Slowing Climate Change through Better Farming

Early Results of the "RT-REDD Consortium"

Most of the world's tropical forests and carbon emissions from deforestation are in nations or states that are developing REDD+ programs to slow deforestation as their farmers prepare to certify their farms under one of the agricultural commodity roundtables. These parallel processes could become self-reinforcing, slowing deforestation, lowering greenhouse gas emissions, while improving the sustainability and social benefits of agricultural systems. But they are currently disconnected.

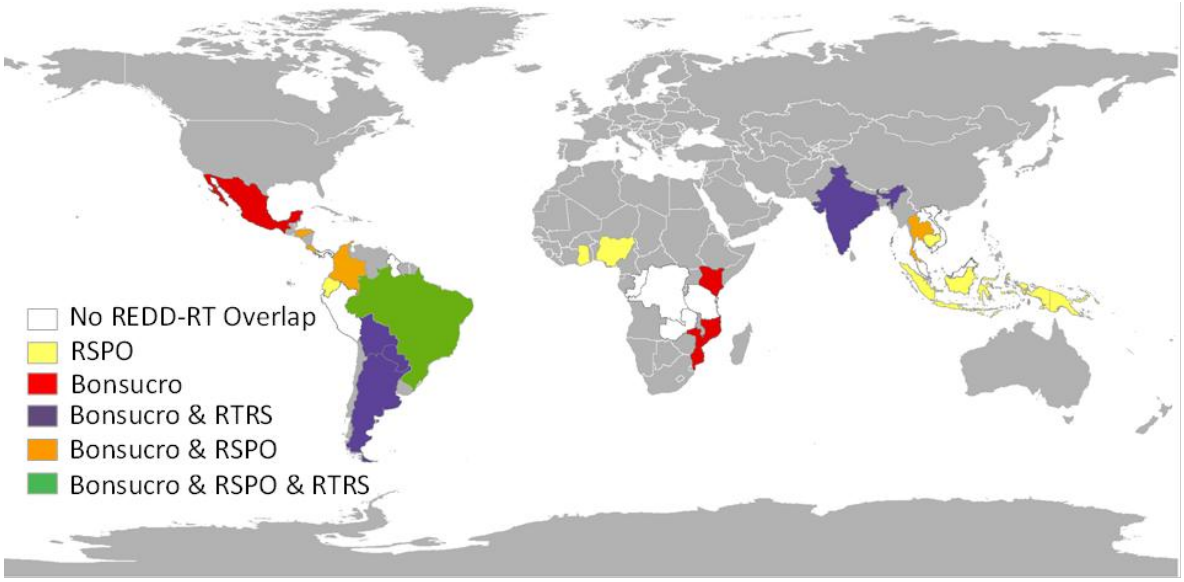

Figure 1. Nations in which national or state-level REDD+ programs are under development and producers are certifying their farms or mills under one of the three major agricultural commodity roundtables (Bonsucro—sugar/ethanol; RSPO—Palm Oil; RTRS—soy). REDD+ and roundtables both restrict forest clearing, both have established social and environmental performance criteria, and they could be linked together to achieve large reductions in carbon emissions.

The "RT-REDD Consortium" (Roundtable and REDD Consortium): Amazon Environmental Research Institute (IPAM, lead), Solidaridad, World Wildlife Fund-US (WWF-US), Forest Trends, Unilever, Bonsucro, Roundtable for Sustainable Palm Oil (RSPO), Roundtable for Sustainable Soy (RTRS).

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The Problem: Agricultural and Livestock Expansion into Tropical Forests and Savannas is a Major Driver of Climate Change

Land is life. It provides us with most of the food we eat, the feed we give our livestock, the fiber we wear, print words on, and build houses with, and a growing share of the fuels that move our vehicles. The ecosystems that cloak the land control floods, they reduce erosion, and they build soils. Our forests, savannas, grasslands, tundra, and deserts store vast amounts of carbon and are home to most of the world's animal and plant species.

Farmland is growing scarce, driving crops and livestock into tropical forests. As the growth in demand for food, fiber, fuels, and feed (the 4 F's) outpaces the growth in supply, the race is on to find new farm- and grazing land. The prices of agricultural commodities have risen and will remain high for many years to come[1] (Figure 2), potentially increasing hunger, poverty, and pressure on remaining forests. There is little room left for agricultural expansion in the temperate latitudes, however; this expansion has shifted into the vast savannas and forests of the tropics[2]. Species- and carbon-rich forests, homes to hundreds of indigenous and traditional cultures, are giving way to palm oil plantations, cattle pastures, soy fields, tree crops, and small-scale farming. Tropical deforestation and forest degradation already contributes 12-17% of the world's greenhouse gas (GHG) emissions to the atmosphere[3,4]. This could grow as the increase in demand for the 4 F's continues.

There is an alternative pathway. Increases in agricultural and livestock production can be achieved by re-directing investments in expansion away from forests and savannas and onto lands that are already under cultivation or grazing, but are being used below their productive potential. For this to happen, policies and market incentives are needed that discourage producers from clearing forests and savannas; positive incentives are needed for growing more on the same land. This transition is possible at large scales. For example, Brazil's biggest agricultural producer (the state of Mato Grosso) reduced deforestation 85% since 2005 while increasing agricultural output[5] . Deforestation across all of the Brazilian Amazon has declined 68% below its 1996-2005 average[6]. This remarkable achievement is the result of governmental interventions, an economic downturn, and novel

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[1] OECD/FAO. 2010. OECD-FAO Agricultural Outlook 2010-2019. Page 248. OECD/FAO.

[2] Gibbs, H. K., A. S. Ruesch, F. Achard, M. K. Clayton, P. Holmgren, N. Ramankutty, and J. A. Foley. 2010. Tropical forests were the primary sources of new agricultural land in the 1980s and 1990s. Proceedings of the National Academy of Sciences.

[3] IPCC. 2007. 4th assessment report of the intergovernmental panel on climate change. Page 996 in S. Solomon, D. Qin, M. Manning, Z. Chen, M. Marquis, K. B. Averyt, M. Tignor, and H. L. Miller, editors.

[4] Friedlingstein, P., R. A. Houghton, G. Marland, J. Hackler, T. A. Boden, T. J. Conway, J. G. Canadell, M. R. Raupach, P. Ciais, and C. Le Quere. 2010. Update on CO2 emissions. Nature Geosci **3**:811-812.

[5] Macedo, M. N., R. S. DeFries, D. C. Morton, C. M. Stickler, G. L. Galford, and Y. E. Shimabukuro. 2012. Decoupling of deforestation and soy production in the southern Amazon during the late 2000s. Proceedings of the National Academy of Sciences.

[6] Nepstad, D., B. S. Soares, F. Merry, A. Lima, P. Moutinho, J. Carter, M. Bowman, A. Cattaneo, H. Rodrigues, S. Schwartzman, D. G. McGrath, C. M. Stickler, R. Lubowski, P. Piris-Cabezas, S. Rivero, A. Alencar, O. Almeida, and O. Stella. 2009. The End of Deforestation in the Brazilian Amazon. Science **326**:1350-1

agreements between agribusiness and civil society[7],[8],[9]. It is threatened, however, by the growing profitability of forest conversion to farm fields and cattle pastures.

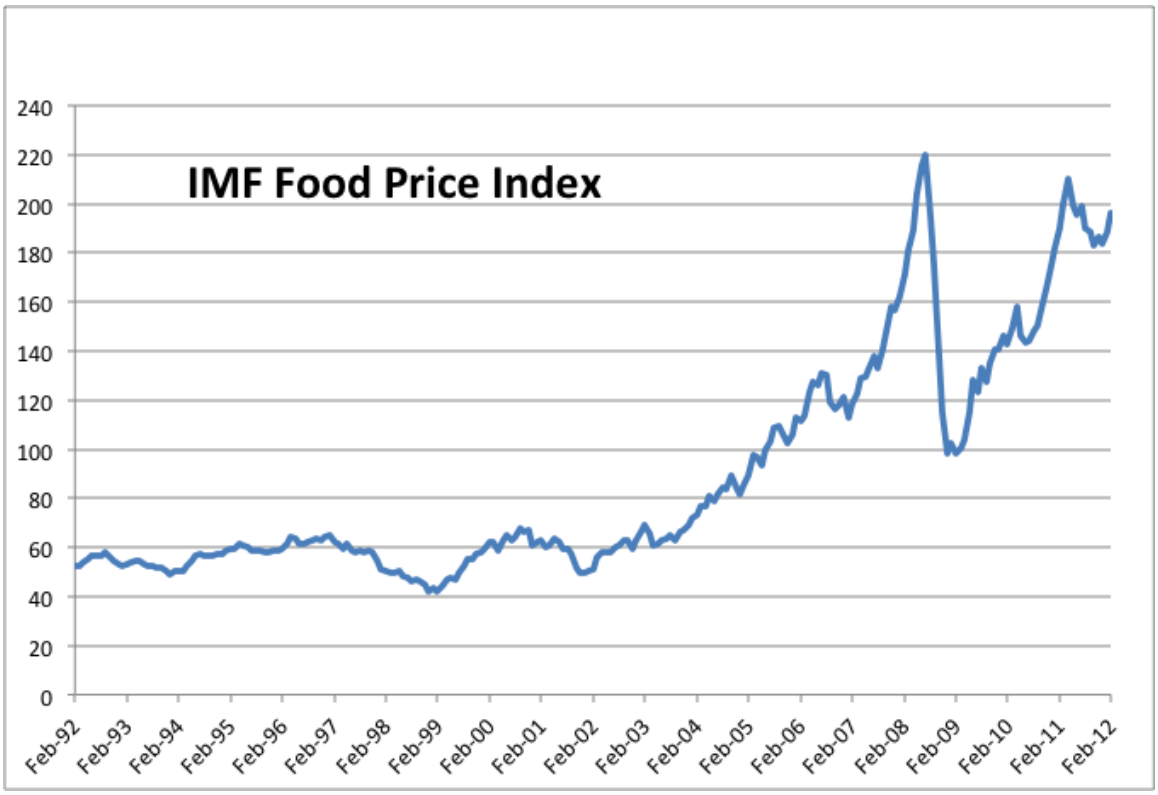

Figure 2. Food commodity price index (International Monetary Fund, accessed March 26, 2012). Commodity Price Index, 2005 = 100, includes both fuel and non-fuel price indices.

A global solution is needed. Climate change and world food shortages are global challenges. The progress in Brazil and Mato Grosso must be secured and deepened while achieving similar success in other regions of the world. In this report, we describe two parallel processes that, if brought together, could significantly lower tropical deforestation and the GHG emissions and loss of biodiversity that it provokes, while increasing the productivity and social and environmental performance of farming.

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[7] Nepstad, D., B. S. Soares, F. Merry, A. Lima, P. Moutinho, J. Carter, M. Bowman, A. Cattaneo, H. Rodrigues, S. Schwartzman, D. G. McGrath, C. M. Stickler, R. Lubowski, P. Piris-Cabezas, S. Rivero, A. Alencar, O. Almeida, and O. Stella. 2009. The End of Deforestation in the Brazilian Amazon. Science **326**:1350-1351.

[8] Nepstad, D. C., D. G. McGrath, and B. Soares-Filho. 2011. Systemic Conservation, REDD, and the Future of the Amazon Basin. Conservation Biology **25**:1113-1116.

[9] Soares-Filho, B., P. Moutinho, D. Nepstad, A. Anderson, H. Rodrigues, R. Garcia, L. Dietzsch, F. Merry, M. Bowman, L. Hissa, R. Silvestrini, and C. Maretti. 2010. Role of Brazilian Amazon protected areas in climate change mitigation. Proceedings of the National Academy of Sciences **107**:10821-10826.

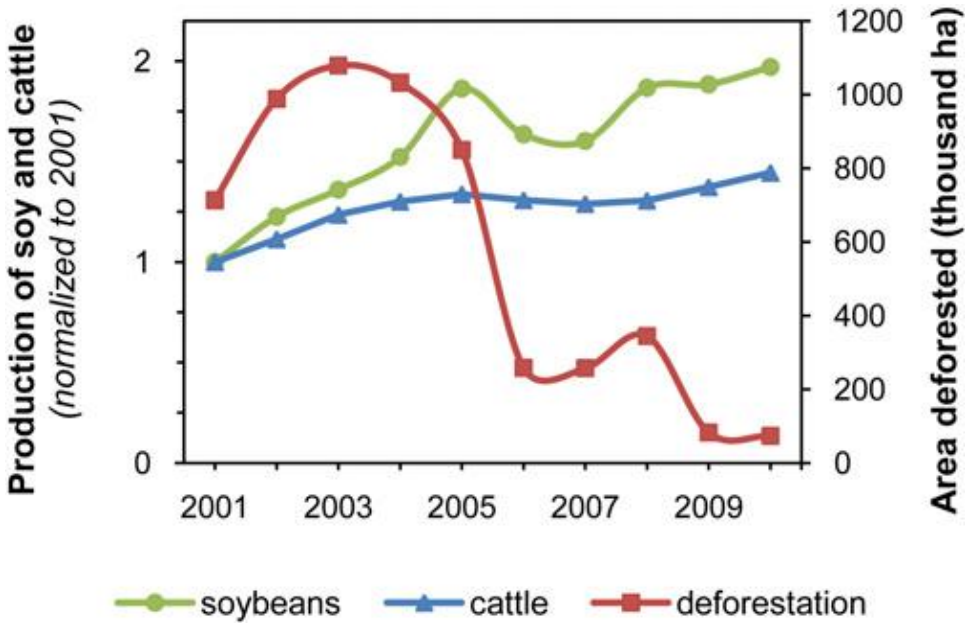

Figure 3. Deforestation, soy production, and cattle production from 2001 to 2010 in Mato Grosso, Brazil, in the Southeastern Amazon region. Production increased while deforestation declined through a confluence of law enforcement, market, and economic factors (reference #5).

Steps Towards a Solution: Linking Commodity Roundtables and REDD

Part 1: Roundtables. For the last eight years, producers, NGOs, processors, retailers, financial institutions, and non-governmental organizations have been developing environmental and social standards for the production of ethanol and sugar from sugarcane (Bonsucro), soy (RTRS), palm oil (RSPO) and other major agricultural commodities. These "roundtables" are designed to improve the environmental and social performance of the supply chains of their respective commodities. They share a philosophy of market transformation—of achieving sufficient demand for certification throughout the supply chain to eventually make sustainability a requirement for market access. Within this logic, the price of commodities should eventually rise sufficiently to reflect the true costs of producing them in a way that conserves soil and water resources, that maintains and restores natural ecosystems, that protects biodiversity and that respects prior claims on land and natural resources by indigenous groups and communities

Progress: The roundtables are moving quickly. During the first three years of the RSPO, more than 13% of world production of palm oil has been certified. The other roundtables are just underway. During its first six months, 1.4% of world production of ethanol and sugar from sugarcane was certified under Bonsucro. RTRS has certified 0.4 M tons, 0.2% of global production, with an additional 0.6 M tons projected certified by the end of the 2012.

Obstacles: Complying with certification can be expensive; especially when farmers must restore forests on their degraded lands or forego their legal right to clear their privately-owned forests (as required by "principles and criteria" of each Roundtable). Premiums for achieving this sustainability status, when paid to certified producers by commodity buyers, are not large. Monitoring performance can also be costly.

Part 2: REDD+. In parallel to the development of the roundtables, a novel mechanism is under development that would compensate nations and states/provinces for their success in lowering green house gas (GHG) emissions from deforestation and forest degradation, or increasing carbon uptake from the atmosphere in young, planted, or regrowing forests. This mechanism is called "REDD+" (which stands for "Reductions in Emissions from Deforestation and forest Degradation, with the "+" referring to carbon enhancement in forests), and represents what could become a sector-wide emission reduction system, that could ultimately lead to significant emissions reductions across entire national or state/province-level jurisdictions. The design of this mechanism has advanced far within negotiations of the United Nations Framework Convention on Climate Change (UNFCCC) for the post-2012 period. Full implementation of REDD+ within the UNFCCC will likely be delayed, however, as negotiations of the full treaty will probably only lead to binding commitments in 2020 and beyond[10] .

Progress: Despite this delay in the global treaty, REDD+ is moving forward. In one of the most promising initiatives, called the "Governors' Climate and Forest task force" (GCF), 14 tropical states and provinces representing one-fifth of the world's tropical forests are developing REDD+ programs in alignment with the US State of California's state-wide climate policy, that includes a provision through which compliant industries could achieve a small fraction (4% to 8%) of their emissions reductions through investments in international offsets, such as REDD+ (Figure 1). Other initiatives are more closely aligned with the UNFCCC itself. The "Forest Carbon Partnership Facility" of the World Bank is supporting 36 developing nations to prepare their REDD+ programs and is now implementing a $205 million "Carbon Fund" to provide payments for verified emission

[10] *unfccc.int/resource/docs/2011/cop17/eng/09a01.pdf*

reductions from REDD+ programs. The United Nations Environment Programme (UNEP), the Food and Agriculture Program (FAO), and the United Nations Development Program (UNDP) are partnering on the "UN-REDD" initiative that is providing financial support to 14 nations, and participation support to a total of 42 as they develop their REDD+ programs. Finally, many developed nations have established programs that are supporting REDD+ programs in developing countries, (led by Norway, which has established a billion-dollar performance-based commitment to both Brazil and Indonesia); if they lower deforestation, they receive direct financial compensation. Norway has made large-scale REDD+ commitments to several other nations as well, including Tanzania and Guyana, and also supports the engagement of civil society through direct grants to non-government organizations implementing REDD+ activities.

Figure 4. States and provinces that are developing jurisdiction-wide REDD+ programs (green) in alignment with California's climate policy (orange).

***Obstacles**:* In a recent analysis of the GCF states[11], considerable progress in the development of REDD+ programs was documented. All of these programs, however, have not yet effectively engaged farmers and livestock producers in the development of REDD+ programs. Without this engagement, it may be difficult to slow forest conversion to agricultural crops and grazing land – the main cause of deforestation.

Part 3: The Round Table and REDD Consortium. The RT-REDD Consortium was established to foster the potential synergies that exist between agricultural commodity roundtables and REDD+. It is designed to link (a) farmers who are lowering deforestation or increasing forest carbon stocks through certification in one of the roundtables with (b)

[11] Nepstad, D. C., W. Boyd, A. Azevedo, T. Bezerra, B. Smid, R. M. Vidal, and K. Schwalbe. in press. Overview of State-based Programs to Reduce Emissions from Deforestation and Degradation (REDD) as part of the Governors' Climate and Forest Task Force EPRI, Palo Alto, CA.

jurisdiction-wide (as opposed to project-based) REDD+ programs that are under development.

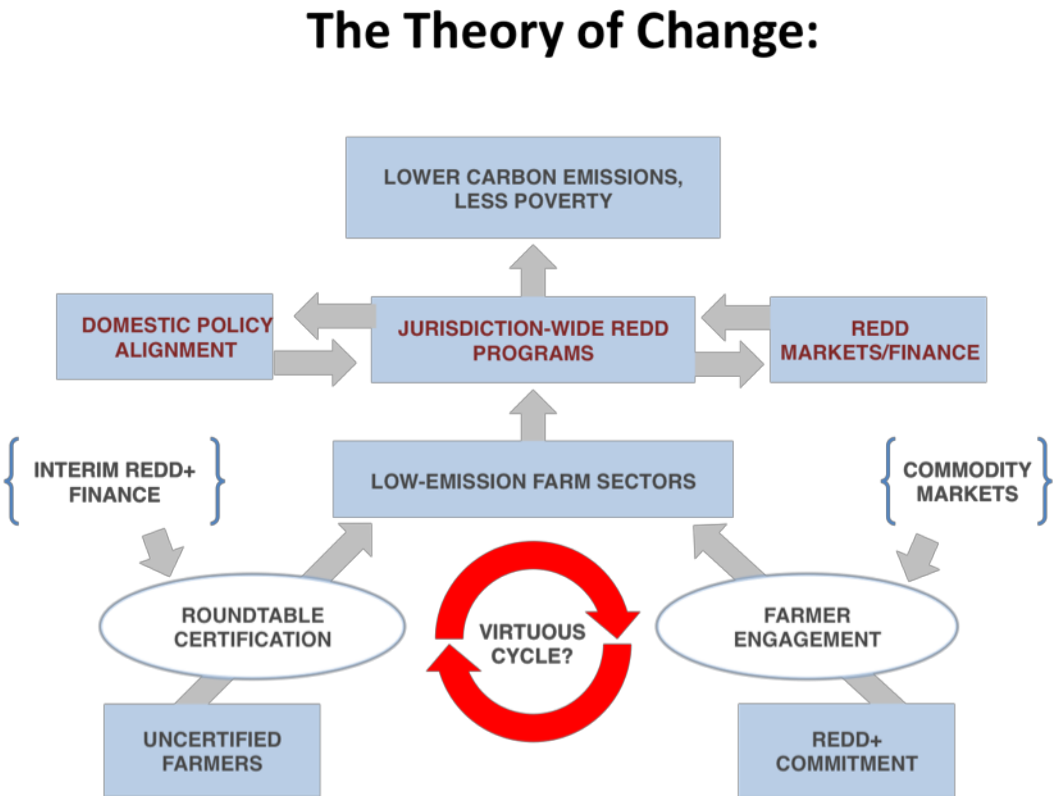

Figure 5. RT-REDD "theory of change" for realizing potential synergies between agricultural commodity roundtables and REDD+.

The RT-REDD Consortium is a novel alliance of three of the major commodity roundtables— Bonsucro, RSPO, and RTRS—together with four non-governmental organizations (IPAM, Solidaridad, WWF-US, and Forest Trends) and a world leader in the development of sustainable supply chains (Unilever). It has also established collaborations with the Governors' Climate and Forests task force (GCF), Althelia Climate Fund and the Global Roundtable on Sustainable Beef (GRSB). Led by IPAM, the Consortium is conducting critical research and analysis on: (a) where roundtables and REDD+ could be linked geographically; (b) the compatibility of roundtable standards with REDD+ safeguards; and (c) the financial mechanisms for delivering forest carbon-based incentives to farmers. As many as five "proof of concept" pilot projects will be developed and two large-scale, jurisdiction-wide demonstration projects will be designed. The Consortium has secured $4.2 million in support through mid-2013 from the Government of Norway.

The RT-REDD Consortium works closely with the "Farmer Support Programme", led by Solidaridad, that has recently secured from the Dutch Government € 17 million in matching funds for direct investments in supply chains and € 12.5 million to support regional outreach teams through 2015 to assist farmers and livestock producers who are roundtable members as they improve the socio-environmental performance of their

operations, with a specific focus on smallholder and worker benefits. In addition to training and compliance programs for farmers, the Farmer Support Programme, through RT-REDD, is developing innovative training and verification tools in close collaboration with the participating farmers to link them with climate and REDD funds.

Progress 1: Geographical Overlap

Twenty-one nations that include 51% of the world's tropical forest carbon, and a larger share of the world's carbon emissions from tropical deforestation, are both developing REDD+ programs and have farm sectors undergoing certification with at least one of the roundtables (Figure 1). All of these nations are engaged in at least one of the REDD+ programs development processes (GCF, FCPF, UN-REDD, REDD+ Partnership, or a bi-lateral REDD+ program) or in the development of their own national emission reduction programs ("Nationally Appropriate Mitigation Actions", or NAMAs). They also have groups of farmers who are bringing their farms into certification with one of the roundtable (Table 1).

Table 1: Summary of participation in REDD+ programs and presence of producers who are certifying their farms (or mills) with one of the three agricultural commodity roundtables. Dark grey signifies participation.

	REDD+						Commodity Roundtables		
Countries	FCPF	UN-REDD	FIP	Norway	GCF	DfID	RTRS	RSPO	Bonsucro
Argentina	■						■	■	■
Bolivia		■					■		■
Brazil			■	■	■	■	■		■
Cambodia	■	■						■	
Colombia	■					■		■	■
Costa Rica	■							■	■
Ecuador		■						■	
Ghana	■		■					■	
Honduras	■							■	■
India						■	■		■
Indonesia	■	■	■	■	■	■		■	
Kenya	■								■
Mexico	■	■	■	■	■	■			■
Mozambique						■			■
Nigeria		■			■			■	
Papua New Guinea		■						■	
Paraguay	■	■					■		■
Thailand	■							■	■

Progress 2: Compatibility of roundtable criteria and REDD+ safeguards

Both Roundtables and REDD+ are performance-based; that is, they are designed to achieve changes in performance of nations and supply chains, respectively, rather than changes in agricultural practices or technology. They are both focused on the end, not the means to that end. Roundtables achieve this goal by first establishing a short list of performance principles. A multiple-stakeholder group then develops and tests criteria to achieve these performance principles. These criteria then undergo "national interpretations."

The process for developing criteria is more varied in REDD+. The underlining premise and focus of REDD+ programs is that nations and states/provinces should be compensated for their performance in lowering GHG emissions from deforestation, forest degradation or for enhancing carbon stocks. Beyond this central performance target—GHG emissions reductions—REDD+ also seeks to either "do no harm" or to promote improvements in social and environmental performance.

In general, there is a high degree of complementarity between roundtables and REDD+ performance standards. Here, we summarize three criteria:

- Restrictions on the clearing of native forests,
- Free Prior Informed Consent (FPIC)[12], and
- Protection of the rights of indigenous people.

Progress 3: Links with national policy and finance. A hypothetical example from Brazil

Domestic policies and finance shape farm and livestock sectors through their influence on the economic logic and decision-making of farmers and ranchers. To achieve its potential, RT-REDD must strengthen and align these policies and finance programs with REDD+, and help these programs succeed where they are already designed and under implementation.

This potential is illustrated with Brazil's ABC credit program. ABC stands for "Agricultura de Baixo Carbono"—Low Carbon Agriculture—and provides low interest (5.5%), large (up to US$700k per farm) loans to finance forest restoration, tree plantations, livestock intensification, and other farm-level investments that are compatible with the goals of REDD+. During its initial two years in operation, the ABC program provided R$2.0 B (~US$1.1 B) in 2010/11 and R$3.15 B (~US$1.7 B) for 2011/12 in credit. Uptake was low in year one (0.07% of the total), but has climbed significantly in the second year (8.8% thus far, projected to reach 28% by June)[i]. There are several reasons why uptake has been low. Foremost among them is the difficulty and high cost of preparing loan applications. Since technical assistance is sometimes scarce, but necessary for loan applications, some companies charge up to 5% of the loan to prepare an application.

[12] Free prior and informed consent' (FPIC), is the principle that a community has the right to give or withhold its consent to proposed projects that may affect the lands they customarily own, occupy or otherwise use.

In a hypothetical RT-REDD pilot project or demonstration (Figure 6), a producer support organization, such as Aliança da Terra, could provide technical assistance to farmers seeking ABC loans within states that are far along in developing their state-wide REDD+ programs (including most of the Amazon states, Figure 1). As these states finalize the reference level issues, carbon registries, insurance programs against non-performance, and financial mechanisms that are necessary for REDD+ programs to operate, private and public finance could potentially acquire some of the state's emissions reduction units. These investments could be applied directly to pay off ABC loans as farmers achieve forest restoration, forego their right to clear their forests, and bring their properties into alignment with forest legislation.

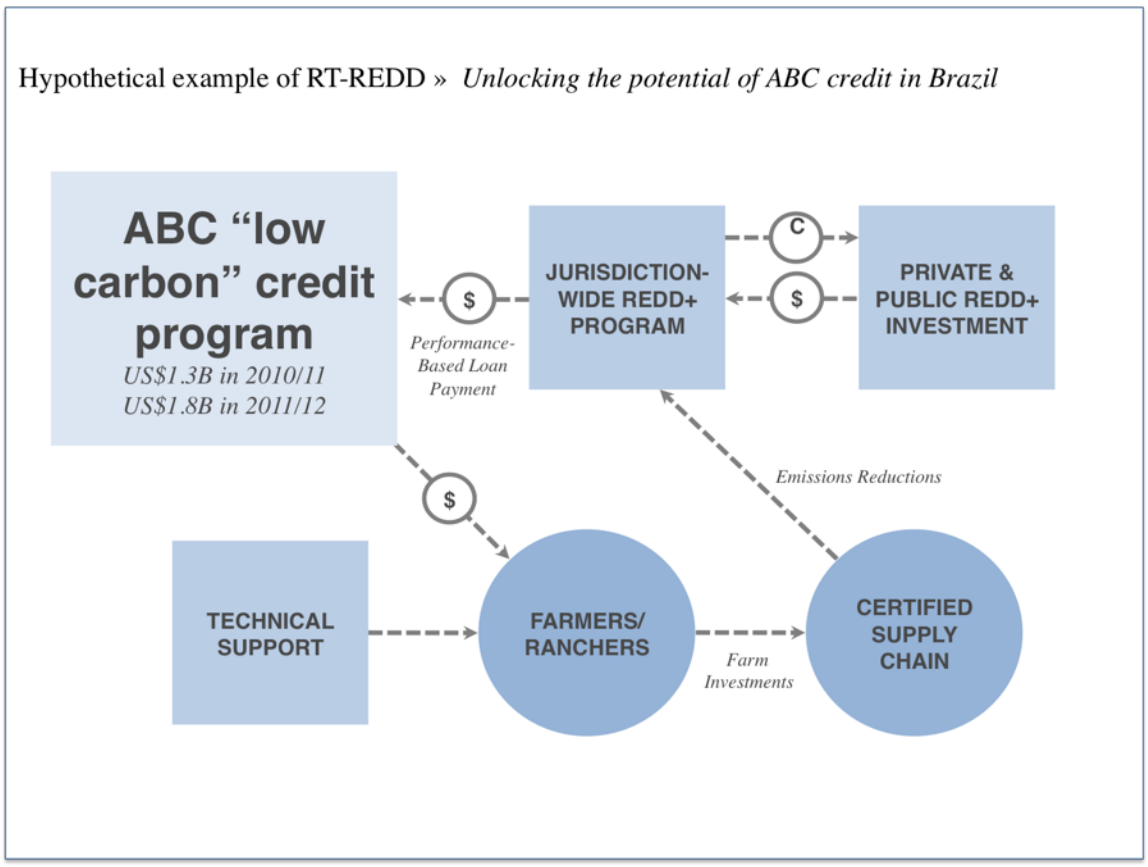

Figure 6. Hypothetical example of how RT-REDD could leverage existing national policies and programs to achieve transformation of farm sectors to low-emission pathways. The case of the Brazilian "Low Carbon Agriculture" credit program.

[i] Source: Banco do Brasil Program Staff.