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# Bridging Financing Gaps for Low-Emissions Rural Development through Integrated Finance Strategies

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Forest Trends' Public-Private Co-Finance Initiative

Sarah Lowery, David Tepper, Rupert Edwards

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(The participation of the above organizations in the research for this paper does not imply their endorsement or acceptance of any (or all) the research findings presented in this document.)

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## Acronyms

We made every effort to reduce the number of acronyms used in the text, but in some cases acronyms were necessary. Whenever the acronym or abbreviation appears for the first time, it is defined in the text. If the acronym only appears with its definition (for ease of understanding), it is not included here. The following list is provided for ease of reference by readers.

FINAGRO	Fund for Financing the Agricultural Sector ( <i>Fondo para el Financiamiento del Sector Agropecuario</i> )
HCV	High Conservation Value
IPAM	Amazon Environmental Research Institute ( <i>Instituto de Pesquisa Ambiental da Amazônia</i> )
MRV	Monitoring, Reporting and Verification
PES	Payments for Ecosystem Services
PFP	Payments for Performance
REDD	Reducing Emissions from Deforestation and forest Degradation
REDD+	Reducing Emissions from Deforestation and forest Degradation; plus conservation, sustainable management of forests and enhancement of carbon stocks
RSPO	Roundtable on Sustainable Palm Oil
RTRS	Roundtable for Responsible Soy
USD	US Dollar

## Executive Summary

We are challenged to utilize natural resources efficiently to feed, cloth, shelter, and provide energy for our growing population while also conserving forests and other precious ecosystems that mitigate climate change and provide other valuable services such as water filtration, nutrient cycling, pollination, incredible biodiversity, etc. Land use, land-use change and forestry, together with agriculture, comprise over 30 percent of total greenhouse gas emissions, higher than any other sector (including transportation). As agriculture (commercial and subsistence) is also the biggest driver of deforestation, it is critical to reduce emissions from the conversion of forests to agriculture while also reducing on-farm emissions and increasing agriculture yields.

Supporting ecosystem conservation and management, increased agricultural productivity and land restoration will require substantial amounts of capital. REDD+ funds and voluntary forest carbon flows have been modest in recent years: USD 4.5 billion and 216 million in 2012, respectively. In contrast, annual average private investment in agriculture in just a portion of low- and middle-income countries is USD 168 billion, and governments in such countries spend about USD 160 billion annually on agriculture. This dichotomy presents a key opportunity to harness such large pools of capital in support of sustainable agriculture production that also conserves valuable ecosystems, if the interests of the forest and agricultural sectors can be aligned around sustainable supply chains (including zero-deforestation commitments of many companies), security of supply, and business risk reduction. And climate finance may help catalyze this alignment by demonstrating and supporting this intersection of interests (and financing pure conservation when no alignment can be found).

The environmental and economic benefits (in many cases) of changing practices and implementing sustainable commodity production are fairly well-documented, but farmers often continue with “business as usual” because of many risks and barriers to adopting sustainable practices, including: 1) traditional financing barriers in the agriculture sector, 2) specific barriers to sustainable production (higher upfront costs, etc.), and 3) the opportunity costs of leaving forests standing or ecosystems preserved. Existing domestic agriculture finance can be realigned to especially address the first two types of barriers and, if access to such concessional finance is linked to environmental/forest outcomes, it may be able to address the third type somewhat (depending on the local context). Of course financing will not be the only impetus for more sustainable production – other critical elements of support include technical assistance, demonstrations of desired practices and viable economic models, and the strengthening of supply chains (both upstream inputs and downstream processing/selling).

Colombia presents a good case study of how climate finance could be integrated with domestic agricultural finance to encourage the sustainable production and processing of agricultural commodities. The country spends USD 6-7 billion through its Fund for Financing the Agricultural Sector (FINAGRO), and its agriculture sector is making strides towards productive and sustainable systems. Colombia also has ambitious goals to end deforestation by 2020, and part of its REDD+ strategy includes attracting Payments for Performance (PFP) for emissions reductions. Those PFP and/or other climate funds could be integrated with existing agricultural finance to develop new financial products targeted at farmers and/or others in supply chains who have the opportunity to improve productivity and reduce emissions through changes in practice. These new mechanisms can be designed to address the risks of changing practices as well as traditional access-to-credit issues by offering: better terms of credit, credit based on collateral besides land, enhanced distribution of financial products in rural areas, and/or best conditions/easiest access offered in jurisdictions that have monitoring, reporting, and verification systems *and* are reducing their deforestation rates.

Nonetheless, and especially because such financing does not completely address the opportunity costs of standing forests/ecosystems, this must be complemented by other approaches such as a national framework for REDD+ that includes regulation, strict forest protection, fire prevention, and other mechanisms such as Payments of Ecosystems Services to farmers and/or government-to-government PFP for meeting national targets for REDD+ (the latter of which could provide funds to support all of these approaches). It is through this holistic, multi-pronged approach that deforestation will likely be curbed most effectively, in an overall landscape of enhanced livelihoods and rural economic development. And as an integral part of this multi-faceted approach, integrated finance has the potential to greatly facilitate a transition to sustainable rural development.

## Introduction and Financing Gap

Rural sectors are increasingly challenged to produce more food, fuel, and fiber while also reducing deforestation and conserving our natural resources required to support economic growth in the long run and also to mitigate and adapt to climate change. With a burgeoning population expected to reach over 9 billion by 2050, we will need to produce as much food in the next 50 years as we have produced since the beginning of civilization.<sup>1</sup> However, land available and suitable for agriculture is limited, and deforestation for agriculture production will further contribute to greenhouse gas emissions and climate change that we are already seeing and feeling. Land use, land-use change, and forestry make up about 17% of greenhouse gas emissions, and agriculture contributes another 14% of global greenhouse gas emissions.<sup>2</sup> Thus, it is critical to expand agricultural production in smart, efficient ways that increase yields and strengthen farmers' resilience to climate change while also reducing on-farm emissions and curbing the conversion of forests to agriculture – e.g., by practicing sustainable agriculture (see Box 1 for definition).

The agricultural sector has made strides towards sustainability through grassroots efforts in supply chains, buyer demand, and pressure from environmental groups. For instance, the four largest meatpackers in Brazil committed to zero deforestation in their supply chains in 2009<sup>3</sup> in large part due to Greenpeace' *Slaughtering the Amazon* Report; the Consumer Goods Forum committed to achieve zero net deforestation by 2020; and McDonald's announced in January, 2014 that it will begin purchasing verified sustainable beef in 2016.<sup>4</sup> The multi-stakeholder commodity roundtables for soy, sugar, and palm oil have created international certification standards for environmental and social performance of their supply chains, including deforestation cutoff dates (see Box 1 for more information); and so far, 3.33% of sugar<sup>5</sup> and 14% of palm oil<sup>6</sup> worldwide are certified by Bonsucro and the Roundtable on Sustainable Palm Oil (RSPO).

**Box 1. Sustainable agriculture** is defined here to include (a) a halt to deforestation caused by expanding agriculture (zero-deforestation) and (b) improved agricultural practices that increase "production, strengthen farmers' resilience, reduce agricultural greenhouse gas emissions, and increase carbon sequestration. It strengthens food security and delivers environmental benefits"<sup>a</sup> (climate-smart).

We also note that standards and criteria set by certification groups such as the global commodity roundtables include environmental restrictions on new plantings in cleared primary forest or High Conservation Value (HCV) areas after 2005 (RSPO), new plantings in HVC areas after 2008 (Bonsucro), and a deforestation cutoff date of 2009 (RTRS), as well as the application of best agricultural practices, social, financial, legal, and transparency criteria for certification.<sup>b, c, d</sup>

<sup>a</sup> "Climate-Smart Agriculture: a Call to Action." Brochure. World Bank. Accessed December 12, 2013. [http://www.worldbank.org/content/dam/Worldbank/document/CSA\\_Brochure\\_web\\_WB.pdf](http://www.worldbank.org/content/dam/Worldbank/document/CSA_Brochure_web_WB.pdf)

<sup>b</sup> *RSPO Principles and Criteria for Sustainable Palm Oil Production*, (revised) April 2013. Accessed January 24, 2014. <http://www.rspo.org>

<sup>c</sup> *RTRS Standard for Responsible Soy Production Version 2.0*. Accessed January 24, 2014. <http://www.responsiblesoy.org/index.php?lang=en>

<sup>d</sup> *Bonsucro Production Standard Including Bonsucro EU Production Standard*. Version 3.0, March 2011. Accessed January 24, 2014. <http://bonsucro.com/site/production-standard/>

<sup>1</sup> Potter, Ned. "Can We Grow More Food in 50 Years Than in All of History?" ABC News. Oct 5, 2009. Accessed Jan 24, 2014. <http://abcnews.go.com/Technology/world-hunger-50-years-food-history/story?id=8736358>

<sup>2</sup> Pachauri, Rajendra K. and Andy Reisinger. (eds.). *Climate Change 2007: Synthesis Report*. Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. IPCC (Intergovernmental Panel on Climate Change). Geneva: 2007.

<sup>3</sup> Greenpeace. *Minimum criteria for industrial scale cattle operations in the Brazilian Amazon Biome*. Accessed Jan 24, 2014. <http://www.greenpeace.org/international/Global/international/planet-2/report/2009/10/minimum-criteria-for-industria.pdf>

<sup>4</sup> Makower, Joel. "Exclusive: Inside McDonald's quest for sustainable beef." January 07, 2014. Accessed Jan 10, 2014. <http://www.greenbiz.com/blog/2014/01/07/inside-mcdonalds-quest-sustainable-beef>

<sup>5</sup> Bonsucro's homepage states that 3.33% of global sugarcane surface is Bonsucro-certified. Accessed January 16, 2014. <http://www.bonsucro.com>

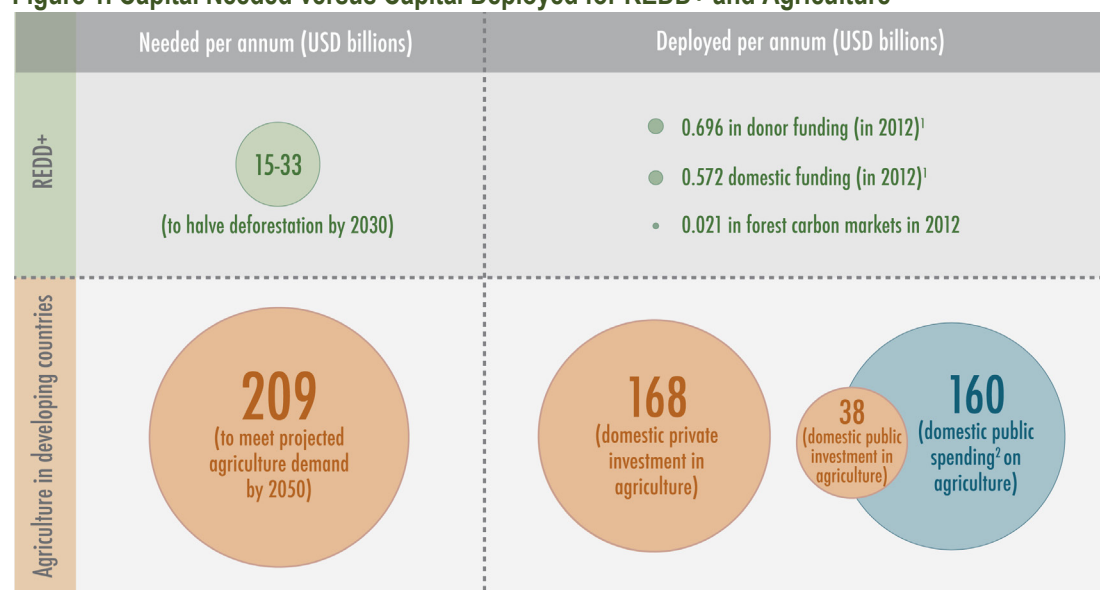
<sup>6</sup> RSPO's website states that, "RSPO annual production capacity reaches 14% of global crude palm oil in 2012." Accessed January 16, 2014. <http://www.rspo.org/en/milestones>



But much remains to be done to curtail deforestation and on-farm emissions, as well as increase agricultural productivity. And this will require substantial capital. Reducing Emissions from Deforestation and forest Degradation (REDD) by 50 percent will require between USD 15 billion/year<sup>7</sup> and USD 33 billion/year.<sup>8</sup> Required annual investments in agriculture in developing countries to meet projected demand in 2050 are estimated to be about 209 billion,<sup>9</sup> which would likely be higher if taking into account the costs of implementing sustainable agriculture systems.

These figures can appear daunting when compared to existing capital flows for REDD+<sup>10</sup> and forest carbon. For instance, USD 4.5 billion for REDD+ was deployed through 2012,<sup>11</sup> and the forest carbon markets' value was estimated at USD 216 million in 2012.<sup>12</sup> In contrast, financial flows to the agriculture sector are much larger: average annual investment by domestic private sector actors (i.e., farmers) into a portion of low- and middle-income countries (76 countries) is USD 168 billion; average annual government investment in agriculture in these same countries is USD 38 billion;<sup>13</sup> and government expenditures on agriculture in a subsection of these countries (54 countries) is USD 160 billion;<sup>14</sup> (see Figure 1 for a comparison of financing needs with capital deployed in 2012).

**Figure 1. Capital Needed versus Capital Deployed for REDD+ and Agriculture**



Note: This figure is intended to illustrate the relatively large financing flows to agriculture in developing countries vis-à-vis REDD+ funding. These numbers should be viewed as indicative only, as they are drawn from various sources (indicated in the footnotes to the text); please review these sources for caveats.

<sup>1</sup> Voluntary REDD+ database, as reported by donor countries. Accessed November 19, 2013. [http://reddplusdatabase.org/#graphs\\_and\\_stats](http://reddplusdatabase.org/#graphs_and_stats)

<sup>2</sup> Government spending includes both current expenditures and investment, thus the pools of capital associated with each are overlapping in the figure (see sources – e.g., Lowder – for a discussion of spending versus investment).

<sup>7</sup> UNEP. Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication. 2011.

<sup>8</sup> Eliasch, Johan. The Eliasch Review (Climate Change: Financing Global Forests). 2008.

<sup>9</sup> Schmidhuber, Josef, Jelle Bruinsma and Gerold Boedeker. *Capital requirements for agriculture in developing countries to 2050*. Paper presented at the FAO Expert Meeting on “How to Feed the World in 2050”, Rome, FAO, 24–26 June 2009.

<sup>10</sup> UN-REDD Program states that, “‘REDD+’ goes beyond deforestation and forest degradation, and includes the role of conservation, sustainable management of forests and enhancement of forest carbon stocks.” Accessed February 24, 2014. <http://www.un-redd.com/AboutREDD/tabid/582/Default.html>

<sup>11</sup> Voluntary REDD+ database. Accessed December 3, 2013. [http://reddplusdatabase.org/by/funders#graphs\\_and\\_stats](http://reddplusdatabase.org/by/funders#graphs_and_stats)

<sup>12</sup> Peters-Stanley, Molly, Gloria Gonzalez, and Daphne Yin. *Covering New Ground, State of the Forest Carbon Markets 2013*. Ecosystem Marketplace (A Forest Trends Initiative). 2013.

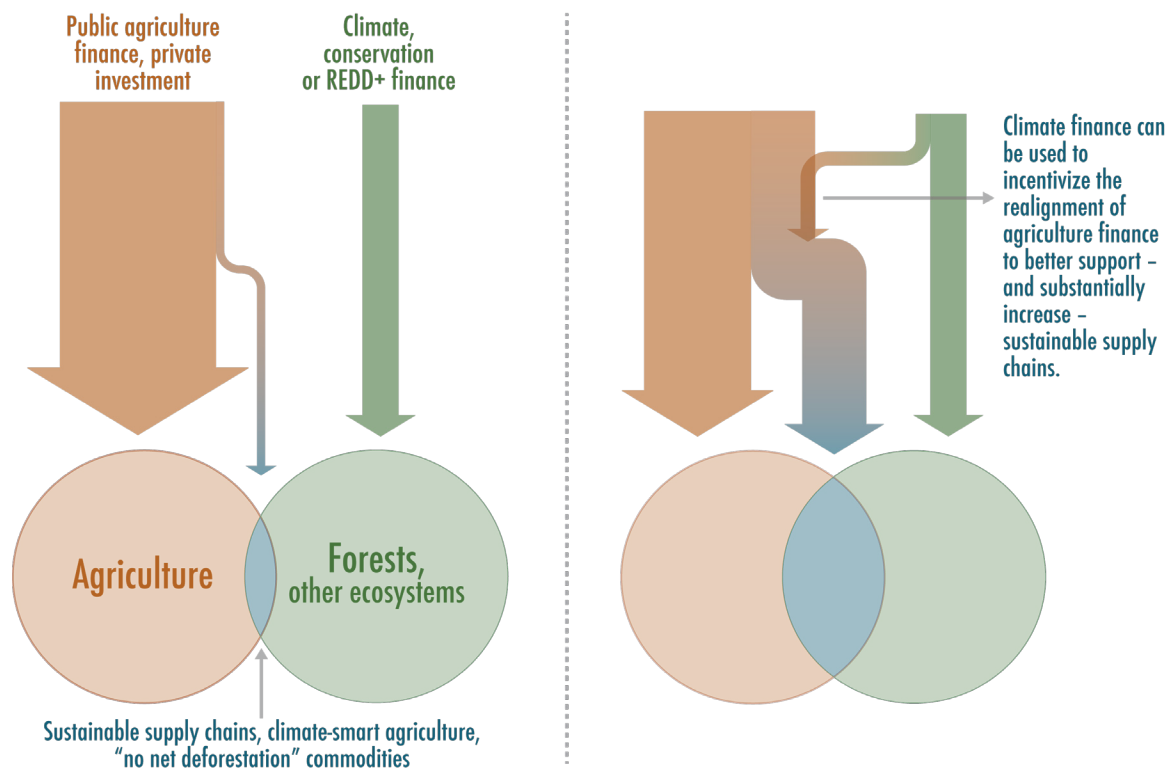
<sup>13</sup> Lowder, Sarah K., Brian Carisma and Jakob Skoet. Who invests in agriculture and how much? An empirical review of the relative size of various investments in agriculture in low- and middle- income countries. ESA Working paper No. 12-09. Agricultural Development Economics Division, FAO. December, 2012.

<sup>14</sup> Lowder, Sarah K. and Brian Carisma. *Financial resource flows to agriculture: A review of data on government spending, official development assistance and foreign direct investment*. ESA Working Paper No. 11-19. Agricultural Development Economics Division, FAO. December, 2011.

As we face the tremendous challenges of feeding our population and conserving our forests, it is critical to find every possible area of integration between the two so the available funds (on the right hand side of Figure 1) are sufficient to meet our financing needs (on the left hand side of Figure 1). For instance, agricultural and REDD+ pools of capital can be better integrated to support complementary goals of enhanced agriculture productivity, security of supply, reduced deforestation, and rural economic development (see Box 2 for a note on this). In particular, the substantial public funding for agriculture – USD 160 billion per year – can be realigned to support sustainable agriculture. Furthermore, while the funding available for climate change and REDD+ is limited, these funds can be critical and catalytic if used to help create new financial products, innovative policies, and advanced models that demonstrate or enhance this alignment of interests, which could then unlock additional financing from the private and/or domestic public sector (see Figure 2).

**Box 2. Note of caution...** While REDD+ and the agriculture sector may have common interests around sustainable supply chains, climate-smart agriculture, etc., it is important to acknowledge that forest conservation (including its critical biodiversity) may at times be in direct conflict with increased agricultural productivity. In these cases, conservation finance is needed to support such protection, conservation, and restoration of forests or other ecosystems.

**Figure 2. Climate Finance Can Catalyze a Realignment of Agricultural Finance and Enhance Overlap of Interests between Agriculture and Environment (Illustrative Example)**



## Barriers to Sustainable Agriculture Production

Sustainable agriculture that maintains forests while advancing climate-smart methods (see Box 1) can yield environmental and economic benefits.<sup>15</sup> Climate-smart, low-shade production systems for cocoa in Ghana, for example, demonstrate 50-60 percent higher yields for smallholders, decrease carbon emissions from expansion into

<sup>15</sup> Pretty, Jules N., A. D. Noble, D. Bossio, J. Dixon, R. E. Hine, F. W. T. Penning de Vries and J. I. L. Morison. 2006. "Resource-conserving agriculture increases yields in developing countries." *Environmental Science and Technology*, 40: 4.

forests, and enhance carbon stocks in low shade cocoa systems.<sup>16</sup> Silvopastoral systems for cattle in countries like Colombia, Costa Rica, and Nicaragua can increase farmer incomes by at least 60 percent (and in the case of Colombia, over 260 percent);<sup>17</sup> semi-intensification of cattle in Brazil decreases costs-per-animal-unit and increases yields,<sup>18</sup> with some models more than doubling the head of cattle per hectare.<sup>19</sup> Large differences between minimum and maximum yields for palm oil produced in countries like Indonesia, Colombia, and Ghana also point to potential large productivity gains.

Despite these potential economic and environmental gains – including “rosy net present value figures” – such sustainable production systems are often not implemented in developing countries because of significant financing barriers and larger-than-estimated direct and indirect costs of adoption.<sup>20</sup> These vary depending on local context and type of agriculture but often include all or some of three main sets of barriers:

**1) Traditional financing barriers in the agricultural sector, such as –**

- Difficulties accessing finance (lack of credit history or land tenure; lack of capacity to complete credit applications; few institutions offering credit in rural area; etc.);
- Transaction costs of finance (transportation costs, time involved in completing loan applications, etc.);
- High cost of capital available relative to operations/price/market risk (e.g., the cost of capital – as well as price or quantity demanded – may be quite high); and
- Contractual risks in the supply chain (potential inability to meet contract terms with other actors, from input suppliers to buyers).

**2) Financing barriers related specifically to the transition to or implementation of sustainable agriculture practices, such as –**

- Higher upfront capital costs (equipment, inputs) that can cause cash flow constraints (low or negative cash flows in early years while changing practices);
- Increased variable costs (e.g., higher labor costs because of increased human capital needed for sustainable practices);
- Transaction costs of changing practices (searching and processing information on new practices);
- Risk of lower-than-expected yields due to factors such as inability to procure new inputs, higher-than-anticipated costs of such inputs, difficulty in moving up the learning curve of changing practices, etc.;
- Few financial or other positive incentives to make up-front investments for the long term (little or no financing that rewards sustainable production, lack of robust demand or premiums for sustainable commodities); and
- Uncertainty regarding benefits (including because of unsecure tenure arrangements).

**3) Opportunity costs of leaving forests standing or other valuable ecosystems conserved, a key component of sustainable agriculture as defined in Box 1 and by the soy, palm oil and sugar commodity roundtables.**

<sup>16</sup> Forest Trends. “Climate-Smart Cocoa in Ghana: Achievements and A Way Forward.” 2013. Accessed February 24, 2014. [http://www.forest-trends.org/publication\\_details.php?publicationID=3714](http://www.forest-trends.org/publication_details.php?publicationID=3714)

<sup>17</sup> World Bank. “Project Appraisal Document on a Proposed Grant from the Global Environment Facility Trust Fund In the Amount of \$7 Million to the Colombian Cattle Ranching Association for a Mainstreaming Sustainable Cattle Ranching Project.” September, 2009.

<sup>18</sup> Stabile, Marcelo. “Subsídios para um subprograma de pecuária no Acre: sistemas e custos de intensificação.” Presentation on December 5, 2012, to the first meeting of the working group of the cattle subprogram in Rio Branco (State of Acre, Brazil). IPAM (Amazon Environmental Research Institute).

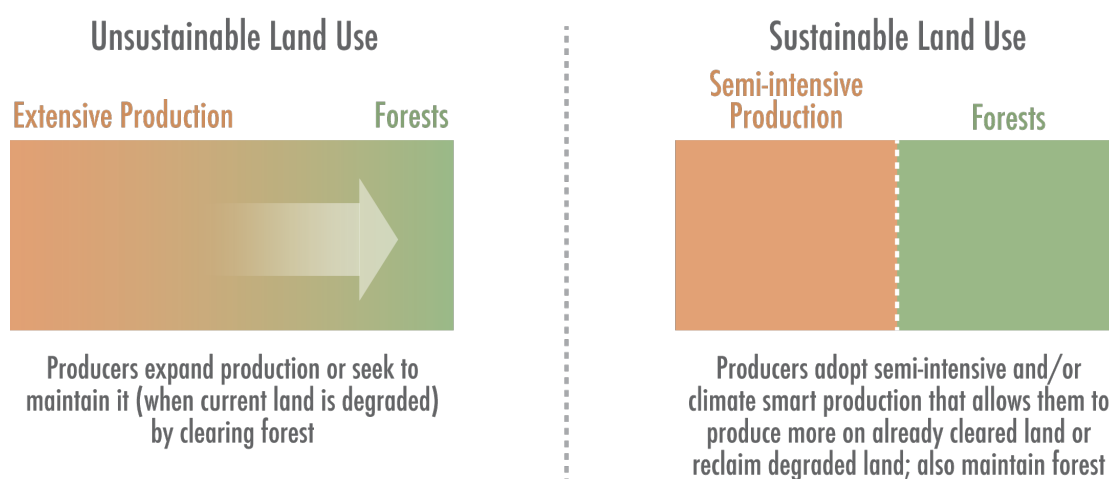
<sup>19</sup> The agricultural research agency of Brazil, Embrapa, has developed this model. As cited in: Pinjuv, Guy. *Gigaton Analysis of the Livestock Industry; The Case for Adoption of a Moderate Intensification Model*. The Carbon War Room. April, 2011.

<sup>20</sup> McCarthy, Nancy, Leslie Lipper and Giacomo Branca. *Climate-Smart Agriculture: Smallholder Adoption and Implications for Climate Change Adaptation and Mitigation*. Food and Agriculture Organization of the United Nations (FAO). Rome, Italy: 2011.

Unless landowners can extract value from forest/ecosystem conservation (e.g., via payments for watershed services, carbon market transactions, offsets for biodiversity, etc.) or from the commodities being produced on the rest of the land that hinges on that conservation (e.g., buyers demand sustainable commodities and/or are willing to pay higher prices for such production), then the opportunity costs of conservation are often too great to ignore.

Domestic public agriculture finance can be particularly helpful in addressing the first and second sets of barriers. For instance, in the illustrative example of cattle ranching in Figure 3, farmers may continue with the status quo of extensive production (and forest loss) mainly because of the higher costs of semi-intensification<sup>21</sup> (despite the potential productivity and financial gains), along with possible difficulties in accessing credit. To address these barriers and encourage semi-intensification, financial products could be tailored to be more easily accessed (addressing the traditional financing barrier) and at better terms – e.g., loans could be offered with lower interest rates, longer pay-back periods, subsidized payments in the first few years, etc.

**Figure 3. Status Quo (Unsustainable Land Use) versus Sustainable Land Use**



However, this financing solution does not address the opportunity costs of leaving the forest standing, which increases as productivity rises. ***Thus, accessing these types of financial products must be contingent upon preserving and/or increasing extant forests; otherwise, the result may very well be increased deforestation.***

## Case Study: Colombia

To illustrate how agricultural finance could be better integrated with REDD+ and/or climate finance objectives to effectively reduce emissions and increase agriculture productivity, let's take a look at Colombia.

### Colombian Agricultural, REDD+, and Policy Context

Colombia is making strides towards productive, sustainable agricultural systems. Its sugar and palm oil sectors have begun the transformation to sustainability, and the beef and dairy sectors have the ambitious goal of reducing the amount of pastureland from 38 to 28 million hectares by 2019 even as production increases. This is very much in line with Colombia's national commitment to end deforestation by 2020, its law n. 2 of 1959 prohibiting deforestation in the Amazon and other main forest regions, its REDD+ framework, and its Heart of the Amazon program designed to

<sup>21</sup> For instance, cattle intensification can include substantial capital costs such as fences, pasture management, genetics enhancement, and improved feed. Source: Carbon War Room – see supra note 19.

consolidate protected areas and indigenous territories in the Amazon region while preventing further frontier expansion.<sup>22</sup>

Colombia expects to develop a national forest carbon accounting system and is considering creating a fund or other mechanism to channel REDD+ funds to the ground (mentioned in the Heart of the Amazon proposal). Regional emissions reference scenarios are beginning to be developed, including the Amazon Region reference scenario to be completed by the end of 2013.<sup>23</sup> In order to successfully attract Payments for Performance (PFP) for reducing its deforestation rate, however, Colombia may be expected to demonstrate that such funds will be utilized to support further on-the-ground investments in REDD+, which could include supporting forest conservation, sustainable agriculture, and overall low-emissions rural development.

### Existing Finance for Agriculture

Among many tools, Colombia has the powerful tool of finance to encourage a transition to sustainable commodity production and supply chains. The country already spends USD 6-7 billion dollars annually through its Fund for Financing the Agricultural Sector (FINAGRO) to support its agriculture sector. For example, FINAGRO issued agricultural loans for working capital and investment worth USD 3.6 billion in 2012. Other FINAGRO programs include the Rural Capitalization Incentive (ICR), which subsidizes a percentage of FINAGRO-financed investment projects undertaken to improve competitiveness. Substantial commercial supplier and trade finance is available to agricultural producers (particularly large businesses), and Overseas Development Assistant to Colombia for agriculture, forestry, and fisheries was about USD 110 million in 2011. Table 1 summarizes several types of finance available to the agriculture sector in Colombia.<sup>24</sup>

Few of these pools of capital are targeted towards sustainable agriculture that could meet zero deforestation or other sustainable supply chain targets. But it is precisely these practices that could make Colombia a global leader in sustainable products that markets are beginning to demand. Even now, oil palm producers in Colombia who wish to continue selling to companies such as PepsiCo must be certified by RSPO.<sup>25</sup> And creating an agriculture sector that does not contribute to deforestation would be very valuable for Colombia's strategy of attracting PFP.

<sup>22</sup> Nepstad, Daniel, Tathiana Bezerra, David Tepper, Katharine McCann, Claudia Stickler, David G McGrath, Maria Ximena Barrera, Sarah Lowery, et al. *Addressing Agricultural Drivers of Deforestation in Colombia: Increasing Land-Based Production While Reducing Deforestation, Forest Degradation, Greenhouse Gas Emissions and Rural Poverty*. July 2013.

<sup>23</sup> Ibid.

<sup>24</sup> This table does not include all of the USD 6-7 billion FINAGRO resources, such as its investment fund, which we are currently researching.

<sup>25</sup> Interview with palm oil company in Colombia. October, 2012.



**Table 1. Financing Available for Agriculture Production**

Financial Instrument	Description	Budget in 2013 (USD millions)
FINAGRO Lines of Credit	Loans for working capital and investments	3,660 <sup>26</sup>
Rural Capitalization Incentive (ICR)	Subsidizes a percentage of investment projects undertaken to improve competitiveness (if financed through FINAGRO)	145 <sup>27</sup>
Special Line of Credit (LEC)	Low interest rate, longer-term loans for projects that improve competitiveness of the agriculture sector	13
Technical assistance and related courses	Subsidizes the costs of expenses to hire technical assistance	81
Irrigation-related programs	Subsidizes the costs of irrigation projects	36
Agricultural Fund for Guarantees (FAG)	Backs working capital and investment loans financed with FINAGRO rediscounted funds	18 <sup>28</sup>
National Agricultural Revitalization Program (PRAN)	Refinances overdue debts for small-, medium-, and large scale producers	*
Incentive for Agricultural Insurance (ISA)	Subsidy to help producers pay for insurance	*
Forestry Incentive Certificate (CIF)	Covers part of the investment costs for establishing and maintaining new commercial forest plantations on land suitable for forestry	56
Commercial suppliers and trade finance	Finance includes input suppliers, sellers of machinery and equipment, and purchasers of agricultural commodities	1,222 <sup>29</sup>
Overseas Development Assistance (ODA)	Total ODA; ODA for agriculture, forestry, and fisheries	750; 110 <sup>30</sup> (2011)

\*Not available.

### New Financial Products within Existing Agricultural Finance

In line with its goals to support and further incentivize sustainable production, Colombia has the potential to develop new financial products targeted at actors within the agricultural sector who: (1) have access to credit but face challenges to implementing sustainable production (such as those listed on Page 5) that are large enough to prevent them from changing practices and/or (2) have difficulty accessing credit and thus find it difficult to invest in improved production, sustainable or not (see Figure 4). For instance, there is a substantial opportunity to reach those without access to traditional credit (e.g., without land tenure – only 50 percent of land is legally recognized in Colombia<sup>31</sup>) with these new financial products. In addition to financing, other important elements of support are needed (see Box 3).

**Box 3. Financing can be part of a broader solution.** While very important, financing must be accompanied by technical assistance, demonstrations of desired practices and viable economic/financial models, and/or strengthening of supply chains (both upstream inputs and downstream processing/selling) so investments in sustainable production have the desired productivity and emissions-reductions outcomes.

<sup>26</sup> FINAGRO statistics on its website, accessed March 20, 2013. [https://www.finagro.com.co/sites/default/files/field-collection/estadisticas/files/otorgados\\_por\\_linea\\_.pdf](https://www.finagro.com.co/sites/default/files/field-collection/estadisticas/files/otorgados_por_linea_.pdf)

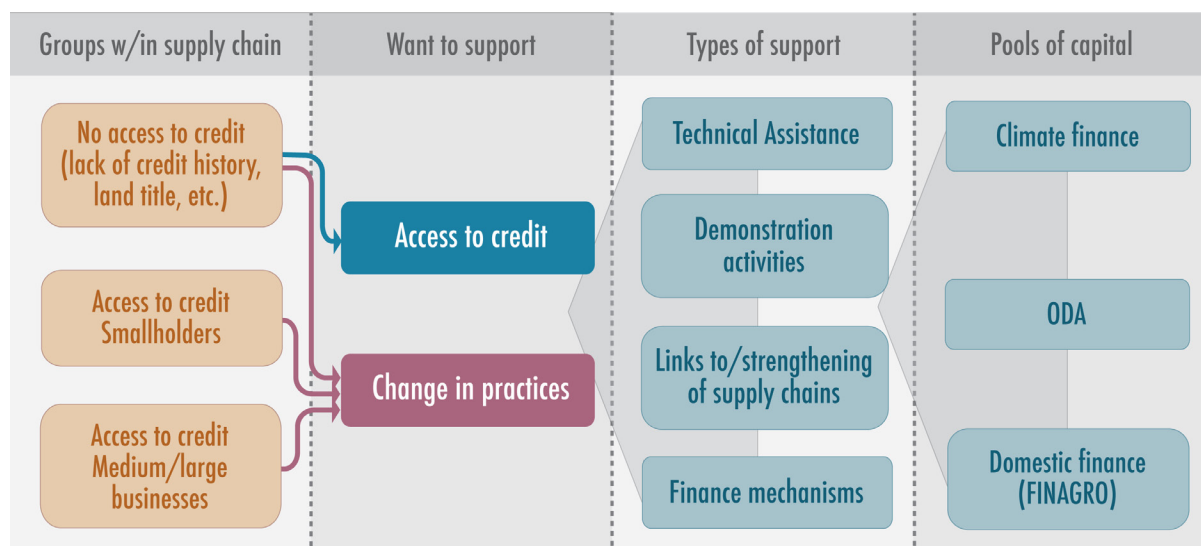
<sup>27</sup> Information on the size of the ICR, LEC, Tech Assistance, Irrigation-related programs, and CIF was obtained from a Ministry of Agriculture and Rural Development (MADR) document that details the programs, opening dates, and budgets (via interview with MADR in March, 2013).

<sup>28</sup> Amount paid on losses in 2012. At the end of 2012, the value guaranteed by FAG reached USD 1,667 million.

<sup>29</sup> We have been unable to uncover the current terms and scope of commercial trade finance, but based on historic data (*Colombia Rural Finance: Access Issues, Challenges and Opportunities*. World Bank, November 2003. Report No. 27269-CO), such finance is approximately one third of the FINAGRO lending portfolio.

<sup>30</sup> *ODA by Sector – Bilateral Commitments by Donor and Recipient (Geo Book)*, OECD statistics on its website. Accessed March 20, 2013. <http://stats.oecd.org/Index.aspx?DataSetCode=DACSECTOR>

<sup>31</sup> Nepstad et al, 2013. See supra note 22.

**Figure 4. Support for Sustainable Commodities**

Ideally, Colombia will be able to test new financial products through – or complementary to – other ongoing efforts, projects, demonstrations, etc. For instance, new loan terms/subsidies could be wrapped into the silvopastoral project supported by the World Bank/Global Environmental Facility so this financing would be sustainable in the long term.<sup>32</sup> Or they could be tested through programs such as Solidaridad’s Farmer Support Program that works with large oil palm companies and smallholders to adopt more sustainable practices. Or such financial products could be tested or demonstrated through other projects that are currently seeking finance.

The advantage of providing new financial products through such projects is that often the project (even if it has not begun implementation): has already identified the sustainable practices it will target; intends to provide technical assistance related to the new practices; may provide support to develop business plans, financial models, and/or loan applications for smallholders in particular; has been engaged with and built trust with farmers through NGO (non-governmental organization) partners or public extension services; and/or intends to monitor deforestation and/or forest degradation associated with the project. These are critical elements that will likely improve the effectiveness of such finance.

These new financial products can be designed to address the barriers mentioned above by offering:

- Better terms of credit – e.g., lower interest rates, longer payback periods, and/or deferment of payment for first years – for this longer-term investment in sustainable production and supply chains. This will ideally include financing for producers, processors, and others in supply chain, including incentives to buy from certified/sustainable input providers. For instance, financing lines tailored to processors and traders could include conditions such as: they must buy X% of certified palm oil or beef from smallholders, and they must offer technical assistance to smallholders to implement sustainable practices. Design and dissemination of these financial products should draw upon lessons learned from Brazil’s Low-Carbon Agriculture (*Agricultura Baixo Carbono*) credit line, which provides better loan terms for low-emissions practices (no-till agriculture, recuperation of degraded land, integration of crops, livestock and forests, etc.) but has faced substantial barriers

<sup>32</sup> The GEF project has been as yet unable to utilize FINAGRO funds to finance silvo-pastoral investments because of traditional access to credit issues with its producer participants (Interview with the project in February, 2014). Such new products should be designed to overcome these issues.

to success,<sup>33</sup> including other sources of credit that can be more attractive – e.g., the Northern Constitutional Financing Funds (*Fundos Constitucionais de Financiamento do Norte*).

- Credit based on collateral besides land, such as: 1) contracts that producers have with buyers, 2) assets such as cattle or crops, 3) Payments for Ecosystem Services (see Box 4), and/or 4) other vehicles to deliver credit. Financial products can also be structured for associations with a group guarantee so that if one producer does not pay, the other producers are responsible for repaying the loan (this encourages producers to monitor each other and collectively help manage production in order to pay back the loan). Credit unions can offer loans with group guarantees and/or may also use crops as collateral.<sup>34</sup>
- Enhanced distribution of financial products. For instance, new bank branches could be built in rural areas or credit agents could be more broadly dispersed into these areas. Or these financial products could be offered through a partnership with existing institutions with similar goals and/or that reach similar populations – such as through credit unions, microcredit institutions, input suppliers, or even local grocery stores. Or they could be linked to one of the myriad smart phone applications for agriculture so that applying for credit could be done even from home and the results could be tracked in the same application.
- Best credit conditions and/or easiest access to finance offered to supply chain actors in jurisdictions that have monitoring, reporting, and verification (MRV) systems for deforestation and are reducing their deforestation rates. If such jurisdictions are able to verify that agricultural products from their jurisdictions are deforestation-free (through their MRV systems), this link with jurisdictional environmental performance has the potential to more quickly reach scale for zero-deforestation commodities than individual, farm-level certification. This should be particularly appealing to markets that demand “zero net deforestation” supply chains, such as companies in the Consumer Goods Forum. These companies struggle to find efficient ways to transform their massive operations into “zero net deforestation” supply chains, in addition to the difficulty of measuring and ensuring that supply chains are in compliance.

### Attracting Climate Finance and Catalyzing Private Sector Investment

The incentive for Colombia to realign its agricultural finance could be the opportunity to attract new sources of climate finance (see Box 5 for our definition of climate finance) from international donors such as the United Kingdom, Germany, and Norway, especially as donors are keen to support development that both decreases emissions and advances rural livelihoods. Such finance could support the testing and development of the new financial products outlined above, and the successful

#### Box 4. Payments for Ecosystem Services (PES) as Collateral

Farmers might be allocated PES for investing in sustainable agriculture practices. A lender could be allowed to secure a contractual right to receive the PES at the moment of delivery, as a tier of security, in exchange for provision of debt finance. Such security would have the effect of reducing counterparty default risk. In this way, Payment for Performance for carbon or ecosystem services would not only provide additional funds that value public goods but also would efficiently reduce risks and lower the cost of capital.

Edwards, Rupert, David Tepper and Sarah Lowery. *Jurisdictional REDD+ Bonds: Leveraging Private Finance for Forest Protection, Development and Sustainable Agriculture Supply Chains*. Forest Trends’ Public Private Co-Finance Initiative. February, 2014.

#### Box 5. Climate Finance

There is no internationally agreed-upon definition of what qualifies as climate finance.<sup>a</sup> In this paper, we define climate finance to be funds committed or spent by the public sector on climate change mitigation or adaptation activities.

<sup>a</sup> Buchner, Barbara et al. *The Global Landscape of Climate Finance 2013*. Climate Policy Initiative. October 2013.

<sup>33</sup> Stable, Marcelo, Andrea Azevedo, and Daniel Nepstad. “Brazil’s “Low Carbon Agriculture” Program: Barriers to Implementation.” IPAM, 2009.

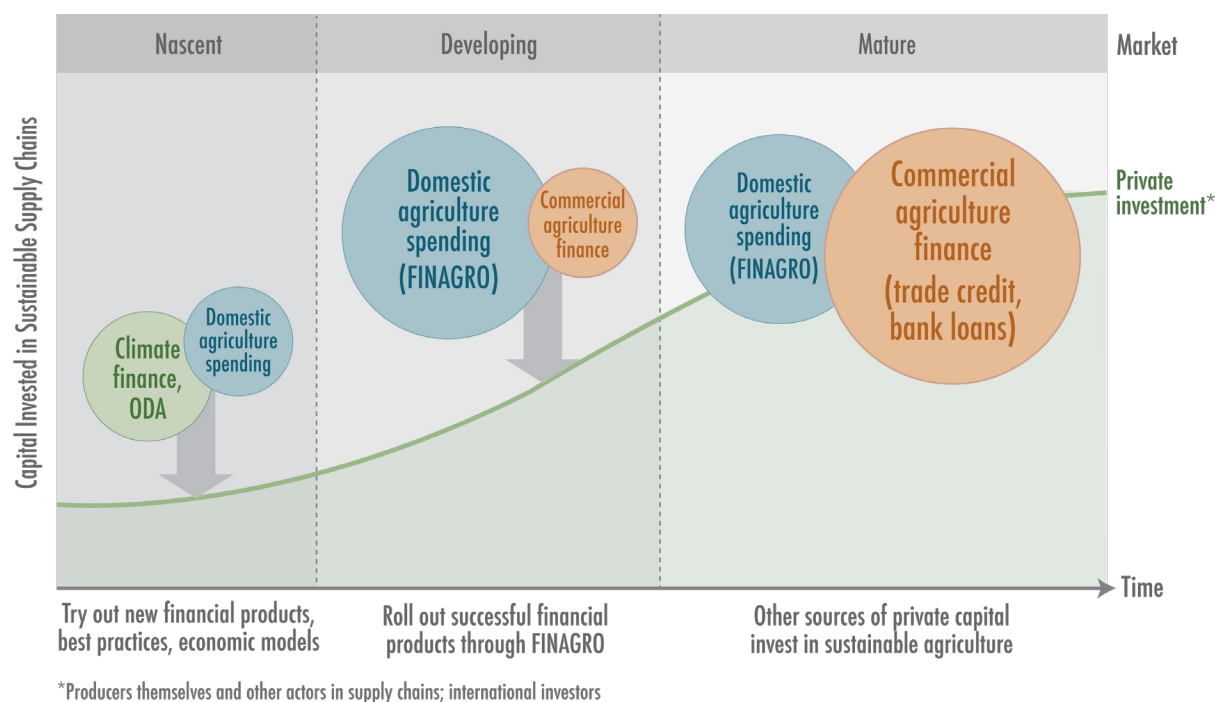
<sup>34</sup> Bernhardt, Jennifer, Stephanie Grell Azar and Janette Klaehn. “Technical Guide. Integrated Financing for Value Chains: Credit unions fill the agricultural lending gap and create market linkages.” World Council of Credit Unions, 2009.

products could be rolled out through FINAGRO at a larger scale, drawing greater private sector investment (e.g., farmers, ranchers, processors, etc.) into sustainable agriculture. As sustainable agriculture models further develop, markets for sustainable commodities advance and demand increases, then greater amounts of private sector investment – including from traders, commercial credit institutions, equity investors – will likely be attracted to this space (see Figure 5). This would be a real win for both Colombia and donors.

### Timely Opportunity

Now is a critical moment for Colombia to realign its finance and address barriers to investment in sustainable agriculture, especially as FINAGRO just signed the Green Protocol (*Protocolo Verde*), a cooperative agreement between the National Government and the Financial Sector that seeks to generate environmental and social benefits. As part of the Protocol, the financial sector commits to promote different financing conditions (rate, term, grace period, eligibility criteria, etc.) for projects with social and environmental benefits, and the national government will encourage the creation of lines of finance for the implementation of programs/projects in sustainable production/consumption systems that help reach external markets. FINAGRO would be able to fulfill its commitment under *Protocolo Verde* by testing and then rolling out innovative new financial products designed to encourage and reward sustainable production, which can in turn catalyze greater investment by commercial banks and private investors in this space.

**Figure 5. Public Finance Can Stimulate Greater Private Sector Investment in Sustainable Agriculture (Illustrative Example)**



### Beyond Colombia

Colombia is just one of many countries that has the potential to realign its public domestic support for agriculture to provide incentives for sustainable agriculture. Recall that USD 160 billion is spent by domestic public sectors on agriculture in a portion of low- and middle-income countries, and this does not even include some nations such as

Brazil, which spent USD 50 billion on agriculture in 2012.<sup>35</sup> These are very substantial pools of capital that could be unlocked to support sustainable agriculture and supply chains. The ability of agricultural finance to successfully support sustainable production in other countries may be better when the local setting includes:

- **A high cost of capital and other access-to-finance constraints such as uncertain land tenure.** If a large percentage of rural populations cannot access capital at reasonable interest rates, they may be particularly interested in concessional finance that is tied to environmental outcomes. Access to capital issues are often correlated with large smallholder populations, which can have particular difficulty accessing credit; for instance, cattle ranching in Colombia is predominantly smallholders – 82% of ranchers have less than 50 animals per farm<sup>36</sup> – many of whom cannot access traditional FINAGRO finance. In contrast, 80-90% of oil palm producers in Indonesia are medium or large companies,<sup>37</sup> which have better access to capital. Thus, new financial products in Colombia that address access to capital constraints will likely have a greater effect on productivity and reduced emissions than similar products in Indonesia.
- **Commitments at the landscape, regional and/or national level to reduce deforestation.** Large reductions in deforestation will come from curbing agricultural expansion into forests, so positive financial incentives to intensify production *and* conserve forests can help jurisdictions reach their REDD+ commitments.

In addition to these conditions, other attributes that may facilitate successful realignment include: a public finance system that is willing to offering concessional finance to foster sustainable practices; credit institutions who want to work with the public and agricultural sectors to offer relevant products; pilots and demonstrations of best practices that increase production and/or decrease emissions such that these can be targeted through concessional finance products; organizations that offer competent technical assistance in best climate-smart agricultural production practices; strong working relationships between Ministries of Agriculture – which design public agriculture support – and Ministries of Environment – which develop strategic plans to reduce deforestation and often help create and implement MRV systems.

## Complementary Approaches and Concluding Thoughts

It is worthwhile to mention again that this approach of realigning domestic public agriculture finance can help address traditional financing barriers in the agriculture sector, as well as specific barriers to sustainability such as higher upfront costs and cash flow constraints, both of which are substantial sets of barriers especially in developing countries. This approach can importantly harness large existing pools of capital, and it is critical that technical assistance and the strengthening of supply chains accompany enhanced financial products in order to achieve long-term results on the land.

But the approach outlined above does not explicitly tackle the opportunity cost of standing forests, which is even higher when productivity increases. To deal with this issue, we suggest hinging concessional finance very clearly on emissions and forest outcomes. And we anticipate that producers/supply chain actors who choose sustainability and also become certified – e.g., by a commodity roundtable certification – will likely continue sustainable production so they can continue to meet buyer sustainability requirements, even if opportunity costs for standing forests rise.

Nonetheless, there will be continued investment into – and economic activity around – clearing forests or destroying other ecosystems (e.g., peat bogs) to plant crops and raise livestock. Large companies with easy access to capital and no incentives from their buyers to deliver sustainable goods will likely continue with business as usual. Also, small farmers who deforest and raise cattle or crops primarily to show a claim to the land will be less likely participants in

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<sup>35</sup> Nepstad, Daniel, Sylvia Irawan, Tathiana Bezerra, et al. “More food, more forests, fewer emissions, better livelihoods: linking REDD+, sustainable supply chains and domestic policy in Brazil, Indonesia and Colombia.” *Carbon Management* (2013) 4(6), 639-658.

<sup>36</sup> World Bank 2009 – See supra note 17.

<sup>37</sup> Interview with Earth Innovation Institute’s Sylvia Irawan. December, 2013.



this approach. And of course there will always be users of land who cannot gain access to credit, no matter what the approach to collateral/guarantees may be.

Because of this, complementary approaches to realigned finance are also very much needed; for instance, a national framework for REDD+ that includes regulation, strict forest protection, fire prevention, and other mechanisms such as PES to farmers and/or government-to-government PFP for meeting national targets for REDD+ (which could provide funds to support all of these approaches). It is through this type of holistic, multi-pronged approach that deforestation must be combated. While not the only solution, integrated and aligned finance can greatly facilitate a transition to sustainable rural development.



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