation also risks sidelining mitigation.</li> <li>• Opposition to a global agricultural mechanism arises from concerns about:             <ul style="list-style-type: none"> <li>– delaying or derailing a REDD agreement</li> <li>– trade-offs with food security</li> <li>– reduced profitability and viability of agriculture</li> <li>– impacts on trade and competitiveness</li> <li>– potential for agribusiness to dominate the agenda</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• There are policy windows for agricultural mitigation:             <ul style="list-style-type: none"> <li>– Agriculture is allowable under the Kyoto Protocol.</li> <li>– COP16 Advance Negotiating Text mentions or allows space for agriculture in a number of places.</li> <li>– Country submissions have increased the visibility of agriculture.</li> <li>– Negotiators have expressed support for an agricultural workstream to be undertaken by SBSTA.</li> </ul> </li> <li>• Growing awareness of the interdependence between forestry and agriculture has led to increased attention in REDD dialogues. There is increasing recognition that national and global security is strongly tied to a resilient and productive agricultural system.</li> <li>• Political momentum can be accelerated by:             <ul style="list-style-type: none"> <li>– An authoritative synthesis of agricultural mitigation issues, potential and options.</li> <li>– Venues for developing an overall framework for dealing with agricultural mitigation, land use and food security.</li> <li>– Crafting compromise and innovative approaches and aligning interests among countries and other stakeholders.</li> <li>– Building coalitions around core groups of committed players.</li> <li>– Cultivating forward-thinking corporate champions.</li> </ul> </li> <li>• Providing knowledge and analysis (eg, country mitigation potential) that enables clear articulation of national interests and capacity can build confidence among developing country experts and negotiators and cultivate high-level political champions.</li> <li>• Multilateral agencies and NGOs can tackle key technical questions, engage researchers in operational issues and tool development, and advance essential building blocks.</li> <li>• In addition to the UNFCCC, progress on agricultural mitigation could continue through intergovernmental collaboration, sub-national and national-level action, food labelling and supply chain initiatives or trade policy.</li> </ul>

<sup>47</sup> <http://www.climatechange.gov.au/government/initiatives/~/media/publications/carbon-accounting/revised-NCOS-standard-pdf.ashx>



guidelines for AFOLU. Agricultural land management in the guidelines includes improved cropland management, improved grassland management, and crop and grassland conversions. Methodologies currently under review include sustainable land management practices (SALM), nitrous oxide (N<sub>2</sub>O) emissions for US agricultural crops from N fertilizer reductions, afforestation / reforestation of agricultural lands, adoption of sustainable grassland management through fire and grazing, and mosaic deforestation.

There is an urgent need for a foundation of pilot project experiences that can demonstrate verifiable emissions reductions and co-benefits. At present, only a handful of projects exist.<sup>48</sup> Projects need to demonstrate that net emissions can change significantly with shifts in management. Projects will need to demonstrate cost-effectiveness, a critical mass of supply (e.g., hundreds of thousands of tons/year), adequate incentives for farmers and compatibility with national development objectives such as food security. They will also need to cover a range of activities classified as agricultural management – from livestock and fisheries to irrigation, energy use,<sup>49</sup> land restoration and agroforestry – and all three major greenhouse gases (CO<sub>2</sub>, N<sub>2</sub>O, and CH<sub>4</sub>) and their interactions need to be examined to ensure that net GHG emissions are ultimately counted. The role of biotechnology could be tested in different country contexts. Developing simple, cost-efficient MRV that can be applied globally will facilitate comparisons and rapid implementation (see section 3.2.3).

FAO has suggested a step-wise approach to an agricultural GHG offset program, with increasing accuracy thresholds in order to enable learning-by-doing approaches and to encourage early mitigation actions. The first step in an agricultural GHG offset program might be to develop pilot projects to generate verifiable emission reductions (for CH<sub>4</sub> and N<sub>2</sub>O) and offsets based on carbon sequestration. Such reductions would not be used for compliance, but rather to gain experience and indicate to farmers that environmental services can be financially rewarded. An intermediate phase might be to implement larger-scale projects that use public funding and simple methodologies. Then, countries that have or can acquire capacity and knowledge could transition to progressively greater quantification of emissions reductions and utilization of incentives from market mechanisms. This would require more robust MRV systems with safeguards in place to ensure social and environmental integrity.

One respondent observed that if an agreement about an agricultural mitigation mechanism is created in the near future, the terms may not be favorable for smallholders and that we need time to get a regulatory system worked out and to develop a variety of models. From a policy perspective,

48 For example Vi Agroforestry in Western Kenya, Plan Vivo's Scolel Te project in Mexico, CDM projects for woodlots such as the Humbo Ethiopia Assisted Natural Regeneration Project. Australia has been a leader in reducing farm emissions (avoided deforestation, improve perennial pastures, all conservation practices) with successes potentially applicable to other dry countries.

49 Note that energy use in agriculture is often accounted for elsewhere, a complicating factor.

countries could agree that every signatory country should develop a pilot agricultural system or international bodies could create a fund to develop mechanisms specific to smallholder farmers. The experiences would build a foundation of practice and acceptance for credits. A review period, similar to the two-year period for REDD, could be created, during which lessons are gleaned from these experiences. Concurrent research can explore practices that increase productivity, combining adaptation and mitigation and emission measurement techniques. The system would take into account different management practices and production systems, agricultural sequestration potential and removals of CO<sub>2</sub> emissions through sustainable production of renewable energies on the farms. As in the Meridian Institute's facilitated process for REDD, negotiators could then confer with experts to identify options for an international agricultural mechanism.

A summary of the barriers and opportunities for agricultural mitigation implementation and governance appears in Table 2.

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### 3.2.3 Agricultural MRV framework options and required institutions

A robust, multi-scale MRV system is needed to support estimating agricultural mitigation potential, monitoring net GHG emissions and carbon sequestration, meeting reporting expectations, and ensuring that changes in land management add up to meaningful climate change mitigation. While MRV advancements have been greatest for forest systems, it is possible to combine field measurements, remote sensing, conversion equations, and models to estimate changes in carbon pools. However, there is a need for improved measurement and estimation capacity for gaseous emissions of nitrous oxide (N<sub>2</sub>O) and methane (CH<sub>4</sub>) and comprehensive approaches for tracking changes in all GHGs. Several initiatives are working toward greater convergence on robust monitoring methods.

There are a range of views regarding the importance of accuracy and precision in monitoring relative to encouraging uptake of mitigation practices at the field level. There is general agreement that the measurement rigor demanded by forestry protocols will be more difficult to achieve in agricultural settings. Approaches such as increasing accuracy through large-scale estimation and focusing on management activities rather than actual monitoring have gained traction, especially among farmers. Dialogue is ongoing within technical communities about whether it is appropriate to rely primarily on models to meet agricultural MRV needs or whether substantial ground measurements are required. There appears to be growing recognition that a combination of models and some on-the-ground measurements can yield robust MRV if applied at large enough scales. Achieving scale will require broad participation and collaboration across sectors.

There is not yet consensus about the actual mitigation potential of soil carbon sequestration and the feasibility of detecting changes in extensive areas over long time periods as well as attributing these changes to management, rather than climate, land use history or other variables. Several respondents articulated the view that agricultural mitigation practices are not likely to generate significant payments to farmers and therefore should be promoted for their other benefits such as increased productivity and climate resilience. Further technical and conceptual convergence on this issue is essential to informing the design of agricultural mitigation mechanisms and addressing fundamental questions regarding the appropriateness of pay-for-performance incentives in agriculture<sup>50</sup> and bundling of mitigation and adaptation mechanisms.

At present, relatively few countries have a robust capacity to monitor agricultural GHGs (NRC 2010) and there is a need for additional scientific work on methods in agriculture, especially accuracy and cost optimization. Other areas requiring further

investment and institutional engagement include:

- Regionally-relevant, whole-landscape field data and models;
- Data sharing across scales and sectors;
- Development of regional conversion equations and field data;
- Labor- and cost-saving field measurement approaches;
- Institutional frameworks for reducing costs;
- Continuity of key remote sensors and improved remote sensing interpretation methods;
- Methodology development / approval;
- Compatible terms, definitions and standards

Projects are being established to demonstrate feasibility and develop cost-effective approaches to measuring and monitoring greenhouse gases in agricultural settings,<sup>51</sup> but they will require some time to develop reliable results. Several entities (Coalition on Agricultural Greenhouse Gases (C-AGG), Global Research Alliance via USDA) are evaluating the suitability of carbon intensity metrics in lieu of or in addition to

**Table 2. Summary of implications for agricultural mitigation: Implementation mechanisms and governance**

Barriers	Opportunities
<ul style="list-style-type: none"> <li>• Key elements of REDD (eg, pay-for-performance incentives, additionality criteria) may not translate easily to agricultural mitigation.</li> <li>• Development of an agricultural mitigation mechanism is complicated by the diversity of types and scales of land ownership and management.</li> <li>• Standard-setting processes are not well-coordinated and there is potential for increasing fragmentation.</li> <li>• How reference levels are set in agriculture and the types of mitigation practices eligible for compliance and voluntary markets will affect allocation of benefits.</li> <li>• Tensions among proponents of industrialized and smallholder agriculture inhibit development of a shared vision for the future of global agriculture.                         <ul style="list-style-type: none"> <li>– Large-scale agribusinesses have advantaged influence on global market systems and access to technology and information and in better position to capitalize on offset market opportunities.</li> <li>– Small-scale farmers or large-scale producers participating in organic, sustainable agriculture or fair trade certification schemes may have disadvantaged access to development of a global agricultural mitigation mechanism.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• There is a practical foundation for developing an agricultural mechanism gained through:                         <ul style="list-style-type: none"> <li>– REDD-related standards and methodologies</li> <li>– Experience with agroforestry, woodlot and rangeland management, degraded land restoration, sustainable land management, conservation agriculture and soil management</li> <li>– Experimentation with payments for environmental services related to water and biodiversity, and certification</li> </ul> </li> <li>• Facilitated processes for negotiators to confer with experts could assist in evaluating options for a phased approach to REDD that accommodates agricultural modules, for example:                         <ul style="list-style-type: none"> <li>– agriculture as a driver of deforestation</li> <li>– food production as a co-benefit of REDD</li> <li>– agriculture integrated into AFOLU or REALU frameworks</li> </ul> </li> <li>• Development of standards and verification processes for agricultural mitigation is underway through a number of venues including regulated and voluntary markets. Methodologies currently under review include sustainable land management, N fertilizer reductions, afforestation / reforestation of agricultural lands, sustainable grassland management and mosaic deforestation.</li> <li>• Analysis and pilots can assess proposed approaches such as:                         <ul style="list-style-type: none"> <li>– Aggregation of offset credits and distribution of benefits</li> <li>– Supply chains and sectoral approaches</li> <li>– Rewarding existing climate friendly practices</li> <li>– Certification, land use planning, development aid, payments for environmental services and voluntary international funds.</li> <li>– Regionally appropriate incentives</li> <li>– Mitigation as a co-benefit</li> </ul> </li> </ul>

<sup>50</sup> One respondent observed that the difficulty experienced by countries in meeting additionality criteria and setting baselines suggests that a next iteration of requirements should not employ additionality and instead prioritize sustainable development and progress on mitigation.

<sup>51</sup> Key examples include FAO's MICCA project, the GEF-funded Carbon Benefits Project, the Sustainable Food Lab's Global Agricultural Climate Assessment project, the World Bank BioCarbon Fund, the Global Research Alliance, the German Marshall Fund's technical guidance project, CCAFS and IFPRI's agricultural mitigation projects, the Coalition on Agricultural Greenhouse Gases (C-AGG) and the UK-China SAIN project.

land area metrics (see Section 3.2.2).

The IPCC guidelines are considered to be sufficient for MRV in agriculture, however there are key gaps including the default method for N<sub>2</sub>O and guidance for agroecosystems and grazing systems. The 2006 IPCC *Good Practice Guidelines* are not scheduled for approval and implementation until 2015 (several respondents commented on the need to depoliticize technical guidance processes). A single analysis for all land use in the upcoming 5<sup>th</sup> Assessment Report should enable greater consistency and integration between forestry and agriculture. Development of standards for agricultural mitigation is underway through a number of venues including regulated (e.g., CDM, western Canada) and voluntary markets (e.g., VCS, Rainforest Alliance), however these processes are not well-coordinated and there is potential for increasing fragmentation.

One respondent observed that additionality and baselines are ultra difficult to determine and become hurdles to countries; a next iteration of requirements should not employ additionality and instead prioritize sustainable development and continuity of action in protecting the carbon sink, as well as reward early adopters. These measures should be also more attractive to policy makers.

Clarity has yet to emerge regarding institutional roles and responsibilities for enabling agricultural mitigation (e.g., building capacity, developing tools, providing field-scale guidance). While there are some initiatives and communities of practice developing integrated responses to priority topics, such as landscape-scale measurement, structured frameworks are needed to link together the array of projects and programs housed in various research institutions, private companies, and national and international agencies. A summary of the barriers and opportunities for agricultural mitigation governance appears in Table 3.

### 3.2.4 Finance and incentive options for agricultural mitigation

One respondent described the purpose of finance and incentives as reorienting economies to a low emissions development path. This development path would increase agricultural production and rural development without significant expansion into forests, and compensate for opportunity costs of “normal” development (e.g., deforestation, high emissions agriculture) and costs of transition to a new business model (e.g., infrastructure).

**Table 3. Summary of implications for agricultural mitigation: MRV**

Barriers	Opportunities
<ul style="list-style-type: none"> <li>• A robust, multi-scale MRV system is needed to support estimating agricultural mitigation potential, monitoring GHG emissions and carbon sequestration, meeting reporting expectations, and ensuring that changes in land management add up to meaningful climate change mitigation.</li> <li>• MRV for agricultural systems is complicated by:</li> <li>• The importance of below ground biomass and N<sub>2</sub>O and CH<sub>4</sub> emissions, which are more difficult and expensive to measure.</li> <li>• High potential for reversibility (ie, low permanence).</li> <li>• Poor understanding of nitrous oxide management, precision fertilizer use, reducing livestock emissions of CH<sub>4</sub> and biofuels production.</li> <li>• Relatively few countries have a robust capacity to monitor agricultural GHGs.</li> <li>• The 2006 IPCC <i>Good Practice Guidelines</i> are not scheduled for approval and implementation until 2015 and further work is needed on the default method for N<sub>2</sub>O and guidance for agroecosystems and grazing systems.</li> </ul>	<ul style="list-style-type: none"> <li>• It is possible to combine field measurements, remote sensing, conversion equations, and models to estimate changes in carbon pools.</li> <li>• Investment and institutional engagement can achieve key advancements:</li> <li>• Development of regionally-relevant, whole-landscape field data and models</li> <li>• Data sharing across scales and sectors</li> <li>• Labor- and cost-saving monitoring approaches</li> <li>• Improved measurement approaches for N<sub>2</sub>O and CH<sub>4</sub> and comprehensive approaches for tracking all GHGs</li> <li>• Tool and method development appropriate to agribusiness and smallholders</li> <li>• Continuity of key remote sensors and improved remote sensing interpretation methods</li> <li>• Methodology development / approval</li> <li>• Technical convergence initiatives can be directed toward:</li> <li>• The actual mitigation potential in agriculture and the feasibility of detecting and attributing changes in extensive areas over long time periods.</li> <li>• Balancing accuracy and precision needs with encouraging uptake of mitigation practices in developing protocols.</li> <li>• Evaluating whether it is appropriate to rely primarily on models to meet agricultural MRV needs or whether substantial ground measurements are required.</li> <li>• Exploring approaches such as increasing accuracy through large-scale estimation and focusing on management activities rather than actual monitoring.</li> <li>• Crafting consistent terms, definitions and standards.</li> <li>• IPCC guidelines are considered to be sufficient for MRV in agriculture and a single analysis for all land use in the upcoming 5<sup>th</sup> Assessment Report should enable greater consistency and integration between forestry and agriculture.</li> </ul>

A variety of “assisted transitions” across supply chains can be explored with attention to regulation, insurance and best practices in addition to finance options. The potential sources, types (e.g., funds, offset markets) and magnitude of finance for agricultural mitigation are under active discussion.

As with forestry, the market value of agricultural offset credits will be strongly influenced by policy progress toward regulated international, regional or national cap-and-trade markets (i.e., a critical driver of demand for offset credits). Uncertainty and disappointment arising from delays in the UNFCCC and the US legislative process have contributed to low confidence, weak demand and low prices for terrestrial offsets. To manage risk and price volatility, some market players have proposed developing a mechanism for offset credits that is similar to futures markets for agricultural products.

On the supply side, the relatively small number of pilot projects working to produce emissions reductions and sequestration in farm settings is not yet sufficient to mobilize significant investment capital. However, the first Emission Reductions Purchase Agreement for soil carbon in Africa was signed in 2010.<sup>52</sup> Current work to develop rigorous and feasible standards and verification processes (see section 3.2.2) is important for building a base of credibility for agricultural offsets. (A carbon methodology for soil agriculture has been submitted by the BioCarbon Fund to the Voluntary Carbon Standard and is going through a process of double validation.) In addition, the likelihood that developing countries will establish robust national MRV systems will affect the perceived credibility and therefore the value of agricultural offsets.

Differences between agriculture and forestry (see section 3.1) may translate into greater focus on public sector support and corporate supply chain approaches,<sup>53</sup> rather than offset credits, for agricultural mitigation. From a public sector perspective, increasing recognition that national and global security is strongly tied to a resilient and productive agricultural system provides real motivation for public investments that promote farm practices that can advance adaptation, food security and poverty reduction while achieving national mitigation commitments (e.g., Nationally Appropriate Mitigation Actions, NAMAs). From the perspective of agri-businesses, there is strong interest in identifying investments that can be shown to stabilize or enhance food production while contributing to corporate or sectoral mitigation targets.

Early financing is needed for a wide range of readiness and capacity building activities such as infrastructure planning and development, implementing pilots and synthesizing findings, and developing regionally relevant MRV tools and methods.

52 First African Emission Reductions Purchase Agreement For Soil Carbon Signed In The Hague, 3 November 2010. <http://web.worldbank.org/WBSITE/EXTERNAL/NEWS/0,,contentMDK:22753334~pagePK:34370~piPK:34424~theSitePK:4607,00.html>

53 There is also the possibility that public sector and offset credit finance could be combined to increase the value of mitigation for agriculture and farmers within supply-chain initiatives.

These types of resources are unlikely to come from the private sector or developing country governments so progress will require significant support from donor governments and foundations.

Several respondents pointed to the value of an “anchor” government donor (i.e., Norway’s role in advancing REDD) but acknowledged that a single large donor is unlikely to emerge for agriculture. Unlike REDD’s focus on implementation in developing countries, agricultural mitigation is a cooperative sectoral issue for all countries. Agricultural mitigation will require leadership from multiple governments. Major donors “earn” an important oversight role that can contribute to accountability at national and project levels. Some donor governments may focus on bilateral (e.g., Australia’s engagement with Indonesia on REDD) or region-specific engagement. The need for systems to track additionality of public sector financing (e.g., ensuring that newly committed funds do not replace existing ODA commitments) is relevant for both agriculture and forestry.

A number of governments (i.e., the Netherlands, Norway, US, New Zealand, Australia) and foundations (i.e., the Rockefeller Foundation, the Bill and Melinda Gates Foundation) have signaled leadership on agricultural mitigation. There may also be opportunities for engagement among major NGOs traditionally focused on conservation (e.g., WWF) and hunger (e.g., Oxfam, CARE) to leverage resources for pilots and other readiness work.

A coordinated framework for government and foundation support can be useful for building momentum and confidence, enhancing professionalism, and increasing the likelihood of leveraging private sector and developing country investments.<sup>54</sup> The World Bank and key UN agencies will provide important synchronization functions and become repositories of operational experience. It is possible that the Climate Land Use Alliance (CLUA) will increasingly coordinate the role of large-scale philanthropic funds in relation to agricultural mitigation. It is not yet clear what role major regional institutions such as the development banks are likely to play in agricultural mitigation.

To insure that resources contribute toward a coherent long-term system, there is a clear need for integrated analysis of the range of finance options that (1) evaluates likely impacts; (2) scans for perverse outcomes, orphan issues and redundancy; and (3) identifies opportunities for alignment with adaptation and food security programs. The latter should include assessing the infrastructure of agriculture and the paths of influence that can be change-agents in any particular country.

A summary of the barriers and opportunities for agricultural mitigation finance appears in Table 4.

54 Examples from REDD include the interim financing group as well as a coordination role among foundations provided by Climate Works and the Meridian Institute.

### 3.2.5 Capacity building for agricultural mitigation

Minimal capacity exists in most developing countries for monitoring GHGs. There is a general lack of trained personnel, data, and laboratories. The necessary market and governance structures for trading of GHG offsets would need to be developed. As a starting point, existing technical and project capacities for REDD and CDM are relevant to agriculture and can serve as a foundation. In meeting the technical demands of a REDD-type program, attention may not be directed to supporting policies and livelihoods that encourage agricultural mitigation. Given the need for additional incentives (beyond market-based offset credits for agricultural mitigation), capacity building to support innovative mechanisms for low carbon agriculture and economic development will be needed.

A phased approach to REDD+ could incorporate agricultural mitigation and agricultural modules could be built into capacity building activities by UN-REDD and others. Where third parties support capacity building through readiness plans,

processes should be in place to ensure that these are national documents reflecting national ownership and priorities, and not the work of the third party. System for Analysis, Research and Training (START) supports PhD fellowships in Africa for research on climate change adaptation and a similar program could be initiated for mitigation and land use. Lessons from REDD suggest that any public funding mechanism for an agricultural mechanism should include provisions for capacity building. Forestry and environmental groups and agricultural entities will need to build better channels of communication across their respective communities to transfer knowledge. In the private sector, capacity for life-cycle analysis of GHGs and energy use exists (for example, Unilever reports having done many life cycle analyses for its products). Unfortunately, many of these are proprietary information and not accessible to the public. Building capacity outside of the private sector for life cycle analysis is needed to support more diverse and critical perspectives. If multiple LCA's are created, methods should be defined such that they have consistent boundaries to prevent either gaps or double-counting.

Farmers remain particularly uninformed about climate change policy and mitigation options, even in existing REDD and CDM projects, and will be handicapped in contexts requiring

**Table 4. Summary of implications for agricultural mitigation: Finance**

Barriers	Opportunities
<ul style="list-style-type: none"> <li>• Reorienting to a low emissions development path (eg, increasing agricultural production and rural development without significant expansion into forests) requires compensation for opportunity costs of “normal” development (eg, deforestation, high emissions agriculture) and costs of transition to a new model.</li> <li>• Early financing is needed from donor governments and foundations for a wide range of readiness and capacity building activities (eg, infrastructure, pilots, synthesizing findings, regionally relevant MRV tools and methods).</li> <li>• A single large donor is unlikely to emerge for agriculture, requiring leadership from multiple governments. The role of major regional institutions such as the development banks not yet clear.</li> <li>• The relatively small number of pilot agricultural mitigation projects is not yet sufficient to mobilize significant investment capital.</li> <li>• Fewer offset credits are likely to be available from agricultural mitigation than those from forests and sale of offset credits is unlikely to be a stand-alone incentive for farmers to change their practices</li> <li>• Credibility and market potential of agricultural offset credits has been negatively influenced by delayed progress toward regulated international, regional and national cap-and-trade markets as well as low confidence that developing countries will establish robust national MRV systems.</li> </ul>	<ul style="list-style-type: none"> <li>• A variety of “assisted transitions” across supply chains can be explored with attention to regulation, insurance and best practices in addition to finance options.</li> <li>• Aggregating large areas and/or a large number of farmers may generate sufficient mitigation and offsets to cover initial investments and transaction costs.</li> <li>• Integrated analysis of potential sources, types and magnitude of finance can:</li> <li>• Compare offset markets, funds, supply chain and other financing approaches</li> <li>• Assess likely impacts, perverse outcomes, orphan issues and opportunities for alignment with adaptation and food security programs.</li> <li>• Evaluate the potential of futures market-style mechanisms to reduce risk and price volatility for offset credits.</li> <li>• Systems to track additionality of public sector financing can ensure that newly committed funds do not replace existing ODA commitments.</li> <li>• A coordinated framework for government and foundation support can:</li> <li>• Build professionalism, momentum and confidence.</li> <li>• Increase the likelihood of leveraging private sector and developing country investments.</li> <li>• Encourage an oversight role that can contribute to accountability at national and project levels.</li> <li>• Foster alignment across bilateral and regional arrangements as well as among NGOs working on conservation and hunger issues.</li> <li>• A number of governments and foundations have signalled leadership on agricultural mitigation and CLUA may provide a coordinating role among major foundations.</li> </ul>

free, prior and informed consent or meaningful participation in mitigation decisions. As noted by Peskett et al. (2008), “information should at a minimum contain basic details of how REDD mechanisms work, realistic expectations of benefits and possible implications.”

A summary of the barriers and opportunities for agricultural mitigation capacity building appears in Table 5.

### 3.2.6 Social impacts: Co-benefits and pro-poor measures

Farmers undertake agriculture to secure food and livelihoods as the primary benefit and mitigation is inherently secondary. Food production and maintenance of livelihoods are therefore necessary elements for appropriate mitigation and will require

strong safeguards. Criteria for safeguards in agricultural mitigation should focus on livelihood enhancement, economic development and pro-poor outcomes, as well as environmental impacts such as enhanced biodiversity, soil health, weather regulation, and hydrologic functions. Benefits associated with adaptation to climate change are similarly necessary for farmers’ well being and should be considered as requirements for appropriate mitigation with safeguards rather than co-benefits. Discussions regarding safeguards in agricultural mitigation are also likely to include the needs of organic versus conventional production, local versus global food systems, food sovereignty and the use of fertilizer and seeds.<sup>55</sup> Some NGOs have articulated concerns about potential pro-industry bias in a global agricultural mitigation mechanism that could disadvantage small-scale farmers or large-scale producers participating in organic, sustainable agriculture or fair trade

<sup>55</sup> For example, at COP15, there was a decision on agriculture that provided protection for traditional farm practices.

**Table 5. Summary of implications for agricultural mitigation: Capacity building**

Barriers	Opportunities
<ul style="list-style-type: none"> <li>• Minimal capacity exists in the agricultural sector in most developing countries for mitigation and carbon trading (eg, lack of trained personnel, data, laboratories, and market and governance structures).</li> <li>• Farmers remain particularly uninformed about climate change policy and mitigation options, even in existing REDD and CDM projects, and will be handicapped in contexts requiring free, prior and informed consent or meaningful participation in mitigation decisions.</li> <li>• Clarity has yet to emerge regarding institutional roles and responsibilities for enabling agricultural mitigation (eg, building capacity, developing tools, providing field-scale guidance). Structured frameworks are needed to link together the array of projects and programs housed in various research institutions, private companies, and national and international agencies.</li> <li>• Some countries are better positioned to capitalize on future agricultural mitigation mechanisms (ie, wealthier countries less susceptible to climate change impacts or food security issues, with strong agribusiness interests, that help set the agenda, secure donor attention and resources early on and set the pace and procedures for agricultural mitigation). It is unclear how current level of deforestation will influence “winners” and “losers.”</li> </ul>	<ul style="list-style-type: none"> <li>• Capacities developed through CDM and REDD-style projects and operational experience with conservation agriculture, restoration ecology and sustainable land management can serve as a foundation for future on-the-ground projects in different regions of the world that demonstrate:                         <ul style="list-style-type: none"> <li>– evidence of a critical mass of credible emissions reductions and co-benefits</li> <li>– adequate incentives and cost-effectiveness for farmers</li> <li>– real market demand for offsets</li> <li>– compatibility with national development objectives</li> <li>– which agricultural management activities result in net reduction for all three major greenhouse gases</li> </ul> </li> <li>• Capacity building programs operated by multilateral agencies and others can increase experience with agricultural mitigation at the national level with development of accounting systems and alignment with development planning by supporting:                         <ul style="list-style-type: none"> <li>– innovative mechanisms for low carbon agriculture and economic development</li> <li>– mechanisms specific to smallholder farmers</li> <li>– pilot agricultural systems for all developing countries signatory to a global agreement</li> </ul> </li> <li>• A step-wise, “learning-by-doing” approach can foster increasing accuracy thresholds and encourage early mitigation actions by beginning with pilot projects followed by larger-scale projects that use public funding and simple methodologies and progressing to rigorous quantification of emissions reductions and utilization of incentives from market mechanisms.</li> <li>• Platforms for information-sharing and technical convergence (eg, GRA) can foster, coordinate and synthesize research on agricultural practices that combine increased productivity and resilience with reduced net emissions, with attention to:                         <ul style="list-style-type: none"> <li>– balancing research investments in industrial agriculture and smallholder systems in different regions of the world</li> <li>– evaluating the full range of approaches (eg, traditional knowledge, biotechnology)</li> <li>– bridging public and private sectors and agriculture and forestry research communities</li> </ul> </li> </ul>

certification schemes. Analysis of political and economic factors in mitigation and the role of agricultural actors would increase awareness about potential bias and support efforts to mobilize against them should they occur. One respondent cautioned that it may be undesirable to lock into agricultural mitigation schemes too quickly as time will be required to identify where safeguards are needed and how to build them most effectively. As with any complicated endeavor, the possibility for unintended consequences is large. Facilitating stakeholder and expert consultations on safeguards, such as those used in the Convention on Biodiversity, may help to develop more robust mitigation schemes.

In response to REDD, indigenous people’s organizations took a stance in the Anchorage Declaration that their “communities, waters, air, forests, oceans, sea ice, traditional lands and territories” are “Food Sovereignty Areas,” defined and directed by Indigenous Peoples according to customary laws, and free from chemical-based industrial food production systems and extractive industries (i.e. contaminants, agro-fuels, genetically modified organisms, and deforestation).” While indigenous groups are less prominent in agricultural policy arenas, linking to the indigenous people’s movement will be important, especially if agriculture and forestry are integrated into an AFOLU approach. The Anchorage principles may be relevant to other smallholders.

Observations from incipient agricultural mitigation projects suggest that most farmers, even after signing contracts, lack a robust understanding of their role in generating offsets. Implementing free, prior and informed consent principles will require more attention to building farmers’ knowledge of mitigation options and related incentives. Unlike shorter-term cropping and marketing decisions, participation in offset

crediting can involve long-term contracts with liabilities and implications for ownership and the transfer of ownership. Producers and farming communities will need to understand these liabilities to make informed decisions.

As with REDD, standards and certification will help to promote best practices. The CCB standards are applicable to agricultural systems. About 25 agricultural certification programs exist that can also incorporate mitigation and adaptation-related principles, which can more directly support private sector best practices. Good governance, transparency measures, checks and balances and monitoring will be required to ensure that benefits flow to communities and safeguards are effective. Groups like Global Witness are likely to play a monitoring role.

A summary of the barriers and opportunities for agricultural mitigation co-benefits appears in Table 6.

**Table 6. Summary of implications for agricultural mitigation: Co-benefits**

Barriers	Opportunities
<ul style="list-style-type: none"> <li>• Farmers undertake agriculture to secure food and livelihoods and mitigation will be sought as a co-benefit associated with other incentives.</li> <li>• Unlike shorter-term cropping and marketing decisions, participation in offset crediting can involve long-term contracts with liabilities. Producers and farming communities will need to understand these liabilities to make informed decisions.</li> <li>• Rights to food security and trade-offs with mitigation are unclear.</li> <li>• Issues including organic versus conventional production, local versus global food systems, food sovereignty and the use of fertilizer and seeds are unresolved.</li> <li>• Need to address both adaptation and mitigation</li> </ul>	<ul style="list-style-type: none"> <li>• Safeguards can be developed for rights to food security, livelihoods, economic development, pro-poor outcomes, environmental impacts (eg, enhanced biodiversity, soil health, weather regulation, and hydrologic functions).</li> <li>• Mitigation and adaptation mechanisms can be “bundled” where appropriate.</li> <li>• Facilitated stakeholder and expert consultations on safeguards (that link to the indigenous people’s movement and draw on the Anchorage principles) may help to develop more robust mitigation schemes.</li> <li>• Implementing free, prior and informed consent principles will require more attention to building farmers’ knowledge of mitigation options and related incentives.</li> <li>• Existing standards (ie, CCB) and agricultural certification programs can incorporate mitigation and adaptation-related principles and encourage private sector best practices.</li> <li>• Good governance, transparency measures, checks and balances and monitoring will be required to ensure that benefits flow to communities and safeguards are effective.</li> </ul>

### 3.3 Country Differences: Winners and Losers

Analysis of REDD has shown that some countries are more likely to benefit from REDD than others (Table 7). To be effective, REDD needs to focus on the larger countries and where forest conservation is most threatened.

The winner and loser countries for agricultural mitigation are less obvious. First, the financial benefits are likely to be much lower compared to forestry and other offset opportunities. Second, interactions between forests and agriculture will occur with agricultural expansion and contraction (i.e., how will countries with different levels of forest cover and deforestation benefit from agricultural mitigation?) Third, fluctuations in agricultural production are greater and more complex than the dynamics of forest cover, deforestation and degradation and therefore more difficult to predict over the long run. Fourth, if reference levels are set in agriculture, the types of mitigation practices eligible for compliance and voluntary markets will affect benefits. Lastly, the potential for realizing agricultural mitigation in technical and economic terms still remains uncertain.

That said, countries with powerful agribusiness interests may benefit disproportionately, as they are likely to move quickly to influence the agenda for mitigation in their favor. Large-scale agribusinesses are also more likely to be familiar with global market systems, have access to technology and information and be responsive to GHG offset opportunities.

The likelihood of individual countries benefitting from agricultural mitigation mechanisms will be influenced by factors such as size, climate and governance.

- Smaller countries that can mobilize quickly and are effective in reaching and motivating farmers may also benefit from a “first mover” advantage.
- Countries with humid agroclimatic conditions that support high levels of above ground biomass in agriculture and forestry have overall more mitigation potential. Whether they can realize this potential however will depend on what is politically and economically feasible.
- Countries with stronger governance measures, political stability and secure financial reputations are more likely to be able to meet compliance regulations and attract investor interest.
- Countries with strong food security needs, who are especially vulnerable to climate change impacts, are less likely to engage in mitigation for fear of trade-offs with food production.

Winners are likely to be wealthier countries less susceptible to climate change impacts or food security issues, with strong agribusiness interests, that help set the agenda, secure donor attention and resources early on and set the pace and procedures for agricultural mitigation. Even with these factors in their favor, however, Annex I countries in the Kyoto Protocol still have to account for non- CO<sub>2</sub> GHG’s from agriculture, suggesting that there will be no clear winners.

**Table 7. Matrix showing countries by forest cover and historical rate of deforestation. REDD’s scope, reference level and distribution mechanisms will affect which countries benefit. Countries with high forest cover, but low threat of deforestation, such as Suriname, have argued that they deserve incentives to compensate for good forest stewardship.**

	Low forest cover (< 50%)	High forest cover (> 50%)
<b>High deforestation rate (&gt; 0.22%/yr)</b>	<p><b>Quadrant I</b> e.g. Guatemala, Thailand, Madagascar</p> <p>No. of Countries: 44 Forest area: 28% Forest carbon total: 22% Deforestation annual 48</p>	<p><b>Quadrant III</b> e.g. Papua New Guinea, Brazil, Congo (DR)</p> <p>No. of Countries: 10 Forest area: 39% Forest carbon total: 48% Deforestation annual 47</p>
<b>Low deforestation rate (&lt; 0.22%/yr)</b>	<p><b>Quadrant II</b> Dominican Republic, Angola, Vietnam</p> <p>No. of Countries:15 Forest area: 20% Forest carbon total: 12% Deforestation annual 1</p>	<p><b>Quadrant IV</b> e.g. Suriname, Belize, Gabon,</p> <p>No. of Countries: 11 Forest area: 13% Forest carbon total: 18% Deforestation annual 3</p>

Source: Fonseca et al. (2009) in Parker et al. (2009): 28.



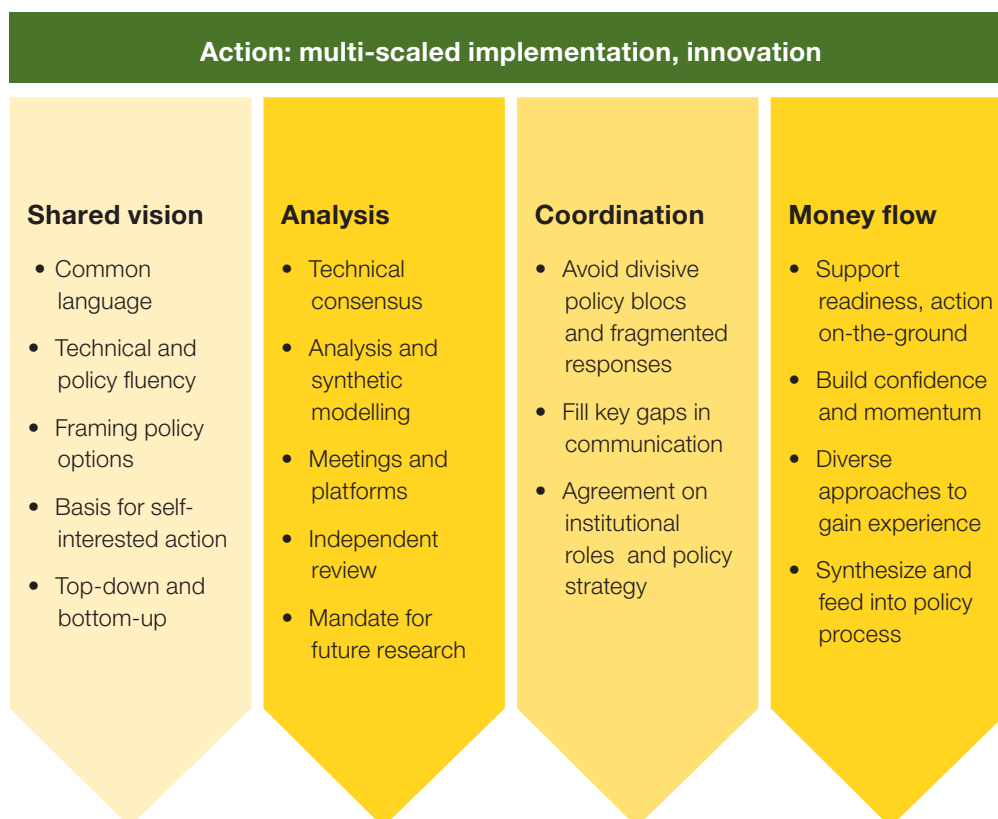
## 4. Conclusion

The policy landscape is starting to open for agricultural mitigation. According to this study's snapshot assessment in mid 2010, REDD offers valuable lessons relevant to the international political process and technical development of agricultural mitigation. Actions to progress agricultural mitigation must take place in parallel. Advancement will be needed on multiple intersecting tracks, each with its set of primary actors and venues for progress (Figure 2). Although this report is focused on the lessons learned from REDD, it should be noted that the scope for mechanisms to promote agricultural mitigation is much broader than that of just offset credits, and that it will be necessary to explore additional incentive and regulatory mechanisms, including sectoral and supply-chain approaches, to most effectively promote agricultural mitigation.

Experience from REDD suggests that to advance agricultural mitigation, the following measures will be needed.

***Developing a shared vision at a high strategic level*** for achieving agricultural mitigation that reflects the highest priorities of stakeholders and the major drivers of agricultural emissions is an essential and high hurdle to cross.<sup>56</sup> The vision should focus on recognizing that an interim urgent solution is necessary to address immediate climate change mitigation needs. Details can be worked out in technical processes and later negotiations. Greater strategic-level alignment requires first acknowledging deadlocks and clarifying the basis for self-interested action at national and sectoral scales (e.g., developing countries and donor governments, agri-businesses and farmers). Development of a common language, increased fluency on technical and policy concerns and clear framing of policy options can occur through formal and informal stakeholder engagement, major events that bring

**Figure 2. Key actions to progress agricultural mitigation**



<sup>56</sup> Note that the absence of a basic shared vision on the allocation of responsibility for future GHG reductions has deadlocked the overall global climate treaty.

diverse perspectives together (e.g., Agriculture and Rural Development Day; the Global Conference on Agriculture, Food Security and Climate Change that took place in the Hague in November 2010), and efforts by respected thought leaders. It is critical to anchor stakeholder engagement in widely-accepted dimensions of the global challenges of climate change and food security and the associated escalating pressure on the land base and top-down design must be merged with bottom-up operational experience.

**Tackling high-priority analysis** to inform policy and implementation options for agricultural mitigation can be achieved through focused efforts by multilateral agencies, research consortia and other communities of practice. Resources should support synthetic modeling and analysis as well as meetings and platforms for technical convergence. An important near-term priority is commissioning an authoritative independent review that situates the issue of agricultural mitigation in a global context, rigorously outlines mitigation potential and policy and financing strategies, and sets out a mandate for further research (e.g., landscape-scale approaches, risk management, intersection with trade policy, rule-making pitfalls, rights and co-benefits issues).

**Coordinating efforts** among countries, agri-business and trade groups, farmers associations, indigenous communities and multilateral agencies are needed to avoid divisive policy blocs and fragmented technical and institutional responses. Convening efforts should be grounded in a comprehensive understanding of the drivers, actors and institutional arrangements currently influencing global agriculture and seek to identify and fill key gaps in communication (e.g., flow of technical information to senior business and policy leaders). Important outcomes should include clarity of institutional roles and responsibilities (e.g., facilitating tech transfer and data-sharing, harmonizing standards) and broad agreement on an overall policy strategy (e.g., nested approaches, building blocks).

**Getting money to flow** from donor governments, foundations and industry to support readiness, infrastructure and action on-the-ground is essential to building confidence and momentum around agricultural mitigation. Leadership by a constellation of “anchor” donors, supply chain projects, PES initiatives, bilateral agreements, programs run through multilateral agencies and BINGOs, and market experimentation can all help to mobilize technical activity and institutional engagement, but it is essential that findings are shared and synthesized and fed back into policy processes.

These multiple tracks can be used to create the policy space and operational feasibility necessary for agriculture to advance.

**Creating policy space** Advancing agricultural mitigation policy will require determining whether and how to link to REDD policy and building shared leadership that can supply vision, resources, and momentum. The vision should be informed by authoritative syntheses that address the state-of-the-art for specific issues (such as financial mechanisms, MRV

methods, smallholder safeguards, benefit distribution, gender-related impacts). Policy options can be developed over time by creating channels of communication among projects on the ground with technical experts, negotiators and national policy-makers. A balance will need to be struck between moving the policy process moving forward at a pace that keeps agriculture on the agenda, yet allows technical improvements and attention to safeguards.

**Towards operational feasibility** The highest priorities to achieve agricultural mitigation will be to develop capacity at all levels and identify incentives for farmers and other land users to change their practices. The lower and uncertain levels of GHG offset credits available from agriculture compared to forestry suggests that income from GHG offsets alone is unlikely to be sufficient to change farmers' behavior and that multiple incentives will be needed. The need for basic rights to food security indicates that mitigation benefits will need to be designed as a co-benefit to food production or other livelihood needs.

Agriculture should be able to build on and improve the quickly developing infrastructure of finance, MRV and capacity building established for REDD. Coordination among national level, subnational projects and international agencies will be necessary. A phased approach similar to that used in REDD will enable donors, investors and others to build confidence. Investment in an early period of implementation and demonstration is essential. Key concepts that shaped REDD, such as additionality and permanence should be re-examined for their utility in promoting mitigation on the ground in a timely manner. Improvement of third party verification by truly independent parties will be needed to maintain credibility. Mitigation should be tested and measured in food supply chains basis to promote efficient production as well as on a land-area basis to ensure reductions in total emissions. Country ownership over mitigation strategies will support faster development and implementation of mitigation programs. Inexpensive, global MRV methods will assist widespread implementation and comparison.

Agricultural mitigation is in the early stages of development. The history of REDD indicates signposts for how to move ahead and lessons to be learned. As with any attempt to imitate history there will also be new contexts and opportunities on which to build. REDD has created an important foundation for other land use-related mitigation. The possibilities for catalyzing transformative changes are promising.

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## Selected online resources

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### **CIFOR – Forests and Climate Change**

[www.forestclimatechange.org](http://www.forestclimatechange.org)

### **Civil Society Advisory Group on Forests Livelihoods and Climate Change**

[www.rightsandclimate.org](http://www.rightsandclimate.org)

### **Climate Change and Energy: Reducing Forest Emissions – SciDev.net**

[www.scidev.net/en/climate-change-and-energy/reducing-forest-emissions](http://www.scidev.net/en/climate-change-and-energy/reducing-forest-emissions)

### **Collaborative Modeling Initiative. OSIRIS and the Collaborative Modeling Initiative on REDD Economics. Conservation International**

[www.conservation.org/osiris](http://www.conservation.org/osiris)

### **Ecosystem Marketplace**

[www.ecosystemmarketplace.com](http://www.ecosystemmarketplace.com)

### **The Forest Carbon Partnership Facility**

[www.forestcarbonpartnership.org](http://www.forestcarbonpartnership.org)

### **Forest Carbon Portal**

[www.forestcarbonportal.com](http://www.forestcarbonportal.com)

### **Global Research Alliance on Agricultural Greenhouse Gases**

[www.globalresearchalliance.org](http://www.globalresearchalliance.org)

### **IISD Reporting Services**

[www.iisd.ca](http://www.iisd.ca)

### **International Forest Carbon Initiative**

[www.climatechange.gov.au/international/publications/fs-ifci.html](http://www.climatechange.gov.au/international/publications/fs-ifci.html)

### **Mongabay**

[www.mongabay.com](http://www.mongabay.com)

### **On the Frontlines of Climate Change**

[www.climatefrontlines.org](http://www.climatefrontlines.org)

### **REDD: Protecting climate, forests and livelihoods – International Institute for Environment and Development (IIED)**

[www.iied.org/natural-resources/key-issues/forestry/redd-protecting-climate-forests-and-livelihoods](http://www.iied.org/natural-resources/key-issues/forestry/redd-protecting-climate-forests-and-livelihoods)

### **REDD-Net Program: Building Southern Civil Society Capacity to champion the interests of the poor in Reduced Emissions from Deforestation and Degradation**

[www.redd-net.org](http://www.redd-net.org)

### **Reducing Emissions from Deforestation in Developing Countries: Approaches to stimulate action – A Quick Guide to the Agenda Item under the UNFCCC**

[http://unfccc.int/methods\\_science/redd/items/4615.php](http://unfccc.int/methods_science/redd/items/4615.php)

### **UNFCCC REDD information sharing web platform**

[http://unfccc.int/methods\\_science/redd/items/4531.php](http://unfccc.int/methods_science/redd/items/4531.php)

### **UN REDD Program**

[www.un-redd.org](http://www.un-redd.org)

# Appendix I – List of Interviewees

First name	Last name	Organization
Simmons	Rose	Senior Forestry Officer (Forest and Climate Change) UN Food and Agriculture Organization
Christof	Walter	Sustainability Research Director, Unilever
Ken	Newcombe	CEO, C-Quest Capital LLC
Daniel	Martino	Executive Director, Carbosur, Uruguay
Saima	Qadir	Deal Manager, World Bank
Wendy	Mann	Senior Advisor, Natural Resources Management and Environment Dept, UN Food and Agriculture Organization
Debbie	Reed	Executive Director, Coalition on Agriculture and Greenhouse Gases
Jim	Baker	Director, Global Carbon Measurement Program, William J. Clinton Foundation
Greg	Clough	Former Communications Specialist, CIFOR
Melinda	Kimble	Senior Vice President, International Bioenergy Initiative, UN Foundation
Fiona	McKenzie	Policy Advisor, Terrestrial Carbon Group
Michael	Lesnick	Senior Partner, Meridian Institute
Bruce	Campbell	Director, CCAFS; Former CIFOR Livelihoods Program Director
Ralph	Ashton	Convenor, Terrestrial Carbon Group
Frances	Seymour	Director General, CIFOR
Lou	Verchot	Principal Scientist, Environmental Services - CIFOR
Tom	Griffiths	Coordinator, Responsible Finance Programme - Forest Peoples Program
Sandra	Brown	Senior Researcher, Winrock International
Sara	Scherr	Executive Director, EcoAgriculture Partners
Seth	Shames	Coordinator, Payments for Ecosystem Services, EcoAgriculture Partners
Ellysar	Baroudy	Manager, World Bank BioCarbon Fund
Barry	Ferguson	PhD student, University of East Anglia
Thomas	Sikor	Lecturer, University East Anglia
Arild	Angelsen	Professor, Life Sciences University – Norway
Neeta	Hooda	Senior Carbon Finance Specialist, World Bank Forest Carbon Partnership Facility
Benoit	Bosquet	Lead Carbon Finance Specialist, World Bank, and Coordinator, Forest Carbon Partnership Facility
Fabienne	Derrien	Senior Policy Officer, International Federation of Agricultural Producers (IFAP)
Cécile	Bidaud	C3EDM, Centre d'Economie et d'Ethique pour l'Environnement et le Développement de Madagascar and IRD, Institut de Recherche pour le Développement
Kevin	Conrad	Special Envoy and Ambassador for Environment & Climate Change, Papua New Guinea
David	Ganz	Director, Forest Carbon Science, The Nature Conservancy
Michael	Wells	Independent consultant



# Appendix II – Timeline of Selected Events and Publications Relevant to the History of REDD

BLUE = Meeting · PURPLE = Project/Group Launch · RED = Study/Report · ORANGE = Policy Decision/Document  
GREEN = Commitment of Funds

Year	REDD Policy Making Process	REDD Mechanisms & Governance	REDD MRV	Financing	National REDD Capacities	Managing for Co-Benefits	Agriculture
Pre-2000	<p>1992 UNFCCC adopted</p> <p>1994 UNFCCC comes into force</p> <p>1997 Kyoto Protocol Articles 2 and 3 establish scope for REDD: "direct human-induced land-use change and forestry activities, limited to afforestation, reforestation and deforestation since 1990 can be used to meet commitments.</p>	<p>1989: Environmental law NGO, FIELD, founded.</p> <p>1997: Noel Kempff project launched in Bolivia (first REDD-type project)</p> <p>1999: Mongabay.com, environmental science and conservation news site, founded.</p>	<p>1996 IPCC Guidelines for National Greenhouse Gas Inventories</p> <p>Annex I national communications (reports on emissions required by KP)</p> <p>1st 1994-95 2nd 1997-98 3rd 2001</p> <p>1999 first Non-Annex I national communications</p>				<p>1997 Kyoto Protocol Article 2.3 Scope for agricultural emissions established: commitments can be met with policies such as "promotion of sustainable forms of agriculture in light of climate change considerations. Agricultural sinks made optional (Article 3.4).</p>
2000-2005	<p>COP 7 and Marrakesh Accord: Compromise on forestry: targets can be met with REDD activities in Annex I countries, but only afforestation and reforestation allowed to generate tradable credits under CDM</p> <p>2005: European Commission policy paper "Winning the Battle" points to need for incentives for developing countries</p> <p>IISD begins Climate L information service to support international negotiations (limited scope until 2008)</p>	<p>2004: Environmental trading organization, Carbon Positive, founded.</p>	<p>2003 Good Practice Guidance for LULUCF</p>				

BLUE = Meeting · PURPLE = Project/Group Launch · RED = Study/Report · ORANGE = Policy Decision/Document  
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Year	REDD Policy Making Process	REDD Mechanisms & Governance	REDD MRV	Financing	National REDD Capacities	Managing for Co-Benefits	Agriculture
2005	<p>KP comes into force</p> <p>Coalition for Rainforest Nations (CfRN) formed</p> <p>COP 11, Montreal: CfRN introduces REDD introduced by PNG and Costa Rica</p>	<p>REDD-focused global market information service, Ecosystem Marketplace, launched by Katoomba Group.</p> <p>Noel Kempff-CAP: first REDD project to be verified by a third party CDM standards</p>					
2006	<p>SBSTA 24th Session, Bonn: REDD agenda item considered (policy, incentives, science / technical, socio-economic, technical issues)</p>	<p>World Bank's BioCarbon Fund begins support for REDD programs.</p>	<p>2006 IPCC Guidelines for National Greenhouse Gas Inventories, Volume 4 - Agriculture, Forestry and Other Land Use</p> <p>Rome UNFCCC workshop on REDD Experts show that tools exist for MRV; but point to lack of capacity.</p> <p>4<sup>th</sup> national communications due</p> <p>Annex I parties start submitting national inventories</p>				

BLUE = Meeting · PURPLE = Project/Group Launch · RED = Study/Report · ORANGE = Policy Decision/Document  
 GREEN = Commitment of Funds

Year	REDD Policy Making Process	REDD Mechanisms & Governance	REDD MRV	Financing	National REDD Capacities	Managing for Co-Benefits	Agriculture
2007	<p>Mar 2007 G-8 meeting in Potsdam of environmental ministers with China, India, Brazil, Mexico and South Africa</p> <p>COP 13, Bali: Decision 2/CP.13 REDD adopted; Bali Road Map identified to with decision anticipated for COP15. Scope for REDD as NAMA established</p> <p>Established mandate to work on mitigation, adaptation, finance and technology transfer through 2 parallel negotiation tracks 1. Ad Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol (AWG-KP), to negotiate commitments from industrialized KP countries; and 2. Ad Hoc Working Group on Long-Term Cooperative Actions' (AWG-LCA) to develop cooperation between developing and developed countries. Subsidiary Body for Scientific and Technological Advice (SBSTA) also established</p>	<p>World Bank's Forest Carbon Partnership Facility (FCPF) announced at COP13.</p> <p>Do Trees Grow on Money? CIFOR synthesis of deforestation causes and potential for policy intervention</p> <p>Inception of the Terrestrial Carbon Group</p>		<p>Bali Action Plan (COP13) Scope of financing raised (government to government capacity building support, via a fund established under the COP, via market funding, e.g., allowance auctions, carbon credit market etc.</p>	<p>Bali Action Plan (COP13) The inclusion of indigenous people and local communities as stakeholders, and the extent of their rights in terms of participation, land tenure, distribution of funds</p> <p>Griffiths. Seeing 'RED'? Avoided deforestation' and the rights of Indigenous Peoples and local communities</p> <p>Forest Day 1 (CIFOR)</p>		

BLUE = Meeting · PURPLE = Project/Group Launch · RED = Study/Report · ORANGE = Policy Decision/Document  
 GREEN = Commitment of Funds

Year	REDD Policy Making Process	REDD Mechanisms & Governance	REDD MRV	Financing	National REDD Capacities	Managing for Co-Benefits	Agriculture
2008	<p>SBSTA 29, Poznań: REDD became REDD Plus.</p> <p>The two AWGs hold 4 parallel negotiating sessions: April in Bangkok, June in Bonn, August in Accra, December in Poznań,</p>	<p>UN-REDD launched.</p> <p>Forest Carbon Portal launched at COP 14 in Poznań.</p> <p>Global Carbon Gap Map produced by FAO. Identifies areas where soil carbon storage is greatest.</p> <p>FCPF - 14 countries chosen to be first funded.</p> <p>Report by Terrestrial Carbon Group: "How to Include Terrestrial Carbon in Developing Nations in the Overall Climate Change Solution"</p>	<p>UNFCCC receives 40 national communications (for 4<sup>th</sup> reporting round)</p>			<p>SBSTA 29, Pozna : REDD became REDD Plus.</p> <p>SBSTA referred 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'</p> <p>US, Canada, New Zealand, Australia block reference to "indigenous peoples" and explicit mention of rights in UNFCCC mtg</p> <p>RRI Oslo Conference on Rights, Forests and Climate Change</p> <p>Forest Day 2 (CIFOR)</p> <p>Peskett et al. Making REDD work for the poor</p>	<p>SBSTA 28th session, Bonn: Reviewed submissions mentioning agriculture. Agreed to consider the issue at the 32nd session in June 2010.</p> <p>Technical paper on mitigation in the agricultural sector prepared by UNFCCC Secretariat for the AWG-LCA.</p> <p>The Terrestrial Carbon Group released its blueprint proposing a phased approach that starts with forests and peatlands but expands over time to include all terrestrial carbon.</p>

BLUE = Meeting · PURPLE = Project/Group Launch · RED = Study/Report · ORANGE = Policy Decision/Document  
 GREEN = Commitment of Funds

Year	REDD Policy Making Process	REDD Mechanisms & Governance	REDD MRV	Financing	National REDD Capacities	Managing for Co-Benefits	Agriculture
2009	<p>AWG-LCA 6th Session, Bonn: Negotiating Text regarding the outcome to be adopted at COP 15. Effort to be inclusive results in 200+ pages of text. Delegates begin producing tables, guides and nonpapers as guides to manage. <a href="#">Bangkok Climate Change Talks, 7th Session of the AWG-LCA</a></p> <p><a href="#">Barcelona Climate Change Talks, Resumed 7th Session</a></p> <p>Before Copenhagen, many delegates felt the AWG-LCA progressed on adaptation, technology and capacity building, but could not reach agreement about mitigation and finance.</p> <p><a href="#">COP 15, Copenhagen: Produced Copenhagen Accord</a>. Developed countries commit USD 30 billion for 2010-2012 for enhanced action on mitigation (including Reducing Emissions from Deforestation and Forest Degradation, REDD), adaptation, technology development and transfer and capacity building in developing countries. Controversy over transparency and process, especially vis-à-vis role of Danish COP President, US and China. Adopted the decision on Methodological guidance for activities relating to REDD+.</p> <p>Mandates of the AWG-LCA and AWG-KP extended until COP16</p>	<p>FCFP Second Participants Meeting: 12 countries added to FCFP Readiness fund.</p> <p>World Bank's Forest Investment Program (FIP) approved as part of WB's Strategic Climate Fund.</p> <p>UNEP Cascade Program launched.</p> <p>Meridian Institute's "Reducing Emissions from Deforestation and Forest Degradation (REDD): An Options Assessment Report</p> <p>"Reducing Emissions from Deforestation and Forest Degradation in developing countries (REDD) - the link with wetlands" prepared for FIELD.</p>	<p>Delegates agree to land-based accounting of land-use emissions</p> <p>Beyond Carbon Financing: The Role of Sustainable Development Policies and Measures in REDD</p> <p>Joint submission to AWG-LCA and SBSTA on REDD MRV mechanisms by Australia and Indonesia.</p> <p>GOFC-GOLD Sourcebook (4th ed.) presented at COP 15.</p> <p><a href="#">COP 15, Copenhagen: Side event on MRV and Monitoring</a> organized by Global Witness.</p>	<p>Norway and Tuvalu recommend that a decision on whether or not to link REDD to carbon trading be postponed until COP16</p> <p><a href="#">Bangkok 7th AWG-LCA</a> Early action activities should have access to all funding options</p> <p>As of April 2009, World Bank FCFP Readiness Fund: US \$107M (of \$185M target). Carbon Fund: US \$51M pledged (of \$200M target).</p> <p>FIP: US \$550M</p> <p>Norway's International Forest and Climate Initiative launched; financial commitments to REDD as of 2009: US \$370 to UN REDD, FCFP, Tanzania program, Congo Basin Forest Fund, &amp; Amazonas Fund.</p> <p>Informal Working Group on Interim Finance for REDD (IWG-IFR) launched following meeting of world leaders on forests and climate change; report produced</p>	<p>"An assessment of national forest monitoring capabilities in tropical non-Annex I countries: Recommendations for capacity building" prepared by GOFC-GOLD for the Government of Norway and the Prince's Rainforests Project.</p> <p>Climate Focus produces "Developing Effective National REDD Programmes: REDD and NAMAs".</p> <p>UN-REDD "Workshop on preparing capacity building initiatives for comprehensive greenhouse gas inventories - Capacity development for REDD." <a href="#">Barcelona, Spain</a></p>	<p>Delegates give increased attention to engagement of indigenous peoples; free, prior and informed consent, and transparent, equitable distribution of funds. Language for indigenous people's relatively weak.</p> <p><a href="#">Bangkok 7th AWG-LCA</a> the provision for '...safeguards against the conversion of natural forests to forest plantations' was cut from the negotiating text, led by EU and DRC.</p> <p><a href="#">AMCEN, Nairobi, Kenya</a>. Address by Yvo de Boer, Executive Secretary - UNFCCC, stating that "For African countries in particular, mitigation measures in agriculture and reducing emissions from deforestation can make a significant mitigation contribution."</p> <p><a href="#">April Anchorage Declaration of the Indigenous Peoples' Summit on Climate Change, recommending UNFCCC structures for participation of indigenous groups</a></p> <p><a href="#">Forest Day 3 (CIFOR)</a></p>	<p>Meeting at the World Bank on agricultural soil carbon methodologies.</p> <p>CLIMSOIL "Review of existing information on the interrelations between soil and climate change."</p> <p><a href="#">AWG-LCA 5, Bonn: Workshop on opportunities and challenges for mitigation in the agricultural sector</a>. Established drafting group for agriculture under "Enhanced national/international action on mitigation of climate change."</p> <p>IFPRI releases "Agriculture and Climate Change: An Agenda for Negotiation in Copenhagen" Comprised of 12 policy briefs.</p> <p><a href="#">Copenhagen, COP 15: Copenhagen Accord</a> does not directly mention agriculture or food security.</p>

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 GREEN = Commitment of Funds

Year	REDD Policy Making Process	REDD Mechanisms & Governance	REDD MRV	Financing	National REDD Capacities	Managing for Co-Benefits	Agriculture
2010	<p>AWG-KP 11 &amp; AWG-LCA 9, Bonn</p> <p>Paris-Oslo meetings: Agreement on financing and implementation of REDD finalized by 50 countries. USD \$4 billion pledged for implementation between 2010 and 2012. Norway and France launch Interim REDD+ Partnership in May as voluntary platform to increase REDD+ activities and funding from donor countries (by October have 69 partner countries). Secretariat services will be provided by the UN and World Bank.</p> <p>Bonn Climate Talks June and Aug: AWG-KP 12 &amp; AWG-LCA 10, SBSTA 32: Highlighted funding-related issues. SBSTA meeting dispute over proposed a technical paper on options for limiting global average temperature increase to 1.5°C and 2°C from pre-industrial levels.</p> <p>REDD+ Interim Partnership Meeting, Brasilia: Discussion of international policies.</p> <p>Sept. 138 countries have shown support for Copenhagen Accord. 80+ countries have provided information on their emission reduction targets and other mitigation actions.</p>	<p>5<sup>th</sup> National communications due</p> <p>Bonn, Germany: Informal meeting of experts on enhancing coordination of capacity-building activities using the IPCC guidelines.</p> <p>UN-REDD workshop, Guadalajara, Mexico: "Measurement, reporting and verification (MRV), a roadmap for implementation at the country level."</p> <p>WB and GEO pledged support and resources to help with UN-REDD Program and MRV.</p>	<p>As of Sept. 2010, UN-REDD received:</p> <p>Norway = US \$84,406,859</p> <p>Denmark = US \$1,917,398</p> <p>UNEP = US \$9,889,392 (real-time), \$12,219,602 (approved budget)</p> <p>FAO = US \$12,763,103 (Real-time), \$22,310,903 (approved budget)</p> <p>UNDP = US \$15,553,877 (real-time), \$26,258,901 (approved budget)</p> <p>1 billion funding agreement between Norway and Indonesia.</p> <p>Launch of the Guyana REDD+ Investment Fund (GRIF) \$230 million funding agreement between Norway and Guyana</p> <p>Geneva Dialogue on Climate Finance. Discuss new climate fund</p> <p>Fast Start financing site launched for transparency (<a href="http://www.faststartfinance.org">www.faststartfinance.org</a>)</p> <p>World Bank Carbon Finance publishes "10 Years of Experience in Carbon Finance"</p>	<p>"Capacity Building for Indigenous Peoples in REDD+" and "Capacity Building Program for Forest-Dependent People on REDD+" produced by FCPF.</p> <p>Norway support to Guyana controversial for going through World Bank without safeguards requirement for indigenous groups</p>	<p>UN-REDD Ecosystem Co-Benefits Workshop in Cambridge.</p> <p>Forest Day 4 (CIFOR)</p>	<p>Post-Copenhagen (as of April 2010), 15 countries had explicitly stated that they plan to adopt mitigation actions in the agricultural sector.</p> <p>FAO Submission: Towards a Work Program on Agriculture – a Submission to the AWG-LCA by the Food and Agriculture Organization of the United Nations</p>	

# Appendix III – Cooperation on REDD+

REDD countries	Donor Countries / Institution													
	Forest Carbon Partnership Facility <sup>1</sup>	Forest Investment Program <sup>2</sup>	UN-REDD Programme <sup>3</sup>	Congo Basin Forest Fund <sup>4</sup>	Australia	Denmark	Finland	Germany	Japan	Norway	Sweden	United Kingdom	Conservation International	Wildlife Conservation Society
Argentina														
Azerbaijan														
Bolivia														
Brazil <sup>5</sup>														
Burkina Faso														
Cambodia														
Cameroon														
Central African Republic														
Chad														
Chile														
China														
Colombia														
Congo (Democratic Republic of)														
Congo (Republic of)														
Costa Rica														
Ecuador														
El Salvador														
Equatorial Guinea														
Ethiopia														
Gabon														
Ghana														
Guatemala														
Guyana														
Honduras														
India														
Indonesia														
Kenya														
Lao People's Democratic Republic														
Liberia														
Madagascar														
Malaysia														
Malawi														
Mexico														
Morocco														
Mozambique														
Myanmar														
Nepal														
Nicaragua														
Nigeria														
Panama														
Papua New Guinea														
Paraguay														
Peru														
Philippines														
Senegal														
Suriname														
Tanzania														
Thailand														
Tunisia														
Uganda														
Vanuatu														
Venezuela														
Vietnam														
Zambia														

Based on survey responses, the table represents which countries and organisations are currently cooperating on REDD+

Source: Intergovernmental task force 2010: 6-7

# Appendix IV – Donors

Australia's International Forest Carbon initiative (IFCI) supports REDD+ multilaterally and bilaterally, providing capacity building assistance to developing countries. This approach builds on existing partnerships between Australia and multilateral organisations, bilateral partners and other stakeholders. This means Australia delivers support for a broader range of REDD+ capacity building needs.

Australia's Forest carbon partnership with Indonesia is a central component of existing arrangements.

The FCPF has created a framework and processes for REDD+ readiness, which helps countries get ready for future systems of financial incentives for REDD-plus. Using this framework, each participating country develops an understanding of what it means to become ready for REDD+, in particular by developing reference scenarios, adopting a REDD+ strategy, designing monitoring systems and setting up REDD+ national management arrangements, in ways that are inclusive of the key national stakeholders. The FCPF has also created a forum for increased understanding and trust among countries on REDD+. REDD country participants and Donor participants alike have exchanged knowledge and experiences in REDD+, including through sharing and discussing country participants' Readiness preparation proposals (R-PPs), which also benefit from reviews by independent, ad hoc technical advisory panels and World Bank regional task teams. The structure of the FCPF also makes room for participation by observers from civil society, indigenous peoples, international organizations, and the private sector, and the FCPF cooperates with the UN-REDD Programme and the Forest Investment Program.

The FIP is about to start implementation. The governance body, the FIP Sub-committee decided only recently on the first 5 pilot countries which will receive support through the FIP with a clear focus on investments that will initiate transformational changes in the forest sector and those sectors affecting forests. These countries are: Burkina Faso, Ghana, Indonesia, Laos PDR and Peru. Four out of the five are countries supported by the FCPF and UN-REDD Programme, hence, the FIP can build on existing work of the two institutions when it comes to the Readiness phase of REDD+. The FIP has proposed financing modalities that provide a menu of finance options to countries, including a contingent loan option which will allow countries to link the implementation with performance-based payments, including payments for verified emission reductions. There is ample collaboration potential for FIP with the Forest carbon partnership Facility carbon Fund and other performance-based payment entities. The Forest Investment Program has great potential impact to address the drivers of deforestation and forest degradation to deliver REDD+ results, if it is effectively integrated into the broader REDD+ international architecture. It can also leverage partners and private investments.

Other donors:

- Japan, France provide bilateral support for REDD+, especially in Africa.
- Germany currently supports the Forest Carbon Partnership Facility (FCPF) with a commitment of 40 million EUR.
- The Netherlands is one of the donors of the Forest carbon partnership Facility (FCPF) of the World Bank

The Amazon Fund is a good model: the multi-stakeholder processes combined with integrity of results provide confidence in a large mitigation effect as well as other benefits. The Fund is one example in which conservative estimates combined with transparent monitoring give confidence that "we get more than we pay for", while the Amazon Fund gets early access to large-scale funding before an advanced MRV system is in place.

Under the Forest Carbon Partnership Facility there are open discussions about sensitive issues, enabling lessons learned to be shared among REDD+ countries and developed countries alike. The Facility Management team provides high-quality guidance and the R-PP template is making countries think through important issues before implementing REDD+ at large scale. South-South cooperation is promoted successfully.

The UN-REDD program is building on the comparative advantages of the involved UN agencies (UNEP, UNDP, FAO), such as governance, stakeholder involvement, links to the broader environmental and sustainable development agenda, and MRV.



# Appendix V – Governance Issues Raised in the Country Proposals and Potential Gaps

Governance Issue		
Key governance consideration:	Examples from the proposals:	Governance issues receiving minimal coverage across the proposals:
1. stakeholder participation and consultation in REDD+ planning & implementation	<ul style="list-style-type: none"> <li>plans to ensure continuous engagement of all relevant stakeholders in REDD+ planning and implementation</li> <li>special emphasis on vulnerable groups, e.g. forest dependent communities, indigenous peoples, and women</li> </ul>	<ul style="list-style-type: none"> <li>strategies to engage women</li> <li>consideration of how stakeholder representatives will be chosen</li> <li>learning from past experiences with participatory processes</li> </ul>
2. transparency and accountability of REDD+ system	<ul style="list-style-type: none"> <li>designing transparent and accountable REDD+ revenue management and benefit distribution systems</li> <li>designing participatory and transparent REDD+ monitoring and MRV systems</li> <li>creating dispute / conflict resolution systems</li> </ul>	<ul style="list-style-type: none"> <li>role of civil society in the monitoring and MRV system</li> <li>concrete strategies to promote financial transparency and accountability</li> <li>role of the judicial system in dispute/ conflict resolution</li> </ul>
3. government coordination in REDD+ planning & implementation	<ul style="list-style-type: none"> <li>mainstreaming REDD+ across sectors and within national development plans</li> <li>consideration of reforms to improve vertical and horizontal coordination</li> </ul>	<ul style="list-style-type: none"> <li>clear roles and responsibilities for National REDD+ Working Group members</li> <li>engagement of sub-national government</li> </ul>
4. legislative reform and enforcement	<ul style="list-style-type: none"> <li>clarifying land tenure and land use plans</li> <li>implementation and enforcement of existing policies and laws</li> <li>creating anti-corruption measures</li> </ul>	<ul style="list-style-type: none"> <li>role of law enforcement bodies in REDD+ strategy design</li> <li>potential solutions to identified challenges</li> </ul>
Monitoring of Governance Issues		
Key monitoring consideration:	Examples from the proposals of governance related activities that will be monitored:	Monitoring issues receiving minimal coverage across the proposals:
A. monitoring and MRV of efforts to address governance issues relevant to REDD+	<ul style="list-style-type: none"> <li>clarification and reform of laws, including tenure laws</li> <li>development of a land use plan</li> <li>strengthening of law enforcement</li> </ul>	<ul style="list-style-type: none"> <li>concrete plans for how governance issues will be monitored and assessed</li> </ul>
B. monitoring and oversight of REDD+ systems and processes	<ul style="list-style-type: none"> <li>monitoring implementation of consultation and participation mechanisms</li> <li>third-party monitoring of forest management activities and law enforcement</li> <li>independent auditing and participatory oversight of financial management rules, including benefit sharing</li> </ul>	<ul style="list-style-type: none"> <li>identification of independent bodies to carry out monitoring and oversight</li> <li>combining elements of monitoring and oversight into an integrated system with feedback loops</li> </ul>

Source: Davis 2010: 6

# Appendix VI – Standards Relevant to Forest-Based Carbon Credits

Standard Name	Voluntary or Compliance	Project Types	Carbon Verification	Environmental and/or Social Benefits	Geographical Reach
Clean Development Mechanism (CDM)	Compliance	AR	Yes	No (safeguards only)	Non-Annex I countries
Regional Greenhouse Gas Initiative (RGGI)	Compliance	AR	Yes	Environmental–Yes Social–No	10 Northeast and Mid-Atlantic US states
AB32	Voluntary	AR, REDD and IFM	Yes	Environmental–Yes Social–No	California
Climate Action Reserve (CAR—Formerly California Climate Action Registry)	Voluntary	AR, REDD and IFM	Yes	Environmental–Yes Social–No	US
Chicago Climate Exchange (CCX)	Voluntary to join, compliance once committed	AR and IFM	Yes	Varies (IFM might include both benefits depending on certification system—no requirement for AR)	US or non Annex I countries
Voluntary Carbon Standard (VCS)	Voluntary	AR, REDD and IFM	Yes	No (recommendations but no requirements)	Global
1605B	Voluntary	AR and IFM	Yes	No	Mainly U.S. (however projects outside the U.S. are technically allowed)
EPA Climate Leaders	Voluntary	AR	Yes	No	Mainly U.S. (however projects outside the U.S. are technically allowed)
Climate, Community and Biodiversity Standard (CCB)	Voluntary	All land-based projects	No	Yes	Global
Forest Stewardship Council (FSC)	Voluntary	IFM	No	Yes	Global

Sampling of standards that include forestry activities—grey indicates carbon standards and yellow indicate non-carbon standard.  
Source: Virgilio 2010

# Appendix VII – Countries Receiving Support for REDD Readiness or other REDD Projects

Country	UNREDD	FCPF	FIP	Norway
Amazon Basin Fund				x
Argentina	Pa	x*		
Bangladesh	Pa			
Bhutan	Pa			
Bolivia	Pi	x		
Brazil			x	
Burkina Faso			x	
Cambodia	Pa	x		
Cameroon		x		
Central African Republic	Pa	x		
Chile *		x		
Colombia	Pa	x		
Congo Basin Fund				x
Costa Rica	Pa	x*		
Democratic Republic of Congo	Pi	x*	x	
Ecuador	Pa			
El Salvador		x		
Equatorial Guinea *		x		
Ethiopia		x		
Gabon		x		
Ghana		x*	x	
Guatemala	Pa	x		
Guyana		x*		x
Honduras		x		
Indonesia	Pi	x*	x	x
Kenya	Pa	x*		
Lao PDR		x		
Liberia		x		

Country	UNREDD	FCPF	FIP	Norway
Madagascar		x		
Mexico	Pa	x*	x	x
Mozambique		x		
Nepal	Pa	x*		
Nicaragua		x		
Nigeria	Pa			
Panama	Pi	x*		
Papua New Guinea	Pi	x		
Paraguay	Pi	x		
Peru		x	x	
Philippines	Pa			
Republic of Congo	Pa	x*		
Solomon Islands	Pa			
Sri Lanka	Pa			
Sudan	Pa			
Suriname		x		
Tanzania	Pi	x		x
Thailand		x		
Uganda		x		
Vanuatu		x		
Vietnam	Pi	x		
Zambia	Pi			
Pi=Pilot Countries				
Pa=Partner Countries				
*=have submitted R-PP				

Source: *GOFC-GOLD, 2010, pp 4-182 - 4-183.*

# Appendix VIII – Examples of Capacity Building Needs

Phase	Component	Capacities required
Planning & design	1. Need for establishing a forest monitoring system as part of a national REDD+ implementation activity	<ul style="list-style-type: none"> <li>• Knowledge on international UNFCCC decisions and SBSTA guidance for monitoring and implementation</li> <li>• Knowledge of national REDD+ implementation strategy and objectives</li> <li>• Understanding of IPCC LULUCF estimation and reporting requirements</li> <li>• Synthesis of previous national and international reporting (i.e. UNFCCC national communications &amp; FAO Forest Resources Assessment)</li> </ul>
	2. Assessment of existing national forest monitoring framework and capacities, and identification of gaps in the existing data source	<ul style="list-style-type: none"> <li>• Expertise in estimating terrestrial carbon dynamics, related human-induced changes and monitoring approaches</li> <li>• Expertise to assess usefulness and reliability of existing capacities, data sources and information</li> <li>• Detailed knowledge in application of IPCC LULUCF good practice guidance</li> <li>• Agreement on definitions, reference units, and monitoring variables and framework</li> </ul>
	3. Design of forest monitoring system driven by UNFCCC reporting requirements with objectives for historical data and future monitoring	<ul style="list-style-type: none"> <li>• Institutional framework specifying roles and responsibilities</li> <li>• Capacity development and long-term improvement planning</li> <li>• Cost estimation for establishing and strengthening institutional framework, capacity development and actual operations and budget planning</li> </ul>
Monitoring	4. Forest area change assessment (activity data)	<ul style="list-style-type: none"> <li>• Review, consolidate and integrate the existing data and information</li> <li>• Understanding of deforestation drivers and factors</li> <li>• If historical data record insufficient – use of remote sensing:               <ul style="list-style-type: none"> <li>◦ Expertise and human resources in accessing, processing, and interpretation of multi-date remote sensing imagery for forest changes</li> <li>◦ Technical resources (Hard/Software, Internet, image database)</li> <li>◦ Approaches for dealing with technical challenges (i.e. cloud cover, missing data)</li> </ul> </li> </ul>
	5. Changes in carbon stocks	<ul style="list-style-type: none"> <li>• Understanding of processes influencing terrestrial carbon stocks</li> <li>• Consolidation and integration of existing observations and information, i.e. national forest inventory or permanent sample plots:               <ul style="list-style-type: none"> <li>◦ National coverage and carbon density stratification</li> <li>◦ Conversion to carbon stocks and change estimates</li> </ul> </li> <li>• Technical expertise and resources to monitor carbon stock changes:               <ul style="list-style-type: none"> <li>◦ In-situ data collection of all the required parameters and data processing</li> <li>◦ Human resources and equipment to carry out field work (vehicles, maps of appropriate scale, GPS, measurements units)</li> <li>◦ National inventory/permanent sampling (sample design, plot configuration)</li> <li>◦ Detailed inventory in areas of forest change or “REDD+ action”</li> <li>◦ Use of remote sensing (stratification, biomass estimation)</li> </ul> </li> <li>• Estimation at sufficient IPCC Tier level for:               <ul style="list-style-type: none"> <li>◦ Estimation of carbon stock changes due to land use change</li> <li>◦ Estimation of changes in forest areas remaining forests</li> <li>◦ Consideration of impact on five different carbon pools</li> </ul> </li> </ul>
	6. Emissions from biomass burning	<ul style="list-style-type: none"> <li>• Understanding of national fire regime and fire ecology, and related emission for different greenhouse gases</li> <li>• Understanding of slash and burn cultivation practice and knowledge of the areas where being practiced</li> <li>• Fire monitoring capabilities to estimate fire effected area and emission factors:               <ul style="list-style-type: none"> <li>◦ Use of satellite data and products for active fire and burned area</li> <li>◦ Continuous in-situ measurements (particular emission factors)</li> </ul> </li> </ul>
	7. Accuracy assessment and verification	<ul style="list-style-type: none"> <li>• Understanding of error sources and uncertainties in the assessment process</li> <li>• Knowledge on the application of best efforts using appropriate design, accurate data collection, processing techniques, and consistent and transparent data interpretation and analysis</li> <li>• Expertise on the application of statistical methods to quantify, report and analyze uncertainties for all relevant information (i.e. area change, change in carbon stocks etc.) using, ideally, a sample of higher quality information</li> </ul>
	8. National GHG information system	<ul style="list-style-type: none"> <li>• Knowledge on techniques to gather, store, and analyze forest and other data, with emphasis on carbon emissions from LULUCF</li> <li>• Data infrastructure, information technology (suitable hard/software) and human resources to maintain and exchange data and quality control</li> </ul>
	9. Analysis of drivers and factors of forest change	<ul style="list-style-type: none"> <li>• Understanding and availability of data for spatio-temporal processes affecting forest change, socio-economic drivers, spatial factors, forest management and land use practices, and spatial planning</li> <li>• Expertise in spatial and temporal analysis and use of modeling tools</li> </ul>
	10. Establishment of reference emission level and regular updating	<ul style="list-style-type: none"> <li>• Data and knowledge on deforestation and forest degradation processes, associated GHG emissions, drivers and expected future developments</li> <li>• Expertise in spatial and temporal analysis and modeling tools</li> <li>• Specifications for a national REDD+ implementation framework</li> </ul>
Analysis & reporting	11. National and international reporting	<ul style="list-style-type: none"> <li>• Expertise in accounting and reporting procedures for LULUCF using the IPCC GPG</li> <li>• Consideration of uncertainties and understanding procedures for independent international review</li> </ul>

Source: REDD Source Book pp. 3-164- 3-165

**This report examines the lessons from the history of Reduced Emissions from Deforestation and Degradation (REDD) for advancing the policy and technical basis for agricultural climate change mitigation. The authors draw from this analysis to identify opportunities for advancing agricultural mitigation.**

To create the policy space and operational feasibility necessary for agricultural mitigation, parallel advancement is needed on multiple intersecting tracks. The authors detail how to move ahead on:

1. **Developing a shared vision** for achieving agricultural mitigation that reflects the highest priorities of stakeholders and major drivers of agricultural emissions
2. **Tackling high-priority analysis** to inform policy and implementation options for agricultural mitigation
3. **Coordinating efforts** among countries, agri-business and trade groups, farmers associations, indigenous communities and multilateral agencies
4. **Getting money to flow** from donor governments, foundations and industry to support readiness, infrastructure and action on-the-ground

This research implemented by



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