



# REDD+ and Agricultural Supply Chains

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## 1. Introduction

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The growing recognition of the importance of reducing emissions from deforestation and forest degradation in developing countries (REDD+) has created new momentum in the fight against deforestation. In 2010, over 190 countries supported the Cancun Agreements adopted under the UN Framework Convention on Climate Change (UNFCCC) recognizing the importance of tackling deforestation as a means to mitigate climate change. So far, many developing countries have started to get “ready” for reducing forest-related emissions by building local capacities; strengthening institutions and land use emissions inventories; and designing national REDD+ strategies. While these efforts are essential for supporting the long-term protection of forests in developing countries, it is essential to also address the main drivers of deforestation—many of which are outside the forest sector—without further delay.

Agriculture is the main driver of deforestation in many countries and therefore is intrinsically connected to REDD+. Public-private partnerships in and around supply chains can generate emission reductions from REDD+ while also helping developing countries improve the sustainability of their agricultural sectors. According to a study by World Wildlife Fund, about 200 global companies control 50% of the international trade of the 15 commodities with the greatest impacts, and about 100 global companies touch 25% of the international trade of these commodities.<sup>1</sup> This WWF study suggests that if these companies commit to making their supply chains more sustainable, they can lead a change in behavior faster than change led by end consumers. In other words, if these key companies change, others are likely to follow.

Sustainable supply chains can ensure that agricultural products are not responsible for deforesting or degrading valuable forests and that they are produced using climate-smart practices. Changes in supply chain practices can contribute to avoid emissions from deforestation and forest degradation, sequester carbon in soil, increase local resilience to climate change, and increase food security. This paper aims to explore these links between sustainable supply chains and systems that create incentives for REDD+.

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<sup>1</sup> Clay, J., 2009. Balancing the budget: demand exceeds the Earth’s supply.. Sustainable Goods and Services, World Wildlife Fund, WWF. Available at: <http://www.worldwildlife.org/what/globalmarkets/balancing-the-budget.html>, last accessed on December 5<sup>th</sup>, 2011.

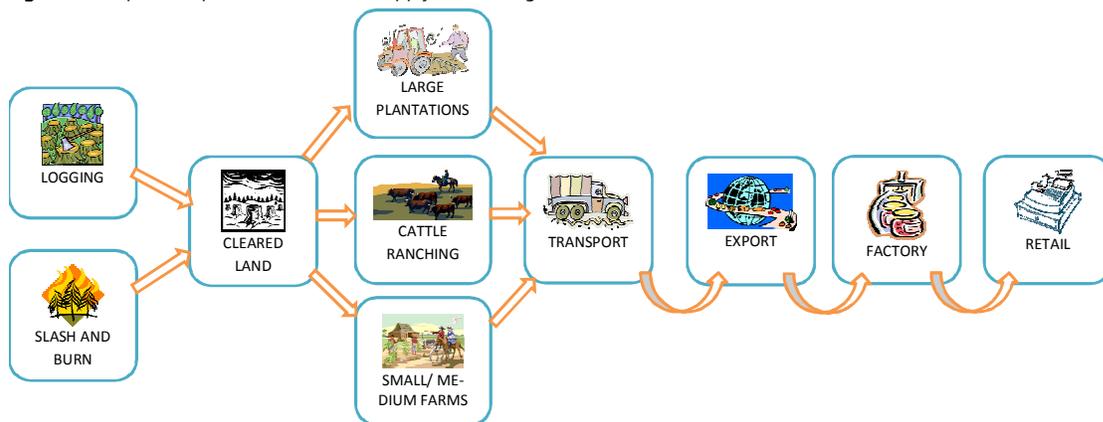


This paper is structured as follows: Section 2 analyzes the impact agricultural goods and commodities have on tropical deforestation. Section 3 examines the initiatives to reduce environmental impacts across supply chains. Section 4 concludes with a case study assessment of the opportunities for further fostering such initiatives under an emerging REDD+ incentive system.

## 2. Agricultural Commodities and Forests

Agricultural products are widely recognized as the main drivers of tropical deforestation. In the process of getting ready for REDD+ and developing their national strategies,<sup>2</sup> 16 out of 20 developing countries have identified agriculture as the primary driver of deforestation and forest degradation.<sup>3</sup> In many developing countries forest land is cleared for planting crops and cattle ranching. These operations are cheap and often illegal. Further, rules, where they exist, are not always enforced effectively. The harvested commodities are exported and processed around the globe. Most consumers are unaware of the impact that the products they consume have on tropical forests and on the global climate (see Figure 1).

**Figure 1:** Graphical representation of the supply chain of agricultural commodities



It is often difficult to quantify the extent to which agricultural commodities have been a direct cause of deforestation because of the lack of reliable data on land-cover change and an incomplete understanding of deforestation's complex causes. Land may be initially deforested for other reasons and then subsequently planted with crops or used for cattle ranching. Since most agricultural consumer goods go through a long process of commoditization, companies often disregard the environmental impacts associated with the primary resources used in the production. Most carbon footprint reporting

<sup>2</sup> As part of the readiness for REDD process 37 countries have been selected to be part of the Forest Carbon Partnership Facility (FCPF). As of June 2011, 26 countries have already prepared their Readiness Preparation Proposal (R-PP). For more information please see:

<http://www.forestcarbonpartnership.org/fcp/>, last accessed on July 6, 2011.

<sup>3</sup> Kissinger, G. 2011. Linking forests and food production in the REDD+ context. CCAFS Working Paper no. 1. CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS). Copenhagen, Denmark. Available online at: [www.ccafs.cgiar.org](http://www.ccafs.cgiar.org), last accessed on July 1, 2011.



standards only include emissions from direct land-use change. Consequently, emissions from land-use change are not routinely included in the supply chain and life cycle assessments of agricultural consumer goods and commodities. This omission leads to substantial underestimates of food products' total impact on tropical deforestation and climate change.<sup>4</sup> Annex I to this paper provides a summary of the impact of beef, soy, and palm oil, the three most important agricultural drivers of deforestation, on tropical forests.

## 3. Synergies between Sustainable Supply and REDD+

Sustainable supply chains provide an opportunity to think about the role of demand-side interventions to reduce the production of commodities on the forest frontier. Measures to slow deforestation, including governance and forest-sector reforms, can only be successful when they are coupled with actions that address the demand for produce linked to the main drivers of deforestation. High prices for agricultural commodities combined with the low risks involved in illegal operations, may overwhelm or offset the positive results of REDD+ policies.

Linking existing and new initiatives that address the carbon impact of global supply chains with REDD+ provides an opportunity to tap into new sources of finance that reward emission reductions from deforestation. The performance-based logic of REDD+ finance and the application of GHG monitoring can increase the transparency of supply chain interventions and provide a measure of effectiveness for various projects, policies, and programs. Governments may promote private initiatives to reduce the carbon impact of agricultural products and support the adoption of more sustainable production practices. REDD+ can help to scale existing private action and support a broader shift in government and company policies. By creating incentives for shifting agricultural production to degraded lands, fostering and supporting the use of certification schemes, and supporting integrated commercial operations, governments can support changes in the agriculture sector that result in decreased deforestation. In the following sub-sections we provide examples of how efforts to reduce GHGs in agricultural supply chains support REDD+ and vice-versa.

### 3.1. Enhancing corporate engagement

Many companies have, over the last decade, invested in changes to their supply chain to improve their sustainability. Change was generally driven either by consumer pressure or by a strategic view of the company—that there is a shifting change in the attitude of the market, or that sustainability can help ensure future predictability of the supply of needed commodities for their products.<sup>5</sup> This change usually starts with an assessment to determine what commodities in the supply chain are linked to

<sup>4</sup> Cederberg, C, et. al., 2011. Including carbon emissions from deforestation in the carbon footprint of Brazilian beef. Policy Brief, Environmental Science and Technology. Available at: <http://www.ibcperu.org/doc/isis/13743.pdf>, last accessed on December 5<sup>th</sup>, 2011.

<sup>5</sup> For more 'best practices' examples please see: [http://www.business-and-biodiversity.de/en/handbook/best-practice-examples.html#letter\\_W](http://www.business-and-biodiversity.de/en/handbook/best-practice-examples.html#letter_W), last accessed on December 5<sup>th</sup>, 2011.



## CLIMATE FOCUS

negative environmental impacts such as deforestation; what is the extent of this impact; and, what can be done to reverse it. Initiatives such as the Forest Footprint Disclosure project help corporations estimate their forest carbon footprint and improve their environmental performance (see Box 1).

**Box 1:** Forest Footprint Disclosure project of the Global Canopy Foundation.

Initiated in 2008 the Forest Footprint Disclosure (FFD) project was designed to improve corporate understanding of the 'forest footprint' generated by the production of commodities most responsible for deforestation: soy, palm oil, timber, cattle products and biofuels. FFD designed a request for company policies on sustainable supply chains for these key products and in June 2010 sent it to 285 international companies worldwide. Each company participating receives a feedback report to encourage higher scoring in future years. The second Annual Review describes the findings of the disclosure request based on responses from 78 participating companies and provides some context on the current issues and concerns for forest risk commodities.<sup>6</sup>

Investments by multinational corporations to improve their supply chain sustainability by either helping suppliers or changing the companies' practices on the ground will likely pay off with a more secure, efficient and productive commodity supply. It helps the company to be prepared ahead of legislation and to take advantage of a niche market for environmentally-conscious goods. In this process, companies need to form alliances: among themselves and with NGOs, research organizations and local communities. Outsourcing arrangements and interdependencies between private companies and preferred and trusted agricultural goods suppliers are commonplace<sup>7</sup> as companies develop mutual commitments to long-term linkage based on trust, shared risks and rewards along supply chains.<sup>8</sup>

Companies that trade and use agricultural products and are committed to building a sustainable supply chain often not only require a certain standard, but also actively assist in achieving such standard. They often take additional initiative by training and auditing their suppliers (see Box 2 and 3). It is important for companies committed to making their supply chain more sustainable, to monitor progress by performing a baseline analysis of sources and conducting annual monitoring of implementation. Throughout this process, both stakeholders and consumers need to be informed – transparency is crucial for the success of this strategy.

**Box 2:** Walmart's sustainability policy for agricultural products

Walmart's sustainability program was launched in 2005 with the goal to be 100% supplied by renewable energy; create zero waste; and, sell products that sustain people and the environment. As the largest retailer in the world, Walmart has substantial influence over its suppliers, and has broadly used that power to achieve its sustainability goals. Walmart has created its own sustainability index to create a more transparent supply chain;

<sup>6</sup> For more information see: [http://www.forestdisclosure.com/docs/FFD\\_annual\\_review\\_2010.pdf](http://www.forestdisclosure.com/docs/FFD_annual_review_2010.pdf), last accessed on December 5<sup>th</sup>, 2011.

<sup>7</sup> Duffy R, Fearn A. Partnerships and alliances in UK supermarket supply networks. In: Bournakis M.A, Weightman P.W.H, editors. Food supply chain management. Blackwell Publishing Ltd; Oxford, UK: 2004. pp. 136–152.

<sup>8</sup> Allinson J. Procurement in the food and drink industry in the early 21st century. In: Bournakis M.A, Weightman P.W.H, editors. Food supply chain management. Blackwell Publishing Ltd; Oxford, UK: 2004. pp. 136–152.



## CLIMATE FOCUS

accelerate the adoption of best practices by its suppliers (over 100,000 globally); and, provide customers with the information they need about Walmart's products.<sup>9</sup>

Walmart states that it is committed to sustainable agriculture and making a positive difference in food production and has set goals to be completed by the end of 2015 that will help small- and mid-sized farmers expand their businesses, get more income for their products and reduce the environmental impact of farming. In 2010, the company released its global sustainable agriculture strategy, based on three focus areas: (i) support farmers and their communities through training and increasing income of small and medium farmers by 10-15%, (ii) produce more food with fewer resources and less waste, and (iii) require sustainably-sourced palm oil for all private brand products globally and only source beef from Brazil that does not contribute to deforestation by the end of 2015.<sup>10</sup>

### Box 3: Mars Inc. sustainable cocoa production in Ghana

Mars Inc., in partnership with the US Agency for International Development (USAID) and the World Cocoa Foundation, has invested in research and distribution of tree seedlings to enable farmers in Ghana to grow disease resistant high yield trees. The program offers farmers a chance to attend field schools to learn about improved cultivation of cocoa and marketing practices. These sustainable farm practices allow farmers to increase productivity while reducing their impact on the environment. Mars Inc. received the Secretary of State's Award for Corporate Excellence in December 2010 for its leadership in helping farmers to produce better yields and to adopt a forward-looking supply strategy.<sup>11</sup>

Mars Inc. also participates in the Sustainable Tree Crops Program (STCP), a public-private partnership between the cocoa and chocolate industry and government supporters. This program, operating in West Africa, has successfully promoted farmers' organizations and co-operatives leading to improvements designed to help farmers achieve better prices for their cocoa. Through its Farmer Field Schools Program, the STCP has helped farmers achieve increased yields by improving farming techniques. In addition, Mars is a member of the World Cocoa Foundation (WCF), a global organization of cocoa and chocolate companies, processors, traders and others who are dedicated to improving the conditions of cocoa farmers and the communities in which they live. WCF programs raise farmer incomes; encourage responsible, sustainable cocoa farming; and, help strengthen cocoa farming communities. Members provide financial contributions as well as technical expertise and guidance to partners in West Africa and other program locations.<sup>12</sup>

REDD+ can support existing incentives and create new ones in future corporate efforts:

- Many of the institutional reforms that will be implemented for getting countries ready for REDD+ (i.e. land tenure reforms, removal of perverse fiscal and regulatory incentives, etc.) will also ease the process of shifting the agricultural sector towards more sustainable practices.

<sup>9</sup> For more information see: <http://walmartstores.com/sustainability/9292.aspx>, last accessed on December 5<sup>th</sup>, 2011.

<sup>11</sup> For more information see: <http://www.afrik-news.com/article18594.html> last accessed on November 22, 2011.

<sup>11</sup> For more information see: <http://www.afrik-news.com/article18594.html> last accessed on November 22, 2011.

<sup>12</sup> Mars Inc website: <http://www.mars.com/korea/en/commitments/sustainability/cocoa-sustainability.aspx>, last accessed on July 27, 2011. Afrik News, December 2010. Ghana: Mars Inc. awarded for promoting sustainable cocoa production. Available at: <http://www.afrik-news.com/article18594.html>, last accessed on December 5<sup>th</sup>, 2011.



## CLIMATE FOCUS

Private companies should work in close collaboration with the government to support these reforms.

- REDD+ funds can support agricultural extension provided by private or public actors by focusing on climate impacts of particular practices as well as promoting practices that increase climate resilience.
- REDD+ finance can play an important role supporting initiatives to build capacity and train farmers and local organizations.
- Private companies can also work with governments in formulating and implementing local requirements and standards that address direct linkages between agricultural production and deforestation. These partnerships can support public or private moratoriums on sourcing products related to deforestation (see Box 4 for the soy moratorium in Brazil).
- Governments can also support contract farming that is linked to reduced GHG impacts. If appropriately structured, contract farming can reduce the transaction costs and risks facing smallholders, while simultaneously providing greater access to financial capital, technology, and extension services.
- Private companies can work with national and local governments to create low transaction cost insurance mechanisms to safeguard smallholder farmers against losses in outputs. This would incentivize smallholders to increase production intensity.
- The REDD+ spatial zoning plans (integrated land-use planning) can support the decisions for allocation of investments in agricultural practices per different geographical areas.

### Box 4: Soy Moratorium

In 2006 the Brazilian Vegetable Oil Industry Association (ABIOVE) and the Brazilian Grain Exporters Association (ANEC), pledged not to trade soy produced from newly deforested areas in the Amazon. This initiative was a response to pressure from agricultural giants such as Cargill, Archer Daniels Midland Co., Bunge Ltd., Dreyfus and Amaggi – who themselves were facing pressure from advocacy groups such as Greenpeace. The Soy Moratorium has contributed to reduced land conversion within the Amazon region. Results of verification studies using satellite-based mapping and monitoring were officially announced at the Ministry of the Environment in Brasília in April 2009, and showed that in 630 selected areas in which some deforestation had taken place since July 2006, soy was being grown in only 12.<sup>13</sup> It is nevertheless important to note that recently most expansion for soy production has taken place on cattle pasture, thus pushing cattle ranchers into new areas, indirectly contributing to more deforestation. More analysis is needed to determine the extent of this impact that soy production has on deforestation.

## 3.2. Supporting transparency and certification

Over the last decade, a number of standards and voluntary certification schemes have been developed to assess the ecological impact of major agricultural commodities. These voluntary schemes are important tools to inform consumers about the impact of the products they purchase. Already, several agricultural certification organizations promoting sustainable or socially-conscious products have

<sup>13</sup> Forest Footprint Disclosure, 2011. For more information see: <http://www.forestdisclosure.com/page.asp?p=4724>, last accessed on December 5<sup>th</sup>, 2011.



## CLIMATE FOCUS

become well established, including Rainforest Alliance and UTZ Certified (see Box 5). Further, Fair Trade products have been increasingly recognized among chocolate and coffee-lovers. To date however, few labeling schemes have explicitly incorporated climate standards.<sup>14</sup> Estimating lifecycle emissions of products remains a complex and evolving science where practicality and environmental integrity have yet to be balanced. Therefore, most standards focus on the emissions associated with a particular step in the supply chain.

### **Box 5:** Criteria for the Mitigation of and Adaptation to Climate Change

In February 2011, Rainforest Alliance and the Sustainable Agriculture Network (SAN) unveiled a new Climate Module: “Criteria for the Mitigation of and Adaptation to Climate Change” that aims to make farmers more aware of the impacts of climate change and to promote the adoption of good agricultural practices that reduce GHG emissions, increase carbon sequestration and enhance the capacity of farms to adapt to climate change. These new criteria reinforce the sustainable practices that are already required by Rainforest Alliance certified farms and highlight those activities that have demonstrated the greatest climate change mitigation and adaptation benefits. To meet the SAN climate standard farms cannot destroy natural ecosystems for the purposes of farm management after 2005, which leads to avoided emissions of greenhouse gases. Certified farms are required to maintain at least 12 native species of trees per hectare and a canopy cover of 40 per cent. To get certified, many farms plant more trees, sequestering carbon. The SAN worked to draft criteria that are rigorous, accessible and easy to implement for farmers in tropical countries; and, that will contribute to the REDD+ objectives and result in substantial long-term climate benefits.<sup>15</sup> Certified products in the US and Europe include bananas, coffee, tea, chocolate and juices.

Examples of demand-driven initiatives include supermarket chains, with companies such as Tesco providing an increasing number of products with carbon labels.<sup>16</sup> France has new legislation under development that would make carbon labeling mandatory for a range of products.<sup>17</sup> European-wide sustainability criteria for biofuels, which entered into force in December 2010, contain requirements directly linked to the product’s carbon footprint. Given the wide range of standards and methodologies in place or being developed, the International Standards Organization (ISO) plans to launch an international carbon footprint standard, ISO 14067, towards the end of 2011.<sup>18</sup> This initiative could help reduce the risk of promotion of the race to the bottom that the proliferation of various standards can create. Another example of demand-driven initiative is the commitment made by the Belgium and Dutch governments to only import sustainable oil palm and soya by 2015.

<sup>14</sup> The supermarket Tesco in the United Kingdom is one exception, while France has new legislation under development that would make carbon labeling mandatory for a range of products. The International Standards Organization (ISO) is also planning to release an international carbon footprint standard (ISO 14067) at the end of 2011 (Campbell et al. 2011; Brenton et al. 2009).

<sup>15</sup> SAN website: <http://sanstandards.org/sitio/subsections/display/9>, last accessed on July 26, 2011.

Rainforest Alliance: <http://rainforestalliance.com/agriculture>, last accessed on July 26, 2011.

<sup>16</sup> Steenblik, R and Moise, E (2010), “Counting the Carbon Emissions from Agricultural Products: Technical Complexities and Trade Implications” . .

<sup>17</sup> Steenblik, R., and E. Moise. 2010. Counting the Carbon Emissions from Agricultural Products: Technical Complexities and Trade Implications. Policy Brief. Washington: International Food and Agriculture Trade Policy Council. France’s draft law (Grenelle II, Article 85), <http://www.nosdeputes.fr/loi/2449/article/85> <http://www.nosdeputes.fr/loi/2449/article/85>.

<sup>18</sup> Meridian Institute, Agriculture and Climate Change, Scoping Report. Washington DC, 2011.



## CLIMATE FOCUS

Driven by producers, environmental NGOs, and retailers, roundtables promoting sustainable production standards can also steer investments to agricultural producers that use of sustainable practices (Box 6).

### **Box 6:** The Roundtable on Sustainable Palm Oil (RSPO)

The RSPO was formed in 2004 to “promot[e] the growth and use of sustainable oil palm products through credible global standards and engagement of stakeholders” (RSPO 2009). To achieve this goal, the RSPO developed 39 sustainability criteria across eight general principles related to environmental, social, and legal concerns. Despite the inclusion of several environmental and social/development organizations among its members, the RSPO certification has been targeted by NGOs and the media for slow progress in creating a sustainable palm oil supply chain. Nevertheless, since 2004, RSPO membership has grown by over 500%. With the increasing demand for certified palm oil over the last few years, RSPO continues to expand, but so far only 40-50% of certified sustainable palm oil (CSPO) on the market is being bought. So far the companies that have announced a commitment to buy only CSPO by 2015 have yet to put it into practice.<sup>19</sup> Sellers of CSPO do not always receive a premium price for their products, which reduces the incentives for going through the certification process.

Recently the RSPO has attempted to bring the smallholder sector into sustainable production through the establishment of an escrow fund that will help to alleviate start-up costs. RSPO is also actively recruiting new members in Africa and Latin America.<sup>20</sup>

Although these schemes could provide opportunities for positive product differentiation, they have also raised concerns related to equity and cost of compliance for developing countries confronted with a multiplicity of standards.<sup>21</sup> While certification provides significant benefits for farmers where premiums are paid for certified products, requirements for certification are not without risks for poor suppliers from developing countries, which often lack the resources and capacity to apply new processes and standards. Different criteria may confuse consumers, undermining the effectiveness of these initiatives. Future schemes will need to balance the need for accurate and useful data with the need to be simple, transparent and involve sufficiently low transaction costs to include small countries and producers.<sup>22</sup>

REDD+ can support existing and new certification efforts and address some of the concerns expressed by developing countries relating to environmental standards:

<sup>19</sup> For more information see:

[http://wwf.panda.org/what\\_we\\_do/footprint/agriculture/palm\\_oil/solutions/responsible\\_purchasing/scorecard2011/](http://wwf.panda.org/what_we_do/footprint/agriculture/palm_oil/solutions/responsible_purchasing/scorecard2011/), last accessed on December 15<sup>th</sup>, 2011.

<sup>20</sup> Laurance, W.F., Koh, L.P., Butler, R., Sodhi, N.S., Bradshaw, C.J.A., Neidel, J.D., Consunji, H., and J.M. Vega. 2009. Improving the Performance of the Roundtable on Sustainable Palm Oil for Nature Conservation. *Conservation Biology* 24(2): 377-381.

RSPO website: <http://www.rspo.org/>

Teoh, C.H. 2010. Key Sustainability Issues in the Palm Oil Sector. The World Bank. Available at:

[http://siteresources.worldbank.org/INTINDONESIA/Resources/226271-1170911056314/Discussion.Paper\\_palmoil.pdf](http://siteresources.worldbank.org/INTINDONESIA/Resources/226271-1170911056314/Discussion.Paper_palmoil.pdf)

<sup>21</sup> Meridian Institute, Agriculture and Climate Change, Scoping Report. Washington DC, 2011.

<sup>22</sup> ICTSD, 2011. Submission on information and view relating to modalities for the operationalization of the work programme and a possible forum on responses measures. Global Platform on Climate Change, Trade and Sustainable Energy of the International Centre for Trade and Sustainable Development (ICTSD). Available from:

<http://unfccc.int/resource/docs/2011/smsn/ngo/286.pdf>, last accessed on December 5<sup>th</sup>, 2011.



## CLIMATE FOCUS

- REDD+ finance can help set up transition funds that support certification, where it supports forest protection and where farmers lack resources to do so. Transition cost subsidies, could be used to cover start-up transaction costs that might otherwise prevent poor smallholders from participating in certification schemes.
- In partnership with local farmer organizations and agricultural companies, governments may set up funds that cover the costs of certification. Support can come in the form of grants or loans. Where premium payments reward certification and improved practices, farmers could then repay the funds received with potential revenue from REDD+, replenishing the original fund so that it can continue support new entrants.
- REDD+ finance can support the participation of smallholders in initiatives that seek to formulate sustainable production standards (such as the roundtable for sustainable palm oil or the roundtable for sustainable soy).

### 3.3. Create incentives for changed practices

Large, coordinated efforts involving multiple parties, focused around a specific value chain may be one way to leverage significant and scaled-up investment (see Box 7 for an example). Based on this assumption, projects that guide large scale public and private investments toward specific regions and areas of high agricultural potential are currently being developed.<sup>23</sup>

#### **Box 7:** Sustainable Agriculture Initiative Platform<sup>24</sup>

In 2002 Nestlé, Unilever and Danone created the Sustainable Agriculture Initiative (SAI) Platform, a non-profit organization to facilitate sharing, at precompetitive level, of knowledge and initiatives to support the development and implementation of sustainable agriculture practices involving the different stakeholders of the food products supply chain. This Platform is a food industry initiative supporting the development of sustainable agriculture worldwide. The initiative gathers and develops knowledge on sustainable agriculture and then shares it with all interested parties to reach common understanding of the concept and of its long-term implications. This Platform has an inclusive approach, taking into account any valuable initiatives and concepts, for instance elements from both integrated and organic farming, as far as they contribute to sustainable agriculture. Among the activities fostered by this Platform are:

- Building capacity on sustainable agriculture by developing principles and practices for the sustainable production of arable and vegetable crops, coffee, dairy and fruit; testing these best practices through pilot projects in Africa, America, Asia and Europe; benchmarking these principles and practices against the guidelines and recommendations from all major schemes and initiatives; compiling practical tools for farmers to successfully implement sustainable practices.
- Communicating about sustainable agriculture by making most of SAI Platform's activities, findings and publications widely accessible; holding annual conferences on sustainable agriculture; providing a two-day executive training on rolling out sustainability in the food chain.

<sup>23</sup> Hebebrand, C. 2011. Leveraging Private Sector Investment in Developing Country Agrifood Systems. Policy Paper Series. The Chicago Council on Global Affairs.

<sup>24</sup> For more information see: <http://www.saiplatform.org/activities/sai-in-actions>, last accessed on November 23, 2011.



## CLIMATE FOCUS

Two pilot growth corridor investments that have undergone multiple feasibility studies and investment plans since 2010 – the Beira Agricultural Growth Corridor in Mozambique and the Southern Agricultural Corridor of Tanzania – include smallholders in their target group and are calling for several billion dollars of private and public investment, involving many large transnational corporations, small and medium businesses, multilateral institutions, NGOs/universities and government agencies (see Box 8 for details).

### **Box 8:** Developing agricultural growth corridors<sup>25</sup>

The investment blueprint for the Beira Agricultural Growth Corridor (BAGC) was launched in 2010. The Beira corridor is the gateway to South East Africa, linking inland areas of Zambia, Malawi, Zimbabwe, and Mozambique by road and rail networks to shipping facilities at the Indian Ocean at Beira. The project aims to boost agricultural productivity in Mozambique and the wider region through significant investments in agriculture-supporting infrastructure, particularly irrigation. The blueprint aims to increase farmer revenue to more than US\$1 billion per year through vastly improved fields, lower operating costs, and better access to domestic and global markets. The BAGC report shows that \$250 million of patient capital could induce private investment in Mozambique of more than US\$1 billion, while creating more than 350,000 new jobs over a 20 year period. This would benefit more than 200,000 smallholder households, many of which would gain access to affordable irrigation.

The investment blueprint for the Southern Agricultural Growth Corridor of Tanzania (SAGCOT) was launched in January 2011, and aims to harness the agricultural potential of Tanzania through links to the port of Dar es Salaam, and to the neighbouring countries of Malawi, Zambia, and the Democratic Republic of Congo. The project calls for developing six clusters of profitable, small-, medium- and large-scale farms and associated agribusinesses, centred in areas of particularly high agricultural potential. Among other objectives, the SAGCOT blueprint seeks to commercialize smallholder production by incentivizing stronger connections between smallholders and commercial agribusiness. To accomplish this, the blueprint calls for “hub and outgrower” schemes, in which smallholders in the vicinity of large-scale farms will be allowed to access inputs, extension services, value adding facilities and markets. The blueprint aims to convert tens of thousands of smallholders into commercial farmers with access to irrigation and weather insurance, while lifting more than two million people permanently out of poverty by 2030.

National REDD+ strategies are likely to include land-use zoning and intensification schemes to reduce the pressure on natural forests. Enhanced productivity may be achieved by efforts to increase soil carbon levels, improving the sustainability of agricultural production systems.<sup>26</sup> Soils of croplands taken permanently out of production and allowed to revert to native vegetation eventually could reach carbon levels comparable to their pre-cultivation condition. Currently, only half of the conversion of tropical forests to agriculture contributes to an increase in productive cropland. The only way to break out of this cycle is by fostering sustainable use, improved productivity of existing farmland, and better protection of native ecosystems. These practices could help reduce agricultural expansion (hence deforestation) in tropical areas, especially in Latin America and Africa.<sup>27</sup>

<sup>25</sup> Hebebrand, C. 2011. Leveraging Private Sector Investment in Developing Country Agrifood Systems. Policy Paper Series. The Chicago Council on Global Affairs.

<sup>26</sup> For more information see: [http://www.ipcc-wg2.gov/publications/SAR/SAR\\_Chapter%2023.pdf](http://www.ipcc-wg2.gov/publications/SAR/SAR_Chapter%2023.pdf), last accessed on November 23, 2011.

<sup>27</sup> For more information see: <http://www.gcrao.org/ipcc/techrepl/agriculture.html>, last accessed on November 23, 2011.



Studies by the Brazilian Agricultural Research Corporation (EMBRAPA) indicate that the restoration of degraded lands could allow for 100 million heads of cattle to be raised on 40 million ha of pasture, a 42% increase in the herd size compared to 2007, and a 35% reduction in land use compared to 2006. However, the lack of investment in Brazil in the restoration of degraded pastures and the lack of incentives for small-scale production are major barriers for the implementation of more sustainable cattle-ranching practices.<sup>28</sup> There are therefore opportunities for synergies between sustainable supply chain initiatives and REDD+ activities, either by sharing knowledge or by addressing some of the barriers to investments in enhanced productivity. Agricultural intensification and increased productivity are important measures to reduce costs and increase the efficiency of supply chains. It is nevertheless important that intensification initiatives are closely monitored and managed as careless intensification may also lead to land degradation and more rather than less deforestation.

REDD+ can support these shifts in production in the following ways:

- REDD+ readiness processes can help to define strategies and policies that seek to reduce emissions from deforestation and forest degradation through reduced pressure from agriculture.
- Where a clear link to deforestation can be established and up-front financing is not needed, REDD+ finance can be used to make payments for environmental services for sustainable agricultural practices (e.g. increased land productivity reducing the pressure over natural forests).
- REDD+ MRV systems may provide geographical data for the distribution of agricultural activities across areas with lower impacts on forests (land-use zoning) and support these activities with know-how on MRV and carbon accounting.
- REDD+ may also support investments in agroforestry as a measure to increase agricultural productivity.

## 4. Conclusion

It is widely recognized that public sector financing alone will not be enough to provide the amount of resources needed for REDD+ financing. The private sector will need to play a major role in the long-term deployment phase, but has yet to emerge as a major source of financing for REDD+.<sup>29</sup> The link between REDD+ and sustainable supply chains can provide an important opportunity for private companies from developed countries to readily engage in the protection of tropical forests and climate change mitigation. Such engagement is likely to yield long-term benefits for both the corporations that ensure access to high quality produce as well as to farmers that may benefit from increase income, additional skills, and more resilient agricultural production systems. Agricultural investments are likely to play an important role in supporting more sustainable activities and therefore contributing to

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<sup>28</sup> Forest Footprint Disclosure, 2011, available from: <http://forestdisclosure.org/page.asp?p=4722>, last accessed on, December 5<sup>th</sup>, 2011.

<sup>29</sup> PWC, CF, IUCN, WI (2011). Funding for Forests. UK Government support for REDD+. July, 2011. Available at: <http://www.decc.gov.uk/assets/decc/internationalclimatechange/1832-funding-for-forests-uk-government-support-for-red.pdf>, last accessed on November 23, 2011.



# CLIMATE FOCUS

REDD+. In 2009 developing countries invested on average USD 142 billion annually in agriculture over the past decade<sup>30</sup>. Moving forward, agricultural investments will probably be directed towards sustainable techniques.

However, such actions are not without risk. Intensification of agricultural systems may remove pressure from forests, but it may also enhance it. Naturally, higher yields motivate farmers to increase production area to further increase income. Intensification programs therefore have to go along with regulation ensuring forest production through buffer zones and command-and-control measures. The latter is not always easy to enforce, particularly in countries with low government effectiveness and weak governance. Additional risks relate to farmers bearing the costs of the changed practice and possibly certification without necessarily benefiting from higher prices. The benefits in these cases accrue with the trading and processing companies rather than with the producers. Where REDD+ funds support agricultural extension or certification programs, public-private partnerships will have to ensure that additional efforts are rewarded with additional payments.

Nevertheless, despite the risks, we know that REDD+ cannot be achieved through forest policies alone. Agriculture is the main driver of deforestation in many developing countries and will therefore be a key sector for the success of REDD+. Domestic and international companies are strategically positioned to take advantage of the institutional changes brought about by the REDD+ readiness process to improve the sustainability of their supply chains. These companies will ultimately benefit from these changes as suppliers become more reliable in the long-run and the process more efficient. They are therefore invited to join and support efforts to improve farming systems, increase productivity and resilience, while removing pressure from natural resources.

There are many areas for synergies between sustainable supply chains and REDD+. Table 1 below provides a summary of some of these opportunities.

**Table 1:** Opportunities for synergies between sustainable supply chains for agricultural goods and REDD+

Approaches to increase the sustainability of agricultural supply chains	Details	Opportunities for synergies with REDD+
<b>Enhanced corporate engagement</b>	Motivated either by consumers’ pressure or their strategic view of future markets and regulation companies decide to engage more directly with their suppliers of agricultural goods from developing countries.	<p>REDD+ institutional reforms may ease the process of shifting the agricultural sector towards more sustainable practices.</p> <p>REDD+ funds can support agricultural extension by focusing on climate impacts of particular practices and by promoting climate resilience.</p> <p>Private companies can also work with governments in formulating and implementing local requirements and</p>

<sup>30</sup> For more information see: [http://www.fao.org/fileadmin/templates/wsfs/docs/Issues\\_papers/HLEF2050\\_Investment.pdf](http://www.fao.org/fileadmin/templates/wsfs/docs/Issues_papers/HLEF2050_Investment.pdf), last accessed on December 15<sup>th</sup>, 2011.



# CLIMATE FOCUS

standards that address direct linkages between agricultural production and deforestation.

Governments can also support contract farming that is linked to reduced GHG impacts.

Private companies can work with governments to create low cost insurance mechanisms to safeguard smallholders against losses in outputs.

The REDD+ spatial zoning plans (integrated land-use planning) can support the decisions for allocation of investments in agricultural practices.

REDD+ finance can help set up transition funds that support certification where farmers lack resources to do so.

Governments can also use REDD+ funds to support the participation of smallholders in initiatives that seek to formulate sustainable production standards.

Governments can build on and include the Roundtables and other certifications and sustainability initiatives into their National REDD+ strategies.

REDD+ policy can help remove barriers for agricultural intensification paired with forest protection.

REDD+ initiatives can provide geographical data for the distribution of agricultural activities across areas with lower impacts on forests.

Where upfront finance is not needed, financing from REDD+ can be used to make payments for environmental services to pay for sustainable agriculture.

REDD+ activities can support the development of a sustainable supply chain with know-how on MRV and carbon accounting.

## Transparency and certification initiatives

Voluntary schemes in some cases created by third parties or by a consortium of companies to inform consumers about the impact of the products they purchase.

## Creating incentives for changes in local practices

Coordinated efforts involving multiple parties, focused around a specific value chain.



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## Annex I

### Beef

In South and Central America, the expansion of pastureland for livestock production is one of the main drivers of deforestation. Three decades ago the well-known environmentalist, Norman Myers, coined the phrase “the hamburger connection” to describe how the demand for beef in the US and other developed countries would drive deforestation in Central America.<sup>31</sup> Back then, demand for beef in Brazil was mostly driven by domestic consumption. The hamburger connection was local. Over the last decade, however, Brazilian livestock production has been increasingly correlated to growing international demand for beef. Today, Brazil is the world’s second largest producer and the top exporter of beef in the world. The main importers are no longer just the US and the EU but also the Middle East, Russia, Asia and Africa (North).

The Amazon region is of growing importance for Brazilian beef production. Brazil has one of the lowest production costs for commercial herds. Cattle are mainly raised in extensive grazing systems which occupy 60–75% of newly deforested land in the Brazilian Amazon region.<sup>32</sup> The steady expansion of pasture areas in the Brazilian Amazon over recent decades has contributed to an average gross deforestation rate of 1.9 million hectares (ha) per year in the period from 1996 to 2005. The Center for International Forestry Research (CIFOR) has found that the number of cattle in the Amazon has more than doubled—from 26 million in 1990 to 57 million in 2002.<sup>33</sup> By 2050, global meat consumption is expected to increase by almost 80%, which will require more grazing land and increased soy cultivation.<sup>34</sup>

### Soybeans

Increased demand for beef also implies expansion of intensive, large-scale production of soybeans and other feed crops. Between 1994 and 2004, the land area devoted to growing soybeans in Latin America more than doubled to 39 million ha, making it the largest area for any single crop.<sup>35</sup> Soybeans are an example of an agricultural product that is extremely hard to trace back to its source. Soybeans can be used for vegetable oil, as a source of protein in meat and dairy substitutes, and as a hidden ingredient in many processed food products. Today, about 80% of soybeans produced globally are

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<sup>31</sup> Myers, N. 1981. “The Hamburger Connection: How Central America’s Forests Became North America’s Hamburgers.” *Ambio*, 10: 3-8.

<sup>32</sup> Cederberg, C., Persson, U. M., Neovius, K., Molander, S., Clift, R. 2011. Including Carbon Emissions from Deforestation in the Carbon Footprint of Brazilian Beef. *Environmental Science & Technology*, 2011; 45 (5): 1773 DOI: 10.1021/es103240z Available at: <http://pubs.acs.org/doi/pdfplus/10.1021/es103240z> last accessed on July 6<sup>th</sup>, 2011.

<sup>33</sup> David Kaimowitz, Benoit Mertens, Sven Wunder and Pablo Pacheco, 2003, *Hamburger Connection Fuels Amazon Destruction*, CIFOR.

<sup>34</sup> FAO, Cattle ranching and deforestation, Livestock Policy Brief 03, FAO, Rome 2010. Available at: <ftp://ftp.fao.org/docrep/fao/010/a0262e/a0262e00.pdf>, last accessed on December 5<sup>th</sup>, 2011.

<sup>35</sup> FAO, Cattle ranching and deforestation, Livestock Policy Brief 03, FAO, Rome 2010. Available at: <ftp://ftp.fao.org/docrep/fao/010/a0262e/a0262e00.pdf>, last accessed on December 5<sup>th</sup>, 2011.



## CLIMATE FOCUS

used to feed livestock.<sup>36</sup> With the global demand for meat rising fast, the price of soy continues to go up, increasing the attractiveness of this crop and consequently the pressure on land.

Brazil and the US are the world's largest soy producers and exporters. About 32% of Brazil's soy exports go to Europe. In Brazil, soy production is booming along the southern border of the Amazon region, especially in the state of Mato Grosso, where the low cost of deforested land makes the production of this commodity highly competitive. In Mato Grosso alone, the size of the land area planted with soy has increased 400% between 1993 and 2003.<sup>37</sup> Mato Grosso is the state with the highest historical deforestation rate in the Brazilian Amazon region, with over 350,000 ha of forestland cleared between 2005 and 2008.

Over the last few years local and international environmental organizations (e.g., Comissao Pastoral da Terra, Greenpeace) have engaged in campaigns targeted at international and national corporations with operations in Brazil that have purchased soy from producers involved in land conflicts with forest dependent communities and deforestation.<sup>38</sup> The producers who supplied soybeans to these companies were listed among the top 100 deforestation actors in the Amazon according to a list publicized by the Brazilian Minister of Environment in 2008.<sup>39</sup>

## Palm Oil

Oil palm is one of the world's most rapidly expanding crops. Since 2005, global production of oil palm has matched the production of soybean oil, currently the largest source of vegetable oil. Indonesia is currently the second largest producer of palm oil in the world after Malaysia. These two countries together are responsible for over 80% of global palm oil production.<sup>40</sup> By 2009, about 3 million ha of primary forest land in Indonesia had been cleared and are now covered with oil palm.<sup>41</sup>

Oil palm is a major driver of tropical deforestation, partially because plantation owners often use of timber revenues from primary forests to subsidize up-front costs such as plantation establishment and maintenance.<sup>42</sup> The expansion of oil palm production is likely to continue growing for many years because of its high profitability and the growing global demands for edible oils and biofuels.<sup>43</sup>

<sup>36</sup> [Forest Footprint Disclosure, 2011] <http://www.forestdisclosure.com/pages/?p=4724>, last accessed on July 5, 2011.

<sup>37</sup> [Forest Footprint Disclosure, 2011] <http://www.forestdisclosure.com/pages/?p=4724>, last accessed on July 5, 2011.

<sup>38</sup> For more information please see: <http://reporterbrasil.org.br/conexoes/?p=127>, last accessed on July 6<sup>th</sup>, 2011.

<sup>39</sup> They were also listed as embargoed areas by the Brazilian Environmental Institute (Ibama), available online at: [http://siscom.ibama.gov.br/geo\\_sicafi/](http://siscom.ibama.gov.br/geo_sicafi/), last accessed on July 6<sup>th</sup>, 2011.

<sup>40</sup> UNEP 2007. The last stand of the Orangutan, state of emergency: Illegal logging, fire, and palm oil in Indonesia's National Parks. Available online at: <http://www.unep.org/grasp/docs/2007Jan-LastStand-of-Orangutan-report.pdf>, last accessed on July 25, 2010.

<sup>41</sup> K.T. Tan et. al. 2009. Palm oil: Addressing issues and towards sustainable development. *Renewable and Sustainable Energy Reviews* 13 (2009) 420-427. Available online at [www.sciencedirect.com](http://www.sciencedirect.com), last accessed on July 6<sup>th</sup>, 2011.

<sup>42</sup> Fitzherbert, E. B., Struebig, B. M., Morel, A., Danielsen, F., Bruhl, C., Donald, P., and Phalan, B. 2008. How will oil palm expansion affect biodiversity? *Trends in ecology & Evolution* 23:538-545. Available online at: <http://redapes.org/wp-content/uploads/2008/09/palm-oil.pdf>, last accessed on July 6<sup>th</sup>, 2011.

<sup>43</sup> Laurance, W.F., Koh, L.P., Butler, R., Sodhi, N.S., Bradshaw, C.J.A., Neidel, J.D., Consunji, H., and J.M. Vega. 2009. Improving the Performance of the Roundtable on Sustainable Palm Oil for Nature Conservation. *Conservation Biology* 24(2): 377-381.



## CLIMATE FOCUS

Reducing Deforestation through Sustainable Supply Chain Management

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Expanding biofuel markets in the European Union and increasing food demand in Indonesia, India and China are fostering the increase in palm oil production.

Multinational corporations source palm oil from suppliers which continue to expand into the rainforest and carbon-rich peatlands<sup>44</sup> for the production of coffee, energy bars and chocolate, among others. Among the companies sourcing from deforested areas were the major agricultural trading and processing industries who altogether account for about 40% of global palm oil production and use.<sup>45</sup>

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<sup>44</sup> For more information see: <http://www.greenpeace.org/usa/en/media-center/reports/caught-red-handed-how-nestle/>

<sup>45</sup> Greenpeace, 2010. How the palm oil industry is cooking the climate. Available at: <http://www.greenpeace.org/usa/Global/usa/report/2010/2/how-the-palm-oil-industry-is-c.pdf>, last accessed on July 6, 2011.