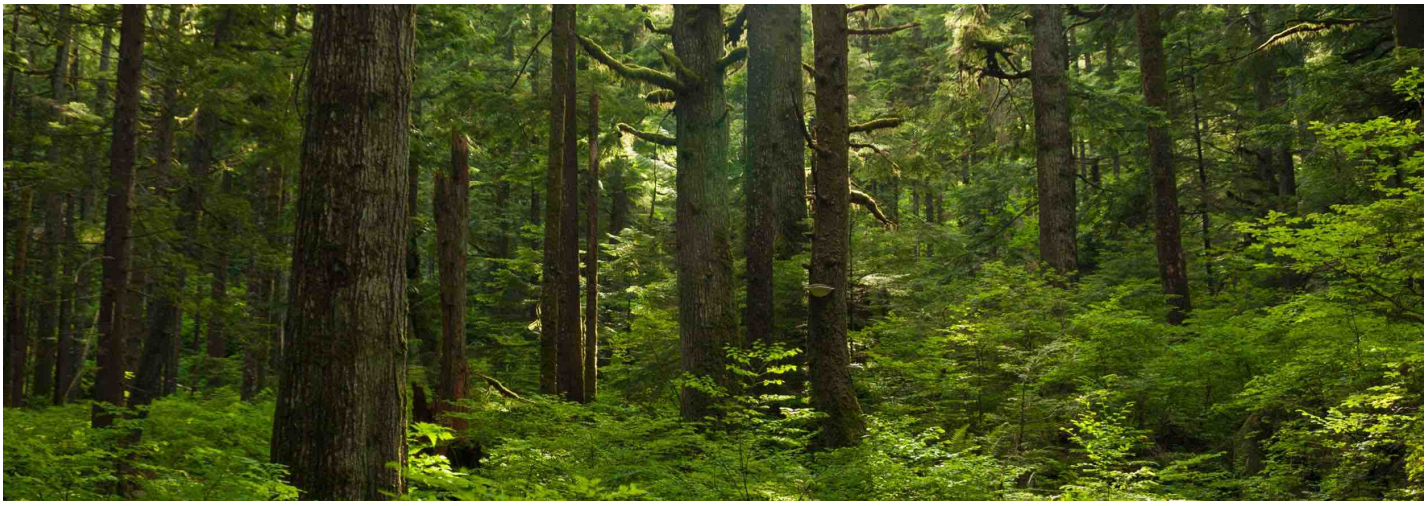


OVERVIEW

Foreword and Introduction

Foreword

By Andrew D. Steer and Peter Bakker

Forests play a critical role for the global environment, population, and economy. The forest-based sector employs 13.7 million workers, with a commercial output of about 1 percent of the global GDP. An estimated 500 million people depend on forests for their livelihoods, while hundreds of thousands of businesses rely on them for fiber and raw materials.

But with deforestation causing ecosystem losses valued at about US$ 2-5 trillion annually, businesses and citizens must take action now in order to maintain forests for the future. One such action involves seeking out sustainably produced wood and paper-based goods.

Seeking out sustainably produced products can improve forest management by:

- Shaping markets for wood and paper-based products, including increasing demand for legal and sustainable products;
- Involving local communities in forest management decision and operations and ensuring that local populations receive benefits from the forests; and
- Maintaining environmental and social values associated with local forests.

Developed in consultation with multiple stakeholders, this updated Guide and Resource Kit seeks to promote the demand of sustainably produced wood and paper-based products and support procurement managers in making informed choices by:

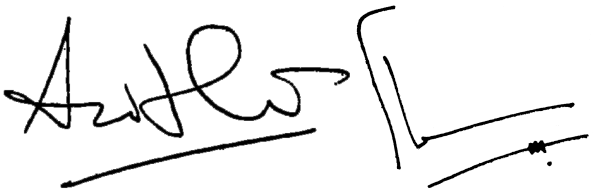
- Providing an overview of the context of forests and their management;
- Identifying the most critical issues around the procurement of wood and paper-based products;
- Describing a selection of tools, initiatives, and programs that can help inform and support the development and implementation of sustainable procurement policies and practices; and

- Explaining the maze of terms, which often stand in the way of effective action and communication between suppliers and buyers.

The third edition of this guide incorporates the most up-to-date developments on the legality of forest products, the latest advances in technological and data-management systems to trace and control forest product supply chains, an expanded overview of the social implications of forest products, and updates to the chapters on climate change and recycled fibers.

With this update, WRI and WBCSD continue our collaboration to broaden businesses' understanding of the environmental and social dimensions of sourcing wood and paper-based products. Both large and small businesses need to be proactive in supporting sustainable forest management and reversing deforestation via their procurement practices. This guide will help do just that.

We welcome your comments, questions, and opinions.



Introduction

Almost half of the Earth's original forest cover has been converted to other land uses (Bryant et al., 1997). Although estimated rates of net loss seem to indicate a slowdown, the total forest area continues to decrease; today forests extend over an estimated 30% of the total land area (FAO, 2006).

Interest in procurement of wood and paper-based goods produced in a sustainable manner is growing. Concerned consumers, retailers, investors, communities, governments, and other groups increasingly want to know that in buying and consuming these products they are making positive social and environmental contributions.

In what is often described as "sustainable procurement", organizations are looking beyond price, quality, availability and functionality to consider other factors in their procurement decisions including environmental (the effects that the products and/or services have on the environment) and social aspects (labor conditions, indigenous peoples' and workers' rights, etc.) (Environmentally and Socially Responsible Procurement Working Group, 2007).

Sustainable procurement can help maintain a company's social license to operate (Kemp, 2001). It can help reduce reputation risks and, ultimately, help secure sustainable supplies (Kennard, 2006). Sustainable procurement can also be used to align companies with their stakeholders' values and make organizations along the supply chain (from forest owners and producers to retailers) more resilient to changing business conditions.

The growing demand for sustainably produced wood and paper-based goods can lead to improved forest management. Sustainably managed forests are a renewable source of raw materials; these forests also provide services such as clean air and water, wildlife habitat, and sometimes recreation opportunities (Figure 1).

Sustainably produced wood and paper-based goods can be a wise choice compared to other materials, because:

- They come from a renewable resource - trees, the product of sunlight, soil nutrients and water.

- They capture carbon - through photosynthesis, most trees take carbon dioxide out of the atmosphere and replace it with oxygen, mitigating greenhouse gas emissions. In sustainably managed forests, the carbon released through harvesting is offset by that which is taken up through regeneration and re-growth, making these forests carbon neutral.
- They store carbon over the long term - solid wood and paper-based products can effectively store carbon for decades or even centuries.
- They are recyclable - they can be reused, or converted into other products, extending their useful life and adding to the available resource pool of wood fiber.

Purpose and Scope of this Guide:

The purpose of this Guide and resource kit is to assist sustainability officers and business procurement managers, especially major purchasers of wood and paper-based products that do not have 'in house' forest and forestry expertise. It identifies and reviews central issues, and highlights tools that can be used to assist sustainable procurement. It should be noted that not all aspects of potential concern and risk apply to all forested regions of the world. The guide is designed as:

- **A decision support tool** – by providing simple and clear information on existing approaches to the procurement of wood and paper-based products from legal and sustainable sources, as well as providing additional references and resource materials;
- **An information tool** – to help customers frame and formulate their own sustainable procurement policies for wood and paper-based products; defining specific requirements aligned with core company values and building and maintaining stakeholder confidence.

The past few years have seen a proliferation of tools, projects, initiatives, publications and labels to aid sustainable procurement of wood and paper-based products. To help those who are new to the subject, a selected number of these tools are highlighted and characterized (see Resource Directory).

Structure of the Guide:

The information in this publication is organized in five sections:

- Ten key issues and their associated overview - the list can be used as a checklist and as a tool for structuring discussions with stakeholders, while each overview discusses what it is, why it matters, and typical terminology and provides a general sense of how the highlighted resources address each issue and factors for company consideration;
- An overview of the selected resources highlighted in the guide.
- Sources of additional information: commonly cited instruments, tools, processes, etc.
- A key to the terminology, in the form of acronyms and a glossary of terms. The field has developed a rich terminology which may be a source of confusion and misunderstanding.
- A references section that includes key sources of information on highlighted tools.

Factors to consider:

- A natural first step in developing and implementing sustainable procurement of wood and paper-based forest products is to consider internal company policies or systems that may already exist for the procurement of other products. Another step is to establish dialogue with suppliers, technical experts, non-governmental organizations (NGOs), and owner associations, as these actors can be familiar with specific issues in local circumstances. Trade associations and national and regional government representatives may also have relevant information and advice to offer.
- The leverage of a company to influence change depends on its position along the supply chain; large buying companies purchasing from a variety of sources often have more influence.
- A commitment to sustainable procurement to protect forests may go beyond forest products. For instance, a company policy to avoid wood from land being converted to agriculture may also want to consider avoiding agricultural products or biofuels from similarly converted lands.

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1

TRACEABILITY

Where do the products come from?

Traceability is the ability to track sources of wood in finished products through the supply chain to – as close as is practical – their origins. A clear sense of all the links in the products' supply chain will be useful for the procurement manager to assess:

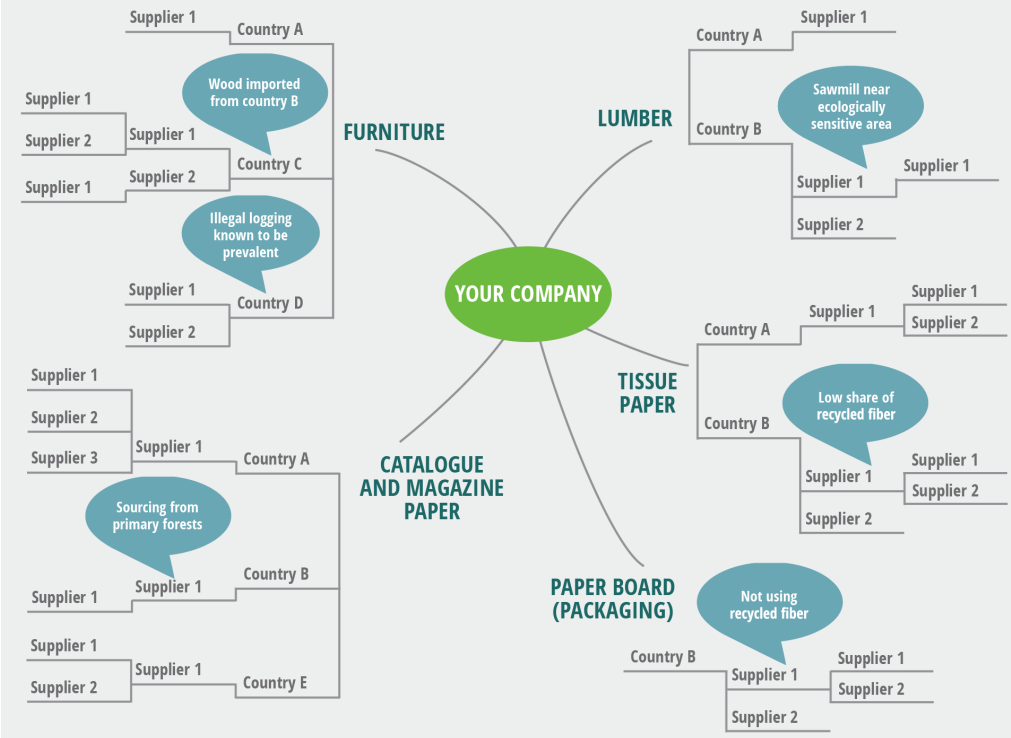
- Whether the sources of wood can be accurately identified.
- Whether the products have the properties they are claimed to have.
- For instance, whether:
  - The wood was harvested and processed in compliance with relevant laws
  - The wood comes from sustainably managed forests
  - The unique ecological and cultural features of the forest where the wood was sourced have been maintained
  - The products were manufactured with environmental controls in place
  - Harvesting and manufacturing processes complied with social standards.

Tracing the origin of wood and paper-based products is not always straightforward. Supply chains can sometimes link many wood producers and dealers across several countries, and procurement portfolios can be complex, with multiple supply chains (Figures 2 and 3).

FIGURE 2. WOOD AND PAPER-BASED PRODUCTS HAVE MANY INPUTS

Wood and paper-based products have many inputs. The inputs can be very different for different products, both in terms of the amount used and the characteristics of the supply chain.

FIGURE 3. EXAMPLE OF A COMPANY'S PORTFOLIO OF WOOD OR PAPER-BASED PRODUCTS



The supply chain associated with each product varies depending on the product, the location of the purchaser in the supply chain, and the context of the procurement. This figure shows an example of how a company may engage in a number of different supply chains, each with its own challenges and opportunities.

FIGURE 4. MANY PRODUCTS, MANY TREES

Forest products are difficult to trace because, a finished product might include different types of trees, and many products can come from the same tree (Figure 4 above).

It is easier to establish traceability for solid wood products than for paper-based products. Paper products are manufactured in pulp mills that typically draw wood from many sources. In the most complex cases, a network of dealers buying wood from many different loggers, landowners and sawmills may supply a pulp mill (Box 1 below). In a sawmill, logs usually lose their link to individual landowners in a sorting yard in the same way an agricultural business would combine grain from individual farmers in a common silo. The wood collected from sawmills – often chips that are by-products of solid-wood products manufacturing – further lose their individual identity during the paper making process.

Box 1: The Wood Supply Chain

There is no single standard supply chain for wood and paper-based products and all supply chains are different. There are, however, common elements that can be useful to clarify the connections among various manufacturing points, the product flows, and the environmental and social issues associated (figure below).

Solid wood, engineered wood, and paper-based products are manufactured using different technologies, but they may all come from the same forest or even the same tree. Some forest-based industries often use all parts of the tree for different products in a system of integrated processing facilities. In other instances, only the most valuable portions of the best trees are used. Raw tropical hardwoods are often produced under these circumstances.

There is great variability in supply chains depending on the country, region, or local circumstances. In the most complicated cases, a sawmill, pulp mill and engineered wood plant are fed by a network of product flows and business relationships. Mills frequently incorporate wood from various sources involving a large number of actors. For instance, a pulp mill in the Eastern United States that produces 860,000 tons (Mt) of paperboard per year uses 2,720,000 tons of wood chips. The mill procures these chips directly from 60-70 landowners, some 600 suppliers, 120 sawmills and 10 shipping operations (MeadWestvaco estimates for 2006).

Tracking these wood flows can be challenging, but it is possible to do it to a degree that is satisfactory for sustainable procurement (e.g., district level; see traceability discussion).

Several technological approaches are emerging to help trace and verify the origin of the raw materials in products (Table 1 below). There are also new technological applications that seek to increase the overall transparency of the supply chains regarding the origin of the raw materials (Table 2 below).

Table 1: Sample technologies to trace and verify the origin of wood in the supply chain

DNA Fingerprinting

Used By: Forest Managers, Manufacturers, Importers, Retailers

Tested: Global

Process: Wood samples are taken from standing trees before harvest as part of the forest inventory process and stored for later use. Samples are taken from the same trees and logs during harvesting and processing, according to harvest and log transportation records. The second set of samples is physically matched to the first set and the DNA of the paired samples is compared. If the DNA is an exact match, this proves the two samples come from the same tree, validating the documentation. Testing is applied to a small, randomly selected portion of paired samples to minimize testing costs (USD 0.75 – 1.00 per m3).

Product Scope: Solid wood

Contacts: Double Helix Tracking Technologies Pte. Ltd. Phone: +65 6227 9706 http://www.doublehelixtracking.com/, Thunen Institute of Forest Genetics Phone: +49 4102 696 0 E-mail: fg@thuenen.de https://www.thuenen.de/en/

DNA Mapping

Used By: Forest Managers, Manufacturers, Importers, Retailers

Tested: Global

Process: Genetic variation within a population of trees can be measured and mapped out. DNA extracted from wood samples can be compared to these maps to determine origin and verify claims. This works even with finished products. By conducting random sampling and testing of product shipments, costs are limited to less than 1% of product value.

Product Scope: Solid wood

Contacts: Double Helix Tracking Technologies Pte. Ltd. Phone: +65 6227 9706 http://www.doublehelixtracking.com/, Thunen Institute of Forest Genetics Phone: +49 4102 696 0 E-mail: fg@thuenen.de https://www.thuenen.de/en/

Fiber Analysis

Used By: Manufacturers, Importers, Retailers

Tested: Global

Process: Samples of paper are broken down into slurry and examined under a microscope by trained analysts. While fiber analysis is not a traceability tool, it can identify certain characteristics about the fibers that compose paper products, including whether the species are hardwood or softwood varieties and, in some cases, the genus of the trees.

Product Scope: Paper

Contacts: Integrated Paper Services Phone:+1-920-749-3040 www.ipstesting.com, Institute for Paper Science and Technology Darmstadt Technical University Phone: +49-6151-16-2454 www.pmv.tu-darmstadt.de

Isotope Analysis

Used By: Forest Managers, Manufacturers, Importers, Retailers

Tested: Africa

Process: Stable isotopes are used to confirm and verify the origin of timber species. Stable isotopes are chemical elements (e.g. oxygen, carbon, nitrogen and sulfur) that occur in materials with different atomic mass and with different chemical and kinetic behavior. Databases of stable isotopes can be used to map the distribution of timber species and identify and verify origin of the wood even in finished products.

Product Scope: Solid wood

Contacts: TÜV Rheinland, Agrolsolab www.agroisolab.de Phone: +49 (0) 2461-93134010

Table 2: Sample tools for increasing transparency in supply chains

String

What It Is: String is an online, data recording, tool that allows users at all phases in the supply chain to request information about products from their suppliers. Users can generate reports from the data to get a complete picture of the flow of products throughout the supply chain, and all the available data. String is flexible, and it can be customized to record any data about any type of product (see below). The system has been piloted in a number of industries including timber, textiles and minerals.

Contact: Historic Futures Phone: +44 (0) 1993886420 www.historicfutures.com

Product Scope: Solid wood and paper-based products

Tested: Global

To be used by: Forest Managers, Manufacturers, Importers, Retailers

FSC's Online Claims Platform

What It Is: FSC's Online Claims Forest The Online Claims Platform (OCP) is an online traceability platform customized to work with FSC's Forest Management (FM) and Chain of Custody (CoC) certification systems to streamline the process in order to validate FSC certified products. Currently buyers and sellers of FSC certified products are required to maintain paper records of the volumes of the products traded. Under the OCP, the information and claims about certified products will be kept in an electronic format and all entities along the supply chain will be able to access the data and document the phases of the product in the supply chain. The OCP build on the String platform (above).

Contact: FSC Phone: +49 (0) 228-367-660 E-mail: fsc@fsc.org http://ocp-info.fsc.org/

Product Scope: Solid wood and paper-based products

Tested: Global

To be used by: Forest Managers, Manufacturers, Importers, Retailers

PREPS (featured in the Resource Directory)

What It Is: The PREPS database includes information about paper products, including origin of raw materials. To add a new paper grade to the database, PREPS members nominate the product and the PREPS secretariat contacts the mills and requests the information.

Contact: PREPS Phone: +44 (0) 207-839-1084 E-mail: info@prepsgroup.com http://prepsgroup.com/home.php

Product Scope: Paper-based products

Tested: Europe, North America

To be used by: Retailers, Importers, Manufacturers

EPAT (Environmental Paper Assessment Tool)

What It Is: EPAT is an online tool designed for paper producers to report environmental performance data. Mills can share this data with their customers through EPAT to support purchasing decisions. Customers can specify paper requirements based on their environmental sourcing commitments.

Contact: GreenBlue Phone: 434.817.1424 E-mail: info@greenblue.org https://www.epat.org/

Product Scope: Paper-based products

Tested: North America

To be used by: Retailers, Manufacturers

Understanding the position of a company in the supply chain can help identify priorities and key areas of influence. Also, depending on the location and/or complexity of the supply chain, the need for due diligence is greater in some places than in others.

Requesting documentation from suppliers is a common method of tracing the origin of raw materials. A supply chain can be regarded as a chain of legally binding contractual relationships; purchasers can trace the supply chain through contracts, and require that their suppliers commit to providing raw materials that were harvested in compliance with the law, or meet other customer specifications

In places where the law – both background law and contract law – is strong and properly enforced, sales contracts can be a good

In addition to sales contracts, other documents for tracing the origin of raw materials include:

- Licensing permit(s) from the relevant authorities giving permission to harvest
- Certificate of a sustainable forest management standard
- Certificate of origin
- Chain-of-custody (CoC) certificate
- Certificate of legality
- Harvesting/management plans
- Phytosanitary certificates - issued by state/local authorities regarding the plant health requirements for the import of non-processed products
- Bill of lading - a receipt for cargo and contract of transportation between a shipper and a carrier that describes the goods being transported and is issued when the shipment is received in good order
- Export documents

- Transportation certificates

All of these documents should carry appropriate stamps and seals from the relevant governmental or certification agencies. However, false documentation can be common in certain countries and additional systems to trace the raw materials back to their origins, within the limits of feasibility, may be needed in some cases.

Working with those directly involved in the supply chain will help develop a better understanding of the challenges, costs and other impacts associated with implementing additional tracking systems. Forest managers, forest owners, government agencies and certification bodies active in the area can provide useful information.

A high degree of vertical integration makes traceability simpler. However, in some countries such as in the United States, companies are becoming less integrated, selling off their forest lands and thereby externalizing traceability.

Factors to consider regarding traceability

- Purchase contracts can be useful to trace the origin of the wood. They can also be used as safeguards to require that raw materials be harvested and products be manufactured in compliance with the law, where laws are properly enforced.
- Tracing wood through the supply chain back to the regions of origin is becoming common in many parts of the world, and new technologies are emerging to aid this practice.
- Forest certification schemes are often able to track certified and recycled content as well as uncertified content in the product line. For the uncertified content certification schemes are increasingly placing requirements and safeguards to avoid supply from unwanted/controversial sources.
- Different levels of detail may be needed depending on the risk of encountering unacceptable practices. For instance, in areas where illegal activity may be occurring, detailed information on the specific location of harvesting may be needed while for other areas knowing the general origin of the wood may suffice.
- Risk should be assessed for every purchase as conditions in the country of origin might change at any time.
- Chain-of-custody systems have been established by different stakeholders to document the wood flow between various steps of the supply chain. Most forest certification schemes include a chain-of-custody standard that reaches from the forests up to certain processes in manufacturing. Not all chain-of-custody systems cover 100% of the certified product, and all systems allow mixing of certified and non-certified materials. In some cases it may be pragmatic for the end user to ensure that its suppliers maintain proper records and make them available upon request, subject to appropriate confidentiality agreements.

1. In some cases competition laws may limit the amount of information that customer and supplier may exchange. In the US, for instance, a pulp mill owned by a company may buy chips from sawmills owned by one or more companies. All these companies may compete against each other to buy logs from landowners, and the information about their respective suppliers may be highly proprietary business information; sharing this information directly or through a common customer may be improper and perceived as anti-competitive.
2. A Chain-of-custody certificate documents and systematically verifies the flow of the materials from their origin in the forest to their end-use.

Relevant Resources

German Government Procurement Policy
UK Timber Trade Federation Responsible Purchasing Policy
Belgian Government Procurement Policy
Leadership in Energy and Environmental Design (LEED) Rating Systems
Green Globes
CEPI Carbon Footprint Framework
Environmental Paper Assessment Tool V.2.0.
Environmental Paper Network
New Zealand Government Paper Buyers Guidance
Paper Profile
Two Sides
World Wildlife Fund Guide to Buying Paper
World Wildlife Fund Paper Scorecard
Publisher's Database for Responsible Environmental Paper Sourcing (PREPS)
Consumer Goods Forum Guidelines for Pulp, Paper & Packaging
The Forest Trust's Good Wood, Good Business Guide
A Buyers' Guide to Canada's Sustainable Forest Products
CEPI Legal Logging Code of Conduct
Danish Government Procurement Policy for Tropical Forests
Dutch Government Procurement Criteria for Timber
European Community Green Purchasing Policy
FLEGT and VPAs
WWF Certification Assessment Tool (CAT)
Forest Footprint Disclosure Project
Forest Industry Carbon Assessment Tool
French Policy on Public Procuremet of Timber and Wood Products
FSC Controlled-Wood Standard
Global Forest and Trade Network
Green Purchasing Network
Japanese Government Procurement Policy
Mexican Federal Government Procurement Policy
Standard Practice for Categorizing Wood and Wood-based Products According to Their Fiber Sources
Sustainable Forest Finance Toolkit
Sustainable Forestry Initiative Procurement Objective

- Swiss Declaration Duty for Timber
- The Forest Trust
- Sedex
- SmartSource
- Project LEAF
- String
- Enhancing the Trade of Legally Produced Timber, a Guide to Initiatives
- Timber Tracking Technologies Review
- Illegal Logging Portal
- NEPCon LegalSource Programme
- PEFC Due Diligence System
- Carbon Disclosure Project
- Global Timber Tracking Network
- International Wood Products Association's Wood Trade Compliance Training and Due Diligence Tools Course
- Radix Tree

2

INFORMATION ACCURACY

Is information about the products credible?

Knowing the context and conditions surrounding the harvesting of the raw materials and the manufacturing processes of the products is important. A knowledgeable buyer will be in a better position to properly assess the social and environmental claims of a product (e.g., wood was harvested under a Sustainable Forest Management (SFM) regime, etc.).

When information to support the claims of the product is not complete, accurate, or enough for the buyer to properly assess these claims, monitoring and verification are used to add credibility to the process. In some cases information may come from long and well-established business relationships. In other cases the buyer may wish to consult outside sources for additional information.

Monitoring and verification can take three forms:

- Self verification - a producer monitors and reports about its own harvesting and manufacturing processes. Typical outputs include sustainability reports, emissions reports, reports on social indicators, resource usage reports, recycling reports, etc.
- Second party verification - a buyer verifies that a supplier and/or the products of that supplier conform to a certain standard.
- Third party verification - an independent party verifies that a supplier and/or its products conform to a certain standard. Independent, third-party verification is generally considered to provide more assurance.

Monitoring and verification systems tend to be designed differently depending on which part or aspect of the supply chain (production in the forest or manufacturing processes) they address:

- Production in the forest -the classical monitoring system- forest authorities enforcing relevant laws - can be a reliable system where governance is strong, but it may not be adequate where governance is weak. Concerned business, environmental groups and labor and trade organizations, generally agree that independent, third-party verification of forestry operations is desirable, particularly in areas of high risk (Box 2: Areas of high and low risk of encountering unacceptable practices). Forest certification systems are intended to provide an alternative in this part of the supply chain.

Box 2. Areas of high and low risk of encountering unacceptable practices

Areas with higher risk of encountering unacceptable practices require more due diligence and more detailed information than areas with lower risk.

High-risk source areas may include:

- Areas that have unique ecological and socio-cultural features (unique forest values).
- Areas of political and social conflict.
- Areas where avoidance and violations of workers and/or indigenous rights are known to be high.
- Areas where the incidence of forestry-related illegal activity is known to be high.

Low-risk source areas may include:

- Sites that have been independently certified to appropriate credible standards. Not all certification labels are perceived by all stakeholders to offer the same level of protection against the risk of sourcing from controversial and unwanted sources.
- Sites where there are no ownership disputes or clear processes to resolve them fairly, and where illegal activity in the forestry sector does not typically occur.
- Areas known to have low corruption and where law enforcement exists.

Voluntary forest certification schemes have been developed to guide the marketplace. These systems allow interested producers to be independently assessed against a locally appropriate standard and to be recognized in the marketplace through a label that certifies compliance. The appropriateness of the standard includes having the right content for the right place, but also entails the process by which the standard was defined and implemented.

Forest certification

There are two major international systems for forest certification: the Forest Stewardship Council (FSC) and the Programme for the Endorsement of Forest Certification Systems (PEFC). Both are used by community and family owned forests and large landowners and/or industrial operations.
[1]
These systems have similarities, but they also have differences that are considered important by their respective constituencies. Environmental organizations tend to prefer the FSC, while landowners and tenure holders tend to prefer PEFC. The choice of systems varies by geography, and many forest companies are certified to both systems depending on the location of their operations.

Table 3 provides an overview of the general characteristics of these two systems. Table 3 is NOT meant to be an exhaustive comparison. A proper comparison should include more detail of aspects such as compliance with international standards, system governance, accreditation, certification, criteria used as basis for the systems, performance on the ground, and others (Nussbaum and Simula, 2005). A list of comparisons can be found in Section III of this guide. Some of these comparisons represent the interests of specific stakeholder groups that claim there are significant differences between the certification systems.

Table 3: General characteristics of the two major systems for forest certification

The two major systems for forest certification are the Forest Stewardship Council (FSC) and the Programme for the Endorsement of Forest Certification (PEFC). This table is not meant to be an exhaustive comparison. A list of references to more detailed comparisons can be found "Additional Resources".

Established

FSC	PEFC
Established in 1993 at the initiative of environmental organizations.	Founded in 1999 in Europe, as an endorsement mechanism for independent, national certification systems.

Basic Principle

FSC	PEFC

FSC is a system of national and regional standards consistent with ten principles of SFM that cover the following issues:

1. Compliance with laws and FSC principles
2. Tenure and use rights and responsibilities
3. Indigenous peoples' rights
4. Community relations and workers' rights
5. Benefits from the forests
6. Environmental impact
7. Management plans
8. Monitoring and assessment
9. Special sites – high conservation value forests (HCVF)
10. Plantations

These principles were developed by a global partnership of stakeholders convened by FSC. The principles apply to all tropical, temperate and boreal forests and are to be considered as a whole. All national and regional standards are derived in-country from the ten principles. The principles are expected to be used in conjunction with national and international laws and regulations, and in compatibility with international principles and criteria relevant at the national and sub-national level (FSC Policy and Standards; principles and criteria of forest stewardship) (FSC, 1996, amended in 2002).

There is variation in regional standards and in interim standards adopted by auditing bodies.

PEFC is a mutual recognition mechanism for national and regional certification systems. PEFC's environmental, social and economic requirements for SFM build on international guidelines, criteria and indicators for SFM derived from intergovernmental processes such as the Ministerial Conference on the Protection of Forests in Europe (MCPFE), and the African Timber Organization (ATO) and International Tropical Timber Organization's (ITTO) processes for tropical forests among others. PEFC's SFM standards cover the following aspects:

1. Maintenance and appropriate enhancement of forest resources and their contribution to the global carbon cycle
2. Maintenance and enhancement of forest ecosystem health and vitality
3. Maintenance and encouragement of productive functions of forests (wood and no-wood)
4. Maintenance, conservation and appropriate enhancement of biological diversity in forest ecosystems
5. Maintenance and appropriate enhancement of protective functions in forest management (notably soil and water)
6. Maintenance of socioeconomic functions and conditions
7. Compliance with legal requirements

Endorsed certification systems are assessed to be consistent with international agreements such as ILO core conventions, as well as conventions relevant to forest management and ratified by the countries, such as the Convention on Biological Diversity (CBD), CITES and others.

All national PEFC standards are independently assessed to ensure that they meet PEFC International's Sustainability Benchmarks. There is some variation with standards exceeding these requirements (PEFC, 2010).

Components, members, extent

FSC **PEFC**

All component standards carry the FSC brand. National initiatives for forest management certification exist in Argentina, Austria, Australia, Belarus, Belize, Belgium, Bosnia and Herzegovina, Bolivia, Brazil, Bulgaria, Burkina Faso, Cameroon, Canada, Chile, China, Colombia, Costa Rica, Croatia, Czech Republic, Cote d'Ivoire, Denmark, Ethiopia, Ecuador, Estonia, Finland, France, Gabon, Germany, Ghana, Honduras, Hungary, India, Indonesia, Ireland, Italy, Japan, Kenya, Laos, Latvia, Lithuania, Luxembourg, Madagascar, Malaysia, Mexico, Mozambique, Namibia, Nepal, Netherlands, New Zealand, Nicaragua, Norway, Panama, Paraguay, Papua New Guinea, Peru, Poland, Portugal, Republic of Congo, Republic of Korea, Romania, Russia, Slovakia, Slovenia, Solomon Islands, South Africa, Spain, Sri Lanka, Suriname, Sweden, Swaziland, Switzerland, Tanzania, Thailand, Turkey, Uganda, Ukraine, United Kingdom, Uruguay, United States, Venezuela, Vietnam, and Zambia . There are also FSC chain of custody certificates in a number of additional countries. 165 million ha have been certified under FSC (as of October 2010).
(FSC website, October 2012).

PEFC endorses certification systems once they have successfully gone through the external assessment process using independent evaluators. Endorsed SFM standards can carry their own brand names. Endorsed standards include the following: Australia, Austria, Belarus, Belgium, Brazil (Cerflor), Canda (CSA, SFI), Chile (Certfor), Czech Republic, Denmar, Estonia, Finland, France, Germany, Italy, Latvia, Luxembourg, Malaysia (MTCS), Norway, Poland, Portugal, Russia, Slovak Republic, Spain, Sweden, Switzerland, United Kingdom, and the United States (SFI, American Tree Farm System). There are also PEFC chain of custody certifications and PEFC stakeholder members in a number of additional countries. 254 million ha have been certified under PEFC (as of October 2012) (PEFC website).

Stakeholder scope

FSC	PEFC
FSC is a multi-stakeholder owned system. All FSC standards and policies are set by a consultative process. Economic, social, and environmental interests have equal weight in the standard settint process. FSC follows the ISEAL Code of Good Practice for Setting Social and Environmental Standards. (FSC website).	Multi-stakeholder participation is required in the governance of national schemes as well as in the standard-setting process Standards and normative documents are reviewed periodically at intervals that do not exceed five years. The PEFC Standar Setting standard is based on ISO/IEC Code for good practice for standardization (Guide 59) and the ISEAL Code of Good Practice for Setting Social and Environmental Standards (PEFC 2010A).

Chain-of custody (CoC)

FSC	PEFC

- The CoC standard is evaluated by a third-party body that is accredited by FSC and compliant with international standards.
- CoC standard includes procedures for tracking wood origin.
- CoC standard includes specifications for the physical separation of certified and non-certified wood, and for the percentage of mixed content (certified and non-certified) of products.
- CoC certificates state the geographical location of the producer and the standards against which the process was evaluated. Certificates also state the starting and finishing point of the CoC.

(FSC policy on percentage-based claims, and various FSC guidelines for certification bodies)

- Quality or environmental management systems (ISO 9001:2008 or ISO 14001:2004 respectively) may be used to implement the minimum requirements for chain of custody management systems required by PEFC.
- Only accredited certification bodies can undertake certification.
- CoC requirements include specifications for physical separation of wood and percentage-based methods for products with mixed content.
- The CoC standard includes specifications for tracking and collecting and maintaining documentation about the origin of the materials.
- The CoC standard includes specifications for the physical separation of certified and non-certified wood.
- The CoC standard includes specifications about procedures for dealing with complains related to participant's chain of custody.

CoC certificates state the geographical location of the certificate holder; the standard against which the certificate was issued, and identify the scope, product(s) or product(s) group(s) covered (PEFC, 2010B).

Inclusion of wood from noncertified sources

FSC	PEFC

FSC	PEFC
FSC's Controlled Wood Standard establishes requirements to participants to establish supply-chain control systems, and documentation to avoid sourcing materials from controversial sources, including: a. Illegally harvested wood, including wood that is harvested without legal authorization, from protected areas, without payment of appropriate taxes and fees, using fraudulent papers and mechanisms, in violation of CITES requirements, and others. b. Wood harvested in violation of traditional and civil rights c. Wood harvested in forests where high conservation values are threatened by management activities d. Wood harvested in forests being converted from forests and other wooded ecosystems to plantations or nonforest uses e. Wood from management units in which genetically modified trees are planted (FSC, 2006)	The PEFC's Due Dilligence system requires participants to establish systems to minimize the risk of sourcing raw materials from: (PEFC, 2010B). a. forest management activities that do not comply with local, national or international laws related to: ◦ operations and harvesting, including land use conversion, ◦ management of areas with designated high environmental and cultural values, ◦ protected and endangered species, including CITES species, ◦ health and labor issues, ◦ indigenous peoples' property, tenure and use rights, ◦ payment of royalties and taxes. b. genetically modified organisms, c. forest conversion, including conversion of primary forests to forest plantations.

Verification

FSC	PEFC
Requires third-party verification.	Requires third-party verification.

- Manufacturing processes - once raw materials leave the forests and reach mills and factories, they may no longer differ significantly from those of other industries if processing facilities are located in developed areas. However, when mills and factories are in less developed areas there may not be enough government enforcement of environmental and social standards. Self- and third-party verification systems can be useful to report and verify status and progress in relation to general standards and organizational commitments (e.g., to reduce emissions or increase recycled content).

Environmental Management Systems (EMS) and Social Management Systems (SMS) can be useful in the manufacturing process. An EMS is generally defined as a series of processes and practices seeking to assess and reduce the environmental impact of an organization, while an SMS encompasses the management of interactions between an organization and its social environment. In general, EMS and SMS have four major elements (EPE, 2007; SMS, 2007):

- Assessment and planning - identification of environmental and social aspects of interest, establishment of goals, targets, strategy and infrastructure for implementation.

- Implementation - execution of the plan, which may include investment in training and improved technology.
- Review - monitoring and evaluation of the implementation process, identification of issues.
- Adaptive management and verification - review of progress and adjustments for continual improvement. Different EMS/SMS have various degrees of third-party verification.

The presence or absence of viable EMS and SMS programs can be useful in assessing a supplier's efforts to improve environmental and social performance and enhance compliance with pre-determined standards (EPE, 2007). Third-party verification systems, including chain-of-custody certification (Table 3: General characteristics of the two major systems for forest certification) and some ecolabels (Box 3 below) can also be of help.

Box 3: Ecolabels (other than forest certification systems)

A company may want to inform consumers about the environmental claims of a specific product or service through the use of ecolabels. Ecolabeling is a voluntary certification and verification process. The International Organization for Standardization (ISO) classifies three broad types of ecolabels (Global Ecolabeling Network, 2007):

- Type I: a voluntary, multiple-criteria-based third-party program that authorizes the use of environmental labels on products indicating overall preference of a product within a particular category based on life cycle considerations. Examples include the EU Flower and the Canadian Environmental Choice Program.
- Type II: a program involving self-declared environmental claims by parties likely to benefit from such claims. These programs often involve single attributes. An example is the Paper Profile.
- Type III: a program involving a declaration that provides quantified environmental life cycle product information provided by the supplier, based on independent verification, and systematic data presented as a set of categories of a parameter.

There are many ecolabels in the world. In addition to FSC and PEFC, other important ecolabels for wood and paper-based products include:

- Blue Angel - the oldest environmental ecolabel; initiated by the German Ministry of the Interior, it is now administered by the Federal Environmental Agency. Wood and paper-based products covered include building materials, different types of paper and cardboard, packaging materials, and furniture.
- Bra Miljoval (Good Environmental Choice) - the ecolabel from the Swedish Society for Nature Conservation started in 1988. Wood-based products covered include various types of paper.
- Environmental Choice Program - Wood and paper-based materials covered include building raw materials, flooring, office furniture and paper.

- Eco Mark - administered by the Japan Environment Association, it covers various types of paper, board wood, and furniture and packaging materials.
- Environmental Choice - a voluntary, multiple specifications labeling program endorsed by the New Zealand government and managed by the New Zealand Ecolabelling Trust. Wood-based products covered include various types of paper, furniture and flooring products.
- EU Flower - started in 1992 under the European Union Eco-labeling board. The EU Flower is active throughout the European Union and also in Norway, Liechtenstein and Iceland. Wood-based products covered include various types of paper and building materials.
- Green Seal - developed by Green Seal Inc., an independent non-profit organization. Wood-based products covered include various types of paper, furniture, particleboard and fiberboard, and food packaging materials.
- Greenguard - products certified meet requirements of the US Environmental Protection Agency, the US Green Building Council, and Germany's Blue Angel ecolabel.
- Good Environmental Choice Australia - designed by Good Environmental Choice Australia Ltd. Wood and paper-based products covered include various types of paper, flooring products, packaging materials, furniture and recycled and reclaimed timber.
- The Swan - the official Nordic ecolabel introduced by the Nordic Council of Ministers. Certifies some paper products. It also certifies that durable wood products do not incorporate heavy metals or biocides and are produced from sustainably managed forests.

There may be products bearing ecolabels that do not actually meet the label's environmental standards. The International Organization for Standardization (ISO) and other institutions provide guidance on general labeling standards to help in selecting ecolabels:

- International Organization for Standardization - Standards 14020 through 14025 provide guidelines for ecolabels for first and third party verification.
- US Federal Trade Commission - provides guidance on the use of ecolabels and the use of environmental marketing claims.
- Consumer Reports Eco-labels - provides guidance, scorecards and comparisons of ecolabels in the US.
- The Global Ecolabeling Network - provides background information, links to national members, and so on.
- Ecolabel Index – An online database that allows the user to research and compare selected ecolabels.
- The UK Government's Green Claims Code - provides guidance on statements, symbols, descriptions and verification.

Factors to consider regarding monitoring and verification

- Many have compared certification standards, although comparisons are a complex task because of the many factors and elements that need to be considered. Section IV of this resource kit includes a list of resources about comparisons.
- Different stakeholders have different perspectives; certification standards are backed by different constituencies, reflecting their different interests, concerns, and values. Environmental organizations tend to prefer the FSC while industry and tenure holders tend to prefer PEFC.
- The choice of systems varies by geography, and many forest companies are certified to both systems depending on the location of their operations.
- Approximately 11% of the world's total forest area is currently certified (FAO UNECE, 2015). The area under certification is growing rapidly and so is the supply of certified products; however, there may be cases when it can be difficult to meet the demand of certified products. Most certified areas are in developed countries.
- In some regions small landowners have not embraced third party certification.
- The need for independent monitoring and verification varies for different forest areas. A buyer with many supply chains might want to prioritize focusing on monitoring and verification efforts based on the perceived risks associated with sourcing from areas where information may be incomplete or misleading.

1. In general, and at a global scale, large industrial forests and forests plantations are mostly certified to FSC, while public forests and small land holder forests are mostly certified to PEFC.

Download / Print Chapter

Relevant Resources

German Government Procurement Policy
UK Timber Trade Federation Responsible Purchasing Policy
Belgian Government Procurement Policy
The Forest Trust's Good Wood, Good Business Guide
A Buyers' Guide to Canada's Sustainable Forest Products
CEPI Legal Logging Code of Conduct
Danish Government Procurement Policy for Tropical Forests
Dutch Government Procurement Criteria for Timber
European Community Green Purchasing Policy
FLEGT and VPAs

WWF Certification Assessment Tool (CAT)

Forest Footprint Disclosure Project

French Policy on Public Procuremet of Timber and Wood Products

FSC Controlled-Wood Standard

Global Forest and Trade Network

Green Purchasing Network

Japanese Government Procurement Policy

Mexican Federal Government Procurement Policy

Standard Practice for Categorizing Wood and Wood-based Products According to Their Fiber Sources

Sustainable Forest Finance Toolkit

Sustainable Forestry Initiative Procurement Objective

Swiss Declaration Duty for Timber

Sedex

SmartSource

Project LEAF

String

Enhancing the Trade of Legally Produced Timber, a Guide to Initiatives

Timber Tracking Technologies Review

Illegal Logging Portal

NEPCon LegalSource Programme

PEFC Due Diligence System

Carbon Disclosure Project

Global Timber Tracking Network

International Wood Products Association's Wood Trade Compliance Training and Due Diligence Tools Course

New Zealand Timber and Wood Products Procurement Policy

Public Procurement Policies for Forest Products and their Impacts

The Forest Governance Learning Group

Radix Tree

3

LEGALITY

Have the products been legally produced?

There is no universally accepted definition of illegal logging and associated trade. Strictly speaking, illegality is anything that occurs in violation of the legal framework of a country. However, over the past few years several countries have created definitions of illegal logging within public procurement policies and trade regulations (see Table 5: Selected public procurement policies and Box 6: The U.S. Lacey Act, the EU Illegal Timber Regulation and the Australian Illegal Logging Prohibition below), including:

- European Timber Regulation (2010) - Timber logged illegally under the laws of the country of origin. Legal timber must meet the following criteria: legal rights to harvest; taxes and fees related to the harvesting; compliance with timber harvesting laws including forest management and biodiversity conservation laws; respect for third parties' legal rights and tenure; and, compliance with relevant trade and customs laws.
- U.S. Lacey Act (amended, 2008) - It is unlawful to trade, receive, or acquire plants taken, harvested, possessed, transported, sold or exported in violation of underlying laws in a foreign country or in the U.S. The scope of laws is limited to plant protection laws, or laws to regulate: plant theft; taking plants from officially protected areas; taking plants from an officially designated area; taking plants without, or contrary to, required authorizations; failure to pay appropriate taxes or fees associated with the plant's harvest, transport, or trade; laws governing export or transshipment.
- Australian Illegal Logging Prohibition (2012) - Illegal logging occurs when: timber is stolen; timber is harvested without the required approvals or in breach of a harvesting license or law; timber is bought, sold, exported or imported and processed in breach of law; and/or, timber is harvested or trade is authorized through corrupt practices.

Table 5: Selected Public Procurement Policies

Public procurement policies to address legality and/or sustainability began to emerge in the early 2000s, becoming more prominent in Europe, but now also in Asia and Latin America. Most policies seek to ensure that products come from legal and sustainable sources. in some instances, processes are defined and/or entities are established to help inform and implement the policy itself. Many policies include step-wise implementation approaches.

Denmark

Year Passed: 2003 (reviewed 2010; 2014)

Definition of Legality: Similar to UK Government definition. Policy requires a) forest owner/manager to hold legal use rights to the forests; b) compliance with relevant laws, including forestry, environmental and labor laws; (c) payment of taxes and royalties; and (d) compliance with CITES.

Requirements and Applicability: Guidelines are voluntary, and aim to help public buyers in actively seeking to buy legal and sustainable timber.

Product Scope: Wood and paper-based.

SFM Certification Systems:

FSC, PEFC.

Alternative Instruments: SGS's Timber Legality and Traceability Verification; SmartWood's Verification of Legal Compliance. FLEGT-licenses where available.

United Kingdom

Year Passed: 2000 (reviewed in 2009)

Definition of Legality: Timber and wood derived products that originate from forest that meet the following: a) forest owner/manager holds legal use rights to the forest; b) compliance by both the forest management organization and any contractors with local and national legal requirements including forest management, environment, labor and welfare, health and safety, other parties' tenure and use rights, c) payment of all relevant royalties and taxes, and d) compliance with CITES requirements. The UK policy requires Legality and Sustainability or FLEGT-licensing.

Requirements and Applicability: Mandatory for central government. Recommended to sub-national governments.

Product Scope: Wood and paper-based products.

SFM Certification Systems:

FSC, PEFC. Only PEFC endorsed schemes and labeled PEFC, and only SFI 70%.

Alternative Instruments: Requires Legality and Sustainability, or FLEGT-licensed wood. However, where a particular type of product or timber species is required and where there is no sustainable timber or FLEGT-licensed timber or alternative available, timber that is verified to meet the UK government requirements for legality can be accepted. Only legality verification systems ensuring full legal compliance as delivered by the VLC definition will be accepted

France

Year Passed: 2005 (reviewed in 2008. Due to be reviewed in 2011).

Definition of Legality: Does not include specific definition of legality, but requires compliance with CITES. Procurement mangers are required to refer to tools such as forest certification, ecolabels, or supplying countries to define which legislation is relevant.

Requirements and Applicability: Mandatory to central government. Recommended to sub-national governments.

Product Scope: All wood and paper-based products.

SFM Certification Systems: FSC, PEFC, CSA, SFI, MTCS, LEI, Keurhout.

Alternative Instruments: Ecolabels; processes involving third-party verification.

Mexico

Year Passed: 2007

Definition of Legality: Wood of verified legal origin and in compliance with environmental regulations.

Requirements and Applicability: Central government.

Product Scope: Furniture and office supplies.

SFM Certification Systems: Third-party verification systems registered with the Ministry of Environment and Natural Resources.

Alternative Instruments: Third-party verification systems registered with the Ministry of Environment and Natural Resources.

Netherlands

Year Passed: 2004 (revised 2010, 2015)

Definition of Legality: Uses UK Government definition of legality, meaning products that originate from forest that meet the following: a0 forest owner/manager holds legal use rights to the forest; b) compliance by the forest management organization and any contractors with local and national legal requirements including forest management, environment, labor and welfare, health and safety, other parties' tenure and use rights, c) payment of all royalties and taxes; d)compliance with CITES. Evidence of legality will be accepted only where sustainable wood is unavailable.

Requirements and Applicability: Mandatory to central government. Recommended to sub-national governments.

Product Scope: Wood and paper-based products.

SFM Certification Systems: FSC, PEFC international, but excluding MTCS.

Alternative Instruments: FLEGT-Licensed timber. Credible, documentary evidence. Evidence is assessed on a case-by-case basis, based on the Timber Procurement Assessment Commitment guidelines.

Belgium

Year Passed: 2005

Definition of Legality: Sustainability is the minimum requirement. Definition of sustainability includes compliance with relevant international, national and/or regional/local legislation and regulations related to: legal rights to use the forests; payment of taxes, fees and royalties; compliance with forest management laws and regulations (including CITES); and, respect of indigenous and local tenure and use rights.

Requirements and Applicability: Mandatory to central government.

Product Scope: Solid wood products.

SFM Certification Systems: FSC, PEFC Belgium and some PEFC certificates have been determined to meet sustainability requirements.

Alternative Instruments: Forest certified by an independent body, based on internationally recognized criteria. Legality, in itself, not enough as sustainability is the minimum requirement.

Japan

Year Passed: 2006

Definition of Legality: Timber harvested in compliance with the laws of the producing countries.

Requirements and Applicability: Mandatory to central government. Recommended to sub-national governments.

Product Scope: Solid wood and wood-based products.

SFM Certification Systems: FSC, PEFC, SFI, CSA, LEI, Sustainable Green Ecosystem Council.

Alternative Instruments: Wood industry associations' code of conduct, and self-verification mechanisms.

New Zealand

Year Passed: 2006 (reviewed in 2011)

Definition of Legality: Timber or wood products from a forest that that has been legally harvested; the entity that harvested the trees has legal rights to use the forest.

Requirements and Applicability: Mandatory to central government.

Product Scope: Paper and solid wood and wood-based products.

SFM Certification Systems: ATFS, CSA, FSC, MTCS, PEFC, SFI.

Alternative Instruments: Step-wise programs towards certification and legality-verification systems. Third-party certified ecolabels for office papers that contain at least 70% of fiber content from recycled and/or certified sources.

Germany

Year Passed: 2007 (reviewed in 2010)

Definition of Legality: Sustainability, as defined by FSC and PEFC, is the minimum requirement.

Requirements and Applicability: Mandatory to central government. Recommended to sub-national governments. Abroad missions of the Federal armed forces are exempt. If serious deficiencies (e.g. products, or parts of products come from illegal logging) are found in the approved certification systems, the systems will be given up to 12 months, subject to certain conditions, to correct deficiencies. If deficiencies are not corrected then, the certification system will be excluded from the Federal Government's procurement regime.

Product Scope: Wood in the rough, finished and semi-finished products, products in which wood is the most significant component.

SFM Certification Systems: FSC, PEFC.

Alternative Instruments: Certificates comparable to FSC or PEFC, if demonstrated that FSC or PEFC criteria are met in the country or origin. A review will be conducted in 2013 to determine if and how wood from FLEGT-licensed timber is incorporated in the procurement policy.

Norway

Year Passed: 2007

Definition of Legality: Not defined. Ban of tropical timber in public sector construction.

Requirements and Applicability: Central government.

Product Scope: Wood and paper-based products.

SFM Certification Systems: None recognized.

Alternative Instruments: N/A

For a complete list of public procurement policies, see Chatham House's 2014 publication, "Promoting Legal and Sustainable Timber: Using Public Procurement Policy."

Note: China's ecolabeling policy covers wood based panels, wood flooring, and wood furniture products. The policy itself has no requirements for timber legality or sustainability, but the technical requirements for ecolabeling timber products requires that (1) imported wood originates from sustainably managed forests; (2) domestic wood complies with relevant laws and regulations; and that (3) wood products meet CITES requirements. The policy is mandatory to central government agencies.

Sources: Atanasova, 2010; Belgian Council of Ministers, 2005; Belgian Government, 2008; Chatham House, 2010; Danish Forest and Nature Agency, 2011; EFI, 2010B; European Commission, 2010; European Parliament, 2010; Finnish Ministry of Employment and the Economy, 2010. German Federal Ministry of Food, Agriculture and Consumer Protection, 2010; Gobierno de Mexico, 2007; Japanese Ministry of the Environment, 2006; Lopez-Casero and Scheyvens, 2008; Ministere de l'Agriculture et de la Peche, 2008; New Zealand Ministry of Forestry website; New Zealand Ministry of Forestry, 2006; Norwegian Ministry of the Environment, 2007; Sao Paulo State Government, 2009; Standing Forestry Committee Ad Hoc Working Group IV on Public Procurement of Wood and Wood-based Products. 2010. Schweizerische Eidgenossenschaft, 2010A; Schweizerische Eidgenossenschaft, 2010B; Simula, 2010; Sun, 2012; TPAC, 2008; TPAC website; Van der Berk, 2010; Wenming, 2007.

(Example of illegal logging are provided in Box 4.)

Box 4: Examples of Illegal Logging

Illegal logging can generally fall into two broad categories: illegal origin (ownership, title or origin), and lack of compliance in harvesting, processing, and trade. The following are examples of activities that have been identified or included in some definitions of illegal logging (based on Contreras-Hermosilla, 2002; Miller et al., 2006; GFTN, 2005).

Illegal origin (ownership, title, or origin):

- Logging trees in protected areas without proper permission (e.g. in national parks and preserves). This may include instances where authorities allocate harvesting rights without properly compensating local people.
- Logging protected species.
- Logging in prohibited areas such as steep slopes, riverbanks and water catchments.
- Logging in non-compliance with specifications of the concession permit or harvesting license (e.g. harvesting volumes below or above the specifications, or before or after the period authorized for logging).
- Harvesting wood of a size or species not covered by the concession permit.
- Trespass or theft, logging in forests without the legal right to do so.
- Violations, bribes and deception in the bidding process to acquire rights to a forest concession.
- Illegal documentation (including trade documents).

Lack of compliance throughout the supply chain (harvesting, manufacturing, and trade):

- Violations of workers' rights (e.g. illegal labor, underpaying workers, etc.), labor laws and international standards, and violation of traditional rights of local populations and indigenous groups.

- Violation of international human rights treaties.
- Wood transported or processed in defiance of local and national laws.
- Violations of international trade agreements (e.g., CITES species – Box 5: CITES).
- Failure to pay legally prescribed taxes, fees and royalties.
- Logging and trading logs and forest products in spite of logging and trade bans (Table 4 below).
- Illegal transfer pricing (e.g. when it is to avoid duties and taxes), timber theft, and smuggling.
- Money laundering.
- Failure to fully report volumes harvested or reporting different species for tax evasion purposes.

Different definitions of illegal logging can lead to different estimates, which makes addressing the problem more difficult (Contreras-Hermosilla et al., 2007; Rosembaum, 2004). A definition of illegal logging generally follows from an analysis of national laws. Since laws vary among countries, so does what is legal and what is illegal. Many countries also have highly complex laws with contradictions between different regulations. One approach to address this issue is to conduct a national review to identify and develop agreement between key stakeholders about which laws are most relevant and should be included in a definition.

Table 4. Logging and export bans

Many countries have enacted log export ban policies to protect forests or to bolster their domestic timber industry. Below is a non-exhaustive list of export bans.

(Last updated May 2016)

Country	Product and applicability	Year first e
Africa		
Cameroon	Log export ban on more than 20 species of raw logs excluding Ayous.	1999
Cote d'Ivoire	A ban on the export of logs, including teak.	1976
Gabon	Export ban on logs, boules and through cut logs.	1976
Ghana	The log export ban was introduced for high value species and has since been extended to all species.	1994

Country	Product and applicability	Year first e
Madagascar	Export ban on unworked wood of valuable species such as palissandra and voamboana followed by periodic exceptions; Adopted a decree to stop the export of precious timber from October 2000 for three years (decree N. 11832 / 2000).	1975
Mozambique	Ban on the export of raw logs	2007
Nigeria	Log export ban.	1976
	Americas	
Belize	All raw rosewood exports in 1992, but lifted the ban in 1996.	2012
Brazil	Log export ban; moratorium on mahogany (Swietenia macrophylla, CITES Appendix II) exports. Certain wood exports (e.g., imbuia, virola) are subject to specific rules and require prior authorization from the Brazilian Institute of Environment and Natural Resources (Ibama).	1969
Bolivia	Export of unprocessed forestry products is subject to restrictions and highly regulated (forest certification mainly).	1996
Canada	Restrictions on log exports from British Columbia. There are a variety of federal and provincial regulations regarding log exports.	1906
Chile	Logging ban on Araucaria araucana and Fitzroya cupressoides (both CITES Appendix I).	1976
Colombia	Restrictions on log exports from natural forests. Only roundwood from planted forests can be exported. Restrictions have not been well enforced, and large amounts of logs are still exported.	1997
Costa Rica	Log export ban, and export ban on roughly squared wood from specific species.	1986

Country	Product and applicability	Year first e
Ecuador	Roundwood export ban, except in limited quantities for scientific and experimental purposes. Semi-finished forest products exports are allowed only when "domestic needs and the minimum levels of industrialization have been met."	
Guatemala	Exports of logs of more than 11 cm in diameter are banned, unless they originate from plantations. Ban does not apply to furniture and processed products made from wood. Guatemala established a national red list of trees to protect in 2006. The 81 species in Category One are banned from export and commercial uses.	1996, 2006
Guyana	2009 national log export policy introduced phased-in commission rates on exports of key species, including Bagassa guianensis (cow wood), Cedrela fissilis, C. odorata (red cedar), Diplotropis purpurea (tatabu), Dipteryx odorata (tonka bean), greenheart, Humiria balsamifera (tauroniro), Hymenolobium flavum (darina), hububalli, Jacaranda copaia (futui), kabukalli, letterwood, Licaria canella (brown silverballi), Loxopterygium sagotii (hububalli), Manilkara bidentata (bulletwood), mora, Ocotea rubra (determa), Ocotea puberula (keriti silverballi), Parahancornia fasciculata (dukali), Piratinera guianensis (letterwood), purpleheart, shibadan, Tabebuia serratifolia (washiba), Tabebuia capitata or insignis (hakia), Terminalia amazonica (fukadi), Swartzia benthamiana (itikiboroballi), wallaba, wamara, and washiba. Only companies holding forest concessions are permitted to export logs.	2009
Honduras	Export ban on hardwood and sawnwood	1998

Country	Product and applicability	Year first e
Nicaragua	Precious hardwoods export ban (mahogany, royal cedar and pochote). Mahogany exports are allowed only in the form of sawn wood, plywood or veneered wood. Sawn wood exports require a license.	1997
Panama	Export ban of logs, stumps, roundwood or sawn wood of any species from natural forests, as well as from wood submerged in water.	2002
Paraguay	Log export ban.	2002
Peru	Log export ban. Export of forest products "in their natural state" is prohibited except when they originate from nurseries, forest plantations, and if they do not require processing for final consumption.	1972
United States	Ban on exports of unprocessed roundwood harvested from federal lands in Alaska; Forest Resources Conservation and Shortage Relief Act (1990): 100% export ban on logs from Federal lands west of the 100 th meridian, except timber surplus to needs, and 1995 ban on log exports from State and other public lands (excluding Indian land) west of the 100th meridian.	1926; 1990
Venezuela	Log export ban for five species: caoba, cedro, mijao, pardillo, pau d'arco.	2001
	Asia & Pacific	
Cambodia	Complete ban on exports of logs and rough timber since 1996, followed by a logging ban within the Permanent Forest Estate in 2002. January 2016 embargo on all timber exports to Vietnam.	1994
Fiji	Log export ban in place since 1997. Certain wood and wood products are prohibited for export unless the specified requirements are met.	1995

Country	Product and applicability	Year first e
Indonesia	Log export ban first issued in 1985 until 1992. Raw log export ban re-activated in 2001, expanded to sawnwood in 2004.	1985
Laos	A total logging ban in natural forest areas, a harvesting ban for protected species (see citation for a list) and a ban on exporting roundwood from natural forests, but plantation-grown timber can be harvested and exported with the proper paperwork.	1989
Malaysia	In 1972, a ban was imposed on the export of ten species, and expanded to a blanket ban in 1985 (Peninsular Malaysia). Temporary ban in Sabah from 1993-1996. Logging quota system implemented in Sarawak in 1992.	1972, 1976
Myanmar	An export ban on raw logs of all species since 2014.	2014
New Zealand	Export ban on indigenous timber (native species from natural forests) logs and woodchips, with certain exceptions outlined in the 1949 Forestry Act and its 1993 and 2004 Amendments.	1993
Papua New Guinea	Export ban on round logs for selected species since 1990. Logs can be exported from concessions given before 2010. There is ban on the export of logs from concessions given after 2010.	1990
Philippines	Log export ban in place since 1986, expanded to include sawnwood in 1989. SInce 1992, a national logging ban on timber extraction in old growth forests and in critical areas such as those on steep slopes (50%+), above 1000m elevation, stream banks (20m sides), and wilderness areas primarily for conservation of biodiversity and gene pools. In 2011 an indefinite ban on the issuance of harvesting permits in natural forests throughout the country.	1986

Country	Product and applicability	Year first e
Sri Lanka	Logging ban in all natural forests.	1990
Thailand	Ban on timber harvesting and raw log exports from natural forests.	1989
Vietnam	Log export ban; export ban on sawn timber from wood harvested from natural forests.	1992
	Europe	
Albania	Ban of logging in all forests and the export of timber.	2016
Ukraine	10-year ban on the exportation outside the customs territory of Ukraine of untreated wood from all tree species (except pine).	2015

* Year in which the log ban was first enacted. There are cases where the bans have be temporarily or expanded. Wood importers from these countries should consult local local stakeholders for the most up-to-date information on trade restrictions.
Sources: African Timber Organization, 2006; Barney and Canby, 2011; Bird, Fometè & 2006; Cerruti & Tacconi, 2006; EIA, 2012; Goetzl & Elström, 2007; Guyana Forestry C 2007; Illegal-logging.info, 2011; ITTO, 2010; ITTO, 2011; Kim, 2010; Llyewellyn, 201 Sesay, 2010.

Box 5. The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)

The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) was established in 1963 to limit and regulate the trade of endangered species.

CITES is an international, legally binding agreement to ensure that international trade of certain animals and plants (including wood from certain tree species) does not threaten their survival. CITES establishes controls for the international trade of selected species. All import, export, and introduction of species covered by the convention must be authorized through a licensing system established by member countries. Each country designates one or more Management Authorities that administers the licensing system advised by one or more Scientific Authorities.

Based on the degree of protection needed, species covered by CITES are listed in three appendices:

- Appendix I - species threatened with extinction; trade is permitted but under very restricted circumstances.
- Appendix II - trade of these species is controlled and regulated to ensure their survival.

- Appendix III - species subject to special management within a country. Listing in Appendix III also provides means of gathering trade data and other information to assist in assessing the impact, if any, of international trade on native populations.

As of January 2017, the following timber species were listed in CITES: Timber Species Listed in CITES

- Sources: APHIS, 2016; Canadian organization for tropical education and rainforest conservation, 2010; CITES 2003; CITES website; Chen, 2006; Chilebosque.com; DEFRA, 2010; GRIN website; Teck, 2006; USFWS CITES tree species website.

Legality is not a synonym for sustainable forest management. What is "sustainable" may not always be legal (World Bank, 2006; Contreras-Hermosilla et al., 2007), and what is legal may not be sustainable.

Illegal logging of wood and paper-based products results from a complex set of legal, historical, political, social, and economic issues. Illegal logging is a fundamental problem in certain nations suffering from corruption and/or weak governance. Poverty, limited education, financial issues, economic instability and population growth are enabling factors for illegal activity as well.

Illegal activity has many drivers that make it challenging to address. Government officials at local and national levels, companies, and local people can all have a role to play in illegal forest activities:

- Local (and also national) government officials, often with very modest official salaries, may receive additional income in bribes to allow illegal logging. It can also be easier for local officials to "turn a blind eye" to powerful actors engaged in illegal acts than to enforce the law.
- Companies trading illegally logged wood may have a market advantage over their competitors because illegally logged wood can be sold at lower prices, depressing the profitability of legally harvested wood (Tacconi et al., 2004; Seneca Creek and Wood Resources International, 2004).
- Local people may derive direct income from illegal forest activities (Tacconi et al., 2004).

Illegal logging and illegal trade can create serious problems:

- Illegal logging and organized crime – organized crime syndicates are largely responsible for illegal logging in many countries. These groups employ a wide range of unlawful and sophisticated schemes to evade detection of illegal timber entering the market. Schemes include mixing illegal timber with legal timber from plantations or with logging permits, bribing officials to obtain permits or pass inspections, and even hacking into government computer systems to obtain or manipulate information on permits (Nellemann, INTERPOL, 2012; World Bank 2012).
- Government revenue losses – a joint report by INTERPOL and UNEP estimates that organized crime groups launder $30-100 billion worth of illegal timber annually (Nellemann, INTERPOL, 2012). Most of this money is untaxed,

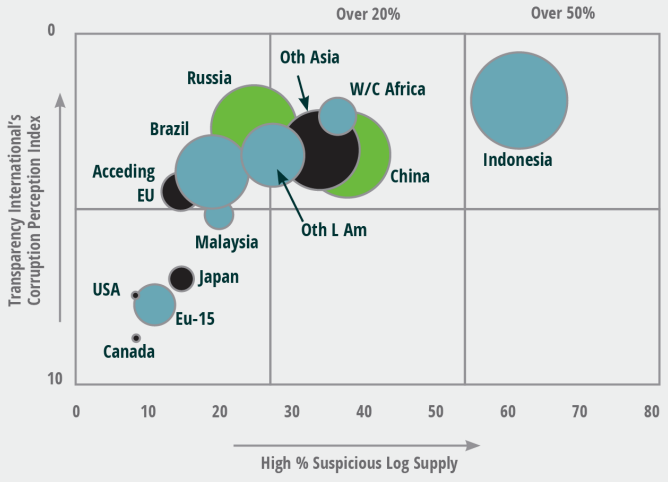
controlled by organized crime, and used to pay bribes at all levels of government (Pereira Goncalves et al, 2012).

- Poverty – indirectly. Governments deprived of revenue by illegal logging have fewer resources to invest in social and public policies.
- Unfair competition – market distortion and reduction of profitability for legal goods; the World Bank puts this cost at more than US$ 10 billion per year (World Bank, 2002A).
- Conflict – when the proceeds of illegal logging are used to support and fund conflict (Thomson, J., and R. Kanaan. 2004).
- Unplanned, uncontrolled and unsustainable forest management.
- Forest destruction – areas important for biological conservation, ecosystem services, and local livelihoods.

Between 8-10% of global wood production is estimated to be illegally produced, although it is acknowledged that there is uncertainty in these estimates (Seneca Creek and Wood Resources International, 2004). Estimates of illegal logging in specific countries and regions vary, depending on the nature of the activity, and the variability of laws and regulations (Figure 5).

Most of the illegally produced wood is used domestically, although a significant portion enters the international trade, either as finished products or raw materials (Seneca Creek and Wood Resources International, 2004).

FIGURE 5. CORRUPTION AND ILLEGAL LOGGING ACTIVITY (2004)



In a widely accepted, in-depth multi-country study, Seneca Creek Associates and Wood Resources International compared corruption and illegal logging activity. In the above graph, the y-axis displays Transparency International's Corruption Perception Index (CPI), where corruption tends to be higher (i.e., having lower CPI) in countries with lower per capita incomes. The x-axis displays the proportion of the total supply of suspicious logs, while the size of a bubble shows the absolute volume of suspicious logs that reach the market in a country or region, including imported logs.

EU-15 refers to the 15 countries in the European Union before May 2004: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Republic of Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, and the United Kingdom. EU countries include EU-15 countries plus Bulgaria, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovakia, and Slovenia.

Source: Seneca Creek Associates and Wood Resources International (2004).

Efforts to Address Illegal Logging and Associated Trade

During the last five to ten years, addressing illegal logging and illegal trade has risen to the top of the international forestry agenda. Several international processes[1] have taken up this issue. Demand for legally-sourced wood and paper-based products in global markets has also increased, as a result of changes in public and private procurement policies (Table 5: Selected public procurement policies, Table 6: Selected legality requirements in the private sector, and Table 7: Examples of Trade Associations' demand for legal wood products). Trade regulations such as the 2008 amendment of the U.S. Lacey Act, and the European Union Illegal Timber Regulation, have become the most recent instruments to address illegal logging (Box

6: The U.S. Lacey Act, the EU Illegal Timber Regulation (EUTR), and the Australian Illegal Logging Prohibition).

Table 6: Selected legality requirements in the private sector

This table highlights a few examples of private procurement policies that address the legality of the wood and paper-based products they purchase. For the purposes of this Guide, the table focuses exclusively on legality. However, for most, if not all, of the policies highlighted, the legality requirements are contained within a larger sustainability and/or corporate responsibility policy covering several other aspects.

IKEA (homefurnishing, worldwide, 2011)

Scope: Board material (chipboard and particle board), solid wood, veneer, plywood and layer glued wood.

Legality Requirements:

Known origin of the wood; compliance with national and regional forest legislation.

Approach:

The policy requires suppliers to have processes and systems in place to ensure that the wood meets the requirements. Suppliers are required to report the origin, volume and species of the wood used in the products three times a year (detailed reporting annually), and they must accept auditing at various steps in the supply chain.

Wood from high risk areas for illegal logging undergoes audits all the way back to the forest. Audit is conducted by the company forester or an independent auditor. Operations with FSC CoC certification covering the scope of production for IKEA qualify as compliant. IKEA promotes the use of FSC certified sources with full Chain of Custody certification to the direct suppliers to the company (referred to as preferred sources).

Unilever (consumer products, worldwide, 2010)

Scope: Paper and board packaging

Legality Requirements:

Virgin fiber should be traceable down to the forests where the legal origin can be verified either by legality certification, or by credible evidence.

Approach:

Policy requires suppliers to have processes in place to ensure that virgin fiber for packaging comes from known and legal sources. Policy requires that the legal origin of the virgin fiber is third-party verified and certified for the following countries: Brazil, Bulgaria, Cambodia, Cameroon, Central African Republic, China, Democratic Republic of Congo, Ecuador, Equatorial Guinea, Gabon, Ghana, Guinea, Honduras, Indonesia, Ivory Coast, Laos, Liberia, Lithuania, Malaysia, Myanmar, Nigeria, Papua New Guinea, Peru, Philippines, Romania, Russia, Sierra Leone, Solomon Islands, South Korea, Taiwan, Thailand, Ukraine and Vietnam. Verification schemes accepted currently include: SmartWood's Verification of Legal Compliance and Verification of Legal Origin, the Société Générale de Surveillance's Timber Legality Traceability Verification scheme, and Certisource's Legality Assessment for Verified Legal Timber. For virgin fiber from other countries, the policy requires credible and reliable documentation to prove the legal origin of the fiber. Documentation should identify the source location, the source entity, and each intermediary in the supply chain. Policy requires suppliers

to have mechanisms in place to ensure that the timber has been harvested and traded in compliance with applicable laws, including CITES requirements. The policy also accepts fiber in compliance with FSC controlled wood requirements and/or equivalents from sources that achieve FSC certification in a step-wise process. The policy also accepts fiber in compliance with the Programme for the Endorsement of Forest Certifications (PEFC) with full chain of custody in compliance with PEFC's "non-controversial" requirements.

B&Q (home improvement and garden retailer, Europe, 1991)

Scope: Timber and paper

Legality Requirements:

All wood bought by B&Q is to come from forests of known location where the supplier provides sufficient reassurance that the production is legal, well-managed and independently certified or verified as such.

Approach:

Policy accepts (a) FSC certified sources with full chain of custody certification, and (b) PEFC certified sources for non tropical species with full chain of custody certification. Exceptions to PEFC certified sources include: PEFC certified sources of European wood when supported with full chain of custody certification and confirmation from the vendor that all material used originated in Europe; and other sources of PEFC certified wood when supported with full chain of custody certification and evidence of independent assurance that the sources comply with the requirements of the FSC controlled wood standard. At times, the policy accepts products from sources engaged in step-wise processes towards certification, if there is an independently verifiable action plan. Policy requires suppliers to meet one of the following criteria: a) have a MoU with The Forest Trust; b) have a SmartWood SmartStep action plan and written contract to progress towards FSC; or c) have signed agreements with WWF's GFTN to achieve FSC and have in place an independently verified full chain of custody. There are exceptions to the policy on a case-by-case basis where fully-compliant products are not available. In these cases, suppliers might obtain a grace period to meet the policy requirements.

Xerox (office products, worldwide, 2000)

Scope: Paper products

Legality Requirements:

Xerox paper suppliers worldwide must have a process to exclude illegally-harvested wood materials from papers sold to Xerox.

Approach:

Policy requires suppliers to submit detailed documentation to verify conformance to all applicable environmental, health and regulatory requirements, including forestry codes of practice and regulations governing legal harvesting of wood. The policy accepts certifications from the following systems: FSC, Canadian Standards Association, Sustainable Forestry Initiative and PEFC.

Kimberly-Clark Corporation (personal care, paper products, worldwide, 2007)

Scope: Tissue hard rolls or finished tissue products containing wood fiber. Wood fiber, includes pulp, logs, whole log chips, woodchips and sawdust

Legality Requirements:

The company will not knowingly use illegally harvested wood fiber; illegally harvested wood fiber is defined as wood fiber obtained in violation of applicable government forest management requirements or other applicable laws and regulations. Also, Kimberly Clark Corporation will not knowingly use conflict wood (wood traded in way that drives violent armed conflict or threatens national or regional stability).

Approach:

The policy applies to Kimberly-Clark Corporation, its consolidated subsidiaries and affiliates, and is recommended for all of the Corporation's equity companies. The company has a goal of purchasing 100% of its wood fiber from suppliers which their forestry operations or wood fiber procurement are certified to FSC (preferred), SFI, CSA, CERFLOR (in Brazil) and PEFC. In terms of legality, other certification systems might be accepted provided that they demonstrate, as verified by a third-party, conformity with international legislation, agreements and accords, and compliance with national and local legislation and regulations. Suppliers are encouraged to achieve FSC certification for sustainable forest management or controlled-wood chain of custody certification, if they have not done so. Kimberly-Clark will work with suppliers to achieve certification within a reasonable time frame. Suppliers are required to report regularly concerning compliance with the policy. The Corporation tracks and reports annually the amount of wood fiber purchased under each forest certification system. Kimberly-Clark also inspects its suppliers periodically and verifies suppliers' wood fiber procurement practices. As part of the verification system, the corporation works with suppliers and others to effectively trace wood fiber to its origin in the forest. When the Corporation enters into long-term agreements with suppliers, it includes language that enables the Corporation to enforce its policy. Purchasing contracts can be terminated or not-renewed for suppliers that are non-compliant with the Kimberly–Clark policy.

Staples (office products, worldwide, reviewed 2010)

Scope: Paper products of any grade of paper

Legality Requirements:

One of the long term goals of the policy is to source and trade paper products certified under the FSC system.

Approach:

The policy is being implemented in a step-wise approach to increase the proportion of products certified under the FSC standard. Where FSC products are not available, Staples accepts products certified under the PEFC, SFI and CSA systems. Suppliers are required to comply with all environmental and forestry laws and regulations. Suppliers are asked to confirm the sources of the fiber in the products, and indicate if the fiber has been legally harvested and traded. Suppliers are also asked to demonstrate that their products do not come from controversial sources, including wood harvested in violation of traditional and civil rights. Staples surveys paper product suppliers to confirm the sources of the fiber of their products and the certification requirements. The company also has a third party to assess the supply chain of the products on a random sample of the supplier base to confirm the validity of the information about the products. For suppliers sourcing from areas identified as potentially controversial (e.g. risk of illegal logging), suppliers are asked to demonstrate through credible third-party certification that the sourced products are non-controversial. Top suppliers are also requested to periodically report the environmental performance of their paper making facilities, or the papermakers from where they purchase the paper. The policy is being implemented in a phased approach to all paper products suppliers, starting with markets in North America and moving to Europe and

other international markets. Implementation is prioritized to address potential risk based on the country of origin, source, and transparency of the supply chain.

Weyerhaeuser (wood and paper-based products manufacturer, worldwide, updated 2012)

Scope: Timber and paper

Legality Requirements:

Weyerhaeuser will not knowingly purchase wood, wood fiber, or products for distribution that originate from illegal logging.

Approach:

The company is committed to "work with governments, conservation organizations and others to ensure that procurement practices strengthen efforts to thwart illegal logging." The policy covers all wood-based raw materials for all of the company's mills worldwide and products for resale. Within the U.S. and Canada, Weyerhaeuser operations are in conformance with the Sustainable Forestry Initiative (SFI) standard. For sourcing, Weyerhaeuser's SFI certified facilities will adhere to the SFI procurement principles and objectives. The company will take steps to ensure that their raw materials and products for distribution either originate in countries with effective laws against illegal logging, or are independently certified or verified under credible and transparent safeguards. The safeguards might include environmental management systems if the risk of illegal logging is significant. The company may work with suppliers that demonstrate the ability to come in compliance with the Weyerhaeuser policy within an agreed-upon timeframe.

3M (consumer products, 2015)

Scope: Paper and packaging products

Legality Requirements:

3M pulp, paper and packaging suppliers must ensure that wood or plant-based fiber is legally harvested, sourced, transported and exported from its country of origin. Fiber must be traceable back to the source of harvest.

Approach:

3M suppliers need to maintain records including genus, species and country of origin of the wood or plant-based fiber, and third-party certifications of materials and operations in the supply chain. 3M suppliers are required to have policies and due systems for sourcing pulp and paper and should require their suppliers to do the same. 3M will continue to work with suppliers through trainings and direct communication to help suppliers understand requirements and concepts in the policy.

Sources: 3M, 2015; B&Q, 2010; IKEA, 2006; Kimberly-Clark, ND; Kimberly-Clark, 2007; Staples, 2010; Unilever, 2010; Weyerhaeuser, 2012; Xerox, 2011.

Table 7: Examples of Trade Associations' demand for legal wood products

Industry associations have taken steps to encourage their members to exclude unsustainable and illegal wood from their supply chains through members' codes of conduct, industry statements, or associations' purchasing policies. Trade association policies and guidelines are, however, often voluntary.

In producing countries

Trade Association	Legality commitments
Brazil – Federation of Timber Export Industries (AIMEX) – Represents 40 businesses that produce and manufacture and export wood products in the State of Pará.	Through the Pact for Legal and Timber, AIMEX members comm illegally harvested timber from Although AIMEX does not have conduct, it encourages member source legal wood; membership member is found guilty of tradi
Cameroon – *Groupement Filière Bois du Cameroun* (GFBC) – Represents 18 organizations that are wood producers and exporters.	Through a code of conduct, mer respect the relevant legislation including laws related to forest environmental laws, payment o social/labor legislation. GFBC w groups to build its members' ca forest management, forest certi legality.
Canada – Quebec Wood Export Bureau (Q-WEB) – Represents more than 200 wood products manufacturers and exporters in Quebec.	Through a code of conduct, mer source wood from companies th suppliers and can demonstrate suppliers are legal; it also requi provide evidence that the opera WEB encourages members to re suppliers to abide by the Q-WE which requires suppliers (a) to s areas where logging is authoriz operations that are legal; (b) to purchased in a legal way; (d) to tax and fees; and (e) to provide wood's origin and legality.
Colombia – National Federation of Wood Industries (FEDEMADERAS) – Represents more than 700 businesses throughout the wood supply chain.	Under the Inter-sector Pact for Colombia (signed in 2009), FED committed to develop a code of would require members to avoi trading illegal products. The co would also specify penalties for
Gabon – Forest Industries Union (UFIGA) – Represents 8 business groups that produce and export wood products.	Through a code of conduct, mer ensure traceability of the supply legal and sustainable forest ma concessions. Implementation o conduct is monitored by intervi managers, auditors, and the Mi

In buying and producing countries

Trade Association	Legality commitments
China – China Timber and Wood Product Distribution Association (CTWPDA) –represents 1,577 members, mostly manufacturers.	In 2010 CTWPDA established a to, among other things, help se procurement system for timber

Trade Association	Legality commitments
United States – National Wood Flooring Association (NWFA) – represents all segments of the hardwood flooring industry.	A voluntary program for membe Responsible Procurement Progr help companies transition over certified against the FSC standa options for exercising due care u Lacey Act. The program is open members, but focused on prima hardwood flooring manufacture can participate in the programs with the highest level (Tier 3) re companies that have achieved 5 their sales as FSC certified.
United Kingdom – Timber Trade Federation (UK TTF) – Represents about 180 members that cover about 60 percent of all timber imports to the United Kingdom.	Through the UK TTF code of co responsible procurement policy commit to purchase timber fron and seek evidence of complianc to ensure that the wood meets t requirements of the country of are also required to establish a system (e.g., systematically asse wood) in preparation for the EU Regulation. The UK TTF operate Purchasing Policy management helps companies assess legality sustainability, improve sourcing compile evidence.

Compiled from: Hentschel, 2009; TTAP, 2010; FEDEMADERAS, 2012; WWF-Colombia et al, 2009; QWEB 2012; UK TTF, 2012; UK TTF, 2011.

Box 6: The U.S. Lacey Act, the EU Illegal Timber Regulation (EUTR), and the Australian Illegal Logging Prohibition

In May 22, 2008, the U.S. Congress amended the 100 year-old Lacey Act on the prohibition of transporting and trading illegally gathered wildlife or wildlife products to include plants and plant-products. On October 20, 2010, the European Parliament approved the European Union Timber Regulation, requiring those who place timber and timber products in the market place to curb illegally harvested timber and timber products. In 2012 the
Australian Parliament approved the Illegal Logging Prohibition, banning the import or processing of wood logged in violation of the laws in the country of origin. The table below compares the three trade regulations.

Definition of legality

U.S. Lacey Act	EU Illegal Timber Regulation	Australian Il Prohibition A Regulation

Unlawful to trade, receive, or acquire plants taken, harvested, possessed, transported, sold or exported in violation of underlying laws in a foreign country or in the U.S. The scope of laws is limited to plant protection laws, or laws to regulate: plant theft; taking plants from officially protected areas; taking plants from an officially designated area; taking plants without, or contrary to, required authorizations; failure to pay appropriate taxes or fees associated with the plant's harvest, transport, or trade; laws governing export or transshipment.	Timber logged illegally under the laws of the country of origin. Relevant legislation includes: legal rights to harvest; taxes and fees related to harvesting; compliance with timber harvesting laws, including forest management and biodiversity conservation laws; respect for third parties' legal rights and tenure; compliance with relevant trade and customs laws.	Timber logge the laws of th origin. Releva includes: lega harvest; taxes to harvesting timber harves including forest manage biodiversity c respect for th rights and ter with relevant customs laws.

Requirements and applicability

U.S. Lacey Act	EU Illegal Timber Regulation	Australian Ill Prohibition A Regulation
Makes it illegal to trade illegally-sourced wood products in the U.S. Importers are required to declare country of harvest, genus and species, product's volume and value in a phased-in schedule. It is applicable to anybody involved in the supply chains of wood products.	Prohibits placing on the EU market timber and timber products harvested illegally based on the rules of the country of origin. It also requires economic operators who first place timber on the EU market to employ a system to exercise due diligence to ensure that the timber they trade was harvested legally. Requires economic operators and traders to keep records of their suppliers and customers to facilitate traceability of the products.	The Act makes offense to inte knowingly or r wood, pulp and into Australia Australian raw been illegally l Regulation des diligence proce requires impor timber product processors of r minimize the r or wood-fiber l logged.

Product scope

U.S. Lacey Act	EU Illegal Timber Regulation	Australian Ill Prohibition A Regulation

All plants and plant-derived products.	Specifies a number of products that are covered under the EUTR.*	The law applie importing any products into A processors of d grown raw logs requiring due d to businesses i timber or timb defined in the Australia and p domestically g

Compliance

U.S. Lacey Act	EU Illegal Timber Regulation	Australian I Prohibition Regulation
A fact-based statute and not a process-based statute. No specific documentation is needed to demonstrate legality/compliance. It is up to the government to prove illegalities. It is up to the government to prove illegalities. The first major enforcement action under the amended Lacey Act occurred in 2012 against Gibson Guitar. This action set a precedent on creating due care systems to comply with Lacey (Box 7 below).	Economic operators are required to assess risk and employ adequate and proportionate measures and systems to minimize risk of sourcing illegal timber. Timber and timber product covered by FLEGT and CITES licenses are considered to be legally harvested.	The due dilig requires busi documented explains how will be met, g information products bei their supply risk the wood these produc illegally logg associated ri aren't alread written recor undertaken.

Penalties

U.S. Lacey Act	EU Illegal Timber Regulation	Australian Ill Prohibition A Regulation

Penalties include forfeiture of goods and vessels, fines and prison terms. Penalties vary depending on the level of "due care" exercised by the importer. The highest penalty --a criminal felony fine for up to $500,000 USD, possible jail time for up to five years, and forfeiture of goods -- is for companies trading illegally-sourced products that did not exercise "due care". In the U.S. legal system, due care means "that degree of care which a reasonably prudent person would exercise under the same or similar circumstances. As a result, it is applied differently to different categories of persons with varying degrees of knowledge and responsibility" (Senate Report 97-123).	Penalties will be defined by member states.	Offenses relati intentionally, recklessly deal logged timber of up to five ye and/or up to 5 (AUD$90,000 f and AUD$450, corporation or

Implementation

U.S. Lacey Act	EU Illegal Timber Regulation	Australian Il Prohibition Regulation
The prohibition is in effect since May 2008, the declaration requirements are being implemented in a phased-schedule.	The legislation will apply from March 3, 2013 onwards. EU member states are responsible for implementing and enforcing the regulation through Competent Authorities. The European Commission is responsible for monitoring implementation by the member states.	The Act comr November 20 Regulation co November 20 2016, penalti importers wh with the due

* Some of the products covered include: fuel wood, wood in the rough, sawn wood, veneers, particleboard, fiberboard, plywood, frames, flooring, boxes, crates, caskets, barrels, pulp and paper, furniture, prefabricated buildings and others. The Regulation does not cover timber products or components of timber or timber products that have completed their lifecycle and would otherwise be disposed of as waste. It also excludes material used exclusively as packaging to support, protect or carry another product being placed on the market.
^ Risk assessment can be conducted through a) Timber Legality Framework where the imported product is certified under Forest Stewardship Council (FSC) or Programme for the Endorsement of Forest Certification (PEFC) standards; b) a Country Specific Guideline (CSG) where one is available, or c) against certain regulated risk factors.

Sources: EC Timber Regulation website; EIA, 2009; European Forest Institute, 2012; Official Journal of the European Union, 2010; U.S. Department of Justice, 2010.

Box 7. Gibson Guitars case

The first major enforcement action under the amended Lacey Act occurred in 2012 against Gibson Guitar. This action set a precedent on creating due care systems to comply with Lacey.

As part of the criminal enforcement agreement between the U.S. Department of Justice and Gibson Guitar, Gibson agreed to implement a Lacey Act Compliance Program to exercise due care. Some of the elements outlined in the compliance program include: annual training for all purchasing staff; communicating with suppliers; verification of foreign laws and licenses with in-country legal professionals and/or knowledgeable third parties (e.g., NGOs); conducting independent research to identify risky
sources; performing risk assessments at the species level, using resources such as CITES, the IUCN Red List, national threatened/endangered species lists, and UNEP World Conservation Monitoring Centre data; requesting sample documentation from suppliers to ensure that information provided is sufficient to satisfy Lacey Act requirements; maintaining records; and, taking disciplinary action for staff who fail to follow policies on legal wood procurement (U.S. DoJ, 2012).

As part of the criminal enforcement agreement between the U.S. Department of Justice and Gibson Guitar, Gibson agreed to pay a US $300,000 penalty and a US $50,000 community service penalty, and withdrew its claims to the wood seized during the investigation, including ebony from Madagascar with a total invoice value of US $261,844 (U.S. DoJ, 2012).

In Switzerland, the Ordinance on Declaring Wood and Wood Products (Ordonnance sur la Declaration Concernant le Bois et les Produits en Bois) from 2010, requires any party selling timber or timber products to consumers to disclose information about the species used in the product, including whether or not the species is listed in CITES, and the place of harvest. Timber and timber products covered include firewood, roundwood and wood in the rough, pickets and stakes of wood, railway sleepers, sawmill products, sheets for veneering, carpentry, joinery, furniture made entirely of solid wood, and other solid wood items (Federal Department of Economic Affairs, 2010; Schweizerische Eidgenossenschaft, 2010).

In response to the emergence of legality requirements in the marketplace, a number of voluntary systems and schemes have emerged to help assess and verify the legality of wood and paper-based products (Table 8 below).

Table 8: Voluntary legality verification systems

A number of systems and projects have emerged in response to market demands for legally-sourced products. These resources often involve an independent third-party that verifies the legality of the product against a pre-determined standard or set of criteria and indicators. The legality of the products can be verified at two levels: legality of the origin of the timber (e.g. the place where the timber was cut is legally designated for such use), and the compliance of the harvesting operation

with laws and regulations. Legality-verification systems and projects often include chain-of-custody criteria to trace the flow of products through the supply chain and to ensure that verified products are handled separately from non-legally verified products. Below is a general compilation of existing legality standards and voluntary programs put in place by different organizations. Legality is covered in forest management certification standards (e.g. FSC or PEFC); however, because legality is not the main focus of these standards, they are not included in this table.

Commercial legality verification systems

Bureau Veritas

System/Year: Origine et Légalité des Bois (Timber Origin and Legality, or OLB in French) (Updated 2005, originally developed in 2004).

Overview:

Third-party system to guarantee the geographic origin of the forest products and the legal compliance of the forest company. The OLB system includes the Bureau Verita's Standard for Forest Companies and the Chain of Custody Standard.

Geographic:

Originally developed to demonstrate legality in tropical regions. Can be applied at the global level.

Supply Chain: Origin of timber; CoC

Thematic:

Legal right to harvest (1)

Compliance with laws (2)

Taxes/fees (3)

Tenure/Use rights of resources (4)

Trade regulations (5)

Other criteria (6)

Development:

Standard was developed initially by Eurocertifor. Eurocertifor was acquired in 2005 by Bureau Veritas; since then, the standard has been reviewed and updated to be applied internationally.

Auditing:

Assessment is carried out by an audit team acting on behalf of Bureau Veritas. If needed, additional expert consultants are used. Observers can also participate in audits. The certification is granted for five years with surveillance audits of at least once a year.

Contact:

Bureau Veritas Tel: +33-1-14-97-006

CertiSource

System/Year: Legality Assessment for Verified Legal Timber (Updated 2010, originally developed in 2007).

Overview:

The legality verification system is currently available only in Indonesia, with plans to expand into other locations. Within two years after an entity joins the

CertiSource system, CertiSource policy requires concessions and sawmills to demonstrate a concrete commitment to reaching FSC certification.

Geographic:

Indonesia

Supply Chain: Origin of timber; CoC

Thematic:

Legal right to harvest (1)

Compliance with laws (2)

Taxes/fees (3)

Tenure/Use rights of resources (4)

Trade regulations (5)

Other criteria (6)

Development:

Standard was developed using GFTN's guidelines of timber legality as the generic base., supplemented with Indonesian standards of legality developed by the Indonesian Eco-labeling Institute' (LEI). The LEI standards were developed in the context of a FLEGT process through extensive stakeholder consultation, and were formally approved by the Indonesian Government in July 2009.

Auditing:

Verification is audited by an independent, ISO accredited, Certification Body. Prior to entering a verification process, a supply-chain audit is conducted to eliminate products that are clearly linked to illegal sources. Verification involves certifying overall concession legality and chain of custody compliance at least once a year in addition to auditing legality for every batch of timber processed under the CertiSource system. The system also ensures each pallet of timber can be traced from distributor back to source, and that the CertiSource required commitment from participating concessions and sawmills to achieving FSC certification is adhered to. Voluntary DNA analysis (through Double Helix Tracking Technologies) to scientifically verify the chain-of-custody can also be added.

Contact:

Certisource e-mail: http://www.certisource.co.uk/contact-us/ Tel: +62 881 463 860

Keurhout

System/Year: Keurhout Legal System (Validation of the Legal Origin of Timber; 2004, updated 2009).

Overview:

Standard to validate the legality of the origin of timber. The standard is part of the Keurhout Protocol and is used in conjunction with other four standards, which concern requirements for SFM, CoC, Certification Bodies and Certification Systems. The standard is considered a first step towards SFM certification.

Geographic:

Applicable globally

Supply Chain: Origin of timber

Thematic:

Legal right to harvest (1)

Compliance with laws (2)

Taxes/fees (3)

Tenure/Use rights of resources (4)

Trade regulations (5)

Other criteria (6)

Development:

Developed by Keurhout based on experience, existing references, and expert and stakeholder consultation. The standard was developed in coordination with the Netherlands Timber Trade Association.

Auditing:

Verification of individual certificates or entire certification systems is carried out by an independent Board of Experts (BoE) that includes experts with different disciplinary backgrounds and representing different stakeholder groups. Experts are appointed by the Keurhout Management Authority. Assessments are conducted based on documentation and evidence and, where relevant, may include verification in the field. Validation decisions are made by the BoE. Once validated, a certificate or system is admitted to the Keurhout Legal System. Validity of the admission can be up to 5 years, but it depends on the validity of the individual certificates themselves. Validity includes periodic monitoring. In addition to the Legal System, Keurhout maintains a Sustainable System. In addition, Keurhout also facilitates a CoC system for timber trading and processing companies. The CoC system is verified annually by accredited independent Certification Bodies, which are entitled to issue a Keurhout CoC certificate.

Contact:

Kerhout Tel: +31 24-6454796 E-mail: info@keurhout.nl

Rainforest Alliance (VLO)

System/Year: SmartWood Verified Legal Origin (VLO) (Updated 2010, first developed in 2007).

Overview:

Standard to verify that timber originates from forest sources that have documented legal rights to harvest. VLO is considered a first step towards FSC certification.

Geographic:

Generic/Global standard. National standards have been developed for China, Indonesia, Philippines, Brazil, Sabah (Malaysia), Laos, India and the Democratic Republic of Congo.

Supply Chain: Origin of timber

Thematic:

Legal right to harvest (1)

Compliance with laws (2)

Taxes/fees (3)

Tenure/Use rights of resources (4)

Trade regulations (5)

Other criteria (6)

Development:

Developed by Rainforest Alliance based on existing references. It involves stakeholder review and consultation when necessary.

Auditing:

Assessments are conducted by Rainforest Alliance staff and expert consultants. The process involves stakeholder involvement and consultations. Both VLO and VLC are valid for three years, at which point, it is required to make efforts to achieve FSC certification. VLC does not require VLO certification.

Contact:

Rainforest Alliance Tel: +1-212-677-1900 E-mail: info@ra.org

Rainforest Alliance (VLC)

System/Year: SmartWood Verified Legal Compliance (VLC) (updated 2010, first developed in 2007).

Overview:

An extension of the VLO designed to verify that the harvesting operation complies with applicable and relevant forestry laws and regulation. “Legal origin” is different to “legal compliance.” Legal compliance includes a larger range of laws on environmental protection, harvesting codes and practices, health and safety and social aspects. As in the VLO, VLC is considered a first step to attain full FSC certification.

Geographic:

Generic/Global standard. National standard has been developed for Sabah (Malaysia).

Supply Chain: Origin of timber

Thematic:

Legal right to harvest (1)

Compliance with laws (2)

Taxes/fees (3)

Tenure/Use rights of resources (4)

Trade regulations (5)

Other criteria (6)

Development:

Developed by Rainforest Alliance based on existing references. It involves stakeholder review and consultation when necessary.

Auditing:

Assessments are conducted by Rainforest Alliance staff and expert consultants. The process involves stakeholder involvement and consultations. Both VLO and VLC are valid for three years, at which point, it is required to make efforts to achieve FSC certification. VLC does not require VLO certification.

Contact:

Rainforest Alliance Tel: +1-212-677-1900 E-mail: info@ra.org

SCS Global Services

System/Year: Legal Harvest ™ Verification (LHV) (2010)

Overview:

Program to confirm the legality of the source of forest products. The Program has two components, the Standard for the Assessment of Forests, and the Chain of Custody Standard. The first focuses on verifying an organization's legal right to harvest. The second focuses on tracking timber throughout the supply chain.

Geographic:

The Program is applicable globally. SCS Global Services has auditors in the Americas, Asia, Europe and Oceania.

Supply Chain: Origin of timber and CoC

Thematic:

Legal right to harvest (1)

Compliance with laws (2)

Taxes/fees (3)

Tenure/Use rights of resources (4)

Trade regulations (5)

Development:

Generic standards developed by SCS Global Services based on experience and references. The standard is cross-referenced with national and local laws and regulations through review and stakeholder consultations. Standard can be replaced with another existing, locally recognized, standard that meets or exceeds LHV.

Auditing:

Document review, field audits, and interviews by SCS Global Services auditors. Annual audits are required to maintain the participation in the LHV program.

Contact:

SCS Global Services Tel: +1-510-452-8000

The Soil Association's Woodmark

System/Year: Verification of origin and legal tenure (2010).

Overview:

Verifies the legal origin of the wood and the rights to harvest the wood. The system is designed to work, wherever possible, within an FSC framework to support companies in achieving FSC certification.

Geographic:

Globally applicable.

Supply Chain: Origin of timber

Thematic:

Legal right to harvest (1)

Compliance with laws (2)

Tenure/Use rights of resources (4)

Development:

Developed by the Soil Association and EcoSylva Ltd, based on the FSC definition of legal wood; supports FSC certification.

Auditing:

Evaluation includes stakeholder consultation to cross-check the standard, add credibility and be transparent.

Contact:

Soil Association wm@soilassociation.org Tel +44 117 914 2435

Selected additional resources

Association of South Eastern Asian Nations (ASEAN)

System/Year: Criteria and Indicators for Legality of Timber (2009).

Overview:

The Criteria and Indicators (C&I) are intended to serve as a regional reference framework for the verification of timber legality in member states.

Geographic:

Member states: Brunei, Cambodia, Lao, Indonesia, Malaysia, Myanmar, Philippines, Thailand, Singapore and Viet Nam.

Supply Chain: Origin of timber

Thematic:

Legal right to harvest (1)

Compliance with laws (2)

Taxes/fees (3)

Other criteria (6)

Development:

Through an intergovernmental process

Auditing:

Not defined.

Contact:

ASEAN Secretariat Tel : +6221 7262991 E-mail: dian@asean.org

WWF's Global Forest & Trade Network

System/Year: Common Legality Framework

Overview:

The Framework consists of 10 principles and various criteria; it was developed to support improvements in the governance of forest sector by providing information on forest-related laws and regulations in a clear and consistent manner. The Framework can be used to develop consistent approaches to defining legality, and to inform efforts to verify legal compliance.

Geographic:

Generic, but the framework has been populated for the following countries: Central African Republic, China, Democratic Republic of Congo, Gabon, Indonesia, Malaysia, and Vietnam. Additional information provided includes guides to legal documentation.

Supply Chain: Origin of timber, processing and trade

Thematic:

Legal right to harvest (1)

Compliance with laws (2)

Taxes/fees (3)

Tenure/Use rights of resources (4)

Development:

Developed by the Global Forest & Trade Network.

Auditing:

Not applicable

Contact:

Global Forest & Trade Network (GFTN) WWF International, Gland, Switzerland Tel: +44 1394 420 518 (http://sourcing.gftn.panda.org/index.php?id=80)

WWF Russia, WWF Denmark with assistance from NepCon

System/Year: Checklist for verifying the legal origin of Russian timber (2007).

Overview:

Guidance intended to help foreign companies verify the legal origin of the wood. It is meant to cover changes to the Russian Forest Code implemented in 2007.

Geographic:

Russia

Supply Chain: Origin of timber and processed products

Thematic:

Legal right to harvest (1)

Compliance with laws (2)

Development:

It is based on the Guidelines of timber origin legality verification developed by WWF Russia. The checklist was field tested by NepCon.

Auditing:

Checklist can be applied by companies themselves, or by an independent third-party. Anybody applying the checklist should have basic knowledge and experience in forest legislation and forest operations in Russia.

Contact:

WWF Denmark Tel: +45 35 36 36 35 E-mail: wwf@wwf.dk

Timber Trade Action Plan (TTAP)

System/Year: Legality checklists

Overview:

Regarded as a medium term solution until an official legality standard is in place in a country. Checklists are meant to be neutral, widely accepted, pragmatic and auditable, transparent, linked to original sources, and subject to review and adaptation.

Geographic:

Forest and factory legality checklists are available for Brazil, Cameroon, China, Congo-Brazzaville, Gabon, Guyana, Indonesia, Malaysia.

Supply Chain: Origin of timber, CoC, and processing

Thematic:

Legal right to harvest (1)

Compliance with laws (2)

Taxes/fees (3)

Tenure/Use rights of resources (4)

Development:

Developed by TTAP, based on legality definitions and legality verification standards already in place or in development and through stakeholder consultation. Minimum requirements for chain of custody are considered as part of the checklists.

Auditing:

Checklists are used by TTAP staff to assess gaps in the legality of the supply chains and implement supply chain control systems.

Contact:

The Forest Trust Tel: +41(0) 22-367-9441 E-mail: info@tft-forests.org http://www.tft-forests.org/ttap/

1- Including: legal tenure, legal rights and authorization to access and harvest the resources.
2- Compliance with laws, regulations and administrative requirements related to forest management, labor, transportation and health and safety.
3- Compliance with tax, royalties laws and regulations.
4- Respect for tenure or use rights of land and resources that might be affected by timber harvesting rights.
5- Compliance with trade and export laws and regulations.
6- Compliance with international laws and agreements including CITES, International Labor Organization, the Convention of Biological Diversity, etc.

Sources: CPET, 2011; Donovan, 2010; Hinrichs, 2009; CertiSource, 2010; CertiSource, 2011; CertiSource website; Keurhout Management Authority, 2009; Keurhout Management Authority, 2010; Rainforest Alliance website; Rainforest Alliance, 2010 A; Rainforest Alliance, 2010 B; WWF Russia, 2007; SCS Global Services website; SCS 2010 A; SCS 2010 B; SCS 2010 C; BVG website; BVG 2004; BVG 2010; BVG 2009; BVG, 2010; EcoSylva, 2010; TFT website; GFTN Guide to Legal and Responsible Sourcing website.

Bilateral cooperation between consumer and producer markets and free trade agreements are other efforts to address illegal logging. The European Union, through Voluntary Partnership Agreements, works with a select number of countries to build their capacity and support reforms in the governance of their forest sectors, to reduce the production of illegally harvested timber (Box 8 below).

Box 8: The European Union Forest Law Enforcement, Governance and Trade (FLEGT) Process and the Voluntary Partnership Agreements

The Forest Law Enforcement, Governance and Trade (FLEGT) Action Plan is the European Union (EU) response to concerns about illegal logging and deforestation. FLEGT started in 2001, with a ministerial conference in Indonesia; the Action Plan was completed in 2003.

The FLEGT Action Plan recognizes that consumer countries contribute to the illegal logging problem through the demand for timber and wood-based products. The Plan encompasses seven measures:

1. *Development cooperation with producing countries*– through actions that promote and implement solutions that are equitable and enhance transparency, and that build capacity and support policy reform.
2. *Promote trade in legal timber* - through the development and implementation of multilateral collaboration frameworks (VPAs) that include the establishment of legality assurance licensing systems.
3. *Promote public procurement policies* - that take into account the legality of timber products.
4. *Support private sector initiatives* – to address illegal logging, including through corporate social responsibility practices, voluntary codes of conduct and

development and implementation of voluntary licensing schemes.
5. *Support and promote safeguards on investments* – to encourage banks and financial institutions investing in the forest sector to develop due care and screening procedures to avoid projects that could potentially encourage illegal logging.
6. *Use existing or upcoming legal instruments* - to support the Plan, for example, the EU Illegal Timber Regulation
7. *Work to define and address conflict timber.*

Overall, the Action Plan seeks to develop markets for legal products in Europe, and establish bilateral partnerships (Voluntary Partnership Agreements, or VPAs) with producing countries to build their capacity and support reforms in the governance of their forest sectors to reduce the production of illegally harvested timber. The VPAs also seek to establish and implement tracking and licensing systems, called Legality Assurance Systems, to ensure that only legally produced products enter the European Union. Establishing a Voluntary Partnership Agreement involves four phases:

1. **Information and pre-negotiation phase** – the EU and the producer country exchange information and materials. The producer country government assesses, in consultation with stakeholders, the appropriateness of a VPA for the country.
2. **Negotiations** – The EU and the producer country reach agreement on the contents of the VPA, including the details of the Legality Assurance System (LAS), and other forest governance commitments. Stakeholder consultation is critical in this phase.
3. **Ratification of the agreement** Both parties work to ratify the agreement. Usually the legality assurance and licensing system are developed during this phase.
4. **Implementation** – The producer country establishes procedures that culminate with all timber products destined for the European Union shipped from the producer country with FLEGT-licenses. The license states that the shipment is legal according to the terms of the VPA.

The Voluntary Partnership Agreements focus on the forest sector and their core concern is establishing a shared understanding of what legal timber is and a system for legal enforcement. VPAs can contribute to improved governance of forests, and can support REDD+ processes at national level. Nevertheless, VPAs are not meant to resolve other issues that are fundamental to the supply of illegal timber such as land use conflicts or accountability (Falconer, 2011).

As of October 2012, thirteen countries have agreed or enter negotiations on a Voluntary Partnership Agreement (VPA).

Cameroon

Phase: VPA ratified; system being developed

Definition of Legality:

Legality definition covers the following aspects: fiscal and administrative requirements; harvesting, forest management and processing operations; transportation; social and environmental requirements.

Legality Assurance System (LAS) Applicability:

LAS applies to all timber and timber products produced, acquired and/or traded in Cameroon, including imported timber.

Implementation:

Companies holding SFM or legality verification certificates from voluntary schemes may receive a "legality certificate" valid for one year without further verification. Private certification schemes will undergo an evaluation by the Cameroonian government to ensure their standards and verification mechanisms satisfy the requirements of the LAS.

Central African Republic

Phase: VPA signed; system being developed

Definition of Legality:

Legality definition covers the following aspects: legality of the operation; right of access to the resource; social and environmental requirements as well as rights of indigenous and local communities; logging and processing requirements; transportation and traceability; compliance with contractual obligations and relationships with subcontractors for activities other than logging.

Legality Assurance System (LAS) Applicability:

LAS applies to all timber and timber products derived from industrial forest operations (concessions, plantations); artisanal and communityproduced products might be covered in the future. A simplified LAS approach for plantations will be developed during the full implementation phase.

Implementation:

An independent auditor will periodically inspect the LAS implementation. Independent audits will occur four times per year in the first year, twice during the second and third years, and once a year from the fourth year onwards. For timber from operations that hold forest management and legality verification certificates, a process will be developed to ensure these voluntary systems meet the requirements of the LAS.

Ghana

Phase: VPA ratified; system being developed

Definition of Legality:

Legality definition covers: timber source (land ownership); allocation of timber rights; timber harvesting operations; transportation; processing and trade; and, fiscal obligations. The definition includes compliance with environmental and social requirements.

Legality Assurance System (LAS) Applicability:

LAS applies to all timber and timber products produced, processed, traded and exported from Ghana. lAS system also applies to all products, including those that are not traded in European markets and timber sold on the domestic market. Central to the LAS system is a wood tracking system to monitor and control timber throughout the supply chain.

Implementation:

FLEGT Licensing system under development and is expected to issue licenses in 2013.

Republic of Congo (Brazzaville)

Phase: VPA ratified; system being developed

Definition of Legality:

The definition of legality is applicable to both natural forests and plantations. There are two coherent definitions that are based on the forest types and forest ownership regimes; these definitions cover all types of timber and timber products. Key aspects covered by the definition of legality are: legal right to operate; access rights; social requirements, including participation of local communities and indigenous peoples; forest management, harvesting and processing of timber; transport and trade; fiscal obligations.

Legality Assurance System (LAS) Applicability:

LAS applies to all timber and timber-based products that are produced, processed, and traded (including imports, exports, and timber in transit) in the Republic of

Congo. Timber and timber products that are not sold in European markets, and those that are sold on the domestic market, are also subject to the LAS.

Implementation:

FLEGT Licensing system is under development and is expected to be operational by mid 2013.

Indonesia

Phase: VPA agreed

Definition of Legality:

The definition of legality is framed around principles addressing wood harvesting and processing, and by type of forests. The definition covers the following: legal status, area, and right to use the forests; ownership of the timber; compliance with legal harvesting requirements; compliance with environmental and social aspects related to harvest; compliance with laws that regulate forest conversion; and compliance with supply chain management requirements.

Legality Assurance System (LAS) Applicability:

LAS applies to all commercial timber and timber products produced, processed and purchased in Indonesia, including exports. System might apply in the future to timber destined for the domestic market.

Implementation:

LAS under the VPA builds on the Indonesian Timber Legality assurance System (Indonesian TLAS) established in 2010. FLEGT licensing under the VPA is expected to begin in January 2013.

Liberia

Phase: VPA signed

Definition of Legality:

The definition of legality covers all aspects of timber production throughout the supply chain (forest management, timber production, processing and export). It covers aspects such as legal eligibility to operate in the forest sector; forest resource rights allocation; social obligations of contractors to local people; forest management standards for operations and harvesting to ensure sustainability; environmental obligations; regulation of timber transport and traceability obligations; timber processing requirements; workers' rights, health, safety and welfare; payment of taxes, fees and other payments; export and trade requirements; transparency measures and information disclosure.

Legality Assurance System (LAS) Applicability:

LAS will apply to all timber harvested, processed, sold in or exported from Liberia. This includes timber imported from other countries. LAS will also cover production from all types of forest holdings and by all types of operators.

Implementation:

The initial steps to implement the LAS will be outsourced and overseen by the Liberia Forestry Development Authority. The VPA also established an independent auditor to ensure proper function and oversight of the LAS by an independent third party. FLEGT licensing under the VPA is expected to begin in 2014.

Countries in the negotiation phase: Democratic Republic of Congo, Gabon, Guyana, Honduras, Ivory Coast Malaysia, Vietnam.

Countries in information/pre-negotiation phase: Bolivia, Cambodia, Colombia, Ecuador, Guatemala, Laos, Myanmar/Burma, Papua New Guinea, Peru, Sierra Leone, the Solomon Islands and Thailand.

In the context of global climate change, the FLEGT initiative and process and the development and implementation of VPAs can be seen as efforts to improve governance in the forest sector which, in turn, can be used to help countries meet national objectives related to the Reduction in Emissions from Deforestation and Forest Degradation (REDD) (see Section on Climate Change).

Sources: EC, Ministry of Forests and Wildlife of Cameroon, 2010; EC, Central African Republic Government, 2010; EFI EU FLEGT facility website; EC, Ghana Forestry Commission, 2009; EC, Republic of Congo, 2010; EC, Republic of Indonesia, 2011; EC, Republic of Liberia, 2011; EC, 2003; Falconer, 2011.

Other examples of bilateral cooperation include:

- **U.S.-Indonesia Memorandum of Understanding on Combating Illegal Logging (signed 2006)** – Among other things, the agreement seeks to complement and support efforts to combat illegal logging and associated trade, and to promote transparent timber markets and trade in legally produced timber and other forest products. The agreement established a working group to guide implementation of the memorandum with respect to information exchange, law enforcement cooperation, regional and international cooperation, and partnerships with nongovernmental actors (U.S. Government, Government of the Republic of Indonesia, 2006).
- **U.S. – China Memorandum of Understanding on Combating Illegal Logging and Associated Trade (signed in 2008)** – Among other things, the memorandum establishes a bilateral forum to increase cooperation between government agencies to combat illegal logging by setting priorities for cooperation, promoting trade of legally sourced forest products, facilitating information sharing, and encouraging public-private partnerships (U.S. Government, Government of the People's Republic of China, 2008).
- **Japan – Indonesia Cooperation Agreement in Combating Illegal Logging and the Trade in Illegally Logged Timber and Wood Products (signed 2003)** – The agreement focuses on developing, testing and implementing legality verification systems for timber and wood products; encouraging civil society involvement in combating illegal logging; developing a forest-trade data collection and exchange system; and building capacity to promote sustainable forest management (Government of Japan, Government of the Republic of Indonesia, 2003).
- **U.S. – Peru Trade Promotion Agreement (signed 2006)** – The agreement includes a special annex to address illegal logging through improved governance in the Peruvian forest sector. Among other things, the agreement seeks to strengthen forest law compliance in Peru; increase transparency in the sector, and develop and strengthen supply-chain control mechanisms (U.S. Government, Government of the Republic of Peru, 2006).

Governments, civil society organizations and the private sector may be having a significant impact on illegal logging. A 2010 study of producer, processing and

consumer countries suggests that illegal logging might have decreased significantly in Cameroon, the Brazilian Amazon and Indonesia over the last decade (Lawson and MacFaul, 2010). However, given the varying estimates of the amount of illegal activity previously, it is very hard to judge how much of an improvement there may have been. The amount of illegal logging is still significant in many countries

Factors to consider regarding legality

- Legality is not a serious issue in every country. A pragmatic approach may be to begin by identifying regions/countries at higher risk, and then focusing efforts on aspects of concern within those areas (e.g., corruption, lack of law enforcement, social conflict, ignoring land rights and so on). A number of resources are available to assist in this process (below).
- Different levels of caution may be needed, based on the place of origin of the wood. More information, verification and due care are needed for areas with higher risk of illegal activity in order to manage and eliminate the risk of having illegally logged wood in the supply chain.
- Legality is not equivalent to sustainable forest management. Just because a forest product is produced legally does not necessarily mean it has been produced in an environmentally sustainable or socially responsible manner.
- Lack of compliance with minor administrative regulations may not have a significant impact on the overall sustainability of the product. It might be more strategic to focus on blatant, significant infractions such as trafficking and systematically harvesting valuable timber species without proper authorization.
- In some cases, the law is not seen by everyone as equitable or fair (e.g. people with traditional claims to the land), or laws protecting customary rights may not be enforced, or ignored.
- Verification of compliance with all national laws can be challenging. A pragmatic way to address this is to establish whether violations are single oversights, or form a pattern of major violations.
- The proof of legality is normally based on legal documentation, which can be forged. Transfer of ownership of wood is commonly documented through purchase orders, invoices and other negotiable instruments. Even for title, however, the risk of forged documents can be significant in some places. At a minimum, documents should carry all appropriate stamps and seals from the relevant governmental agencies. Follow up by pursuing additional information when proof of legality is in doubt.
- Consider actively supporting government and civil society actions to address illegal logging and international trade in illegally-produced wood-based products.
- In the context of international climate change negotiations, improving legality in the forest sector at national and sub-national levels is being considered more and more as an important step to ensure the effectiveness of financial investments that are designed to prevent

deforestation and forest degradation under REDD systems (see section on climate change).

1. Prominent international initiatives include the G8 Forestry Action Programme, agreed by G8 foreign ministers in 1998, and the Gleneagles Declaration in 2005. The European Union in 2003 adopted an Action Plan on Forest Law Enforcement, Governance and Trade (EU FLEGT). The US launched the President's Initiative against Illegal Logging, also in 2003. Regional intergovernmental processes on Forest Law Enforcement and Governance (FLEG) have been established in Southeast Asia, Central Africa, Europe and Northern Asia, each on the basis of a Ministerial Declaration.

Download / Print Chapter

Relevant Resources

German Government Procurement Policy
Belgian Government Procurement Policy
Timber Retail Coalition
Buying Sustainable Timber – A Guide for Public Purchasers in Europe
Madera Legal - Asociación Española del Comercio e Industria de la Madera (AEIM)
Environmental Paper Assessment Tool V.2.0.
Environmental Paper Network
New Zealand Government Paper Buyers Guidance
World Wildlife Fund Guide to Buying Paper
World Wildlife Fund Paper Scorecard
Publisher's Database for Responsible Environmental Paper Sourcing (PREPS)
Consumer Goods Forum Guidelines for Pulp, Paper & Packaging
The Forest Trust's Good Wood, Good Business Guide
A Buyers' Guide to Canada's Sustainable Forest Products
CEPI Legal Logging Code of Conduct
Danish Government Procurement Policy for Tropical Forests
Dutch Government Procurement Criteria for Timber
European Community Green Purchasing Policy
FLEGT and VPAs
WWF Certification Assessment Tool (CAT)
French Policy on Public Procuremet of Timber and Wood Products
FSC Controlled-Wood Standard
Global Forest and Trade Network
Green Purchasing Network
Japanese Government Procurement Policy
Mexican Federal Government Procurement Policy
Standard Practice for Categorizing Wood and Wood-based Products According to Their Fiber Sources
Sustainable Forest Finance Toolkit
Swiss Declaration Duty for Timber
The Forest Trust

- Sedex
- SmartSource
- Project LEAF
- String
- Enhancing the Trade of Legally Produced Timber, a Guide to Initiatives
- Timber Tracking Technologies Review
- Illegal Logging Portal
- NEPCon LegalSource Programme
- PEFC Due Diligence System
- Global Timber Tracking Network
- International Wood Products Association's Wood Trade Compliance Training and Due Diligence Tools Course
- New Zealand Timber and Wood Products Procurement Policy
- The Forest Governance Learning Group
- Forest Legality Alliance
- Global Forest Registry
- High Conservation Value (HCV) Resource Network
- Radix Tree

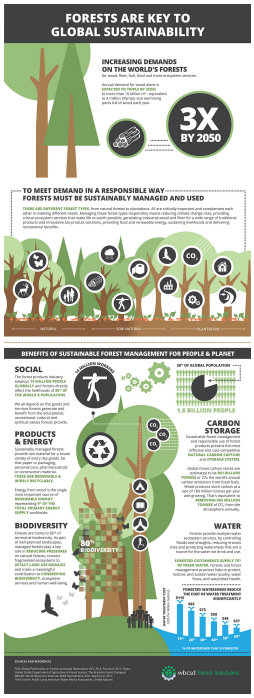
4

SUSTAINABLE FOREST MANAGEMENT

Have forests been sustainably managed?

The movement for sustainable procurement of wood and paper-based products is driven to a large extent by the concern for how forests are affected by wood production.

This concern has two major aspects:



- **Sustainability** - the balance of economic, social and environmental demands on the forest landscape. The maximization of wood production and minimization of cost should not upset the environmental and social balance of the landscape, either by removing trees at a quicker rate than they grow back or by paying insufficient attention to environmental or social concerns.
- **Forest conversion and land-use change** - the forest can change drastically after logging. It may be redesigned for tree production in a way that is significantly different from the forests that would naturally occur, or the forest can be converted to some other purpose that prevents trees from growing back.

Sustainable forestry

Sustainable Forest Management (SFM) is a management regime that integrates and balances social, economic, ecological, cultural, and spiritual needs of present and future generations (United Nations, 1992). Essential aspects of SFM include the following:

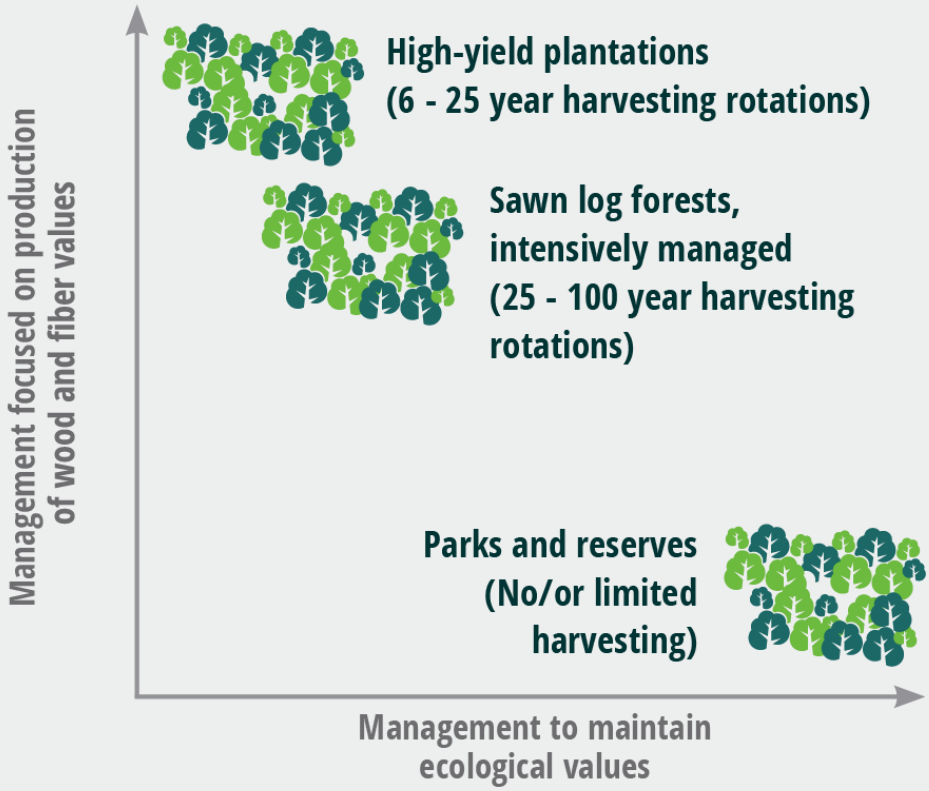
- **Economic** - the capacity of the forests to attract investment and support economically viable forest uses in the present and the future is undiminished. The forest is not used beyond its long-term capacity for production of wood, and non-wood forest products.
- **Social** - include a variety of aspects such as:
  - The rights of indigenous peoples and local communities are respected and protected
  - Forest workers are healthy, safe, and their rights are protected (e.g., freedom of association, right to bargain, child labor, forced labor, equal remuneration and non-discrimination)
  - Local communities, including indigenous peoples, benefit economically from forest management

- Sites of religious, spiritual, archaeological, historic, as well as of aesthetic and recreational value are preserved.

- **Environmental** - forest use protects biodiversity (ecosystems, species, genes and ecological processes) and the capacity to maintain ecosystem processes and services such as watershed protection, pollination, protection against mudslides, aesthetic beauty, carbon storage, etc.

The result of different ways to balance these trade-offs is illustrated in Figure 6.

FIGURE 6. CONCEPTUAL TRADE-OFFS BETWEEN ECONOMIC AND ECOLOGICAL VALUES



Areas managed intensively and exclusively for wood or fiber production (y-axis) will generally have fewer ecological values; forest areas managed exclusively for their ecological values (x-axis) will provide less economic value. Graphic based on Dyck (2003).

There are various approaches, positions, standards, and definitions of what SFM means and what specific management measures it requires. There are also various methods to measure progress towards SFM. Depending on the way their authors understand the concept and the management objectives, SFM standards for the same forest can be different. Regional standards for SFM can legitimately be somewhat different from one another, reflecting differences in forest types, legal frameworks, social conditions, and other factors. Mainstream standards for SFM differ on the following issues:

- **Clearcutting** - SFM standards, including CSA, FSC, PEFC and SFI, recognize clearcutting as consistent with SFM in the right forest ecosystems. Clearcutting can accomplish the following:
  - It mimics some of the natural disturbance dynamics of the forests (e.g., fire, wind blow downs, insects)
  - In some ecosystems, it allows regeneration and rapid growth of certain tree species
  - It costs less, making forestry more economically viable
  - It provides safer working conditions for loggers.

However, all SFM standards also recognize there is no single harvesting method suitable for all forest ecosystems.

- **Plantations** - plantations can focus production on smaller but more intensively managed areas. All SFM standards recognize plantations as being consistent with SFM under certain conditions; conditions may include considerations based on the ecological systems of the place, and the availability of land free from conflicts with other users.
- **Chemicals** - most standards allow controlled and appropriate use of chemicals (pesticides and fertilizers). Some standards prohibit the use of chemicals.
- **Genetically Modified Organisms (GMOs)** - some standards strictly prohibit the use of GMOs, while others will allow the use if and when legally available. At least 24 tree species have been known to have been the subject of transgenic research (for a list of species see WWF, 1999). In North America, however, no GM trees have been deregulated for commercial use.

Forest certification schemes define SFM through their respective standards (Table 9 below). All types of forests can be sustainably managed, from primary or natural forests to intensively managed forest plantations (Box 9 below).

Table 9. How major international certification schemes address selected aspects of SFM

	Forest Stewardship Council (FSC)	Programme fo of Forest Cer
Social issues	Four principles of the FSC system include various social concerns: tenure and use rights and responsibilities, indigenous people's rights, community relations, and workers' rights. Principle related to high conservation value forests (HCVF) also addresses social aspects for areas of archaeological, historical or cultural value. Standardsetting processes at the national and sub-national level are conducted in a transparent way and involve all interested parties.	Criteria 1 and 6 social concerns requires that fo activities aim t increase cultur values among c (maintenance c functions and c the following a stimulation of development, p ownership righ tenure, recogni and traditional the public for r purposes, recog

		with historical, spiritual signifi workers' healt community cor
Forests with unique values	Principle 9 addresses high conservation value forests (HCVF), which are areas to be managed in such a way that these values are maintained or enhanced. HCVF include: • Forests that contain globally, regionally, or nationally significant concentrations of biodiversity values • Globally, regionally, or nationally significant large landscape level forests • Rare, threatened or endangered ecosystems • Forest areas providing basic services of nature in critical situations • Forest areas fundamental to meeting basic needs of local communities • Forest areas critical to local communities' traditional cultural identity	Forest manage maintain, cons biodiversity on species and ge where appropri the landscape l Forest manage identify, protec ecologically im containing sig concentrations • Protected, ra representati ecosystems areas and we • Areas contai species and threatened s • Endangered genetic in si take into acc • Globally, reg nationally si landscape ar distribution naturally oc Criterion 5 req of forest areas sensitive soils, areas, or forest water resource Criterion 6 req for sites with r historical, cultu significance fo communities.
Forest plantations	Principles 6 and 10 of the FSC principles address forest plantations. Certified forest plantations should meet a set of requirements concerning: (i) representation on landscape; (ii) time of establishment; and, (iii) design of the management blocks (i.e., blocks promote biodiversity). Forest conversion to plantations or non-forest land uses should	Various elemer are relevant to plantations. Ce should meet a requirements c others, the foll aspects: (i) time of estal (ii) impacts on unique values; (iii) impacts on

	not occur except in circumstances where conversion entails a very limited portion of the forest management unit, does not occur in high conservation value areas, and will deliver long-term conservation benefits.	
Chemicals	Principle 6 of FSC addresses chemicals. Chemicals should be minimized. Integrated Pest Management (IPM) is the preferred approach, i.e., to minimize chemical use through the use of alternative prevention and biological control techniques. Documentation, monitoring, and control are required. Prohibits the use of pesticides type 1A and 1B, as defined by the World Health Organization, as well as chlorinated hydrocarbon pesticides; pesticides that are persistent, toxic or whose derivatives remain biologically active and accumulate in the food chain.	Use of pesticid should be mini controlled mar account appro alternatives an means. Prohibi pesticides type defined by the Organization. (hydrocarbons a pesticides who remain biologi accumulate in also prohibited no viable alter 2010).
Clearcuts	Principle 6 of FSC addresses clearcuts. Restrictions on size and location vary among national/regional standards as long as ecological functions and values are maintained intact, enhanced or restored.	Management p clearcutting – s on legislation a land-use plans cover forest res Regeneration, t harvesting sho in time and ma reduce the proc the site.
GMOs	Use of GMOs is prohibited; addressed in Principle 6 of FSC.	Use of GMOs is
Exotic species	Addressed in Principle 6. Exotic species are permitted, but not promoted. Careful monitoring is required to avoid adverse environmental impacts.	Criterion 3 add species. Native provenances sh in reforestatio afforestation. I can be used aft impacts on the the genetic int species is evalu negative impac or minimized.

Box 9: Plantations

The increasing demand for wood and paper-based products will likely be met, at least in part, through the establishment of new forest plantations. The area of forest plantations worldwide has been increasing to reach 140 million ha in 2005. Slightly less than half of the world's plantations are in Asia while exceptionally fast increases were experienced in North America, Central America, Oceania and South America between 1990 and 2000 (FAO, 2006). This trend is expected to continue, especially in developing countries. Forest plantations currently make up 5% of world's forest cover, but account for 35% of total global industrial wood production. There are advantages and disadvantages that need to be considered when sourcing from forest plantations.

Planted forests (plantations) may not provide the same ecosystem services natural forests provide, but they can play a positive role in other regards:

- By producing wood more efficiently, they may allow other natural forests to be managed for other forest values.
- When established on previously degraded sites they may recover some ecosystem functions and services. Increased recovery of degraded lands will play an important role in meeting future demand for wood and paper-based products and services including carbon sequestration and/or crops for fuels.

However, when forest plantations reduce the production costs for timber, products from natural forests may be at a disadvantage. If natural forests become less economically viable, it could cause owners to convert their lands to other more financially attractive land uses.

Advantages and disadvantages of plantations

Advantages	Disadvantages
• Forest plantations can return degraded or worn out lands to productive use and protect soil from erosion.	• There is often limited biodiversity if the forest is managed in single species plantations, resulting in reduced wildlife habitat and ecosystem value.
• The rapid growth of forest plantations can produce more wood, faster, requiring less land to produce a specified amount of wood.	• Diseases and pests which target a particular tree species can have devastating impacts in single species plantations.
• Forest plantations enable landowners to take advantage of the newest forest technology and genetics. This results in greater yields and better prices, strong incentives for private landowners to continue to practice forestry on their lands.	• Forest plantations often receive higher levels of inputs such as fertilizer and chemicals to control vegetative competition.
• Wood harvested from forest plantations is often very uniform in terms of species and	• Run-off, overspray and groundwater contamination can be issues if these practices are not carried out correctly.

size, thereby improving processing and manufacturing efficiency.	
• Focusing wood production in fast-growing forest plantations can allow other native/natural forests to be managed for other uses such as biodiversity, non-wood forest products, and aesthetics.	• Some forest plantations are established using non-native species. These plantations may not provide suitable habitat for local wildlife. Trees replacing grazing land may also adversely affect groundwater levels. If allowed to escape off-site, some non-native species may out-compete local tree species for available resources, and become a "weed" or invasive species.
• Greater economic value of plantations can keep forest land in forest use, where a natural forest may not be economically sustainable.	• Rights of local communities and indigenous peoples may be ignored. Forest plantations often take over large areas of land that become unavailable to other users (e.g., fuel-wood collection, non-wood forest products) and can distort income distribution in households and communities.
	• Clearance of natural forests to establish plantations.

The two principal concerns about forest plantations are:

1. They may replace natural forest areas or areas in the forest landscape with unique qualities.
2. They may not be established in compliance with local laws regarding land occupation, and with authorization of local and indigenous peoples.

Sources: Boyer, 2006; FAO, 2007B; Nair, 2001.

Source for FSC information is FSC (1996). This table provides an overview of the general characteristics of these two systems. This table is NOT meant to be an exhaustive comparison. A list of references to more detailed comparisons can be found in the section on additional resources.

Factors to consider about SFM

- Forest land can be sustainably managed without being certified by a forest certification system. Producers may not pursue forest certification if they perceive the costs of the process as outweighing the price premium offered for certified products.
- "Legally harvested" does not necessarily mean "sustainably produced" or "sustainably managed" because laws are sometimes insufficient to guarantee SFM, or are inadequately enforced.

- Both major certification schemes are developing methods to assess the risk that wood from non-certified sources has been produced in an unacceptable way.

Land-Use Change and Forest Conversion

Forests are naturally dynamic ecosystems. Natural processes (e.g., fire, flood, wind, earthquakes, mortality caused by insects, outbreaks of diseases, and the simple aging of trees) affect the composition and structure of all forests. Anthropogenic influences also change forest ecosystems, often in more dramatic and permanent ways. It is important to distinguish two different types of significant forest change, which are sometimes confused:

- Land-use change
- Forest conversion.

Land-use change, i.e., deforestation, reduces the area under forest. The United Nation's Food and Agriculture Organization (FAO) defines deforestation as "The conversion of forest to another land use or the long-term reduction of the tree canopy cover below the minimum 10 percent threshold" (FAO, 2001). Deforestation occurs when forest areas are transformed to other land uses such as:

- **Agriculture**: this includes shifting cultivation (traditional and colonist shifting cultivation), permanent cultivation (subsistence or commercial cultivation), and cattle ranching (small and large-scale cattle ranching). Agricultural expansion can replace native forests with pasturelands and crops. Palm oil, soy crops, and likely fuel crops in the near future, are considered the leading proximate cause for forest land use change in the tropics.
- **Human settlement**: urban development, colonization, transmigration and resettlement (spontaneous transmigration, estate settlement, industrial settlement, urban settlements).
- **Infrastructure**: transport infrastructure, market infrastructure (mills, food markets, storage, etc.), public services (water, sanitation), hydropower, energy and mining infrastructure.

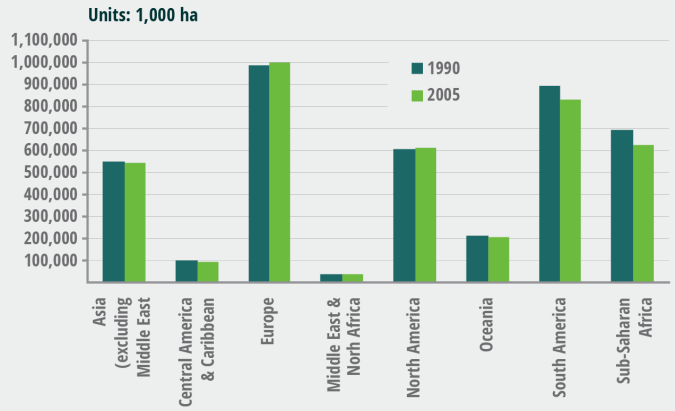
Forest conversion happens when a natural forest is transformed into a highly cultivated forest, often with introduced tree species and control of the hydrological and nutrient regime with a focus on wood production.

FAO's definition of deforestation specifically excludes areas where the forest is expected to regenerate naturally or with the aid of forest management measures following harvesting.

Over time, a significant amount of the world's forest lands have been converted to other land uses. In the northern latitudes most of this change in land use occurred in the past. In some cases natural forests have reestablished themselves in these areas; in others forests have been planted. The managed forests we see today are often influenced by historical land uses, such as grazing or agriculture.

In the tropics, a major concern is the high rate of continued conversion of forests to other uses (Figure 7).

FIGURE 7. FOREST EXTENT IN 1990 AND 2005



Source: Earth Trends Query (www.earthtrends.org). Forest coverage in South America has declined by almost 60 million ha in 15 years. In North America and Europe, forest cover increased by almost 4 and 12 million ha respectively in the same time-period.

The causes of forest land use change vary by region, and even within a region. It is often a complex combination of intertwined factors and circumstances involving more than a single industry. Table 10 presents a general summary of some of the causes, drivers, and factors associated with forest land use change.

Commercial extraction of wood-based products, in combination with other factors and economic activities, has been linked to forest land use change. For instance:

- In Asia, logging concessions are often harvested and converted to plantations (mostly oil palm) because this change in use is usually less expensive than the selective logging needed to maintain the native forest. Under current economic and political incentives, there are faster and more profitable investment returns in palm oil plantations, and there is poor law enforcement and planning.
- In Central Africa and South America, logging companies open roads to extract/transport timber. These roads open the way for encroachment. An opening in the forest, combined with lack of enforcement and pressure from human populations, can result in change in use to subsistence farming or other agricultural operation.

Converting a forest into a forest plantation affects the balance of ecosystem services (e.g., it may eliminate species, affect erosion control and/or water supplies while increasing the production of wood), but converting forests to non-forest uses such as urban settlements completely eliminates the forest ecosystem. Forests deliver a variety of ecosystem services and benefits, but many of these are not recognized under the current economic and political situation and do not generate any revenue to the forest owner. Often the value of an intact natural forest or a standing forest or a forest plantation can be greater to society than the value of a converted forest area.

Table 10. Factors underlying forest land-use change and conversion in the tropics

Factors	Underlying Causes
Economic	Market growth and commerciali market growth of the export-ori increased market accessibility, g industries, lucrative foreign exc growth of demand for goods an Economic structures: large indi gains, poverty and related facto

	downturn, crisis conditions. Urbanization and industrializat urban markets, rapid build-up o based (or related) industries. Special economic parameters: c advantages due to cheap, abund factors in resource extraction ar
Policy and institutional	Policies: taxation, credits, subsi concessions, economic develop (migration), and land ownershi Institutional factors: corruptio performance, mismanagement, Property rights regime: insecur to establish property rights, titl open access conditions, etc.
Technological	Agro-technological changes, te applications in the wood sector, production factors in agricultur
Social and cultural	Social unrest and disorder (war, health and economic condition policy failures. Cultural factors (or lack of) towards forest prote sustainable use.
Demographics	Population growth and increasi products, food, space, etc.
Other	Soil quality, water availability, s and vegetation types.

Based on Geist and Lambin, 2001

Factors to consider regarding land-use change and forest conversion

In procuring wood and paper-based products from forest areas that are being legally converted to another land use (e.g., as part of governmental land zoning policies), it is advisable to fully understand that circumstances such as the risk of corruption, illegalities, violations of indigenous people's rights, and other issues may be high.

It is advisable to ensure that those involved in such a change process do it in a way that is transparent, mindful of the needs and perspectives of different local stakeholders, well planned and informed, and with safeguards and measures to remedy negative impacts. Some of the aspects described under Questions 1 and 2, and the tools presented there, may be useful and applicable to these situations.

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Relevant Resources

German Government Procurement Policy
UK Timber Trade Federation Responsible Purchasing Policy
Wood for Good Campaign
Belgian Government Procurement Policy
Timber Retail Coalition
Leadership in Energy and Environmental Design (LEED) Rating Systems
Green Globes
Buying Sustainable Timber – A Guide for Public Purchasers in Europe
CEPI Carbon Footprint Framework
Environmental Paper Assessment Tool V.2.0.
Environmental Paper Network
New Zealand Government Paper Buyers Guidance
Paper Profile
World Wildlife Fund Guide to Buying Paper
World Wildlife Fund Paper Scorecard
Publisher's Database for Responsible Environmental Paper Sourcing (PREPS)
The Forest Trust's Good Wood, Good Business Guide
A Buyers' Guide to Canada's Sustainable Forest Products
Danish Government Procurement Policy for Tropical Forests
Dutch Government Procurement Criteria for Timber
European Community Green Purchasing Policy
FLEGT and VPAs
WWF Certification Assessment Tool (CAT)
Forest Footprint Disclosure Project
Forest Industry Carbon Assessment Tool
French Policy on Public Procuremet of Timber and Wood Products
Global Forest and Trade Network
Green Purchasing Network
Japanese Government Procurement Policy
Mexican Federal Government Procurement Policy
Standard Practice for Categorizing Wood and Wood-based Products According to Their Fiber Sources
Sustainable Forest Finance Toolkit
Sustainable Forestry Initiative Procurement Objective
The Forest Trust
SmartSource
Timber Tracking Technologies Review
Illegal Logging Portal
Carbon Disclosure Project
Global Timber Tracking Network
New Zealand Timber and Wood Products Procurement Policy
Public Procurement Policies for Forest Products and their Impacts
The Forest Governance Learning Group
Global Forest Registry
High Conservation Value (HCV) Resource Network

Radix Tree

5

UNIQUE FOREST VALUES

Have unique forest values been protected?

For the purposes of this guide, the term "unique forest value" is used as a generic term for areas with unique qualities within the forest landscape (Box 10 below). They typically need special attention and treatment. Depending on their features and significance, these forests can be identified at different scales (e.g., global, regional, local scale). Some global, coarse-scale maps of forests with unique values exist, and they can be used to identify areas where a site-specific evaluation should be performed.

Box 10: What constitutes a unique forest value?

There is no universally agreed upon definition of a unique forest value. Existing definitions combine scientific and political dimensions through different features, but they often do not prioritize the features that take precedence. In general, stakeholders deem a forest to have unique values if it includes one or more of the following characteristics:

Biological, ecological and landscape features

- Species richness: number of species within a given area
- Species endemism: number of species found exclusively in that location
- Rarity: species and/or ecosystems that are naturally rare
- Representation: a site that represents all of the different ecosystems in the area of concern

- Significant or outstanding ecological or evolutionary processes, such as key breeding areas, migration routes, unique species assemblages, and so on
- Special species or taxa: presence of an umbrella, keystone, indicator, or flagship species. Site is habitat of a taxa of interest; for instance, wide-ranging species of waterfowl

Conservation features

- Threatened species: species that have been identified as threatened or endangered
- Species decline: species whose populations have undergone significant decline in recent years
- Habitat loss: areas that have lost a significant percentage of their primary habitat or vegetation
- Fragmentation: areas that have lost connectivity and have been fragmented into smaller pieces
- Large intact areas: areas within a certain minimum size with no or minimal human influence
- Level of threat: areas facing high or low pressure from human populations or development
- Places considered to have rare and exceptional scenic and aesthetic features

Ecosystem services

- Ability to supply basic and/or critical services such as watershed protection, erosion control, and fire/flood control among others

Cultural, livelihood, historical and spiritual features

- High value to the people who live within or around the site (e.g., for reasons of religion, history, cultural identity, or dependency for livelihoods); these include religious, historical and archaeological sites
- Critical significance to the traditional cultural identity of a local community
- Critical to maintaining local peoples' livelihoods

The most critical and controversial issues around identifying forests with unique values have been:

- What process is used to define, identify and map forests with unique values?
- What, and how fair and effective, is the process to make and implement the decision?
- Who bears the cost?
- What is the effectiveness protection of forests with unique values?

Governmental action to identify forests with unique values (through zoning and land-use planning processes) provides due process for those affected and may provide compensation or spread the costs equitably. If government actions are perceived as insufficient, however, this can give way to individual and private actions.

Sources: IUCN, 2006; Gordon et al., 2005.

Some forests with unique values are legally protected, but this is not always the case. There can be several reasons for the lack of legal protection:

- The uniqueness of a site may not have been identified, either because of insufficient inventory efforts or because the science of conservation biology has improved since the last inventory was made.
- The political and administrative process to secure protection can be cumbersome and slow. Another possibility is that the law does not contain provisions for protecting forests of unique value of this particular type.
- The site may be private property or otherwise of important economic value to a community. Incentives to gain support for special designation may be lacking.
- An assessment process may have concluded that the area is not sufficiently unique to warrant protection.
- Stakeholders may differ in their opinion of what qualifies as a forest with unique values.

While there is general agreement that forest management should respect legally protected areas, the situation can be unclear and complex when a legally unprotected area is claimed as a forest with unique values. There are several possibilities:

- The area may have been identified as unique and an official government-led initiative is underway to protect it. In this case voluntary protection efforts are needed to maintain the unique values of the area until it gets official protection. These can include protection measures by land managers. There may also be marketplace pressures to reject wood products harvested from the area, regardless of its legal status. This may or may not contribute to protection, depending on community reaction, and its effect on government decision-makers.
- The area may not be slated for official protection. A stakeholder conflict may then ensue, with some environmental and/or indigenous groups trying to enforce market protection of the site pending a change of minds by the authorities. In some cases, such conflict has led land managers to agree to a logging moratorium, pending government consideration. In others it has had no effect or led to disinvestment or land sales.

In either case land ownership or tenure is significant. A public or large owner may have a greater capacity to absorb a reduction of the productive land base than a small private landowner, but also may be more affected by perceived instability. Cooperation among small private landowners such as pursuing group certification may effectively take care of the unique forest values. Boycott campaigns do not always have local

support and can create a political backlash against the customer and other stakeholders.

Different stakeholders, including mainstream certification standards, have coined different definitions of unique forest values (Table 11: Definitions related to unique forest values below). With few exceptions, the areas that correspond to these definitions have not been mapped, making it difficult to analyze the extent to which they overlap. Along with the definition, stakeholders have recommended management regimes for these special forests, including:

- **Precautionary management** - ensuring that unique forest values are identified and protected before management plans are developed.
- **Sustainable Forest Management (SFM)**- integrating and balancing environmental, social and economic aspects across the landscape. Small-scale adaptations of management to promote conservation that do not significantly reduce the economic potential of the land, e.g., through protection of so-called key woodland habitats, are usually considered an inherent part of good forest management.
- **Conservation management** - managing to retain or enhance the ecological and biological values, which may or may not include limited timber harvesting.
- **No management** at all (i.e., leaving the forest by itself).
- **A combination of all of these across the larger landscape.**

The diversity of definitions of unique forest values and definitions of forest in general is a major concern. International organizations such as FAO, International Union of Forest Research Organizations (IUFRO), Center for International Forestry Research (CIFOR) and UNEP have compiled forest definitions (FAO, 2002A) but do not offer any generally accepted definition for unique forest values. The lack of a universally agreed upon definition of unique forest values is a major concern, and the stakeholder support for each definition varies.

Table 11. Definitions of Unique Forest Values

AZE Sites (AZE, 2007)

Developed By: Alliance for Zero Extinction (AZE)

Characteristics:Focus on sites in most urgent need of conservation to prevent species extinctions. Priority sites must meet the three following requirements:

- Endangerment – at least one endangered or critically endangered species listed by IUCN.
- Irreplaceability – the area contains the overwhelmingly significant known resident population of the endangered or critically endangered species, or it contains the overwhelmingly significant known population for one life history segment of the species.
- Discreteness – the area has a definable boundary within which the habitats, biological communities, and/or management issues have more in common with each other than they do with those adjacent areas.

Management Preferences:

Management for conservation.

Notes:

A global joint initiative of 52 biodiversity conservation organizations. Alliance members include BirdLife International, Conservation International, Wildlife Conservation Society, and World Wildlife Fund US. 595 sites around the world have been identified to protect 794 species of mammals, birds, reptiles, amphibians and conifers.

Special Sites (AFF, 2004)

Developed By: American Tree Farm System (ATFS)

Characteristics:

Sites of special interest because of their recreational, historical, biological, archaeological and geological features.

Management Preferences:

To the extent practicable, management practices should protect these sites.

Notes:

Special sites can be identified directly on the ground by landowner and an ATFS inspection forester.

Key biodiversity areas (Eken et al., 2004)

Developed By: Birdlife International, Conservation International, and Plantlife International

Characteristics:Building on the concept of hotspots, Conservation International is leading an effort to map and identify key biodiversity areas. These are globally important sites that are large enough or sufficiently interconnected to support viable populations of the species for which they are important. The definition is based on four criteria:

- Globally threatened species
- Restricted-range species
- Congregations of species that concentrate at particular sites during some stage in their life cycle
- Biome-restricted species assemblages The first criterion addresses vulnerability of species, while the other three cover different aspects of irreplaceability.Key biodiversity areas can be within biodiversity hotspots.

Management Preferences:

Conservation of the sites to reduce global biodiversity loss.

Notes:

Groups identifying these areas include: Birldlife International (Europe, Middle East, Africa); Plantlife International and Dutch Dragonfly Conservation (Europe); IUCN and Alliance for Zero Extinction (global); and Conservation International (Andes and Africa). More details at www.plantlife.org.uk

Biodiversity hotspots (Conservation International, 2007)

Developed By: Conservation International

Characteristics:

Hotspots are priority global areas for conservation. Hotspots are characterized by exceptional levels of plant endemism (at least 1,500 species of vascular plants) and by serious levels of habitat loss (lost at least 70% of its original habitat).

Worldwide, 34 biodiversity hotspots have been identified. Collectively, these hotspots are estimated to house high levels of biodiversity, including at least 150,000 plant species as endemics and 77% of the world's total terrestrial vertebrate species.

Management Preferences:

Conservation can be carried out through a variety of approaches including the establishment of protected areas and the implementation of economic alternatives.

Notes:

Conservation outcomes identified for individual hotspots are defined through regional-scale planning processes; maps of biodiversity hotspots and species databases are available at www.biodiversityhotspots.org.

Major tropical wilderness areas (Mittermeier et al., 2001)

Developed By: Conservation International

Characteristics:

A complementary concept to the biodiversity hotspots, the major tropical wilderness areas have high diversity and endemism, low human population density, and remain largely intact.

Management Preferences:

Conservation can be carried out through largescale conservation set-asides.

Notes:

Include the Guyana Shield region (Suriname, Guyana, French Guiana, Venezuela and adjacent parts of Brazil), the upper Amazonian (Brazil, Colombia, Ecuador, Peru and Bolivia); a substantial portion of the Congolese forests block/Congo River Basin in Central Africa; and most of the island of New Guinea and adjacent smaller Melanesian islands (Solomon Islands, New Britain, New Ireland and Vanuatu).

Key biotopes (Mikkelä et al., 2001; FFCS, 1999)

Developed By: Finnish Forest Certification System

Characteristics:

- Sites designed for protection under the Finnish Nature Conservation Act such as wild woods rich in broad-leafed deciduous species, hazel woods, Juniper and wooded meadows.
- Habitats recognized as especially valuable under the Finnish Forest Act, such as the surroundings of springs and streams, hardwood spruce swamps, and heath land forest islets on undrained wetlands.
- Additional habitats such as old-growth conifer forests, mixed forests and broad-leaved forests, and forest meadows in traditional landscapes.
- Small water biotopes listed in the Finnish Water Act.

Management Preferences:

Key biotopes are to be left in their natural state and only subject to gentle management operations.

Notes:

Guidelines for assessing and protecting key biotopes have been produced (Korpela, 2004); key biotopes have been identified by different stakeholders.

Endangered forests (Forest Ethics et al., 2006)

Developed By: ForestEthics, Natural Resources Defense Council, Rainforest Action Network, Greenpeace

Characteristics:Forests that require protection from intensive industrial use in order to maintain their outstanding ecological values. Endangered forests include: forests that maintain landscape integrity; rare forest types; forests with high species richness; forests with a high concentration of rare, endangered and endemic species; forests that provide core habitat for focal species; and forests that exhibit rare ecological and evolutionary phenomena. Endangered forests are identified as:

- Wilderness forests and intact forest landscapes
- Remnant forests and forests with restoration values
- Forests ecologically critical for the protection of biological diversity, such as naturally rare forest types, high endemism, or the habitat of focal conservation species

Management Preferences:

No intensive industrial activities or extraction. "No-go" zones. Endangered forests are defined as a subset of HCVFs due to their outstanding ecological values.

Notes:

ForestEthics and its partners are working to define and map endangered forests of the world. The definition is meant to compliment certification of logging operations under FSC (www.forestethics.org).

High conservation value forests (HCVF) (FSC, 1996)

Developed By: FSC

Characteristics:

- Forests that contain globally, regionally, or nationally significant concentrations of biodiversity values
- Globally, regionally, or nationally significant large landscape-level forests
- Rare, threatened or endangered ecosystems
- Forest areas providing basic services of nature in critical situations
- Forest areas fundamental to meeting basic needs of local communities
- Forest areas critical to local communities' traditional cultural identity

Management Preferences:

Management to maintain or enhance features of these forests.

Notes:

A variety of tools have been developed to assist identifying these sites including:

- a toolkit (www.proforest.net)
- a resource network (www.hcvf.org)
- a sourcebook (www.proforest.net)

There are various efforts to identify HCVFs in Indonesia, Russia, Romania and other countries.

Natura 2000 Sites (Natura Networking Programme, 2007; European Commission, 2003)

Developed By: Natura Networking Programme

Characteristics:A network of Special Protection Areas (SPAs) and Special Areas of Conservation (SACs) in the European Union. SPAs are for the protection and management of areas important for rare and vulnerable birds as specified by the EU Parliament Birds Directive while SACs are areas established for the protection and management of rare and vulnerable animal and plant species and habitats, as specified by the EU Parliament Habitats Directive. Among other things, the Birds Directive seeks to conserve, maintain or restore the biotopes and habitats of all bird species naturally living in the wild in the European Union (European Union, 2006). The Habitat's Directive includes:

- Natural habitats in danger of disappearance in their natural range
- Those having small natural range following their regression or by reason of their intrinsically restricted area
- Those presenting outstanding examples of typical characteristics of more of the following biogeographical
- regions: Alpine, Atlantic, Continental, Macronesian and Mediterranean (European Union, 2007)

Management Preferences:

Appropriate economic activity to maintain or improve the conservation status of Natura 2000 Sites is allowed. Member states identify and propose a list of sites for their territory and are in charge of managing these sites. Management can include strictly protection and sustainable management.

Notes:

Natura 2000 Sites are identified and proposed by countries. For each site, national governments submit standard information describing the site and its ecology, this information is to be validated by the European Topic Centre for Nature Conservation. A complete GIS database of Nature 2000 Sites will be built after compilation and validation. Detailed information and maps can be obtained directly from the national governments. Links to governmental institutions with information can be found at www. ec.europa.eu/environment/nature

Forests with exceptional conservation value (FECV) (Sustainable Forestry Board, 2015)

Developed By: SFI

Characteristics:

Globally threatened or rare forests, with high levels of endemism, or that have little human intervention; forests containing high biodiversity value, unique or rare forest communities, viable populations of rare individual plant and animal species.

Management Preferences:

Managed in a way that protects their unique qualities and promotes conservation of biodiversity.

Notes:

FECVs are identified with assistance from information provided by NatureServe or state or provincial heritage programs in the US and Canada.

Last of the Wild (Sanderson et al., 2002)

Developed By: Wildlife Conservation Society

Characteristics:

The largest, least influenced areas around the world where the full range of nature may still exist with a minimum of conflict with existing human structures. The Last of the Wild were identified based on an assessment of the human footprint, which compiles the following types of data as proxies for human influence: population density, land transformation, accessibility, and electrical power infrastructure.

Management Preferences:

These areas are a guide to opportunities for effective conservation.

Notes:

569 places have been identified. Maps are available at www.ciesin.columbia.edu/wild_areas/

Critical forests (World Bank, 2002B)

Developed By: World Bank

Characteristics:Critical forest areas are the subset of natural forest lands that cover:

- Existing protected areas and areas officially proposed by governments as protected areas, areas initially recognized as protected by traditional local communities, and sites that maintain conditions vital for the viability of these protected areas.
- Sites identified as recognized by traditional local communities; areas with known high suitability for biodiversity conservation; sites that are critical for rare, vulnerable, migratory, or endangered species.

Management Preferences:

Definition is for internal purposes. The Bank would not finance projects that would involve significant conversion or degradation of critical forest areas.

Notes:

Critical forests are identified by the Bank or an authoritative source, determined by the regional environment sector unit.

Frontier forests (Bryant et al., 1997)

Developed By: WRI

Characteristics:

Relatively undisturbed large tracts of forests are capable of sustaining viable populations of all native species.

Management Preferences:

No management preferences outlined.

Notes:

Maps available at www.globalforestwatch.org

Global 200 (WWF, 2007)

Developed By: WWF

Characteristics:

Outstanding and representative eco-regions of each major habitat type in the world, based on their biodiversity patterns and degree of threat. Global 200 harbor globally important biodiversity and ecological processes, and represent the world's most outstanding examples within each major habitat type.

Management Preferences:

Primary objective is to promote their conservation.

Notes:

Maps available at www.worldwildlife.org. WWF also uses the HCVF concept to define special places at a more local scale.

Intact Forest Landscapes (IFLs) (Greenpeace, 2006)

Developed By: Greenpeace/WRI

Characteristics:

Intact Forest Landscapes are landscapes larger than 500 km^2 that are not fragmented by infrastructure, such as roads, settlements, waterways, pipelines, power lines, etc. These tracts are located within the forest vegetation zone and are mostly forested but also contain swamps and other non-forested ecosystems that are without significant visible signs of human impact such as logging, burning or other forms of forest clearing.

Management Preferences:

Management for conservation of biological diversity.

Notes:

Maps of Intact Forest Landscapes for northern forests are available (globalforestwatch.org), as well as draft maps for other forest biomes (intactforests.org).

High carbon stock (HCS) forest (Greenpeace, 2013, 2014)

Developed By: Greenpeace

Characteristics:

HCS forests in Indonesia are defined by vegetation cover according to analysis of satellite images and field plots. The HCS category includes all forests in the High Density Forest (HDF), Medium Density Forest (MDF), Low Density Forest (LDF), and Young Regenerating Forest (YRF) classification. The remaining categories, Scrub (S), and Cleared/Open Land (OL) do not constitute HCS forest. The difference between YRF and S is the age of the regrowth: BT (as HCS forest) consists mostly of young regrowth, with some older forest patches in the stratum, and BM (as non-HCS forest) consists mostly of recently cleared areas with grass-like ground cover and some woody re-growth. A second stage screening measures biodiversity values in the identified potential HCS forest areas based on factors such as shape, size, connectivity, habitat quality and threats. Social considerations such as tenure and FPIC should be included in the assessment as well.

Management Preferences:

Conservation of HCS forests; non-HCS forests (categories S and OL) potentially suitable for oil palm development.

Notes:

This classification was developed by Greenpeace and TFT in collaboration with the palm oil companies Golden Agri-Resources Limited (GAR) and PT SMART Tbk (SMART) in Indonesia. The approach has since been adopted by Asia Pulp and Paper (APP) and other palm oil companies. However, the HCS approach has also been taken up in Papua New Guinea and Liberia, and is being trialed in other countries. While carbon values for each category will differ by country, the 6-part classification system for vegetation cover developed for Indonesia can be applied in all humid tropical regions. HCS does not currently take into account peat lands, which should be covered by a separate no-peat land development commitment. Also, the HCS assessment is not sufficiently accurate to be used for carbon accounting, since it only measures trees of over 5 cm diameter, and therefore underestimates Above Ground Biomass, and does not take into account Below Ground Biomass.

Factors to consider regarding unique forest values

- Some forests with unique values are yet to be located. Investment in time and resources is needed to identify them across the landscape.
- An initial inventory and analysis of the landscape as a whole will generally make it easier to find solutions that satisfy the needs and ambitions of all stakeholders. However, some aspects require special consideration:
  - There might be many small players involved (e.g., small landowners) who need to be considered and consulted because they may be affected out of proportion to their size
  - If the demand for forest products is removed from an area, the landowner is likely to find other ways to generate revenue from the land, e.g., through land-use change to development (urban sprawl) or for production of agricultural crops.

Some forestry companies have used the following steps to overcome potential issues around unique forest values:

- Engagement with stakeholders to develop a common platform of definitions and a common process for mapping of conservation values and/or field inventory.
- Reference to, or engagement with, third-parties to define and map forests with unique values.
- Pursuit of legal opportunities to protect forests with unique values by encouraging land transfers to conservation organizations or establishing conservation easements.

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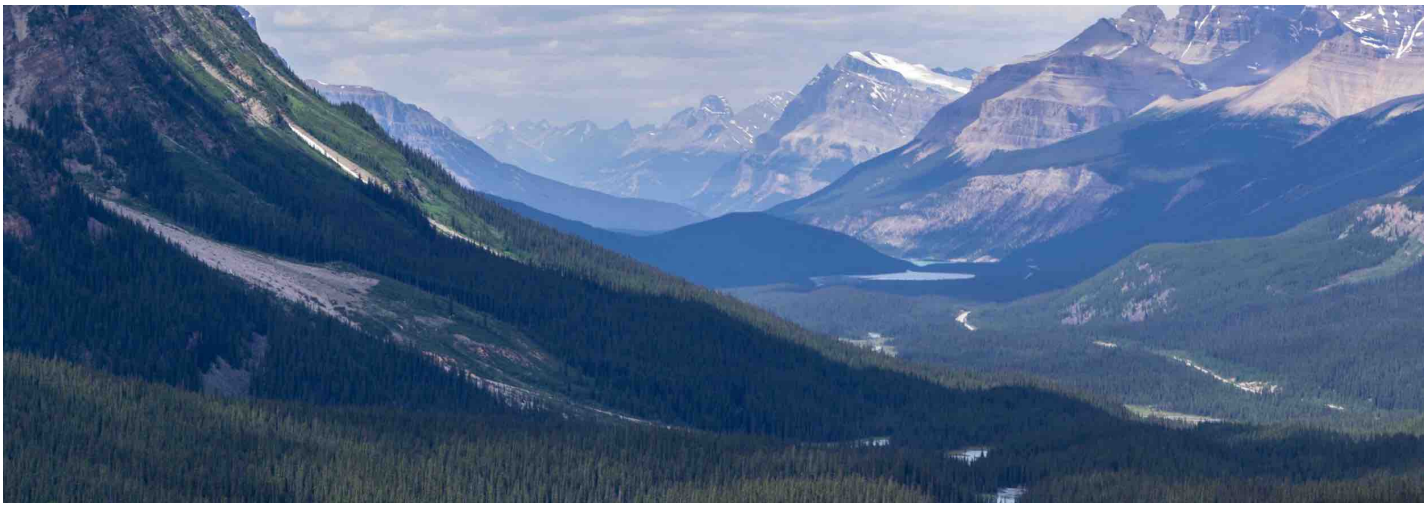
Relevant Resources

UK Timber Trade Federation Responsible Purchasing Policy

Environmental Paper Assessment Tool V.2.0.
Environmental Paper Network
World Wildlife Fund Guide to Buying Paper
World Wildlife Fund Paper Scorecard
Publisher's Database for Responsible Environmental Paper Sourcing (PREPS)
The Forest Trust's Good Wood, Good Business Guide
A Buyers' Guide to Canada's Sustainable Forest Products
Danish Government Procurement Policy for Tropical Forests
Dutch Government Procurement Criteria for Timber
WWF Certification Assessment Tool (CAT)
FSC Controlled-Wood Standard
Global Forest and Trade Network
Sustainable Forest Finance Toolkit
Sustainable Forestry Initiative Procurement Objective
The Forest Trust
SmartSource
Illegal Logging Portal
PEFC Due Diligence System
Global Forest Registry
High Conservation Value (HCV) Resource Network



6

CLIMATE

Have climate issues been addressed?

Climate and forests are intrinsically linked. As a result of climate change, forests are stressed by higher mean annual temperatures, altered precipitation patterns, and more frequent and extreme weather events. At the same time, forests mitigate climate change through uptake of carbon, and the loss of forests through land-use conversion and forest degradation causes carbon dioxide emissions that contribute to climate change (IPCC 2014).

Climate Change Mitigation

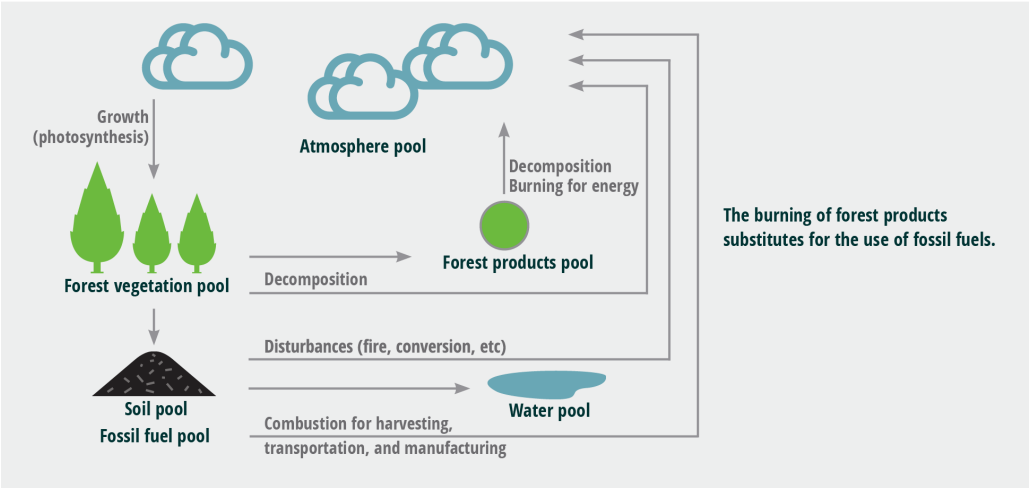
Forests remove carbon from the atmosphere (carbon sequestration) and store it as trees grow (Figure 8). Global forest carbon stocks are estimated at 861 billion tons, more than half of which is stored in tropical forests (Pan et al. 2011). When trees are harvested, they stop absorbing carbon from the atmosphere, but the resulting wood products, including solid wood and paper-based products, continue to store carbon through their lifetime (Box 11 below).

Box 11: What does 'carbon neutrality' mean?

There is no widely accepted definition of 'carbon neutrality'. Generally, 'carbon neutrality' is achieved when the amount of carbon released from the production process is offset by an equivalent amount captured in new growth, thus resulting in net zero emissions. Wood harvested from forests with stable or increasing carbon stocks can be considered carbon neutral (WBCSD, 2013). In contrast, wood from forests that are being converted to non-forest land use would not be carbon neutral. Additionally, greenhouse gas emissions are released along the production process of wood products. Hence, wood products might not be carbon neutral if additional steps are not taken to offset the emissions from the production process (Lippke, Wilson, Meil, and Taylor, 2009).

The amount of carbon stored in wood products is estimated to be increasing by 189 million tons per year (Pan et al., 2011). The amount of carbon stored in wood products varies significantly among product types and depends on the method of disposal. On average, solid wood products last longer than paper-based products (Larson et al., 2012) and carbon in both forests and products is released back to the atmosphere either slowly through decomposition or quickly by burning.

FIGURE 8. CARBON POOLS AND EXCHANGES BETWEEN POOLS



Forest restoration

Establishing new forests on suitable land and replanting on formerly forested areas can store additional carbon (Box 12 below). The Global Partnership on Forest and Landscape Restoration estimates that over 2 billion hectares of deforested and degraded landscapes worldwide can potentially be restored (WRI, 2011). Thanks to growing recognition of forest and landscape restoration's role in reducing carbon dioxide emissions and increasing carbon sequestration, countries have pledged over 20 million hectares to the Bonn Challenge—a global commitment to restore 150 million hectares of lost and degraded forests by 2020. Countries committed to the challenge, including Brazil, Costa Rica, El Salvador, Rwanda, and the United States, are beginning

to announce their restoration pledges (IUCN, 2012).

Box 12: The rate of carbon sequestration

The rate at which trees and forests recapture atmospheric carbon depends on the interplay of several factors:

- Age of trees: A young stand with small trees will absorb carbon as the trees grow. The amount of carbon stored is initially small, however, because the trees are small and organic matter decomposes more rapidly under an open canopy. An old stand with big trees results from a long period of biomass accumulation. The carbon accumulation rate generally increases with older and bigger trees, though the rate of growth for individual trees does not equate to the overall growth of the stand (Stephenson et al., 2014).
- Supply and use of resources: Trees depend on resources, such as sunlight, water, and nitrogen, to grow. As a forest stand develops, the trees increasingly compete for these resources. A tree's ability to compete for resources depends on its size and age (Caspersen, Vanderwel, Cole, and Purves, 2011; Stephenson et al., 2014).
- Efficiency of resource use: The efficiency of resource use depends on size and species of trees. Larger trees are generally more efficient in absorbing resources than smaller trees, though this changes over various stages of stand growth (Binkley, 2003).

Voluntary carbon markets

Companies seeking to supplement greenhouse gas (GHG) emissions reductions and further reduce their net carbon footprint may choose to purchase carbon credits from voluntary carbon markets to offset their emissions. In 2012, carbon offsets from conserving and expanding 26.5 million hectares of forest (an area about the size of New Zealand) were valued at $216 million USD (Forest Trends, 2013) (Box 13 below). The private sector continues to make up the majority of the demand, purchasing 70 percent of the total carbon offsets in 2012 as a way to demonstrate corporate social responsibility and commitment to addressing climate change (Forest Trends, 2013). A number of voluntary carbon markets are now operating and standards are in place to verify the validity of projects offering carbon credits (Table 12 below).

Box 13: Reducing Emissions from Deforestation and Forest Degradation (REDD)

REDD is a global effort to create financial incentives for reducing carbon dioxide emissions from forests by decreasing conversion of forested land for other uses. "REDD+" expands on this initiative and includes conservation and enhancement of forest carbon stocks and sustainable forest management.

Since negotiations on the REDD mechanism began in the United Nations Framework Convention on Climate Change (UNFCCC) in 2005, countries and international organizations have focused on developing national strategies and forest monitoring systems, building capacity, developing social and environmental safeguards, and improving forest governance.

While countries are still preparing for national implementation of a REDD+ program, carbon credits from some REDD+ projects are already being sold on the voluntary carbon market. REDD+ projects are the largest source of carbon offsets, making up 38 percent of the market share in 2013 (Forest Trends, 2014).

Table 12. Voluntary carbon markets and voluntary carbon standards

Organization	Description	Geographic Region	Website
Voluntary carbon markets			
Carbon Trade Exchange	Members of the exchange can sell and buy carbon credits generated from four types of projects: renewable energy, forestation and afforestation, energy efficiency, and methane capture. Projects are verified by a third party.	Global	http://carbontradexchange
Carbon Farming Initiative	Farmers and landholders can participate and earn carbon credits for storing carbon and reducing emissions on their land. They can then sell the credits to interested businesses as carbon offset.	Australia	http://www.climatechange carbon/carbon-farming-in

Organization	Description	Geographic Region	Website
Voluntary carbon markets			
Permanent Forest Sink Initiative	Awards carbon credits to forest landowners committed to long-term maintenance of biomass stocks and helps them sell credits within voluntary carbon markets.	New Zealand	http://www.permanentfore
Voluntary carbon standards			
Issue	**Description**	**Geographic Region**	**Website**
Verified Carbon Standard	Provides methodologies for certifying projects and calculating carbon credits; certified projects must go through independent auditing. Verified Carbon Standard is one of the most widely used standards for the agriculture, forestry and other land use sector.	Global	http://www.v-c-s.org/
The Gold Standard	A certification body that verifies the quality of carbon credit projects. Carbon credits that have been certified by the Gold Standard are sold through intermediary companies.	Global	http://www.goldstandard.c

Organization	Description	Geographic Region	Website
Voluntary carbon markets			
Plan Vivo Standard	Certifies carbon credit projects led by rural smallholders and rural communities. The 2013 updated standard emphasizes community participation and ownership, and non-carbon benefits.	Global	http://www.planvivo.org/

Wood-based biofuels

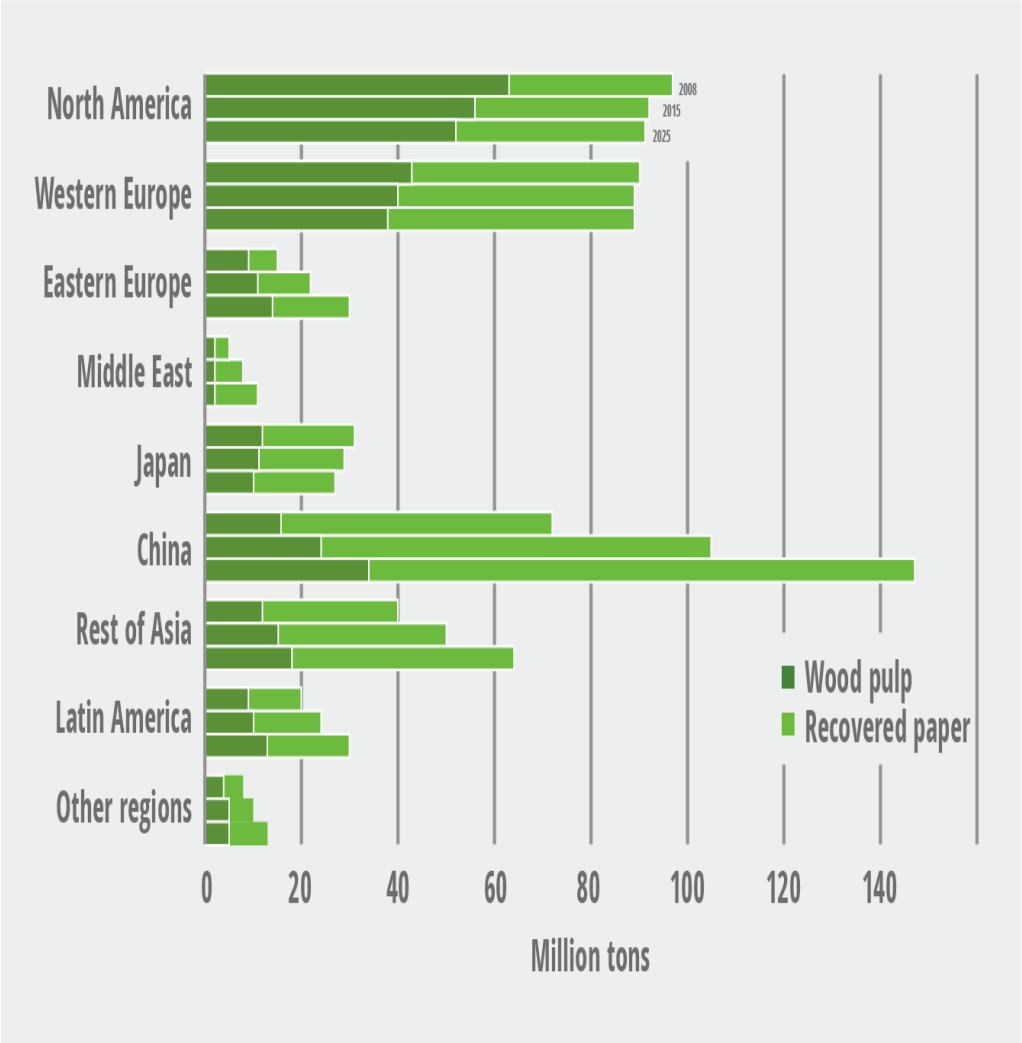
The forest industry is a major user of biofuels derived from wood. Sawmills and pulp mills both burn those parts of the tree that they cannot convert into merchantable products. Co-generation of heat and electricity is common, and some mills even export electricity to the grid (Asikainen et al., 2010). Using wood waste for fuel can help reduce the use of fossil fuels.

Harvesting wood to produce wood-based biofuels, however, is a different scenario. To determine whether harvesting wood for biofuels can reduce carbon dioxide emissions, additional factors must be considered. First among these factors is the amount of emissions associated with harvesting, transporting, and using wood-based biofuels. Second, the long-term productivity of the land and its ability to replace the carbon stock lost to harvesting (Mitchell, Harman, and O'Connell, 2012) should be considered. Finally, the biological changes resulting from continuous harvesting— such as change in stand age and soil fertility—may reduce productivity (Schulze et al., 2012). Additionally, while the emissions from harvesting wood can be offset with regrowth on the same land, the calculation of carbon savings should account for the amount of carbon that could have been sequestered if the trees were not harvested for biofuel production (Haberl et al., 2012; Searchinger, 2010; Hudiburg et al., 2011).

Contributions to Climate Change

An estimated 13 percent of global carbon dioxide emissions are attributable to land-use changes and forestry activities (Pan et al. 2011). When forests are logged, destroyed, or burned at a faster rate than the rate at which they regrow, they can contribute to climate change. Additionally, while logging of tropical hardwoods is sometimes the primary purpose of forest clearing, it can also trigger and enable other drivers of deforestation by providing other users with access roads. Other drivers of deforestation include expansion of large-scale agricultural production such as palm oil, cattle ranching and coffee; small-scale subsistence farming; and urban sprawl. When forest land is converted to other uses, there can be a significant net contribution to greenhouse gas emissions (Figure 9).

FIGURE 9. CARBON DIOXIDE EMISSIONS FROM FOREST AND PEAT FIRES AND DECAY BETWEEN 1970 AND 2010 (ADAPTED FROM IPCC, 2014).



However, logging does not necessarily have to lead to deforestation. In a sustainably managed forest area, the growth of new trees can compensate for the carbon lost through annual logging within the area. In contrast, a forest that is subjected to land-use change or over-harvesting that leads to permanent forest cover loss will release more carbon than it takes up.

Compared with other materials (e.g., concrete, steel, plastic), products made from sustainably managed forests are generally advantageous from a GHG perspective because wood is produced by taking carbon from the atmosphere while producing other materials require use of fossil fuels.

Emission sources associated with forest products include (Box 14 below):

- **Logging operations:** machinery and equipment that use fossil fuels for harvesting.
- **Transportation:** Transport of wood products from forest to shelf requires fossil fuels.
- **Manufacturing:** Most types of forest product manufacturing operations require fossil fuel energy. Some operations can rely entirely on biomass fuel

from residuals of the forest products manufacturing process, in which case, less fossil fuel energy would be needed (Tonn and Marland, 2006).

- **Disposal:** Emissions may result when products decompose in the landfill, though paper products that end up in landfills can sequester carbon for a long time (Micales and Skog, 1996).

Box 14: Measuring greenhouse gas emissions

Many companies are now measuring, disclosing, and managing their GHG emissions. Defining a baseline level of emissions is necessary to set realistic reduction targets. Companies can choose to measure direct emissions (e.g., GHG emissions from processing mills and facilities that they own or control) or take a more comprehensive approach and measure indirect emissions across the entire value chain (e.g., emissions from transportation and distribution of goods, waste generation, and treatment of sold products at the end of the life cycle).

A number of standards and tools are now available to help companies measure their GHG emissions (see the "Guides to the Guides" section for more information):

- WRI's Product Life Cycle Accounting and Reporting Standard
- WRI's Corporate Greenhouse Gas Protocol Toolset for Pulp and Paper and Wood Products
- Environmental Footprint Comparison Tool
- Forest Industry Carbon Assessment Tool (FICAT)

Factors to consider regarding climate change

Some argue that old-growth forests with stable carbon stocks should be replaced with stands of young, vigorously growing trees as a way to increase carbon uptake. However, this would reduce the amount of carbon stored on the land, and it would take decades, or even centuries, for the GHG benefits of the newer stands to overcome the loss of carbon from the original forest. Furthermore, old-growth forests, particularly in the tropics, are important to preserving the world's biological diversity, and therefore should not be considered on the basis of carbon stocks and flows alone.

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Relevant Resources

Wood for Good Campaign
Timber Retail Coalition
CEPI Carbon Footprint Framework
Environmental Paper Assessment Tool V.2.0.
Environmental Paper Network

Paper Profile
Two Sides
World Wildlife Fund Guide to Buying Paper
World Wildlife Fund Paper Scorecard
Publisher's Database for Responsible Environmental Paper Sourcing (PREPS)
Environmental Footprint Comparison Tool
A Buyers' Guide to Canada's Sustainable Forest Products
Dutch Government Procurement Criteria for Timber
Forest Footprint Disclosure Project
Forest Industry Carbon Assessment Tool
Global Forest and Trade Network
Sustainable Forest Finance Toolkit
The Forest Trust
Sedex
Project LEAF
Illegal Logging Portal
The Forest Governance Learning Group

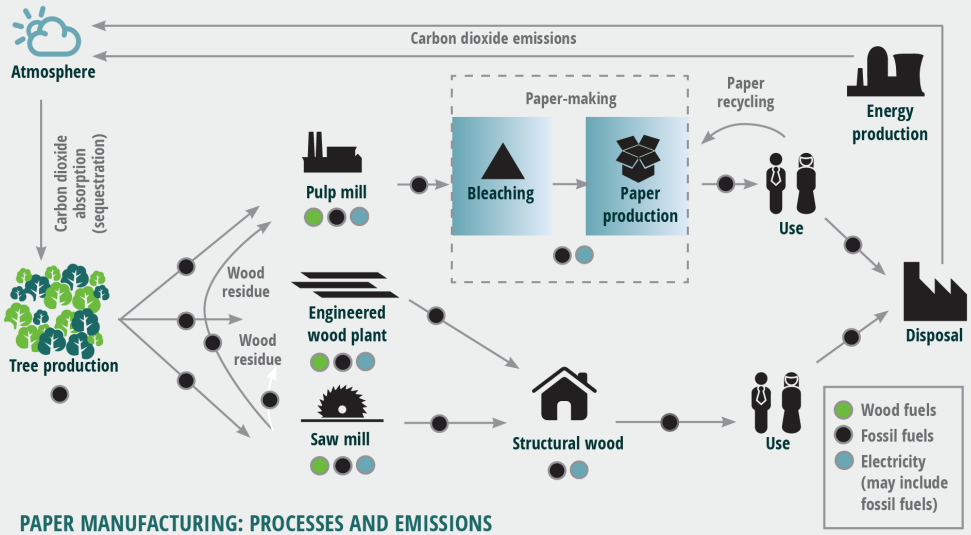
7

POLLUTION

Have appropriate environmental controls been applied?

Different types of pollution can occur in many different places along the supply chain for wood and paper-based products (Figures 10 and 11). The amount and intensity of emissions depend on the type, condition and capacity of the equipment causing pollution and the location of the discharge points. The degree of deviation (i.e., lack of compliance) from legally established emission thresholds is also an important factor and the opportunity for continuous improvement exists.

FIGURE 10. EXAMPLES OF EMISSIONS IN PAPER-BASED PRODUCTS



PAPER MANUFACTURING: PROCESSES AND EMISSIONS

Fiber production:
separates fibers from other compounds through mechanical and chemical processes.

Mechanical: energy-intensive processes that apply physical pressure to convert wood into pulp. Result in high pulp yields; fibers provide smooth printing surface but they are not strong.

Chemical processes: chemicals dissolve other compounds to extract and bond fibers. Fibers are more flexible and stronger than those from mechanical processes.

Emissions: mostly water-borne emissions including sulfur compounds, BOD, suspended solids, COD, AOX, and VOCs. Most input chemicals (e.g., sulfur and sodium compounds) can be recovered for reuse.

Bleaching:
eliminates remaining compounds from the pulp, increases brightness and increases absorbency. Fibers used for printing and writing papers, tissue paper or top of board papers undergo bleaching.

Bleaching substances that can be used:

- Chlorine-based compounds
- Sodium or calcium hypochlorite as well as sodium hydroxide
- Oxygen, ozone
- Hydrogen peroxide

Emissions: potential pollutants released to the air and water include chlorinated organic and inorganic compounds, AOX, and VOCs.

Paper-making:
produces a continuous and uniform thread of paper. Process involves:

- Pulp is diluted in water and sprayed into a fast-moving, continuous screen.
- Water is drained by gravity and pumps, and the pulp forms a fiber mat.
- fiber mat passes through a series of rollers and cylinders to extract water, compress and reduce thickness and produce a smooth surface.

Emissions: chemicals are used to create special properties (gloss, color, water resistance, etc.) and to facilitate the paper-making process. Emissions include particulate waste, organic and inorganic compounds, COD, and acetone.

Recycling:
involves two major steps:

- Repulping: separating fibers from other substances (i.e., dirt, plastic, wax in specialty paper) and from each other. Sulfur, formaldehyde, naphthalene and sodium compounds are used to facilitate the process.
- De-inking: removing the ink from the paper and from the pulp mix by washing, flotation, or a combination of both. Chemicals used include sodium compounds, hydrogen peroxide, calcium chloride, soaps and fatty acids.

Recovered fibers can also be bleached separately or during re-pulping.

Emissions: mostly water-based, including printing inks, adhesive components, fats, resins and AOX.

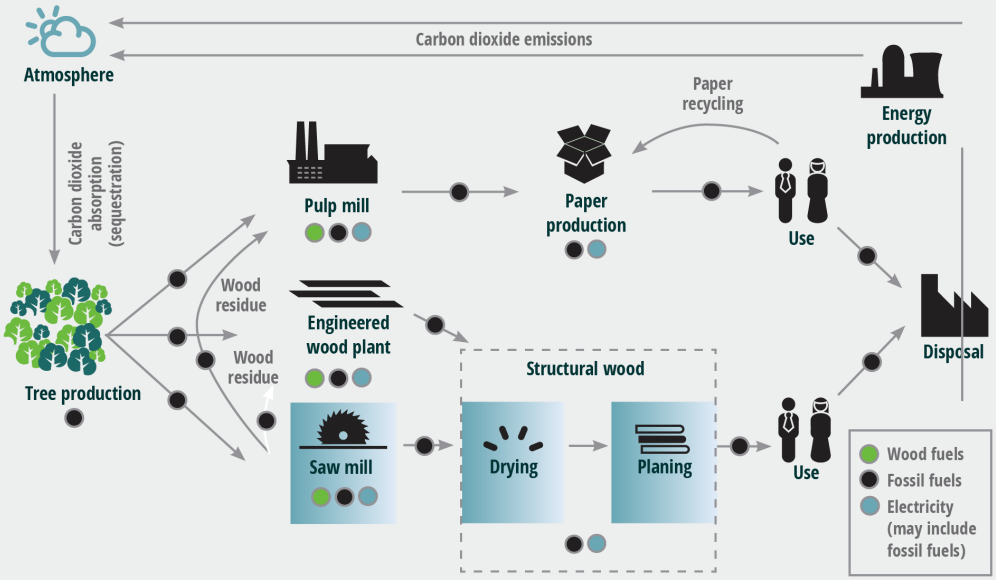
Examples of different emissions from different processes in paper-making. Dots representing energy do not quantify amount or proportion of energy inputs. Based on Holik, 2006; EPA, 2002; Paper Task Force, 1995.

Types of pollution include:

- **Emissions to air**
  - **Energy-related emissions** resulting from the combustion of wood and fossil fuels to generate power
  - **Processing emissions** resulting from processes such as pulping, bleaching, pressing, evaporating, and the chemical recovery systems.
- **Solid emissions**
  - Sludge from wastewater treatment plants
  - Ash from boilers
  - Miscellaneous solid waste, including wood, bark, non-recyclable paper, and rejects from recycling processes.
- **Emissions to water** - large amounts of water are needed to carry the fibers through each manufacturing step in making paper products.

- **Noise** - is a concern in the immediate vicinity of a mill. Its impact depends on the proximity of human settlements and the mitigation measures taken.

FIGURE 11. EXAMPLE OF EMISSIONS IN SOLID WOOD PRODUCTS



Sources: Milota, et al., 2005. The study was for production of dimension lumber in the Western and Southern U.S.

DIMENSIONAL LUMBER MANUFACTURING: PROCESSES AND EMISSIONS

Sawing: log storage and breakdown of raw logs into rough green lumber.

Water is used to wet the logs when they are sorted prior to being sawn.

Water-based chemicals such as paints, anti-stain treatments and others are used, although their volumes are not considered highly toxic or hazardous.

Emissions: dust, VOC, Acetaldehyde, Formaldehyde and methanol can be emitted to the air. Solid emissions such as sawdust, bark, chips, and rough green lumber are considered co-products, and are often burned for energy production or sold/used for other industrial processes such as paper-making.

Drying: the removal of water and moist content. Drying enhances performance, minimizes changes in the dimension (contraction or expansion), improves strength, reduces weight, facilitates processing and treatment, and reduces decay.

Because changes in water content result in strain and stress, wood must be dried under controlled circumstances to avoid bending, crackling or twisting. Chemicals can be used to treat lumber depending on the end-product, including fire retardants, paints and finishes.

Emissions: common emissions include organic lubricants, solid particles, dust, and VOCs. Because of their volume, emissions of inorganic compounds are not considered highly toxic or hazardous.

Planing: the removal of excess wood to produce lumber with pre-determined dimensions and relatively smooth surfaces using planers, conveyers and other equipment.

Plastic film, cardboard corners and steel strapping are used to package the product. Use of other materials such as paints (for end sealing) is minor.

Emissions: coarse dust, VOCs, wood-shavings and chips.

Example of different emissions in the manufacturing of dimensional lumber. Dots representing energy do not quantify amount or proportion of energy inputs. Based on Milota et al., 2005. See box 11 for description of pollutants.

More information on pollutants commonly associated with manufacturing of wood and paper-based products can be found in Box 15.

Box 15: Pollutants

Pollutants of interest include:

- Volatile Organic Compounds (VOCs): include a variety of organic chemicals including paints, lacquers, glues and adhesives, by-products of the processing wood, and others. VOCs are precursors of ground-level ozone.
- Nitrogen Oxides (NOx): NOx are also precursors of ground level ozone.

- Formaldehyde: in the atmosphere formaldehyde is rapidly broken down in atmospheric ions; formaldehyde is a component of acid rain.
- Methanol: methanol reacts in the air to produce formaldehyde and other chemicals that are washed out by rain. Methanol is the most common VOC found in the production of wood and paper-based products.
- Sulfur Compounds: in the atmosphere sulfuric acid contributes to acid rain, and it can be transported large distances from the point of release.
- Volume and Quality of the waste water including:
  - Biochemical or Chemical Oxygen Demand (BOD) in the water discharge; BOD is the amount of oxygen that micro-organisms consume to degrade the organic material in the water. High levels of BOD can result in the reduction of dissolved oxygen in the water. This may adversely affect aquatic organisms. BOD is usually measured in kilograms per metric ton of pulp.
  - Chemical Oxygen Demand (COD) in the water discharge; COD is the amount of oxidizable organic matter and it can be used as an indicator of the quantity of organic matter in the water. COD is measured in kilograms per metric ton of pulp.
  - Total Suspended Solids (TSS); measured in kilograms per metric ton.
  - Absorbable Organic Halogens (AOX), including chlorine; there has been heavy pressure to stop using elemental chlorine in the bleaching processes because chlorine compounds can react with organics and generate chlorinated compounds (dioxins). Dioxins are persistent substances that have been considered a probable human carcinogen. AOX can be used as an indirect indicator of the quantity of chlorinated organic compound in the effluent. Reductions in the amounts of AOX can be used as indicator of continued technological improvement. However, AOX from ECF-bleached pulp do not contain highly chlorinated compounds.

Bleaching can be a potentially major source of pollution (Box 16 below). Most of the global paper industry has phased out the use of Elemental Chlorine (EC) as a bleaching agent; however, some facilities still use it. The prevailing bleaching systems are Elemental Chlorine Free (ECF) and Enhanced Elemental Chlorine Free (EECF). Totally Chlorine Free (TCF) bleaching may be an option for certain products although it tends to use more fiber and produce a lower quality product.

Box 16: Bleaching of wood pulp

Wood is a composite material made of cellulose fibers, bonded and made rigid by lignin. To make paper, mechanical and chemical processes are used to separate the cellulose fibers from lignin and other compounds. Wood pulp intended for white paper products undergoes an additional bleaching process to remove residual lignin.

Bleaching increases the performance and the brightness of the fibers, increasing their absorbency and turning them from brown to white. In addition, bleaching disintegrates contaminating particles, such as bark, and reduces the tendency of pulp to turn yellow (an important feature for archiving of information).

Elemental Chlorine (EC), combined with small amounts of chlorine dioxide, was the historical bleaching agent of the paper industry. However, EC has been determined to be the source of highly chlorinated organic compounds (dioxins), which are toxic to animal and human health, and are considered a probable human carcinogen. Almost all of the global paper industry has stopped using EC and turned to alternative processes, including:

- **Elemental Chlorine Free (ECF)** - chlorine dioxide is substituted for EC in the bleaching process; some processes also use additional bleaching agents such as oxygen and hydrogen peroxide.
- **Enhanced Elemental Chlorine Free (EECF)** - removes more lignin and other contaminants before bleaching process through oxygen-based chemicals or prolonged delignification processes.
- **Totally Chlorine Free (TCF)** - uses oxygen-based chemicals such as ozone and hydrogen peroxide instead of chlorine-based compounds.

TCF bleaching reduces the formation of pollutants but it can also use a greater amount of wood and energy per unit of product; TCF fibers may not entirely satisfy the performance needs of certain products.

Sources: Paper Task Force, 1995; Markets Initiative website.

The law is the formal reference for what constitutes an acceptable level of emissions in a country. No international agreement on acceptable levels of emissions exists, but some multilateral and bilateral lending institutions have established policies based on Environmental Impact Assessments (EIA).

Factors to consider regarding pollution

- Engaging in dialogue with landowners, trade associations and NGOs can be useful as they are often familiar with specific issues and local circumstances.
- The emission of pollutants is often specific to the country and the site. Some countries are more stringent in their regulation of emissions. Continuous improvement should be the goal; although compliance may not always be enough (e.g., in cases where requirements are not stringent) therefore holistic environmental impact reductions are also a goal. Adherence to the relevant and local regulations and/or international lending standards can be used as a proxy to assess a company's procurement policy requirements.
- Best management practices in the forest industry to deal with pollution include:
  - Minimizing the generation of effluents, air emissions and solid waste through better technology
  - Increasing reuse and recycling of waste materials
  - Increasing rates of chemical recovery from pulping and bleaching processes
  - Use of high-efficiency washing and bleaching equipment
  - Elimination of uncontrolled discharges of wastewater and solid waste due to equipment lack or failure, human error, or maintenance procedures

- Usage of ECF, TCF, and EECF bleaching systems
- Time-bound plans and management systems to minimize impacts from specific toxic pollutants.

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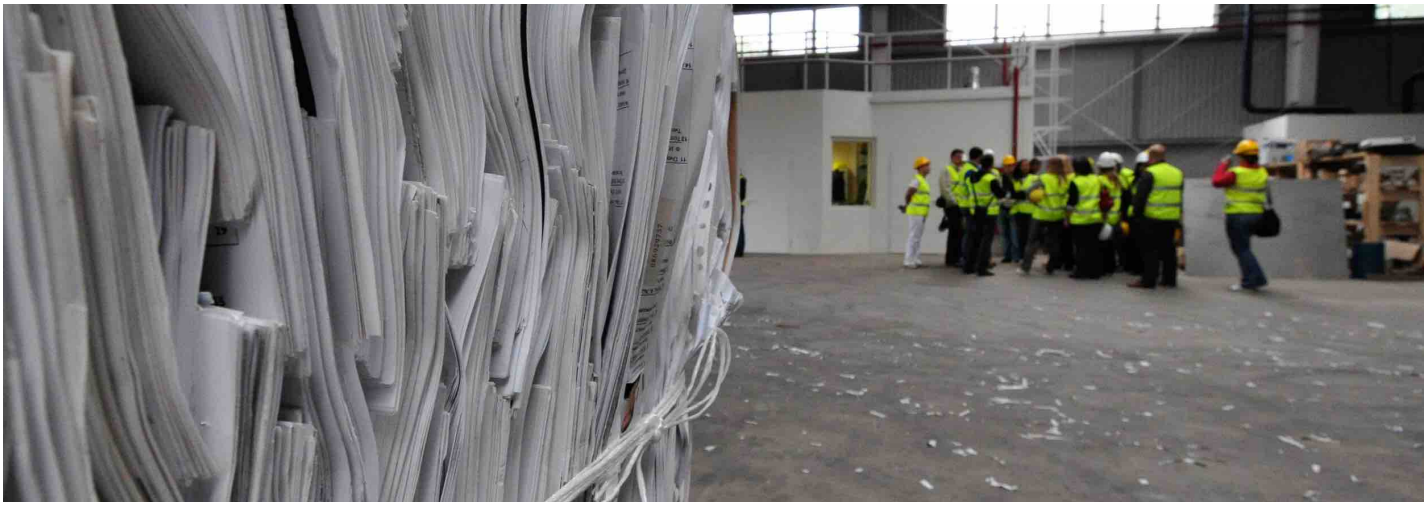
Relevant Resources

Wood for Good Campaign
Leadership in Energy and Environmental Design (LEED) Rating Systems
CEPI Carbon Footprint Framework
Environmental Paper Assessment Tool V.2.0.
Environmental Paper Network
New Zealand Government Paper Buyers Guidance
Paper Profile
Two Sides
World Wildlife Fund Guide to Buying Paper
World Wildlife Fund Paper Scorecard
Environmental Footprint Comparison Tool
A Buyers' Guide to Canada's Sustainable Forest Products
Dutch Government Procurement Criteria for Timber
European Community Green Purchasing Policy
Global Forest and Trade Network
Green Purchasing Network
Japanese Government Procurement Policy
Mexican Federal Government Procurement Policy
Sustainable Forest Finance Toolkit



8

FRESH AND RECYCLED FIBER

Have fresh and recycled fibers been used appropriately?

The paper industry uses both fresh and recovered fibers as raw materials. Fresh fibers, or wood, are sourced from natural forests and tree plantations. Fresh material is broken down into wood chips and converted to pulp in mechanical or chemical processes. Fiber can also be recovered as by-products in industrial processes or after consumer use. By-products, known as post-industrial, pre-consumer materials, include sawmill residue, residue from the making of wood pulp, and trees that are too small or crooked to be cut into lumber. Post-consumer materials are collected from end consumers after paper-based products are discarded. For an overview of terms and concepts used in this chapter, see also Box 17.

Box 17: Terminology and Definitions

Recovery: The collection, separation, and sorting of paper from industrial, commercial, institutional, and household sources so that the fibers can be reused.

Recycling: The use of recovered fiber in paper and paperboard products.

Recovered paper: Paper collected for reuse from any source.

Pre-consumer material: Fibers from industrial by-products or waste (i.e. waste paper from newspaper or catalogue production).

Post-consumer material: Fibers from paper products recovered after consumer use (i.e. newspapers, magazines recovered from consumers after use).

Recycled fiber: Fibers that have been recovered from pre- or post-consumer paper or paper-board products, sorted, re-pulped, and are available for use in paper products with recycled content.

Fresh Fiber (also known as virgin fiber): Fibers extracted from wood, extracted through mechanical or chemical pulping processes.

Recycled content: The amount of recycled fibre used in a product (from pre- or post-consumer content, or from both).

Source: Adapted from WBCSD 2014

The recovery and recycling process

Paper recycling rates are increasing significantly in many countries (Figure 12). This increase reflects growing demand for recycled fiber as governments and other organizations continue to establish recycled content requirements, and greater consumer demand for recycled products.

FIGURE 12. PAST AND PROJECTED DEMAND FOR FRESH WOOD PULP AND RECOVERED FIBER BY REGION

However, while certain types of pre-consumer materials can be recovered efficiently, recovering post-consumer material for use in recycled paper products is more complex. A wide range of actors are involved in the post-consumer paper recovery and recycling process: the paper industry, local government institutions in charge of solid waste and wastewater effluent, third-party waste management companies, as well as private and industry consumers. In some regions, demand for recovered fibers exceeds the amount that can be collected.

Because wood fibers cannot be recycled indefinitely, a constant flow of fresh fiber into the fiber network is needed. Depending on the origin of the fresh fiber and the type of products, fiber is typically degraded and unusable after five to seven cycles [1]. Thus, fresh fiber is constantly needed to compensate for the retirement of degraded fiber, archival storage of paper, and loss of fiber through normal use and disposal of certain non-recyclable paper products, such as personal care and tissue products.

In addition, varying amounts of fresh fibers are required to make certain products, and for some products, recycled fiber cannot be used at all. The amount of recycled fiber used depends on economic factors (cost and availability of recovered fiber, cost of fresh fiber, and cost of processing) as well as quality considerations in the final product. For instance, newsprint and cardboard can contain a much higher amount of recycled fiber than archival paper (WBCSD 2014).

Environmental factors

Using recycled fibers to produce paper reduces the need for fresh content per unit of paper. However, the recovery and recycling process is resource and energy intensive. The decision about whether to use recovered fibers and what percentage to use should be made after analyzing the kind of fibers needed for the end product, the availability

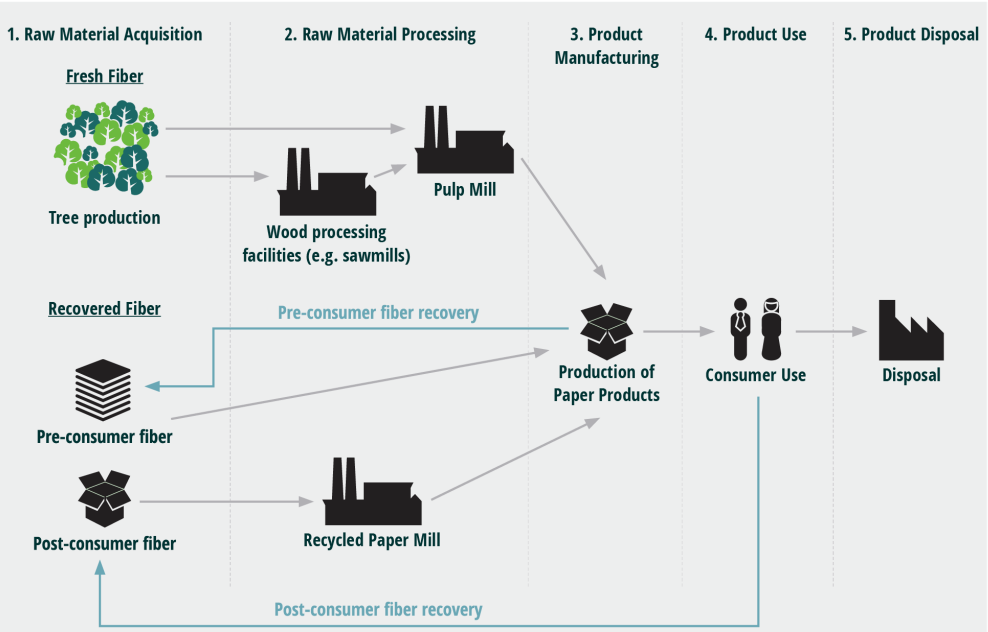
of fresh and recycled fibers, and the environmental implications of both types of fiber for a specific product supply chain.

Additionally, it is important to consider not only fiber sources, but the holistic environmental impact of both fresh and recycled fibers. Wood and paper-based products have environmental impacts at every stage of their life cycle. Therefore, the environmental impacts of fiber recovery, recycling and reuse should be considered from a life cycle assessment (LCA) perspective, taking into account energy and resource use, and by-products such as solid waste and wastewater effluent.

It is difficult to directly compare energy consumed by using recycled fibers with energy consumed by using new fibers. The energy input depends on many factors, such as distance between fiber source and processing facility, condition of the recovered paper, and the characteristics of the end product. Indirect impacts may also be relevant. For instance, recycling reduces the demand for fresh fiber, which may reduce harvesting pressure on forest areas. In some circumstances, reduced harvesting could also increase pressures to convert the land to a different use.

Figure 13 highlights potential positive and negative impacts of using fresh fibers and recycled fibers. However, the specific impact of using fresh or recycled fibers should be considered on a case-by-case basis. The underlying assumptions and the relative importance assigned to the range of inputs and outputs also significantly influence the outcome of the LCA. The resources recommended at the end of this chapter provide more information about how to analyze the environmental impacts of recycling.

FIGURE 13. RECYCLING AND ENVIRONMENTAL IMPACTS IN THE FIBER CYCLE



ENVIRONMENTAL ISSUES IN USING FRESH AND RECOVERED FIBER

1. Raw Material Acquisition

Depending on where fibers are sourced, raw material made from fresh fiber can generate fossil fuel-based carbon dioxide emissions because of transportation to the mill. Environmental impacts of harvesting can include forest cover loss, threats to biodiversity, habitat loss, erosion and soil compaction, and reduction of water quality in adjacent areas.

Collection and transportation of recovered fiber also generate fossil fuel-based carbon dioxide emissions, depending on where fibers are sourced. For products that cannot be made with 100% recovered fiber, input of a component of fresh fiber is needed to replace the fraction of fiber that breaks down during recycling. The potential for carbon emissions and harvesting impact from these fresh fibers should be included in the calculations.

2. Raw Material Processing

Fresh fiber is extracted from wood chips by a chemical or mechanical pulping process, which requires water, energy, and chemicals. Recovered fiber is cleaned, re-pulped and de-inked, before the pulp can be used for recycled fibers. This process requires water, energy, and chemicals for cleaning and removing fillers, and de-inking fibers.

3. Product Manufacturing

Paper from both fresh fibers and recovered fibers creates air emissions, wastewater effluent, wastewater treatment residuals, and uses water and energy.

4. Product Use

The recycling process breaks and stiffens fibers, resulting in reduced performance in some types of products. The technical specifications for the end product will in part determine how much fiber will be needed to make one unit of the product (i.e. one sheet of paper, or one roll of toilet paper).

5. Product Disposal

Paper products made from both fresh and recycled fibers are typically composted, recycled, or disposed as solid waste. When products are no longer recyclable, they can be composted or burned to generate energy, while also creating air pollution and carbon dioxide emissions.

Source: Based on Franklin Associates 2012, WBCSD 2014

Note: This graph shows the fiber cycle, with inputs of both fresh and recovered fiber. The graph highlights some of the potential environmental impact of using fresh and recovered fibers.

Use of alternative fibers

In addition to fresh and recycled wood fibers, non-wood fibers or agricultural residues can be used in paper-making. These alternative fibers include flax, kenaf, hemp, bamboo, rye, wheat straw, and fiber from sugar cane (bagasse).

Alternative fibers and agricultural residues hold some advantages for paper-making:

- Using alternative fibers may help avoid the risks of sourcing wood fibers sourced from unsustainable and illegal sources or high-risk forest areas.
- Rural economies and employment can benefit. In India and China, for instance, non-wood fibers play an important role for livelihoods in some areas.

However, alternative fibers have so far failed to attract a strong interest from major industrial paper makers for at least four reasons:

- Certain alternative fibers are not available throughout the year, meaning storage capacity would be needed to feed mills year-round.
- The supply system for wood fibers is well established, whereas a supply system for alternative fibers must be designed and constructed, and offers less predictability and control.
- Some alternative fibers may not meet the performance requirements for certain products (e.g., rice straw for making newsprint).
- The high silica content in some alternative fibers (e.g., straw) continues to cause processing problems.

Key questions to consider when requesting paper made from alternative fibers include:

- Will the use of alternative fibers allow forests to be conserved because fiber can be sourced from faster-growing alternative crops?
- Will environmental advantages that may be present with small-scale alternative fiber growth and use for paper production persist when the production is scaled up, or does it result in more negative environmental impacts? (Consider water use, chemical inputs, energy requirements, climate effects, reduced biodiversity etc.).
- Is there a risk that existing forest land will be converted to agriculture to increase supply of alternative fibers?
- What effects, both positive and negative, would switching to alternative fibers have on local communities and indigenous peoples?

Factors to consider regarding use of fresh and recycled fiber

- For most products, there is a maximum amount of recycled fiber that can be used without compromising product quality. The optimal amount of recycled content is not necessarily the same as the maximum amount that could be used. The optimal amount of recycled fiber is determined by product specifications, consumer preference, availability and cost of recovered fibers of the quality needed, and government or industry standards. Decisions about the optimal recycled fiber content should take into account the views and interests of consumers, company management, local and national government and regulatory authorities, and recovered fiber suppliers.
- Fiber characteristics depend on the type of tree and the growing conditions (Paper on Web 2014). When fibers from recovered paper are mechanically re-pulped, the structure and texture of the end product are affected.
- Objectives related to recycling or the use of recovered fibers can be included in a sustainable procurement policy based on a supply chain analysis of environmental benefits. A procurement policy may also incorporate supportive measures for helping local governments to collect recycled fibers in sufficient amounts to meet demand.

1. The same study examined production of newsprint in Canada and the US. The result suggests that production of newsprint would have to cease after three and

a half months if only recovered fiber were used.

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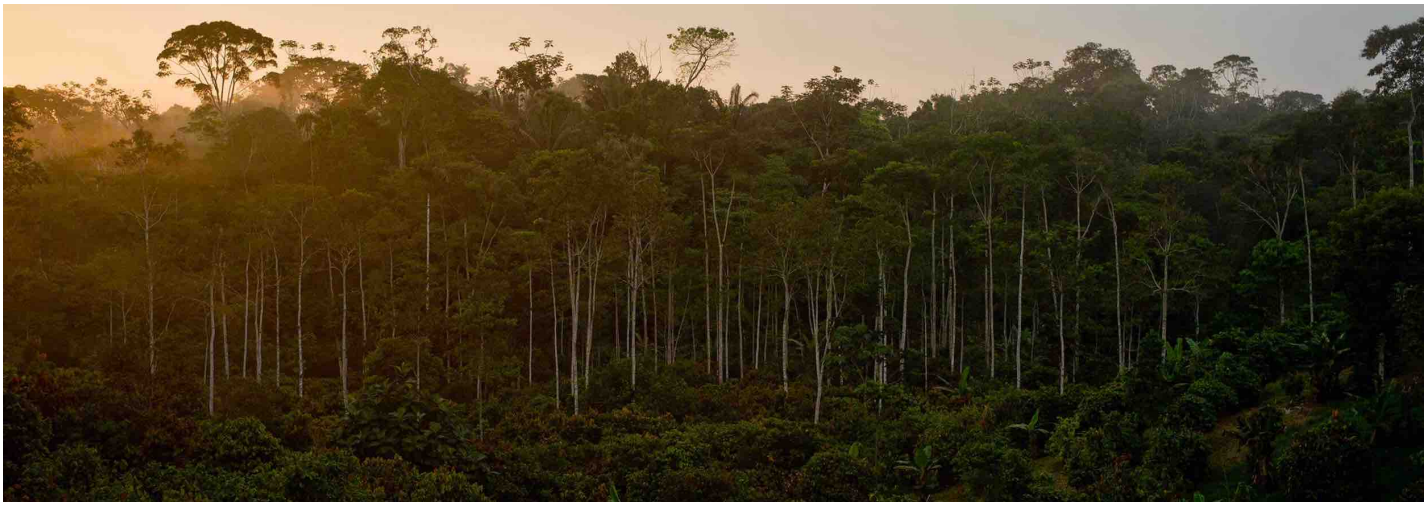
Relevant Resources

- Wood for Good Campaign
- Leadership in Energy and Environmental Design (LEED) Rating Systems
- CEPI Carbon Footprint Framework
- Environmental Paper Assessment Tool V.2.0.
- Environmental Paper Network
- New Zealand Government Paper Buyers Guidance
- Paper Profile
- Two Sides
- World Wildlife Fund Guide to Buying Paper
- World Wildlife Fund Paper Scorecard
- Publisher's Database for Responsible Environmental Paper Sourcing (PREPS)
- Environmental Footprint Comparison Tool
- A Buyers' Guide to Canada's Sustainable Forest Products
- European Community Green Purchasing Policy
- Forest Industry Carbon Assessment Tool
- Global Forest and Trade Network
- Green Purchasing Network
- Japanese Government Procurement Policy
- Mexican Federal Government Procurement Policy
- Sustainable Forest Finance Toolkit
- The Forest Trust



OTHER RESOURCES

9 Have other resources been used appropriately?

Efficiency in the use of water, raw materials and energy, paired with demand reduction, is another aspect of sustainable procurement.

Source Reduction

Source reduction is an important strategy for reducing the consumption of raw materials while maintaining efficiency and usability of the products. Source reduction goes beyond recycling by attempting to reduce negative environmental impacts throughout the entire life cycle of the product. Design, manufacturing, usage, sales (including packaging), and final disposal are all part of source reduction (Box 18 below).

Box 18: Life cycle assessment

A life cycle assessment (LCA) is a tool to objectively evaluate the overall environmental impacts associated with a product. LCA assesses the product and the inputs (energy, raw materials, water, etc.) and outputs (pollution to soil, water, oil, etc.) in a product's life cycle from raw material extraction to final disposal.

LCA is not a risk assessment tool because it stops at quantifying emissions without assessing their impacts. Additionally, LCA is a data-intensive methodology and data limitations (out-of-date, lack of data, or omissions) are common.

LCA is a useful tool to identify, prioritize and target actions to minimize negative environmental impact. LCAs can also be used to compare the environmental impact of alternative raw materials.

A number of LCAs have been completed for various wood-based products including:

- Laundered cloth diapers, and home-laundered cloth diapers
- Wood as a building material
- Wooden furniture
- Comparison between single-use diapers with absorbent gels, commercially
- Comparison of wood, concrete, and steel as building materials
- Comparison between using wood, aluminum and plastic to build a video/TV unit
- Comparison between solid wood, linoleum and vinyl as raw materials for flooring
- Comparison between wood, PVC and aluminum as raw materials to build window frames.

Some of the drawbacks of LCAs include:

- They account for environmental factors but not economic and social aspects
- LCAs do not address the renewable aspect of wood

- LCAs are undertaken on a case-by-case basis and thus, limited by the boundaries of the assessment.

A list of resources on LCA can be found in Section III.

Benefits of source reduction include:

- Decreasing environmental impacts including a decrease in pollution and toxicity and decrease in the use of non-renewable resources.
- Lower costs, and increased economic benefits throughout the production process:
  - Harvesting operations (more efficient and targeted harvesting)
  - Manufacturing (less raw materials to process)
  - Product management (collection, transportation, packaging and storage).

The benefits of source reduction should be considered in light of consequences for performance and usability. A lower-performing paper using fewer resources per unit of product may create a false sense of economy of resources if it requires more units of the product to accomplish the task. This is particularly true for some products that undergo specialized treatment and processing to enhance performance and usability (e.g., tissue with additives to soothe skin, stronger and more durable paper, and so on)

Efficiency

Besides wood, energy remains the most expensive part of the manufacturing process for the pulp and paper industry. While energy efficiency has improved dramatically in the last few decades, the manufacturing processes of many products still consume considerable amounts of energy. Energy reduction is of strong interest to the forest products industry.

There are pulp mills that burn residual biomass to both meet their own energy needs, and to sell surplus energy to the grid. Most mills do not, however, either because they have not been equipped with sufficiently modern technology or because the production process does not generate biomass residue as a by-product (such as mechanical pulping).

Demand Reduction

Demand reduction can be a positive and important element of a sustainable procurement strategy. Reusing the back side of paper, using double-sided printing, using lighter products, etc. are all ways to reduce wasteful consumption.

Factors to consider regarding efficiency, source, and demand reduction

When it comes to transportation, energy consumption depends on the distance, location, and even condition of the facilities and transportation routes. It is advisable that a company first identify the areas of priority where it has more leverage and can have a positive impact without compromising the quality of the products.

10

SOCIAL IMPACTS

Have the needs of local communities, indigenous peoples and workers been addressed?

It is estimated that nearly 500 million people, 200 million of whom are indigenous peoples, depend on forests for their livelihoods (Chao, 2012). Protecting and respecting the rights of local communities, indigenous peoples, and workers in the forests is an important part of sustainable procurement.

Along with environment and economics, social well-being is one of the three pillars of sustainability (Brack, 2010). Social impacts cannot be ignored in sustainable procurement. If poorly managed, social aspects can lead to conflict between forest companies, communities, and governments with negative effects for all. For example, local people may suffer from inadequate or inappropriate measures to resolve conflicts. Bad publicity surrounding a conflict can damage a company's reputation, and disruptions or delays in production can increase investment costs and cause loss of market share. Governments can face civil instability, loss of forest-sector revenues, and loss of investment opportunities (Wilson, 2009).

Initial processing of wood often occurs in remote and sparsely populated areas with limited job opportunities, social support systems, access to education, and infrastructure. These remote areas are sometimes beyond the control of government authorities. As a result, the leadership role in addressing social and governance issues can fall to forest companies. Values such as fair pay, employment benefits, job training, health and safety, and interaction with local communities are part of the social contract between employers and the communities in which they operate.

Social impacts involve a variety of topics. They are included in the concept of sustainable forest management (Brack, 2010). Table 13 lists 15 specific issues grouped in six categories. The issues highlighted in bold are elaborated in the text below.

Table 13. Social impacts relevant to sustainable procurement of wood and paper-based products

Rights of ownership and access	
Issue	**Description**
Explicit respect for the rights of indigenous peoples	Includes the recognition and su identity, culture, and rights of i peoples. Legal land ownership c included in this category. Legal varies from country to country. recognize the legal land owners peoples under national law, son ownership while allowing acces management by indigenous pec do not recognize any rights of i peoples. (See "Recognition of th indigenous peoples and local co below.)
Rights of local communities	May or may not include indigen Refers to the rights of forest cor and access forests. Communitie to and manage forests that they "Recognition of the rights of inc and local communities," below.)
Property, land tenure, access, and use rights	Refers to the definition and pro property rights, and land tenure forests by communities, governi enterprises. This issue is linked previous issues. It can be especi in countries (developed and dev communities have historical cla ownership. (See "Property, land and use rights," below.)
Recognition of customary rights	Refers to indigenous peoples' ri their access to and managemen on their customary laws and ins Although international human recognize these rights, the exte are recognized in national conte customary rights are recognized be in conflict with the civil or c

Rights of ownership and access	
Issue	**Description**
Protection of workers' rights and conditions	
Issue	**Description**
Health and safety	Includes health and safety stand international conventions and r "Protection of workers' rights a employment," below.)
Other employment conditions	Includes levels of pay, minimum of employment, and access to tr care, housing, and welfare bene might not be covered by interna conventions such as those of th Labour Organization (ILO). (See workers' rights and conditions c below.)
Rights of communities	
Issue	**Description**
Needs of local population, sharing costs and benefits	Refers to the extent to which th local population, including shar benefits from forestry activities account in pursuing sustainable management (SFM).
Compensation	Commercial logging can have m impacts on livelihoods and qual communities. Companies can h communities by providing empl education and training, health c improved infrastructure, among
Cultural, spiritual, and recreational impacts	
Issue	**Description**
Maintenance of recreational and educational uses	Includes cultural, spiritual, and of the forests.
Protection of cultural and spiritual sites and values	Forests fulfill many cultural and forest communities; particular s specific cultural and archaeolog
Process impacts: participation in decision-making and access to dispute resolu	
Issue	**Description**

Rights of ownership and access	
Issue	**Description**
Participation	Refers to the right of relevant st participate in decision-making affect the management of fores resolution mechanisms. Relevar may include local communities, peoples, workers and their unio cases, interested civil society or individuals. (See "Participation information," below.)
Access to information	Refers to two rights: the right to government-held information (information), and the right to p information. Access to informat right to public participation. (Se and access to information," belo
Dispute-resolution mechanisms	Access to fair and equitable mec resolve disputes among stakeho instance, a dispute over access t resources between the company community.
Law enforcement	
Issue	**Description**
Law enforcement	Similar to governance. Failure t can undermine other rights.
Conflict timber	Occurs when revenue from timb concessions is used to finance th weapons and fuel armed conflic timber," below.)

Note: Issues in bold are explained further in the text below.
Source: Based on Brack, 2010.

Recognition of the rights of indigenous peoples and local communities

The rights of indigenous peoples and local communities to access forest resources, use forests, and receive direct benefits from development of forest resources are recognized by many international agreements (Table 14 below). However, the extent to which these rights are recognized at the national level varies. Some countries have laws that

explicitly recognize the legal rights of indigenous peoples to access, use, and own forests; some retain national ownership of forested land while allowing access and management by indigenous peoples; and others do not recognize any rights of indigenous peoples. Even when rights are recognized, they can be violated through corruption; for example the community's right to participation could be violated if a company bribes certain members of the community in exchange for a large concession without the consent of the full community. The rights of local communities and indigenous peoples are recognized in definitions of sustainable forest management within certification systems. Community forest enterprises, in which forest resources are managed directly by communities (Box 19 below), are examples of communities exercising their right to access, use, and benefit from the forests.

Box 19: Community forest management and community forest enterprises

Community forest management involves efforts to include the people who live in and around forests in decisions about the forest's management. It devolves the decision-making power to the community and the members of the community benefit directly from the forest management. In principle, community forest management can create a source of stable income by providing incentives for local communities to keep their land forested, thus conserving biodiversity and ecosystem services and contributing to poverty reduction and economic development (Bowler et al., 2010). In some cases, community forest management involves collaborations with civil-society organizations, government, and donor agencies.

The number of community-based and smallholder enterprises is growing rapidly. These enterprises are important revenue generators, especially in countries where tenure and rights are formally recognized by the government. Small- and medium-sized community forest enterprises are a significant majority of the forest industry in some countries, including Brazil (96%), India (95%) and Mexico (80%) (Vidal, 2005; Molnar et al., 2007). Companies looking for a sustainable source of timber might establish business agreements with community forest enterprises directly or through an intermediary (often an NGO). In these cases, communities gain stable employment and income, improved infrastructure, and increased commercial value of their forest products.

The main challenges to community forest management include some smallholders' lack of capacity and resources to operate a forest-harvesting operation or to manage a business, and the difficulty of keeping costs and prices low enough to compete in the timber market. These small operations may compete with illegally harvested wood in the marketplace and encounter poor governance, including corruption, in the forest sector. In some cases, NGO initiatives help communities improve technical, management, and marketing capacity, facilitate relationships with buyers, and gain access to markets (Fortin et al., 2010; Kirlin, 2011).

Table 14. Key international commitments and standards on social impacts and forests

Impacts	Agreements			
	UN plan for sustainable development, from the	International, nonbinding, consensus on the	International non-binding proposals developed	International UN agreements to promote

	Earth Summit	management and conservation of forests, from the Earth Summit	through a UN process to address a variety of forest issues	universal respect for, and observance of, human rights and freedoms
Ensure the participation of local communities and indigenous peoples and other major groups in the formulation, planning, and implementation of national forest policies.	X	X	X	
Recognize and support the cultural identity, culture, and rights of indigenous peoples and other forest-dependent people.	X	X	X	X
Recognize multiple functions, values and uses of forests, including traditional uses, Develop and implement strategies for the full protection of forest values including cultural, social, and spiritual.		X		
Formulate policies and laws to secure land tenure of indigenous peoples and	X	X	X	X

local communities.				
Ensure that external trade policies take into account community rights.				X
Recognize and support community-based forest management.			X	
Develop regimes for protection, use, and maintenance of traditional knowledge and customary use.	X			
Capacity building of indigenous peoples and other forest-dependent people who possess resources to participate in agreements that apply SFM.				
Protection of workers' rights including freedom of association, right to bargain, prevention of child and forced labor, equal remuneration, and protection against discrimination.	X			X
Involvement of unions and workers in all processes for forest planning.	X			

Source: Adapted from Forest Peoples Programme, 2004.

Property, land tenure, and access and use rights

Land tenure can be customary or statutory: the former is defined and adhered to by local communities land ownership and management as well as the right to access and use resources. Before the modern state, most of the world's forests were either common property resources or under open access regimes; now most forests are controlled by a government agency on behalf of the state and there are often unresolved disputes between traditional communities and the state (Brack, 2010). In many rural areas in developing countries, the tenure of forested land is in a state of "legal pluralism" (multiple legal systems within a geographic area).

Tenure security is lacking when land tenure rights of local or indigenous communities are not recognized or are not afforded the same level of recognition as private property rights. In some areas, governments grant forest concessions where communities have long-standing claims to the land, leading to clashes between logging companies and local and indigenous communities. Many of these clashes have threatened livelihoods and human rights. Even in cases where land tenure is recognized, there can be distributional inequities regarding gender and ethnicity within the community. Land tenure is an ongoing struggle in some countries and one of the most difficult issues to resolve.

Forestry operations (logging and processing) should be mindful of tenure claims. They should know and follow the applicable land tenure rights regime, which may include community-based forest management systems.

Protection of workers' rights and conditions of employment

The forest sector employs an estimated 13.7 million workers worldwide, representing 1% of the global workforce. This estimate may be low because it includes only formal workers whereas a significant portion of the forest-sector work can be informal or sometimes even illegal (ILO, 2011). Forests and forest-products manufacturing facilities are potentially dangerous work environments, characterized by high degrees of informality, illegality, low wages, and hazardous working conditions (ILO, 2011). Poor health and safety standards and violations of workers' rights can lead to unsafe work conditions, work-related accidents, reduced productivity, reduction of local benefits, discriminatory behavior, low wages, and an increase in the use of migrant and informal labor. International Labour Organization (ILO) conventions and other international agreements, including the OECD guidelines for multinational enterprises (OECD, 2011), cover several fundamental rights: freedom of association, free collective bargaining, equal remuneration, the prevention of child and forced labor, and protection against discrimination. Other variables to consider include job security, access to training, medical care, housing, and welfare benefits.

Workers' rights and conditions tend to be more problematic in developing countries, where standards of labor rights are weaker (Brack, 2010).

Participation and access to information

Forest operations should include meaningful consultation with local communities and indigenous peoples. The consultations should include relevant stakeholders appropriate to the nature and scale of the operation, the type of ownership (public vs. private), and local legal regimes and customs. Other actors, including individuals, civil-society organizations, and non-local communities, who do not operate in the forests but who are affected by what occurs there, could also play an important role in defining, monitoring, and supporting forest management and protection.

Various international agreements, guidelines, and conventions, and even some national laws recognize the rights of other interested groups to participate, seek, and

receive information, and the need to involve these stakeholders in participation and consultation processes.
[1]
Furthermore, a number of bilateral agreements recognize and promote participation and access rights. As an example, the U.S.–Peru Free Trade Agreement includes provisions for collaboration to build capacity in Peru for various activities including increasing public participation in forest resource planning and management decision-making processes (Office of the United States Trade Representative, Government of Peru, 2006). National laws sometimes require access to information and participation in decision making in environmental impact assessments and in the permitting and concession processes. For operations with ISO 12000.1 certification, incorporating these rules into the environmental management system will be key (Foti, 2012).

Public participation is essential when there are major changes in land use, especially if tenure or access to the resource is insecure. For example, in Uganda, communities have reasonably clear individual and collective rights to land, making land rights relatively secure. As a result of secure land tenure, they are able to make longer-term decisions, encouraging greater sustainability. Although forest concessions can be nationalized through eminent domain, local communities must be provided adequate participation in the processes and ensured compensation for any land taken (Veit et al., 2008). If communities are stripped of land or forest assets, they have legal recourse. In contrast to Uganda, Ghana does not offer secure tenure to forest resources; all of the trees, even those on private land, belong to the state. However, Ghanaʻs forest and wildlife policy promotes public participation in forest management as well as the sharing of benefits from such management, and it includes detailed provisions to facilitate access to information and relevant stakeholder participation (Ghana Forestry Commission, 1994).

Communities and business alike can benefit from engagement that is inclusive; mindful of the legal situation; includes monitoring, evaluation, and capacity building; and offers meaningful information distributed through appropriate channels (Anderson, 2011). The principle of Free, Prior and Informed Consent (FPIC)
[2]
can be described as “the establishment of conditions under which people exercise their fundamental right to negotiate the terms of externally imposed policies, programs, and activities that directly affect their livelihoods or wellbeing, and to give or withhold their consent to them” (Anderson, 2011). By definition, FPIC is a local and culture-specific process in which the communities themselves determine the steps involved. It is not possible to produce a universally applicable “how to” guide, but some work has been done in the context of REDD+ projects (Anderson, 2011).

Access to information, transparency, and participation enable concerned stakeholders to take action to curb corruption in the forest sector (Transparency International, 2011).

Conflict timber

Forests and forest products have been connected to violent social conflicts. In some case, conflicts arise when a government grants logging companies access to lands that have been occupied by local communities. In other cases, revenue from timber sales or concessions is used to finance the purchase of weapons and fuel armed conflicts. Although the practice is less common now, timber harvested and sold for this purpose has been termed “conflict timber” (Thomson and Kanaan, 2003). In some cases, loggers assist in trafficking arms and other goods. Additionally, forests are used as battlegrounds and place of refuge for armed groups, especially in remote areas beyond the control of the government (Schroeder-Wildberg et al., 2005). Timber linked to funding violent conflicts can enter supply chains without a designation of its point of origin.

Addressing social impacts

Some companies address social impacts and manage social conflict through their overall policy and management systems. Emerging best practices (compiled from Wilson, 2009) include:

- Forging effective, equitable, and meaningful partnerships with other players, including the communities, civil society organizations, research organizations, and government.
- Promoting constructive multi-stakeholder dialogue and capacity building to build a shared understanding of the rights and responsibilities of communities, government, and industry.
- Promoting meaningful dialogue, beginning with the provision of on-time information using the appropriate channels.
- Building company and community capacities to develop and implement effective conflict management procedures and processes within the company, and empower local communities to effectively understand and exercise their rights.

A number of efforts help address social impacts in the forest sector. Yale University's The Forest Dialogue (TFD), for example, has conducted several dialogues and produced documents relevant to social impacts (Box 20 below).

Box 20: The Forest Dialogue

The Forest Dialogue (TFD) is a group of individuals from different sectors and geographic areas, convened by the Yale University School of Forestry and Environmental Studies, who are committed to the conservation and sustainable use of forests. TFD supports and reinforces forest management efforts by creating leadership cadres on key issues through transparent, constructive, and collaborative dialogue. TDF has conducted dialogues and produced materials about key priority social issues including:

- Free prior and informed consent.
- Exclusion and inclusion of women in the forest sector.
- Reducing forest conflict.
- Investments in locally controlled forestry.
- Forests and poverty reduction.

A complete list of TFD resources can be found in "Additional resources."

Although forest certification systems address social impacts differently, requesting certified wood is a pragmatic way for buyers to purchase products that are produced in a socially responsible manner. Certification requirements often involve a social impact assessment. Social impact assessments are seen as good practice to address social impacts because they evaluate and highlight issues that may also affect the sustainability and profitability of projects (IFC, 2003).These assessments are commonly conducted in a number of industries, including mining and energy, and for public sector projects. Assessments identify both the positive and negative impacts of a project on local communities.

Numerous guidance documents and manuals provide instruction for how to complete social impact assessments (Table 15 below). These publications focus on specific industries or purposes, but include common themes. Some questions that social impact assessments should answer include:

- What is the community context?
- Will the operation increase or decrease employment and income for local communities?
- Will the skills and knowledge of locals be enhanced?
- Will the operation affect land tenure security?
- Will the operation prevent the local community from accessing and using forest resources and botanical medicines?
- Will the operation adversely affect the sustainability of the area's natural resources?
- Will there be an effect on the community's food security?
- Will the operation cause or contribute to social conflicts?
- Will there be an effect on inequality in the local community?

Table 15. Guidance on social impact assessments

Selected guidance publications	Author	Focus
Good Practice Note: Addressing the Social Dimensions of Private Sector Projects	International Finance Corporation	Private secto
Social and Biodiversity Impact Assessment Manual for REDD+ Projects: Part 2- Social Impact Assessment Toolbox	Climate, Community & Biodiversity Alliance (CCBA)	REDD+ proje
Database of Tools and Resources for Assessing Social Impact	Foundation Center	Private secto
Social Impact Assessment of Resource Projects	International Mining for Development Centre	Mining and e projects
A Comprehensive Guide for Social Impact Assessment	UN Public Administration Network	Development
Good Practice Guide: Indigenous Peoples and Mining	International Council on Mining and Metals	Mining secto
Akwé: Kon. Voluntary Guidelines for the Conduct of Cultural, Environmental and Social Impact Assessments	Secretariat of the Convention on Biological Diversity	Development on sacred site traditionally indigenous p
Manual for Social Impact Assessment of Land-based Carbon Projects	Forest Trends, CCBA, Fauna and Flora International and Rainforest Alliance	Land-based c

Human Rights Impact Assessments (HRIAs) are emerging resources that could be used to evaluate risks and impacts on social impacts such as access to information, forced migration, and labor conditions. HRIAs build on environmental and social impact assessments, and focus on links between policies and human rights to assess potential, current, and future impacts. For more information about HRIAs, visit the Human Rights Impact Resource Centre
[3]
, and see the International Finance Corporation's Guide to Human Rights Impact Assessment and Management (Abrahams and Wyss, 2010).

Good governance underpins almost all of the social impacts covered in this section. Some of the most serious social impacts occur in places where corruption is prevalent; law enforcement is weak; and there is a lack of transparency, access to information, and public participation.

Factors to consider regarding social impacts

- Logging concessions may have been granted in areas where local and indigenous people claim property rights. This is a potential concern in many post-colonial countries.
- Logging and timber processing is dangerous work that is often conducted in remote areas where compliance with accepted social laws and standards (e.g. safety training, underage or illegal labor, unfair pay) might be difficult to monitor and verify. Consider partnering with local organizations to better understand the social context of the operations.
- Beware of logging operations that may be run by the military with proceeds used to finance war-like activities.
- Social impacts arise in both natural forests and intensively managed forest plantations.
- Local civil-society organizations can facilitate business relationships between community forest enterprises and buyers.
- Participation is important to the "social contract" between forest companies and communities. In some cases, and to some extent, community participation might be required by law; all relevant stakeholders have the right to receive a reasonable response.
- Consider the use of a social or human rights impact assessment to better evaluate the social context and the possible implications of the operations on communities.

As in other aspects of sustainable procurement of wood-based products, tracing the production chain back to its beginning will help assess the risk and opportunities associated with social impacts. In some areas monitoring and verification have important roles to play.

1. See the Rio Declaration, the OECD's guidelines for multinational enterprises, and the European Union Sustainable Forestry Initiative (UNEP, 1992; OECD, 2011; European Commission, 2003).
2. Informed consent is not a new concept, but the application of Free, Prior and Informed Consent, focusing particularly on indigenous peoples, derives from the ILO Convention 169 and the UN Declaration on the Rights on Indigenous Peoples (Lehr and Smith, 2010).
3. Human Rights Impact Resource Centre, www.humanrightsimpact.org.

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Relevant Resources

UK Timber Trade Federation Responsible Purchasing Policy
Buying Sustainable Timber – A Guide for Public Purchasers in Europe
Environmental Paper Assessment Tool V.2.0.
Environmental Paper Network
World Wildlife Fund Guide to Buying Paper
World Wildlife Fund Paper Scorecard
The Forest Trust's Good Wood, Good Business Guide
A Buyers' Guide to Canada's Sustainable Forest Products
Danish Government Procurement Policy for Tropical Forests
Dutch Government Procurement Criteria for Timber
FLEGT and VPAs
WWF Certification Assessment Tool (CAT)
FSC Controlled-Wood Standard
Global Forest and Trade Network
Sustainable Forestry Initiative Procurement Objective
The Forest Trust
Sedex
Illegal Logging Portal
PEFC Due Diligence System
Public Procurement Policies for Forest Products and their Impacts
The Forest Governance Learning Group
High Conservation Value (HCV) Resource Network

CONCLUSION

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