Implementing Deforestation-Free Supply Chains – Certification and Beyond

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February 2015
Acknowledgements

The authors are grateful to Dr. Jan Kees Vis (Global Director Sustainable Sourcing Development at Unilever), Donald Grubba, (Managing Partner at Sustainable Development Initiatives Corporation), Andreas Feige (Managing Director ISCC System GmbH), Dr. Paul B. Siegel (Consultant at the World Bank), Tony Hill (Director SHARP), Veronique Bovee (Senior Project Manager at Proforest), Adrian Suharto (Sustainability Manager at Neste Oil) and Sophie Persey (Group Sustainability Manager at Rea Group) for reviewing the paper and providing useful advice to improve the content. Any mistakes remaining are our sole responsibility.

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Executive Summary

Agricultural expansion has fuelled deforestation and forest degradation to enhance economic development, arguably benefiting billions of people. However, in the context of climate change (and for reasons beyond climate change), there is a need to keep forests standing and to move out of this extended phase during which forests have been sacrificed in the pursuit of economic growth. With the demand for agricultural commodities expected to double in the coming decades, pressure on forests is likely to increase further, in particular in developing countries. In order to mitigate climate change and reduce the negative impacts of agriculture on forests, global demands need to be balanced with the need to maintain forest quality.

In an effort to delink agricultural production from deforestation, a growing number of retailers, manufacturers, processors and traders in the food, fuel and fibre sectors are making public commitments to establish deforestation-free supply chains. Such pledges are encouraging, but the question remains how these goals are going to be realized. Governments and companies alike have identified voluntary agricultural certification as a means to achieve no deforestation.

In this paper we explored to what extent voluntary certification schemes are able to deliver on no deforestation commitments or whether more action might be needed.

Certification schemes play an important role in improving the environmental and social sustainability of supply chains. Yet, this report highlights a number of their limitations which form a barrier to delivering on no deforestation targets. Although the existing systems for traceability and documentation used in voluntary certification can support delivering on no deforestation commitments, certification alone may not be sufficient and nor is it a prerequisite. In order to effectively prove no deforestation there needs to be a transparent traceability system in place that demonstrates where the end product originates from. For some commodities, notably palm oil, this can become a very complex exercise, as products can be mixed on several occasions along the supply chain. Most certification schemes do not have a sufficiently robust traceability system to prove deforestation-free supply chains. Such a system may need to be incorporated into current certification schemes or it could be introduced in a stand-alone manner.

A further limitation of certification schemes is the lack of incentives and support for smallholders to meet sustainability standards (including no deforestation). Support for these groups is vital, as smallholders produce a major share of the commodities linked to deforestation and are often located along the forest frontiers. For some of the certification schemes, part of the premium price can be reinvested to help smallholders overcome the initial costs of certification. However, it may not be a sustainable solution as a premium is often not available, or insufficient to allow smallholders to make a transition to more sustainable production systems. Therefore, alternative means of support are needed. An opportunity for providing incentives for no deforestation is linking increased production to reduced environmental impacts. In general, across the commodities smallholder productivity is relatively low compared to the potential yields. One sector where the differences are particularly large is the oil palm sector.

A final challenge highlighted in this report is the limited ability of certification schemes to address impacts of agricultural expansion across the landscape. There is a serious risk that only the farms far away from forest areas are able to meet certification requirements, while clearance continues at the deforestation frontier. In forest frontiers farmers are less likely to be able to engage in certification schemes. To address this, certification schemes would need to be introduced across the wider landscape.
SNV has developed a toolkit consisting of three elements which can help to address the identified barriers to achieving deforestation-free supply chains. For the toolkit to be effective in ensuring no deforestation in supply chains, the tools developed for each element need to be applied as a package. Depending on the target area, a custom-made implementation programme has to be developed. The package of activities can be used as a stand-alone approach, or as an add-on to existing certification schemes.

The first element is a traceability and monitoring system. For tracing production to the farm level, SNV uses FLOW; a geo-traceability tool for collecting, evaluating and displaying geographically referenced data on yields, inputs and management. Combined with a forest monitoring system using remote sensing, FLOW provides a low-cost option for detecting and monitoring deforestation in supply chains.

The second element of the toolkit consists of applying SNV’s Inclusive Business approach, which has been developed as a means to include smallholders in supply chains and to support them in switching to more sustainable production systems. The approach facilitates improved collaboration and communication between smallholders and companies further downstream. Moreover, it provides assistance and incentives to smallholders to reduce deforestation through the implementation of better management practices. The objectives of the Inclusive Business approach are to improve the wellbeing of low-income groups, reduce deforestation and environmental degradation by introducing sustainable production methods, and to provide incentives for companies to participate in the form of core business benefits. In order to induce systemic change, the inclusive business model is designed and implemented involving all relevant stakeholders, and integrated in existing (planning) procedures. This provides a sustainable model as it builds internal capacity and increases profitability of operations.

The last element of the toolkit is SNV’s Siting Tool. In order to balance the objectives of agriculture and forestry and prevent leakage of deforestation to other areas, it is essential to understand the dynamics that drive land-use change across the landscape. The Siting Tool is applied to guide planning processes in forest-agriculture landscapes and informs stakeholders on options for sustainable agricultural expansion. With this tool, drivers of deforestation can be identified, trade-offs are clearly highlighted and recommendations are provided on target areas for intervention and support. The outcomes form the basis of site selection for the implementation of the traceability and monitoring system and the inclusive business approach. In order to have impact at scale, alignment with government policies and plans is crucial. Adopting agricultural certification standards remains an important strategy towards developing sustainable supply chains. However, companies committed to achieving the goal of deforestation-free sourcing need to introduce other elements to achieve this objective. Necessary measures include providing support to smallholder farmers to bring about systemic changes in the sector and closer alignment with local authorities in order to delink agricultural production from deforestation at a landscape level. SNV has provided a toolkit to help companies and local authorities achieve no deforestation targets.
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<tr>
<td>ASC</td>
<td>Aquaculture Stewardship Council</td>
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<td>BAP</td>
<td>Best Aquaculture Practices</td>
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<tr>
<td>BMP</td>
<td>Better Management Practices</td>
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<td>CoC</td>
<td>Chain of custody</td>
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<td>CPO</td>
<td>Crude Palm Oil</td>
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<td>CSPO</td>
<td>Certified Sustainable Palm Oil</td>
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<td>CW</td>
<td>Controlled wood</td>
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<td>FSC</td>
<td>Forest Stewardship Council</td>
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<td>GAP</td>
<td>Good Agricultural Practices</td>
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<tr>
<td>GGGI</td>
<td>Green Global Growth Institute</td>
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<td>GHG</td>
<td>Greenhouse gas</td>
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<td>HCVF</td>
<td>High Conservation Value Forest</td>
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<td>HIT</td>
<td>High Impact Training</td>
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<td>HVE</td>
<td>High value ecosystems</td>
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<tr>
<td>IFC</td>
<td>International Finance Corporation</td>
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<tr>
<td>IP</td>
<td>Identity preserved</td>
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<tr>
<td>ISCC</td>
<td>International Sustainability and Carbon Certification</td>
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<tr>
<td>MB</td>
<td>Mass balance</td>
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<tr>
<td>NGO</td>
<td>Non-governmental organisation</td>
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<tr>
<td>P&amp;C</td>
<td>Principles and criteria</td>
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<tr>
<td>REDD</td>
<td>Reducing Emissions from Deforestation and Forest Degradation</td>
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<td>RSPO</td>
<td>Roundtable on Sustainable Palm Oil</td>
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<tr>
<td>RSS</td>
<td>Responsible Sourcing from Smallholders</td>
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<tr>
<td>SAN</td>
<td>Sustainable Agriculture Network</td>
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<tr>
<td>SHARP</td>
<td>Smallholder and REDD Programme</td>
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<td>SNV</td>
<td>SNV Netherlands Development Organisation</td>
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<td>TFA</td>
<td>Tropical Forest Alliance</td>
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<td>TFT</td>
<td>Tropical Forest Trust</td>
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Introduction

One of the major drivers of deforestation and forest degradation is agricultural expansion.\(^1\) With the global demand for agricultural products expected to double in the coming decades, pressure on forests is likely to increase as a result of competition for land, in particular in developing countries.\(^2\) In the context of climate change, deforestation is a major source of greenhouse gas (GHG) emissions, estimated to contribute between 4 to 14 per cent of global greenhouse gas emissions.\(^3\) In order to address the impact of the agricultural sector on forests, the demands of global consumers have to be balanced with the need to maintain forest health and quality.\(^4,5\)

The dynamics and multiple causes of deforestation and forest degradation are highly complex. Addressing them will require innovative, integrated solutions, including the development of improved technologies and policies that promote more ecologically efficient food production while optimising land allocation for conservation and agriculture. It also requires commitments from consumers and companies to purchase deforestation-free products. A growing number of companies and national governments are willing and committed to purchasing products which do not cause deforestation. Various public-private partnerships, such as the Tropical Forest Alliance (TFA) 2020, have committed to reducing tropical deforestation associated with key global commodities.\(^6\) Companies have unilaterally made commitments to tackle deforestation,\(^7\) while national governments are introducing procurement policies to purchase certified commodities; for example, the Dutch Task Force on Sustainable Soy and Palm Oil and the Belgian Alliance for Sustainable Palm Oil.

Governments and companies alike have identified certification as a means to reach the goal of no deforestation. However, the question remains whether certification can ensure that a company reaches this goal. In addition, evidence suggests that the requirements for voluntary certification schemes tend to exclude smallholders.\(^8\) In moving towards environmentally and socially sustainable supply chains, exclusion of smallholders is not an option. Their outputs support roughly 2.2 billion people and account for a major share of global agricultural production.\(^9\) In total, about 70 per cent of the world’s food comes from smallholder plantations\(^10\) - for the cocoa, palm oil and soya sectors, these Figures are around 90,\(^11\) 40 and 20 per cent\(^12\) respectively.

This paper explores to what extent voluntary certification standards represent an effective means to tackle agriculture-related deforestation, paying specific attention to the (potential) role of smallholders. After identifying the limitations of agricultural standards, the paper presents some of the key ingredients which need to be in place in order to deliver on no deforestation commitments. In the final chapter we provide a toolkit, which companies can adopt to help to achieve no deforestation in supply chains.

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6. TFA 2020 arose from discussions between the U.S. Government and the Consumer Goods Forum, a network of more than 400 companies with annual sales topping $3 trillion. Partners of the TFA 2020 include developing country and industrialised country governments, businesses, and civil society organisations, that agree to undertake specific actions to address commodity-driven tropical deforestation.
7. Information on commitments from companies can be found on: http://www.greenpeace.org/new-zealand/en/campaigns/ancient-forests/Tiger-Challenge/
10. Ibid.
11. Curtis, M. 2013. Powering up Smallholder Farmers to make food fair. Bonn, Germany
Section 1
The role of certification standards in reducing deforestation

1.1 GHG emissions from agricultural production

Voluntary agricultural certification standards have been introduced as a means to show potential consumers that what they are consuming has been produced in a more sustainable way. Various standards have emerged focusing on different elements of sustainability, including fair pricing for the farmer [Fair-trade], organic production [Naturland] and greenhouse gas mitigation [International Sustainability and Carbon Certification]. To some degree, all of the standards require activities that reduce overall GHG emissions, whether this is their stated objective or not. In an accompanying report, SNV examines “The role of voluntary agricultural certification standards in quantifying and reducing GHG: exploring the cocoa, coffee, palm oil and shrimp aquaculture sectors”. The report highlights the five major sources of emissions related to primary commodity production (Box 1.1).

Deforestation is the largest contributing factor towards GHG emissions in the agricultural sector. Forest clearance leads to a pulse of emissions as well as an on-going loss of carbon as forest remnants are reduced, peat oxidises and soil degrades over time. Using the examples of cocoa, coffee, shrimp and palm oil, Table 1.1 provides indicative estimates of the immediate losses of carbon stocks from above ground pools due to land clearance. If we also include the associated disturbance to the soils as a result of conversion, the estimates will increase depending on the extent of disturbance and the type of soils. The most extreme soil carbon losses are seen in peat soils, where one cubic metre of peat can contain 300 to 700 tons of carbon per hectare (tC ha⁻¹). The soils beneath mangroves also have more biomass carbon below-ground than a typical tropical forest; digging up mangroves and introducing shrimp ponds can lead to significant GHG emissions.

A key question explored in this report is whether certification standards can address initial forest conversion and hence ensure no deforestation in supply chains. This will depend on a number of factors related to the extent to which the standards address forest conversion, how effectively the standards are being monitored, as well as the broader issue of whether certification is the most appropriate mechanism to deliver on no deforestation pledges.

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13. The International Trade Centre’s standard map is a useful tool for identifying suitable standards for particular crops, countries and issues of interest  www.standardsmap.org
15. When palm oil is cultivated on peat soils they are drained and often burnt; the burning causes a pulse of emissions, whilst the drainage results in on-going oxidation of peat that is no longer under water.
Box 1.1: The five major sources of GHG emissions from agricultural production (TFA)

Initial forest conversion
Conversion of forests to agricultural land results in the loss of carbon stored above ground in the forest cover, soil carbon disturbance and in some cases the drainage and burning of peat. Clearance leads to a pulse of emissions as well as an on-going loss of carbon from the system as forest remnants are reduced, peat oxidises and soil degrades over time.

Reduced sequestration in trees and other vegetation
Trees and other vegetation are able to sequester carbon dioxide (CO₂) from the atmosphere. As trees are cleared for agricultural expansion, the sequestration potential of the land decreases. Preserving or replanting trees - in agro-forestry systems for example - can be a way to retain an important part of the sequestration potential of the area.

Poor soil management
Globally, soils store over four and a half times the carbon found in vegetation. When soil is disturbed or poorly managed, this can lead to ongoing losses of soil carbon and increased need for fertilizer application. The most extreme soil carbon losses are seen as a result of oxidation of peat soils.

Use of organic and inorganic inputs
Fertilizer can be an important input in the production of commodity crops in order to increase yields. However, the application of fertilizers produces GHG emissions. Use of organic, rather than synthetic fertilizers can help to reduce GHG emissions, as can more efficient application.

Post-harvest product handling
For some crops, primary processing must occur within a short window after the crop has been picked; for example, crops may need to be rid of their “fruit” and dried. At this stage, the fermentation process of the fruit releases methane, a potent greenhouse gas.
Table 1.1: Estimates of above ground carbon losses due to land clearance

<table>
<thead>
<tr>
<th></th>
<th>COCOA</th>
<th>COFFEE</th>
<th>PALM OIL</th>
<th>SHRIMP</th>
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<tr>
<td>Maximum above-ground carbon losses at conversion (t C ha(^{-1}))</td>
<td>39-210</td>
<td>60-260</td>
<td>102-176</td>
<td>68-122</td>
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</table>

1.2 Forest conversion and certification standards

SNV’s report on the role of voluntary agricultural standards in quantifying and reducing GHG emissions examines a number of certification schemes and assesses how they deal with the five main sources of emissions. Table 1.2 summarises how eight major certification schemes address forest conversion.

The table shows that, even though the requirements differ for each certification scheme, the standards all include criteria which prohibit forest clearance for crop production. The key differences relate to the type of forests affected, the cut-off date for non-conversion and the requirements around remedial measures.

In terms of the types of forests affected, all eight standards restrict the conversion of primary forests and high conservation areas. Some of the standards also provide guidance on secondary forests and continuously forested areas while others require an Environmental Impact Assessments to identify high conservation value areas. The standards contain cut-off dates, after which production is prohibited and/or there are stricter requirements on use. For example, the Aquaculture Stewardship Council (ASC) and the Global Aquaculture Alliance’s Best Aquaculture Practices (BAP) do not allow production on sites that were mangroves for farms that were established as far back as 1999 [the year the Ramsar convention was signed], while the cut-off date of the Roundtable on Sustainable Palm Oil (RSPO) is 2005.

Another key element is the prescription of remedial measures to compensate for conversion, the nature of which again differs per certification standard. For the Sustainable Agriculture Network/Rainforest Alliance, no high value ecosystems (HVE) can be converted after November 1st 2005. If HVEs have been converted or damaged between November 1st 1999 and November 1st 2005 then there must be a restoration plan in place. In the case of Naturland certification, farms that occupy former mangrove areas can be converted to organic aquaculture if the former mangrove area does not exceed 50 per cent of the farm area and if they restore mangroves to at least 50 per cent of the farm within five years.

There is little consistency between standards on key elements in terms of how they define forests that should be protected, their treatment of historical deforestation and their requirements for remediation. Variations in the ways agricultural standards treat deforestation places limitations on the extent to which they can be used consistently as a tool for avoiding deforestation. To overcome this, certification standards should come to agreements on such definitions. However, this is unlikely to happen voluntarily as these issues pose major limitations on business’ freedom to operate.\(^{18}\)

1.3 Examining the role of certification in reducing deforestation in different sectors

To further understand the application of certification schemes and the conditions that determine their effectiveness in reducing deforestation, it is important to explore some of the different sectors in which agricultural standards are commonly applied. This section examines certification in sectors which are considered major drivers of deforestation: coffee, cocoa, palm oil and shrimp aquaculture.

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From the date of application for certification, farmers must avoid negative impacts on protected areas or areas with high conservation value (Criterion 3.2.33).

From the date of certification, no natural ecosystem can be destroyed (Criteria 2.1, 3.2).

No high value ecosystems (HVE) must have been converted since November 1st 2005 and if HVEs have been converted or damaged between November 1st 1999 and November 1st 2005 then there must be a restoration plan in place (2.2).

Deforestation is restricted: it is not allowed in primary forest (Control Point GD122) and deforestation of secondary forest is allowed only with proper permits and title (GD123).

Furthermore, the crop must be farmed on land that is classified as agricultural and/or approved for agricultural use and farming history must be demonstrated (GA1, GA2). Production and primary processing are restricted in protected areas (GD124) and biological corridors (GD125).

Aquaculture ponds shall be located behind mangrove areas. Hydrological conditions should not be altered (Standard 4.3) in a way that deprives or leads to the loss of wetland vegetation, including erosion and sedimentation.

From 1999 onwards, the only allowable conversion of wetlands is for the installation of systems for access to water resources (installation of inlet and outlet canals, pump stations and docks) (4.1). If this happens, compensation must be made by restoring an area at least three times as large or making an equivalent donation to restoration projects (4.2).

No farm may be certified that was established after May 1999 in mangrove or other area of ecological importance as identified in Biodiversity inclusive Environmental Impact Assessment (B-EIA, criteria 2.2 and 2.3). The B-EIA should be conducted by a person or organisation with expertise in the subject matter.

For farms established before May 1999, farmers are required to compensate/offset impacts via rehabilitation as determined by the B-EIA, or according to national/state/local authority requirements, or 50 per cent of the affected ecosystem (whichever is greater) (2.2).

Clearing primary forest and cultivation of primary organic systems is prohibited (P B.1.6).

Removing or damaging mangrove forest is not permitted for new shrimp farms (OA criterion 1.1).

Farms that occupy former mangrove areas can be converted to organic aquaculture if the former mangrove area does not exceed 50 per cent of the farm area and if they restore mangroves to at least 50 per cent of the farm within five years (OA 1.2).

<table>
<thead>
<tr>
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Table 1.2: Major certification schemes and efforts towards addressing forest conversion
Development of new plantings is subject to a social and environmental impact assessment (7.1).

Plantings established after November 2005 must not have replaced primary forest or areas necessary to sustain high conservation values (7.3).

The use of fire in the preparation of new planting areas is limited (7.7).

Criterion 7.8, which mandates the design of new plantation areas to minimise net greenhouse gas emissions, requires analysis of the existing carbon stock of the proposed development area, potential major sources of emissions due to development and the creation of a plan to minimise net greenhouse gas emissions.

An environmental impact assessment is called for in the case of (among other things) expansion of planting areas, clearing of remaining vegetation and management by burning (5.1). Mitigation of negative effects is required when they are caused by changes in the status quo. The standard does not stipulate to what extent or how the negative effects should be mitigated.

RED criteria 2.1(i)-(iv) stipulates that land must not be converted to palm oil production after 2008. Established production on wetlands must not affect the quality of the wetland. Peatland that was partially drained in January 2008 may not experience deeper drainage.

Production is prohibited from areas with the following designations on or after January 2008: Primary forest and other natural areas covered with native tree species and no sign of human activity (control point 4.1.1) or any other continuously forested area (4.1.3). Areas designated by law, its equivalent or international agreement to serve the purpose of nature protection or designated as threatened (4.1.1). Grassland with high biodiversity (4.1.2).
The US and the EU consume the largest percentage of the world’s coffee production. While the demand for non-certified coffee has stagnated in western countries, the market share of certified labels is growing steadily, with demands increasing every year.\(^\textcircled{19}\) For Arabica coffee’s chain of custody (CoC), methods have been developed that respond to the increasingly strong demand for specialty coffees which market characteristics of the beans’ provenance. The common CoC methods used for specialty coffees generally involve segregation (e.g. Blue Mountain coffee from Jamaica). The fact that source sensitive countries consume the majority of the production, along with the rising demand for certified coffees, suggests that leverage exists to influence producers’ management practices. Characteristic for marketing strategies for high quality varieties of coffee is that the flavour, acidity, and aroma are partially associated with the coffee beans’ provenance. High-end coffee labels thus need to know where the beans come from. In such cases were a robust traceability system is already in place, it would be more straightforward to track produce back to the farm in order to understand the impact on forests. However, the same is not true for Robusta coffee which is often blended from multiple sources, with mixing occurring along the supply chain. For Robusta coffee there is less demand for certification. This highlights that the role of certification and its ability to curb deforestation can vary, even within a sector.

Only around 12 to 15 per cent of all palm oil produced is imported into source sensitive countries, the rest being consumed by emerging market countries. This clearly limits the pressure applied to change industry practices, as producers can target the less scrupulous consumer countries. The supply chain for palm oil is complex due to the broad range of derivatives produced and potential mixing of supplies from different sources at multiple stages in the supply chain, making it costly to trace the oil purchased by the end user back to a single source. In addition, processed palm oil typically makes up only a very small percentage (<10%) of the end product. For the consumer this makes it difficult to know whether the products they are consuming contain palm oil or not. This also highlights the difficulty to capture a premium price to be paid to (smallholder) farmers to change their production practices. Other incentive structures will need to be put in place.

Since the Roundtable on Sustainable Palm Oil took effect in 2007, efforts have been undertaken to improve management practices in the sector, including reducing deforestation. The majority of RSPO member companies utilise methods that have traceability shortcomings, making it nearly impossible to trace the end product back to the plantation or even the Crude Palm Oil mill. Even in situations that allow the mill to be identified, the large number of out-growers - exceeding several thousand farmers for larger mills - makes determining the origin of the end product extremely difficult and costly. Linking buyers and retailers’ products to no deforestation is therefore complicated and constitutes a barrier to addressing the situation on the ground.

Cocoa shares similar characteristics with coffee, with the major share of global production currently sold to market sensitive countries with growing demands for certified products. Increasingly the marketing of cocoa requires traceability in order to determine the provenance of the beans, although to a lesser extent than is the case for Arabica coffee.

Much of the world’s cocoa is sourced from West Africa, in particular from countries such as Ivory Coast and Ghana. Most producer countries lack the enabling conditions to support a sustainable cocoa sector, such as adequate agricultural extension services and access to finance. Cocoa is overwhelmingly grown by impoverished farmers caught in a vicious cycle of marginal profitability due to lack of investment in planting stock, pruning and fertilization. Low productivity drives expansion into forested areas and unless this can be addressed, certification will continue to have limited impacts on deforestation levels. For products like cocoa, which are sold to market sensitive countries and with a small number of firms controlling the market, a key issue is how to help strengthen in-country support systems in order to enable certification on a wider scale.

Most farmed shrimp is exported to market sensitive countries, with the United States, Europe and Japan accounting for 72 per cent of total production consumed globally and with the US as the largest single market. One of the most critical impacts of shrimp farming is the deforestation of mangroves to make way for shrimp ponds. This has spurred a growth in the demand for certified shrimp in consumer countries. Naturland certification has strict requirements with respect to deforestation. The standard prohibits initial forest conversion and requires a minimum mangrove cover of 50 per cent on shrimp farms. The firm criteria offer promising perspectives for effectively reversing mangrove losses.

The main markets for farmed shrimp are dominated by a small number of powerful retailers which have been critical about the development of certification schemes and oversight of the sector. Industry players have joined forces to create strong second party certification schemes, like the US focused Global Aquaculture Alliance’s BAP standard and the European market focused Global Good Agricultural Practices (GAP) scheme. Although these standards limit deforestation for new farms, they do not stipulate a minimum degree of mangrove cover. Adherence to these certification schemes is a way for retailers to protect their reputation and ensure sustainable supplies of the commodity.

Shrimp production is limited to a small number of key producer nations such as Thailand, Vietnam and China. For these countries, certification and the development of national standards is a way of protecting an important revenue source. Governments of Thailand and Vietnam have created the enabling conditions for certification schemes by providing improved government extension services. However, these countries are now faced with the challenge of determining how the national and international standards can be better aligned. It is critical that international standards which are better designed to address issues such as deforestation are not diluted through national standards.

This discussion clearly highlights that the effectiveness of certification schemes will depend on a myriad of factors beyond how no deforestation is actually incorporated into the certification standard, including: (i) the sector which is being examined and the make-up of its supply chain; (ii) market demand and the influence of different players along the supply chain; and (iii) the enabling conditions in the source country. When the monitoring and traceability systems can be aligned, certification can play a strong role in no deforestation. Based on this analysis of the different certification schemes and the market dynamics across different commodities, we can start to identify key elements that need to be in place to deliver on no deforestation commitments.

1.4 Principal limitations of voluntary agricultural certification standards

Although agricultural certification schemes can contribute to building sustainable supply chains, a number of limitations exists which undermine the effectiveness of these standards in achieving this aim. A critical issue is the standards’ limited capacity for monitoring and enforcement. Evidence exists of some of the difficulties certification schemes experience in ensuring compliance with the sustainability criteria. For example, a recent study found that up to 30 per cent of UTZ Certified coffee farms in Vietnam were not in full compliance with the standard.20 Likewise, in an evaluation of the Forest Stewardship Council (FSC), most stakeholders interviewed noted a considerable variability in the degree of enforcement of the Controlled Wood requirements.21 Regarding the RSPO, a study found that out of 36 assessed companies only two had established in-house capacity to fully implement the scheme’s principles and criteria (P&C).22 Thus, while some debate exists on whether the RSPO standard is sufficiently stringent, the most pressing issue to address is the lack of capacity to properly implement the current standard. Providing practical models for both industry and smallholders would help to address this issue. The stated examples clearly highlight the difficulties in ensuring that agricultural standards are effectively being adhered to.

There are also more fundamental limitations to voluntary certification standards which need to be understood in order to better gage how effective they can be in bringing about no

21. file:///C:/Users/richard/Downloads/FSC_CONTROLLED_WOOD_EVALUATION_DISCUSSION_DRAFT.pdf
deforestation. For companies, committing to no deforestation limits their ability to operate freely and could have severe implications for their profit margin. There is therefore a natural disinterest in developing clear definitions and threshold values for forest conversion. There are numerous examples of interested parties falling into protracted discussions on definitions such as "what constitutes as forest?", "what should be the threshold?", etc. As a result, a compromise is often struck with broad or ambiguous definitions that leave leeway for operators. This becomes particularly evident when we examine how threshold values for deforestation are interpreted and how they are monitored. This lack of clarity provides the possibility for non-compliance while still being able to maintain certification. This highlights the need for greater scrutiny in terms of what is actually happening at the production unit.

As highlighted earlier, most of the agricultural standards contain cut-off dates after which forest clearance for agricultural production is prohibited or restricted. Considering this, there is a serious risk that only the farms far away from forest areas are able meet the cut-off date requirements and obtain certification, while clearance continues at the deforestation frontier. This issue highlights the limited ability of certification schemes to address impacts of agricultural expansion across the landscape. Standards would have a stronger impact on reducing deforestation if they work more closely with national and sub-national authorities to promote landscape-wide approaches. However, achieving this would require the backing and commitment from local authorities to adopt certification requirements in their agricultural policies. This will be highly challenging. Another limiting factor is the lack of incentives and support for poorer farmers, who are often the ones on the forest frontiers, in order to meet higher production standards. Without the right incentives in place, the only cost-effective way to apply agricultural standards risks to be at large scale. As a result, certification tends to strengthen large-scale, output-intensive systems. This has occurred, for example, in the case of the Roundtable of Sustainable Palm Oil, even though this standard initially aimed to reform the system and include small producers. A similar situation was observed for other certification schemes. In order to have an impact on reducing deforestation and enhancing the broader social and environmental sustainability of global supply chains, commitments by downstream companies to certify their products are not sufficient. In addition, it is critical to ensure that the right incentives are put in place to support different groups along the supply chain, in particular the smallholder producers.

1.5 Some key elements that need to be in place to deliver on no deforestation commitments

Although there are multiple elements that need to be in place to deliver on no deforestation targets we highlight three critical ingredients which need to be considered.

1. **Traceability and forest monitoring:** In order to ensure accountability there must be clear guidance and a robust monitoring system in place that is able to ensure no deforestation in supply chains. What is clear is that the most critical issue is traceability. Without traceability it is not possible to identify where the products originate and hence the impact on the forest. The robustness of the traceability and monitoring systems combined with the degree of regulatory support is directly related to the actual implementation on the ground.

2. **Providing incentives along the supply chain for poorer farmers:** Incentives are needed for a shift to more sustainable production systems, in particular for the poorest farmers. In the first place there needs to be a clear market demand to allow a shift in management practices. Certification can deliver on no deforestation commitments when there is a demand from consumers and retailers reflected in a willingness to pay for the additional costs of shifting to more sustainable practices. This premium price is important to pass along the supply chain to allow production and processing partners to attain higher standards. In the case of no deforestation

in supply chains there is clearly a demand given the commitments from governments, companies and consumers alike. However, different commodities have different supply chains making the links between buyers and seller more problematic. Consumers can purchase certified coffee or cocoa with a guarantee that these products have been produced under higher standards. With a commodity such as palm oil it is not that straightforward. If a premium price cannot be obtained (or if it is very small) this raises the issue of who would need to pay for any adjustments along the supply chain. The losing parties are often the poorest groups, such as smallholder farmers, who may also be the groups that are pushed into marginal forest areas as a result of competition for land. These groups are often the least able to make the required changes in their practices and need incentives to be able to engage in sustainable practices.

As a result of the lack of financial incentives for smallholders, certification schemes have tended to focus on larger units, such as refineries, which concentrate their sustainable supply base around larger plantations and are able to absorb the costs of a certification process – effectively locking smallholder producers out. However, given that smallholders continue to be the key group in producing most commodities, there needs to be a system in place to support these groups at the production end of the supply chain. This is needed to deliver on both environmental and social objectives.

3. **Working across the landscape:** A challenging issue for voluntary standards is how to deal with the impact of agriculture on forest areas across the wider landscape. There is a risk that only the farms away from the frontier of deforestation in any given landscape are certified and that clearance in the frontiers will continue unabated. In addressing deforestation beyond plantations levels, collaboration with national and subnational authorities is crucial to cover landscape-wide impacts. Governments, commodity purchasers, sustainability practitioners and agricultural standards organisations need to collaborate to identify commodity frontiers or key landscapes where new farms are causing deforestation. This also highlights the need for closer integration of efforts to align with local policies and land use plans to ensure that agriculture and forest objectives are balanced across the wider landscape.

This issue has been examined at length in another SNV REAP publication, titled: *Finding the right balance: Exploring forest and agriculture landscapes.* From this section we can conclude that certification can provide guidance and systems to curb deforestation in supply chains. However, besides niche markets where full traceability and strict monitoring is possible, it is hard for voluntary certification schemes to ensure that no deforestation targets are being reached. Addressing the three elements as described above (whether or not as part of a certification scheme) can help to move towards a system where no deforestation takes place. In the second part of this report we will examine the three elements in more detail and provide examples and suggestions on how they can effectively be implemented.
Section 2

Key elements for no deforestation supply chains

In the previous section we concluded that voluntary certification schemes alone will not necessarily ensure no deforestation in supply chains, particularly across a landscape. It may be the case that there are more cost effective ways to move towards deforestation-free supply chains. Or it may be that there are particular steps which can be taken on the way towards full certification which can lead to deforestation-free supply chains. In the previous section we identified three key elements that need to be in place in order to make a shift to deforestation-free supply chains.

1. Traceability and forest monitoring
2. Incentives for smallholders
3. Working across the landscape

In this section, we discuss each of the three elements in more detail.

2.1 Traceability and forest monitoring

In order to prove no deforestation in a supply chain there needs to be a traceability system in place that demonstrates from where the product originates. This can become a very complex exercise, as products can be mixed on several occasions along the supply chain. Depending on the complexity of the supply chain and the willingness to invest in tracking commodities from source to end product, a number of chain of custody methods exist. An overview of the most common chain of custody methods is provided in Table 2.1. Given the complexity of the palm oil supply chain we highlight CoC methods relevant to this sector. The methods described are also relevant to other commodities.

Driven by the increasing interest of buyers in tracing commodities from their end-product stage back to the mill or farm, various adaptations and new chain of custody methods have been developed over the past five years. One that receives a lot of attention in the context of palm oil is mass balance plus (MB+). It is an improved version of the traditional MB method which only allows mixing for certified or controlled products. Controlled in this sense means that these products are sourced from suppliers which meet minimum requirements to participate and demonstrate a commitment to eventually achieve certification or no deforestation in the supply chain. MB+ allows a mill to transition over time to a segregated CoC method without limiting initial supply sources, providing a realistic alternative for improving traceability without putting huge financial strains on the industry over a short time period. The Tropical Forest Trust has begun an MB+ program for Nestle to ensure that palm oil used in its products is not associated with deforestation (Box 2.1).

MB+ operates similar to FSC percentage-based claims, which allow non-certified wood to make up a percentage of the end product. However, the non-certified 'controlled' wood must comply with some basic principles, for example that no intact forest can be cleared for plantation establishment or expansion. The participating mill/depot can claim that their entire supply chain is not driving deforestation, addressing the primary issue for end product companies in developed countries. This method also offers the advantage of allowing smallholder farmers that are not yet certified, but are making step-wise progress, to participate and gain benefits. Lessons on traceability can be learnt from implementation of the Controlled Wood method under the Forest Certification Council standard (Box 2.2).
Table 2.1: Common chain of custody methods

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<th>Method</th>
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| **Book and Claim**     | Certificate trading or Book and Claim, technically is not a CoC method since beyond the Crude Palm Oil (CPO) mill the certified product is not separated from the physical supply chain, and the end product does not necessarily contain certified palm oil. For the palm oil industry this option is also known as GreenPalm certificates (after the name of the company managing the system for the RSPO). It is a certificate trading system separate from the physical trade in palm oil. If the mill, for example, produces 100 tons of certified Crude Palm Oil, then it issues volume certificates for that same amount which goes into the global supply chain. The benefit of Certificate Trading is that no paper trail or physical separation of oil along the supply chain is needed, and therefore it is a much cheaper option. It also means that companies that are using derivatives of palm oil that are not yet available as traceable Certified Sustainable Palm Oil (CSPO) can still buy certificates to support the production of CSPO. The downside is that companies that buy certificates to claim certified CPO could continue sourcing from producers who are not acting responsibly. Due to the low costs and easy access, downstream firms still largely adopt Certificate Trading which only costs an extra 0.3 per cent compared to conventional palm oil sold on the international market. Even though Green Palm is considered an important step towards traceable CPO, the question arises whether such a transition is likely to occur.  

| **Mass balance**       | Mass balance (MB) allows mixing of certified and non-certified oil derivatives in any step of the process; therefore palm oil present in end products cannot be traced back to the plantation or even to the CPO mill. This method monitors certified volumes into the processing chain with an equivalent volume of end product labelled as certified. This is the least expensive CoC method and most commonly used. The advantage of Mass Balance is that it can accommodate a transition to fully traceable products at vast industrial scales that would be nearly impossible to do with more stringent methods, such as segregation or identity preserved. Simple improvements in record keeping could provide increased traceability and will be explained in detail in Section 3.1. |
| **Segregated**         | This method treats certified and non-certified palm oil as separate products and does not allow mixing of the two to take place at any stage of processing. However, mixing certified oil from different mills is allowed in the processing chain. Costs are increased over MB methods since separate shipping containers and storage tanks need to be segregated for certified product. While a mill could choose to facilitate the segregation of certified and non-certified palm oil during processing (by running certified batches at a certain time, or having separate processing lines) economies of scale would most likely dictate that the mill would need to have its entire supply source certified. |
| **Identity preserved** | Identity preserved (IP) goes one step further than segregation methods in that it doesn’t allow mixing of certified oil derivatives from different mills; and therefore, certified palm oil can be traced back to the mill even at the end product stage. Validating whether deforestation occurred as a result of plantation establishment or expansion could be done on the entire area of the ‘supply-shed’. Of all the CoC methods, IP is the most costly and given the economies of scale that govern commodities, this method is most likely only possible if a mill’s entire supply source is certified. |

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29. Sachet, B. An approach for transforming the palm oil industry: Lessons learned and ideas from TFT. 2014. Crassier, Switzerland
The Tropical Forest Trust (TFT) was concerned about whether companies can afford expensive segregation or switch suppliers. Through the mapping of the supply chain, they found that in each country there is only a handful of refineries that process palm oil (on average between 3 and 10) with few committed to making sure that all the palm oil they process is responsible. It was recognised that if those refineries were to commit to making sure that 100 per cent of what comes out of their facility is environmentally and socially responsible, there would be no need for segregation downstream and the complexities this generates. TFT’s approach is therefore to engage the refinery/mill in meeting the following criteria:

1. Achieve full traceability back to the farm, plantation, or group of smallholders
2. Create a way to assess and monitor its suppliers’ current practices but also their willingness to improve, and support to achieve real change
3. Eliminate from the supply chain those plantations and growers who are not performing well in terms of sustainability and who are not interested in changing.

If a refinery or mill achieves full compliance on all three points, then the totality of the palm oil which flows into this plant can be:

1. Traceable
2. A mix of responsible and moving towards responsible (with the entry level of responsibility being a commitment to implement a no deforestation policy)
3. Certified as containing a certain percentage of RSPO certified oil from plantations that have also committed to no deforestation.

The Tropical Forest Trust’s approach follows a system of mass balance plus, with the plus requiring traceable production and no deforestation. TFT is currently engaging with Nestle, Golden Agri Resources, Wilmar and others to introduce their sustainable sourcing policy for palm oil. The approach is illustrated in the diagram below (Figure 2.1).

**Figure 2.1: Tropical Forest Trust’s approach to no deforestation**
Depending on volumes and the supply chain itself, it becomes clear that retaining information on the source of production throughout the supply chain up to the end user can become enormously complex and costly. For complex supply chains, CoC methods for tracking production, such as MB+ or percentage based claims such as Controlled Wood, can be used. The focus in setting up traceability systems should be on tracing production to the farm level, as this is where most of the sustainability issues arise, including deforestation. Once the sources are clear, steps can be taken towards working at larger economies of scale by linking different sources of deforestation-free production. A first step would be to ensure that data on the locations of the farms is available, which can then be compared with data on deforestation. To be able to provide the information of where production is sourced from, low cost methods are required, in particular in the context of smallholders. They must, however, also be sufficiently robust to meet the aim of identifying whether deforestation is taking place and ensure that the production coming from those areas will not enter the supply chain. In Section 3 we will describe tools that have been developed by SNV and partners that can deliver such a low cost traceability and monitoring system.

Box 2.2: Learning lessons from FSC Controlled Wood: proof of origin

Controlled Wood (CW) has its origin in the FSC Policy on Percentage Based Claims that came into effect in October 1997. It was introduced to overcome the difficulty in providing sufficient supply of FSC certified materials and to address the considerable costs of segregating FSC material from non-FSC material. The Controlled Wood method allows uncertified virgin and recycled material to be used in an FSC certified product based on certain screening requirements and labelling thresholds. Certification bodies were requested to determine the precise forest origin of non-certified materials and avoid controversial sources. The following categories of uncertified raw materials were considered to be unacceptable as part of an FSC certified product:

- Wood that has been illegally harvested
- Wood from genetically modified trees
- Wood from areas where there is a clear demonstration of violation of traditional, customary or civil rights, or of serious extant disputes with Indigenous peoples or other social stakeholders, involving confrontation or violence
- Wood from uncertified high conservation value forests.

The term Controlled Wood was introduced to describe the successful avoidance of sources previously termed controversial. As part of the process there is a need to show proof of origin. The certificate holder must have the proper documentation to track material back to its district of origin. The standard includes the following language:

Section 8.1

“The company shall determine and keep records of country and district of origin of wood supplied.” The company shall “ensure that the documentation required to demonstrate the district of origin of the wood supplied is maintained. This should include legally required transport documents and proof of purchase from the FMU of origin.”

What has become evident with this process is the difficulty of providing an invoice that tracks wood back to the forest of origin. Many certificate holders and certification bodies expressed extreme difficulty, if not impossibility, in tracking products other than roundwood to their forest of origin. The further down a company is in the supply chain, the harder it is to track the source of wood. Lessons can be learnt from application of the Controlled Wood method under FSC in determining the extent to which traceability is feasible.

31. as defined in Section 8.1 of the CW standard and further detailed in FSC-DEI-40-005 ADV 40-005-04
2.2 Providing incentives for smallholders towards deforestation-free agricultural commodity production

In Section 1, we concluded that voluntary certification tends to strengthen large-scale, output-intensive production, effectively excluding smallholders.\textsuperscript{33,34} As the costs associated with the implementation of the systems required by sustainability standards can exceed the financial gains from premiums at small scales, there is in general a lack of incentive and capability for smallholders to meet the standards’ requirements. Without support and incentives for smallholders to comply with certification schemes, companies committed to sourcing certified products might effectively be forced to exclude smallholders from their supply chain. Even though smallholders might comply with the standards, at least to a certain degree, having the documentation in place to demonstrate compliance is extremely challenging. Support for these stakeholders is important, as smallholders produce a major share of production of commodities linked to deforestation.

Although incentives through certification often come through premium prices from markets this will not always be available or exist in some sectors. Therefore other options need to be examined. This could include reform of existing fiscal incentives or support to farmers to increase their yields. An opportunity for providing incentives for practicing no deforestation is linking increased production to reducing environmental impacts. In general, across the commodities smallholder productivity is relatively low compared to the potential yields. One sector where the differences are particularly large is the oil palm sector in Indonesia (see Box 2.3).

Box 2.3: Potential for increasing yields in smallholder plantations in the oil palm sector in Indonesia

In the oil palm sector in Indonesia, scheme smallholders and independent smallholders have a yield gap of 6 and 40 per cent respectively. Independent smallholder plantations constitute 20 per cent of the total oil palm plantation area in Indonesia and are growing rapidly, currently exceeding 1.8 million ha. The potential for increasing production in the existing independent smallholder plantations is high (see Figure 2.2).

Figure 2.2: Yields under Good Agricultural Practices (GAP) in plantations and smallholders compared, as well as between tied and independent smallholders

Some of the main reasons for the low yield in smallholder plantations are (IFC 2013):
- Field maintenance practices do not meet good practice standards
- Limited/no access to technical assistance
- Farmers are not/poorly organised
- Limited communication with and access to markets

In order to be able to implement better management practices, farmers face constraints regarding knowledge, capital and labour. Although knowledge can be improved through trainings, the enabling conditions to implement the practices have to be considered. Due to a lack of access to capital or constraints in labour, options to implement the learned practices are limited. With the right systems in place, increased smallholder production has high potential to reduce pressure on forests.

37. Ibid.
Box 2.4: Implementing Responsible Sourcing from Smallholders (RSS) through the Smallholder Support Model

To facilitate the access of smallholders to companies committed to responsible supply chains, SHARP developed the Responsible Sourcing from Smallholders (RSS) approach. This can be used as a step-wise approach towards certification, but with an initial focus on a no regrets approach, focussing on improving production alongside refraining from deforestation. The RSS approach seeks to define minimum requirements for responsible production that smallholder producers must meet, while in parallel ensuring that incentives and support is provided for smallholders to achieve this. The aim of the RSS approach is to allow continued inclusion of smallholders who are implementing basic responsible practices in sustainable supply chains, combined with active support for improvements in practices and livelihoods.

The approach consists of two pillars:

**Pillar 1:** Implement minimum requirements that smallholder producers must meet, based on key commitments within responsible sourcing policies.

**Pillar 2:** Enable smallholder support towards improved agricultural practices and livelihoods.

**The Smallholder Support Model**

While smallholders might be enabled in improving management through an entity who buys directly from smallholders (e.g. a farmer cooperative or mill), in practice few of these entities have the capacity to set up systems ensuring sustainable production without external funding and expertise. The Smallholder Support Model provides options for companies to provide financial support to smallholders to move towards responsible production of palm oil, and also certification targets. Drawing on expertise from on-going projects for cocoa, coffee and palm oil, different SHARP models for implementing smallholder support are being developed based on the concept below (Figure 2.3). Through this model, companies can be linked to producers without involving all the links in the supply chain. Through building capacity in local service providers, support towards more sustainable production can be provided. The SHARP facilitates the linkages between the partners and ensures the implementation of the RSS model.

**Figure 2.3: SHARP smallholder support concept**

The RSS Smallholder Support Model offers opportunities for downstream companies to provide direct financial support to smallholders to move towards responsible production of palm oil and certification targets. This direct funding relationship will increase understanding of smallholder issues in the sustainable oil palm industry, and support the development of more informed responsible sourcing policies and implementation decisions with regards to smallholders.
With a growing number of retailers, manufacturers, processors and traders in the food, fuel and fibre sectors making public commitments to deforestation-free supply chains, attention has to be paid to how smallholders can be included. Interestingly, farmers that perform well on meeting sustainability requirements in general have significantly higher yields compared to farmers that perform poorly against sustainability standards. For the initial investments needed to make such a transition, however, support to smallholders is needed, as they generally do not have access to the necessary knowledge and capital. Downstream players can catalyse such a change by providing the right incentives. For companies downstream in the supply chain, however, providing direct support to their producers may not always be feasible depending on the complexity of the supply chain. In oil palm for example, the blending of the product at different stages in the processing, makes it complicated to trace it to the source. An example of how upstream changes can be supported by downstream players is the Smallholder Support Model as proposed by the SHARP Initiative, see Box 2.4. Although financial incentives and support are needed to enable a transition to

Box 2.5: Supporting governments in implementing green economic growth strategies

The province of Central Kalimantan (Indonesia) is facing considerable challenges related to expansion of oil palm and rubber plantations. These problems include extensive illegal deforestation, abuse of licenses, destruction of peat lands, encroachment of protected areas and social conflicts. The incomplete spatial plan of the province is a root cause of many of these problems, as boundaries are unclear. The continuing expansion of the crops continues to lead to massive destruction of forests. In response, the Green Global Growth Institute (GGGI) has stepped forward to support the government in addressing the issues related to (spatial) planning. Together with Forest Carbon, SNV is an implementing partner for the GGGI in supporting the provincial government and two districts, Pulang Pisau and Murung Raya, in designing and implementing Green Growth Strategies across their jurisdictions. A first step in the process was assessing current planning procedures and identifying entry points for improving (spatial) planning. In parallel, analysis was done on the main drivers of deforestation and sources of GHG emissions. It was found that these were rubber and oil palm. As these sectors are also the most important sources of income for local populations as well as for the province as a whole, these sectors were specifically targeted in developing the Green Growth strategies.

Options for sustainable development of the rubber and oil palm sectors were identified using SNV’s Siting Tool, through which a zoning of the districts was made showing the trade-offs between agricultural expansion and conservation values. The tool was applied together with local partners and district governments. The results were used to develop strategic development plans for each sector as a pathway to Green Growth as well as a district wide spatial plan. These recommendations are currently embedded in the spatial plans through regular workshops and meetings with key decision makers.

In addition to the inputs for improved spatial planning, specific interventions were recommended for agricultural frontier areas, including the provision of incentives to local communities using SNV’s Inclusive Business Approach. By enhancing farmers’ productivity and competitiveness as well as improving their market access, incomes can be greatly improved without expansion into forest areas. Information on spatial plans and regulations are shared and made available to these communities to enable them to make informed decisions on where expansion can and cannot take place. To date, SNV, together with its partner Forest Carbon, developed green growth strategies for key land-based sectors covering forestry, mining, renewable energy, and agriculture.

38. Ibid.
deforestation-free production systems and supply chains, downstream players in general regard premiums for certified products unsustainable in the long term. In order to avoid expansion in forest areas, systematic change in the production systems has to be induced. In delivering deforestation-free products and realising this systemic change, downstream players also have a role to play, at least in the transition stage. Such a transition can be catalysed through direct support for those that deal directly with their producers, as well as through using models like SHARP’s RSS and Smallholder support model in the case of complex supply chains. In Section 3, we will explain how SNV’s inclusive business model can deliver the support needed to induce such systematic change.

2.3 Working across the landscape

A major challenge in addressing deforestation for agricultural expansion is ensuring that efforts do not just result in a shift of deforestation to another region, but has a net positive impact across the landscape. In order to mitigate the risks for such ‘leakage’, projects have to take into account the impacts at a larger scale, beyond plantation boundaries. There continues to be a lack of understanding of the relationship between the forest and agriculture sectors and the dynamics that drive land-use change across the landscape. In order to provide insights into this relationship and help decision makers identify and introduce appropriate interventions. SNV produced the report: “Finding the right balance: exploring forest and agriculture landscapes”. The study revealed that stronger regulation and planning at a landscape level are critical ingredients in order to balance competing land use goals. A landscape approach also permits alignment with local or district planning processes, enables cross-departmental or ministerial dialogue and facilitates the negotiation of priorities and trade-offs. SNV is working closely with district authorities in Murung Raya and Puluang Pisau in Central Kalimantan (Indonesia) in order to support green growth and allow economic and environmental objectives to be met (see Box 2.5).

From a business perspective, sustainable landscape management recognises that long-term business success depends on a sustainable use of natural resources and ecological services as well as healthy communities. Working across the landscape to address such issues offers companies an operational nexus to ensure that collaborative processes for dialogue, planning, negotiating and monitoring are in place, involving government and local actors who influence land management decisions. In the private sector companies are increasingly motivated to look beyond the farm unit to resolve issues around land disputes, forest conversion and other sensitive issues where they operate. There are various motivations why companies recognise the need to address the (environmental) issues beyond their plantations; these include ensuring security of supply, a general responsibility to support communities in the vicinity of their farms as well as reputational risk. Some companies are supporting unilateral initiatives to support wider landscape approaches. An example illustrating such an approach is Olam partnering with Rainforest Alliance for Cocoa and Carbon landscapes in Ghana (see Box 2.6).

With regards to certification, in order to work effectively at a landscape level and align closer with government plans and policies, jurisdictional approaches to certification are being piloted that focus on administrative areas. An example of a jurisdictional approach could be agricultural commodity certification across an entire administrative area. Such an approach has various advantages as it can benefit from of economies of scale to lower certification costs, reduce costs for monitoring deforestation and has the potential to link-up with a country’s REDD+ programme, possibly taking advantage of a source of funds and the ability to account for leakage. A jurisdictional approach could cover a range of products in supply chains in a region, identify high risk areas where strict requirements of no deforestation are needed, help mitigate risks for commodity buyers in their sourcing practices and link producers to incentives and markets. Once objectives and strategies are streamlined with government strategic planning and objectives, governmental institutes can support the implementation and ensure sustainability of projects after they finish. Through supporting government planning and extension services, lasting impact can be reached at scale within a relatively short timeframe. Although an attractive idea, the success of a jurisdictional approach will depend on the interest of local governments to support and implement the changes.

Box 2.6: Rainforest Olam Cocoa and REDD+ Project\textsuperscript{41}

In 2011, Olam partnered with Rainforest Alliance to start the “Climate Cocoa Partnership for REDD+ Preparation” project. The project aims to break the link between cocoa production and deforestation and introduce more climate resilient cocoa. The project also served as a learning model for future expansion of the project into other areas with other tree crops, such as coffee.

The project has been engaging a variety of stakeholders, in particular small-scale farmers, who were assisted in meeting Cocoa certification standards under the Sustainable Agriculture Network (SAN). Certification allowed farmers to receive a premium for cocoa production and also opened up the opportunity for carbon finance due to the promotion of intercropping. An important element of the project was to work with the Forestry Commission, traditional authorities and private concession holders on partially or wholly devolving land rights to local communities who can then support sustainable forest management practices and develop these resources into REDD+ projects. This ensured that the project was only focusing on on-farm impacts but considered the wider forest landscape. The introduction of a REDD+ Cocoa project was hampered by the major decline in carbon prices and further adjustments still need to be made to bring this to market.

By the end of 2012, there were 833 farmers and 1,259 farms certified, which contributed to an estimated yield of 1,295 metric tons of certified beans sold for US$2.4 million. Sourcing is expected to increase to 3000 metric tons by 2014 and continue to rise over time. It is estimated that the costs are nearly twice as high as those of a normal business venture of this scale for Olam. It is expected that these will decrease over time through learning by doing, and from possible additional income sources.

Section 3
SNV Toolkit to ensure no deforestation in supply chains

In the previous section, the three elements needed to successfully deliver on no deforestation commitments in supply chains where examined in detail. In order to ensure no deforestation in supply chains, all elements need to be in place; therefore a package in which these elements are collectively addressed is required. To this end, SNV has developed a toolkit that can effectively deliver on no deforestation commitments. In this section we will explain in more detail how the toolkit addresses the needs for each element by presenting how it works and why this is an effective approach in line with the recommendations from Section 2.

3.1 Traceability and forest monitoring - FLOW

To achieve full traceability and prove no deforestation, it is crucial that production can be traced back to the farm and that a system is in place which monitors forest cover. Although a number of systems exist that can achieve this, the main challenge is to deliver this at a low cost in order to make it work in a smallholder context.

Tracing production back to the farm
Together with Akvo, SNV has developed a traceability system that can trace production from the processor to the farm level at very low costs. FLOW is a geo-traceability tool for collecting, evaluating and displaying geographically referenced data on yields, inputs and management. The system consists of three components (Figure 3.1):

- A user-friendly smart phone application that enables local staff to conduct surveys directly on their phones. The data uploads automatically to online databases
- An internet-based dashboard for designing surveys, managing their distribution and performing data analyses
- Interactive maps for visualising and sharing survey results.

![Figure 3.1: The three components of the FLOW system](image-url)
As the amount of farms to be monitored is high, but the potential for investment from the producers is low, a key challenge in developing the needed traceability and monitoring system is being able to deliver tools that can be implemented at scale and low costs. SNV’s traceability and monitoring tool is an affordable, user-friendly system that facilitates large-scale data collection and analysis. The tool is designed to support international teams in monitoring and evaluating initiatives while working in diverse locations. It enables teams of fieldworkers working in remote areas to provide data to programme managers and experts even when they are based in different areas or countries. Complemented with a forest monitoring system using remote sensing, FLOW provides a cost efficient option to demonstrate no deforestation in supply chains. The generated information can provide useful input for law enforcement and decision-making processes of local governments and businesses committed to establishing deforestation-free production systems.

In the implementation of the system, the plantations of a farmer group are mapped and are given a unique code that is placed at the collection point. Each time a truck picks up commodities at a farm, a surveyor using the mobile application records the farm’s code and enters the weight of the collected products and the truck number. The FLOW system ensures that each truckload is tracked until a batch processing number is assigned to it. This method allows companies further up the supply chain to trace the origin of each batch or shipment back to the plantations.

3.2 Providing Incentives to smallholders - Inclusive Business

To ensure that smallholders and the poorest groups are included in supply chains, and to support them to make the transition to more sustainable production systems, SNV has developed the Inclusive Business approach and applied it in more than 150 projects in Africa, Asia and Latin America. The approach seeks to integrate low-income groups and environmental priorities into the value chain of companies. It aims to generate win-win-win situations through fostering improved wellbeing of low-income groups, introducing environmentally sustainable production methods, and generating core business benefits for the participating companies. SNV’s Inclusive Business Approach encourages improved collaboration among businesses and smallholder farmers and provides assistance and incentives to smallholders to reduce deforestation while improving their yields and livelihoods through the development and implementation of Better Management Practices.

Developing Inclusive Business models

Inclusive Business models seek to involve low-income groups in the value chain of small, medium or large companies as producers, distributors or consumers. Through a supply chain diagnosis, bottlenecks to transparency, communication, and relations among the stakeholders are identified and customized solutions are designed through business units. Business units consist of farmer groups who will eventually collect and process data on production and impacts, manage internal control systems and coordinate communication and transactions on behalf of the farmer groups. Organising farmers in groups is essential for smallholders to improve their efficiency and work on economies of scale. To build this capacity, SNV has developed specialized management skills trainings on collective financial and organisational management as well as on setting up internal control systems using information from FLOW and forest monitoring systems. The business units will strengthen the relationship between farmers and processors and facilitate dialogue, enabling more effective communication on certification standards, standard operating procedures and impacts of operations.

Forest monitoring

In parallel to the tracking and monitoring of production, forest cover around the plantations is monitored through remote sensing. Combined with the data from FLOW, information on project impacts is provided on a regular basis to the producers and processors, enabling them to take swift action.

When working with companies and smallholders in a landscape, sourcing agreements are made about which areas can and cannot be sourced from. Once it is clear where a company is sourcing from, sourcing from unsuitable areas can be prevented and deforestation around production fields can be monitored. Combined with web-based tools, up to date and high-resolution data on forest cover is collected using drones. After an initial scoping mission, mapping the set side forests in detail, in particular the frontiers, regular surveys are carried out to track changes in forest cover over time.
Better Management Practices
In order to enable smallholders to make a transition to more sustainable production systems, SNV has developed Better Management Practices (BMP) trainings. These trainings focus on strengthening smallholders’ human resources, improving the sustainability of their supply chains and accessing new markets. Improving yields is a key strategy to achieve sustainability, as higher yields per hectare improve land use efficiency and decrease the need for expansion into pristine natural areas to meet demands. It also ensures that the needs of the local farmers are met. Integrated in the trainings on agronomy and management is an Environmental Awareness Training which provides insight in the importance of ecosystem (services) and introduces models for sustainable forest management and planning.

SNV has developed High Impact Training (HIT) modules on Better Management Practices and Smallholder Organisation. In order to reach scale, the approach is to train trainers through active learning. Trainings are given in the field, using locally available inputs and materials. This way, we stimulate best-fit intensification, which depends to a large extent on spontaneous diffusion for its spread and uptake in the wider community. The demonstration plots are established in a step-wise manner, starting with basic agronomic practices to overcome key deficiencies and lead to economic benefits in the short term. In the later stages, farmers will be trained in more complicated and time/capital consuming practices such as improved fertilization and integrated pest management. Throughout the training, we advise the farmers on how to reduce their environmental impact in the implementation of BMPs and create awareness on the importance of ecosystem services, using outputs from the Siting Tool (see Section 3.3) and forest monitoring systems. In addition to mitigating the environmental impact of plantations, solutions are also provided to improve the sustainability of the processing stage of commodities. SNV has developed a waste to energy toolkit that helps identify opportunities for energy production from waste streams. The training of trainer approach will be embedded in companies, industry associations and other training providers and vetted by the relevant authorities.
**Inducing systemic change**

In order to induce systemic change, the Inclusive Business model is designed and implemented involving all relevant stakeholders, and integrated in existing (planning) procedures. As a premium is often not available, or insufficient to allow smallholders to make a shift to more sustainable production systems, alternative means of support are needed. The Inclusive Business Approach is a more sustainable model as it builds internal capacity and increases profitability of operations inducing systemic change. Companies benefit from better management practices because higher (quality) production helps support consistent supply from their smallholder sources, while low-income participants benefit by gaining reliable buyers for more produce, fair prices for their products, new jobs and access to affordable, quality goods and services. Once the Inclusive Business Model has successfully been put into place, a self-sustaining system will be able to maintain and further develop the farmer groups.

### 3.3 Working across the landscape - The Siting Tool

For no deforestation commitments to have a positive impact on forests, a landscape approach has to be adopted to prevent leakage and to balance the objectives for agricultural production with forest protection. In order to be able to operate beyond plantation boundaries and have impact at scale, activities should be aligned with government planning and activities wherever possible.

In order to develop a vision for sustainable development across the landscape, SNV has developed a Siting Tool. The Siting Tool is used to guide planning processes in forest-agriculture landscapes and informs stakeholders on options for sustainable agricultural expansion. With this tool, major drivers for (future) deforestation as well as areas suitable for sustainable agricultural expansion can be identified. By zoning the landscape for the suitability of a target crop, we take into account conservation values (biodiversity, ecosystem services and carbon stocks). Based on these analyses, trade-offs in the landscape are visualized and recommendations are provided on spatial planning as well as on target areas for interventions and support. The outcomes form the basis for selection of sites for implementation of the Inclusive Business tools as well as the selection of target areas for which the traceability and monitoring system have to be put in place. The required measures needed to ensure no deforestation can be specified per risk zone. In low risk zones, less demanding systems for monitoring impacts can be used. For the high risk areas full traceability and stringent monitoring systems should be advocated to prove no deforestation.

### The Approach

The Siting Tool outputs open up opportunities for engaging in multi-stakeholder dialogue on land-use distribution convening stakeholders across the landscape. It provides strategic information for investors, companies and governments on meeting targets for economic development while mitigating the impact on forests. This information is made available to the participating smallholders (or smallholder groups) in the landscape. For smallholder farmers, the tool provides access to information options for expansion and can provide the baseline for the monitoring systems as well as a means to demonstrate deforestation-free production.

42. taking into account the future impacts of climate change
For the landscapes in which we work on developing deforestation-free supply chains, the Siting Tool is used to develop pathways of Green Growth by balancing needs for (agricultural) development with conservation objectives.

In North Sumatra, Indonesia, this was done for Conservation International in their target districts, identifying where sustainable expansion of cocoa, coffee, rubber and oil palm is possible, and what type of interventions are needed in each suitability zone. For each target crop, the areas that are biophysically suitable for production were mapped based on current climatic conditions, as well as predictions for future climatic changes (in temperature and rainfall). These maps were overlaid with a map depicting the distribution of important conservation values (the Risk Indicator Map, see Figure 3.2). The combined results permit a visualisation of the areas which are suitable for sustainable agricultural expansion (low risk areas), where forests should be conserved (high risk areas), as well as a suite of options in-between.

Although for all sourcing areas it should be clearly demonstrated that they are not overlapping with set aside areas, it is the high risks areas, along forest frontiers, which are the most critical and need to be monitored closely. In those high-risk zones, government support is crucial to stop deforestation and activities related to Inclusive Business development and implementation of the monitoring and traceability systems must be streamlined with government planning and extension services in the area.

43. Tapanuli Utara/Selatan and Mandailing Natal
45. The principles, criteria and indicators in the Siting Tool are based on the High Conservation Value (HCV) concept and toolkits
3.4 Application of the no deforestation toolkit

For the toolkit to be effective in ensuring no deforestation in supply chains, the tools developed for each element have to be applied as a package. Depending on the target area, a custom-made implementation programme has to be made, but in general implementation of the tools is carried out in three successive phases:

- Site selection and partnership agreements
- Mainstreaming results, capacity building and system implementation
- Impact assessment, gap analysis and transition.

Phase I: Site selection and partnership agreements: As a first step, the Siting Tool is applied for site selection and to analyse threats and opportunities across the landscape. The results from the analysis will inform stakeholders where expansion can be promoted and where it should be avoided. Sites for implementing the Inclusive Business approach are selected based on this analysis.

1. Working across the landscape: The Siting Tool results are developed with relevant government institutes for land use evaluation and planning and socialized through an envisioning workshop organised in the target area with local government and partner organisations.

2. Incentives for smallholders: Based on the outcome of the Siting Tool analysis, target areas and partner organisations are identified. Companies are approached to introduce the Inclusive Business approach and farmer groups are identified. Demonstration plots are selected and baselines established. In the target areas, prospect trainers are selected and trained.

3. Traceability and monitoring: Based on the analysis from the Siting Tool and stakeholder discussions, pathways for sustainable development are identified and agreed upon. Areas where expansion cannot take place will be clearly identified.

Phase II: Mainstreaming results, capacity building and system implementation: In the second phase, results and recommendations are mainstreamed into spatial planning, capacity-building training programmes for smallholders are implemented in selected demonstration plots. In order to measure progress, and a monitoring system is introduced.

1. Working across the landscape: Relevant planning procedures are identified through which recommendations can be mainstreamed into spatial planning. Through the identified procedures, results and recommendations are used to inform and advise local governments in developing strategic planning priorities. In order to socialize results and to share progress of the project, a multi-stakeholder platform is set up with partners and key stakeholders.

2. Incentives for smallholders: The training programme is rolled out for farmers in the selected demonstration plots and the farmers in the target areas are organised into functional business units. Regular meetings of the different groups involved along company supply chains are held.

3. Traceability and monitoring: On a monthly basis, yields, the implementation of Better Management Practices, as well as forest cover and quality in target areas is monitored.

Phase III: Impact assessment, gap analysis and transition: In phase III, the overall impact of the project is assessed using data from the monitoring systems and outcomes of partnership meetings. Based on the results, gaps with the targets are identified and recommendations for addressing these gaps are provided. SNV and its partners gradually hand over responsibilities to the local partners after a transition of responsibilities to the business units and companies.

1. Working across the landscape: Project impacts and (remaining) threats are identified. Based on the findings recommendations for follow-up steps are agreed upon.

2. Incentives for smallholders: The overall impact of the project on the social economy and livelihoods of the community as well as the remaining gaps and challenges are assessed. Responsibilities are handed over to the local leaders and institutions, and agreements on future collaboration with partners are formalized.

3. Traceability and monitoring: The impacts of the project on forest cover and GHG emissions compared to business as usual scenarios are assessed and communicated. With the functional business unit in place, responsibilities are transferred to selected leaders and third parties to take over roles on training, monitoring, communication and (financial) management.
In Section 1 we concluded that, although the existing systems for traceability and documentation used in voluntary certification can support delivering on no deforestation commitments, certification alone may not be sufficient and nor is it a prerequisite. In order to bring about the systematic changes needed to significantly reduce the impacts of agricultural production systems on forests, three key elements need to be put in place:

1. Traceability and forest monitoring
2. Providing incentives for smallholders
3. Working across the landscape.

SNV Toolkit for no deforestation in supply chains
SNV has developed a toolkit consisting of three components which can help to address the identified barriers to achieving deforestation-free supply chains. For the toolkit to be effective in ensuring no deforestation in supply chains, the tools developed for each element have to be applied as a package. Depending on the target area, a custom-made implementation programme has to be made. The package of activities can be used as a stand-alone approach, or as an add-on to existing certification schemes. For each element the following tools are recommended:

1. **Traceability and forest monitoring**
   To prove no deforestation, it is crucial that production can be traced back to the farm and that a system is in place, which monitors forest cover. For tracing production to the farm, SNV uses FLOW, which is a geo-traceability tool for collecting, evaluating and displaying geographically referenced data on yields, inputs and management. Once it is clear where a company is sourcing from, sourcing from unsuitable areas can be prevented and deforestation around areas can be monitored.

2. **Providing incentives for smallholders**
   As smallholders produce about 70 per cent of the world’s food, supporting roughly 2.2 billion people, this group is crucial in addressing deforestation in supply chains and has to be included in any solution towards this goal. SNV has developed an inclusive and sustainable business approach which enables companies to benefit from better management practices, as higher (quality) production helps support consistent supply from their smallholder sources. Low-income participants benefit from the approach by gaining reliable buyers, fair prices for their products, new jobs and access to affordable, quality goods and services. In order to induce systemic change, the Inclusive Business model is designed and implemented involving all relevant stakeholders, and integrated in existing (planning) procedures. As a premium is often not available, or insufficient to allow smallholders to make a shift to more sustainable production systems, alternative means of support are needed. The Approach is a more sustainable model as it builds internal capacity and increases profitability of operations inducing systemic change.

3. **Working across the landscape**
   For no deforestation commitments to have a positive impact on forests, a landscape approach has to be adopted to prevent leakage and to balance the objectives for agricultural production with forest protection. In addition, in order to work effectively at a landscape level, alignment with government plans and policies is crucial. To understand trade-offs between (agricultural) development and conservation values across the landscape, SNV has developed the Siting Tool. The tool provides guidance for (spatial) planning as well as information on the interventions and support needed in target areas. This analysis forms the basis for selection of sites for implementation of the Inclusive Business tools, as well as for the selection of target areas for which the traceability and monitoring system have to be put in place.
Adopting agricultural certification standards remains an important strategy towards developing sustainable supply chains. However, companies committed to achieving the goal of deforestation-free sourcing need to introduce other elements to achieve this objective. This holds in particular for companies with complex supply chains. Necessary measures include providing support to smallholder farmers to bring about systemic changes in the sector and closer alignment with local authorities in order to delink agricultural production from deforestation at a landscape level. SNV has provided a toolkit to help companies and local authorities achieve no deforestation targets.
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