Sustainable Procurement of **Wood** and **Paper-based Products**

Guide and resource kit

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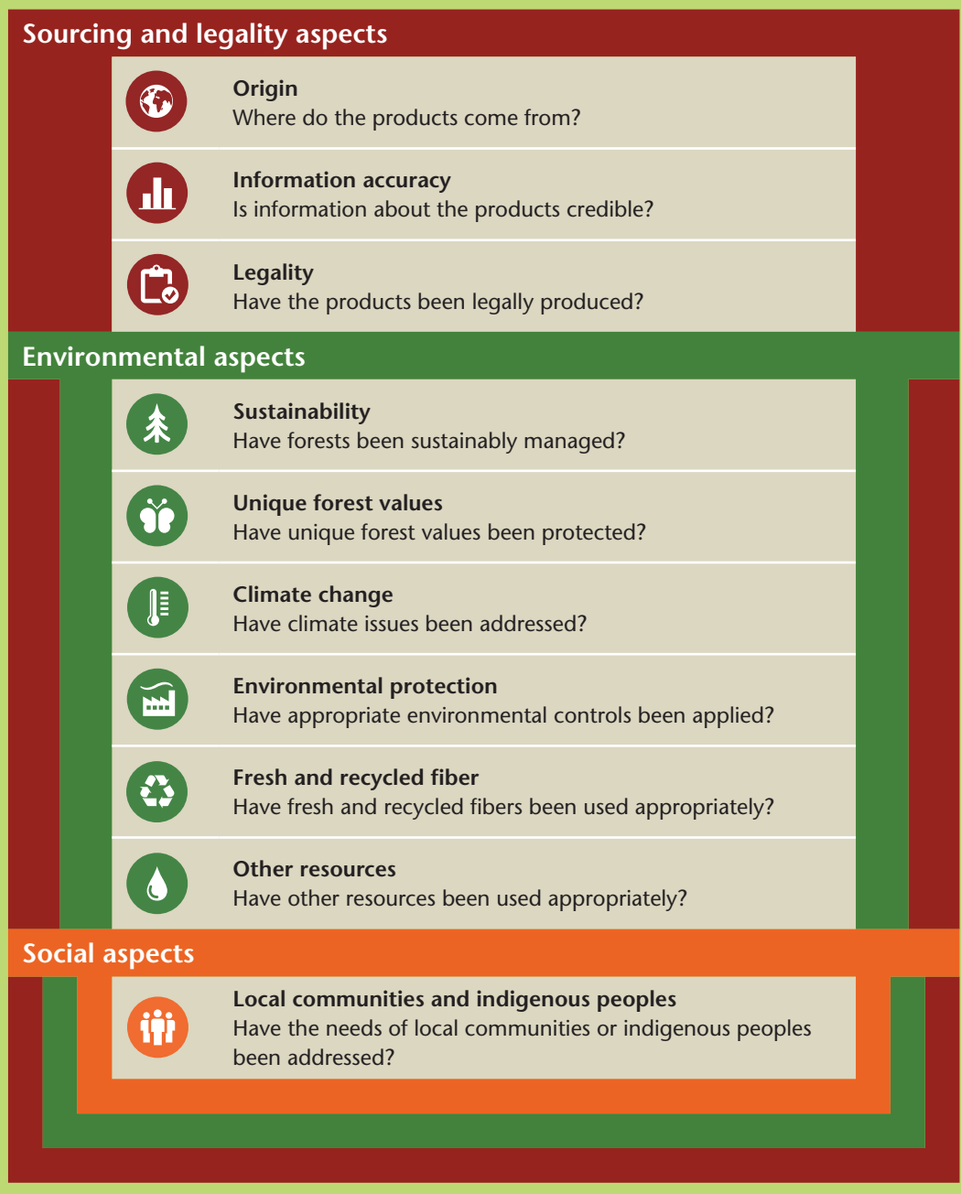

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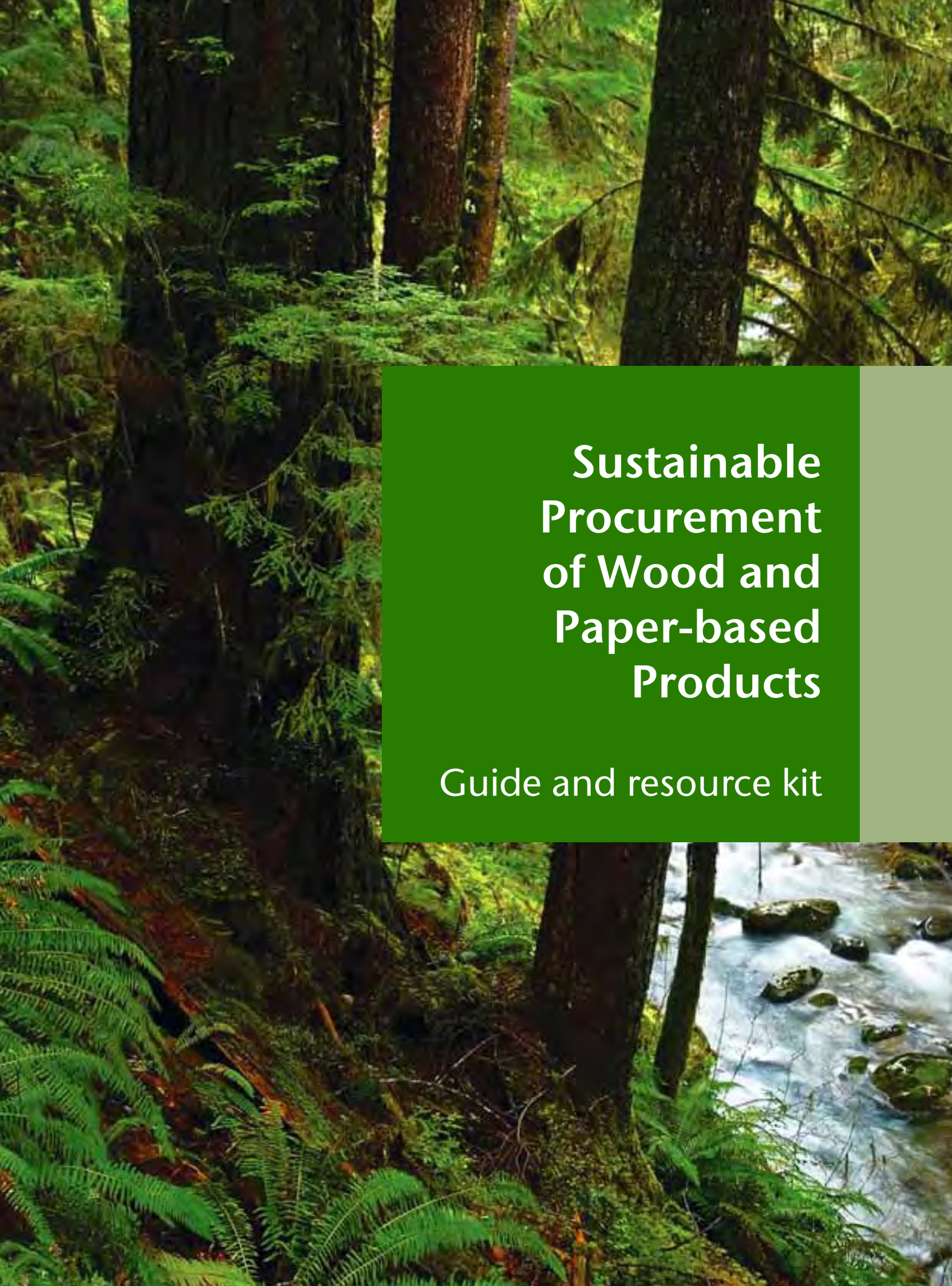

Sustainable Procurement of Wood and Paper-based Products

Guide and resource kit

Foreword

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.

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* in her capacity as director of International Paper's office of sustainability before she passed away in 2007.

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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).

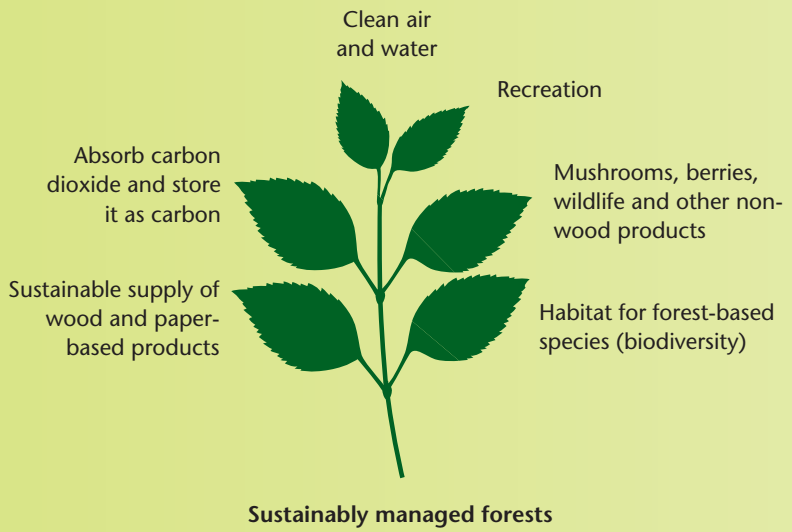
Interest in procurement of wood and paper-based goods produced in a sustainable manner is growing. Concerned consumers, retailers, investors, communities, governments, and other groups increasingly want to know that in buying and consuming these products they are making positive social and environmental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

Figure 1. Ecosystem goods and services of sustainably managed forests



Sustainably managed forests produce much more than wood. Sustainable management reduces the risk of the forests being converted to other land use, thereby also sustaining various goods and services.

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[1] 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 for the first time (Table 1).

This guide is a companion to the report: *Sustainable Procurement of Wood and Paper-based Products: An introduction.* To obtain a copy of the introductory guide please visit www.SustainableForestProducts.org.

More information, commonly cited instruments, tools and processes, and updates, are also available at *www.sustainableforestproducts.org*

[1] Wood and paper-based products include solid wood (lumber, building materials and furniture), engineered wood (plywood, oriented strand board and fiberboard) and paper-based products (containerboard packaging and various types of paper such as newsprint, copy and tissue paper).

Table 1. Tools highlighted in this guide

The resources highlighted in this guide can roughly be divided into two categories: requirements for sustainable procurement, and resources to assess requirements.

PROCUREMENT REQUIREMENTS

Private sector initiatives
- Confederation of European Paper Industries' (CEPI) Legal Logging Code of Conduct
- UK Timber Trade Federation Responsible Purchasing Policy

Public sector
- Belgian Government Procurement Policy
- Danish Government Procurement Policy for Tropical Forests
- Dutch Government Procurement Criteria for Timber
- European Union Action Plan for Forest Law Enforcement, Governance and Trade (FLEG), and Voluntary Partnership Agreements (VPAs)
- European Community Green Purchasing Policy
- French Policy on Public Procurement of Timber and Wood Products
- German Government Procurement Policy
- Japanese Government Procurement Policy
- Mexican Federal Government Procurement Policy
- New Zealand Timber and Wood Products Procurement Policy
- Swiss Declaration Duty for Timber

Rating systems
- Green Building Initiative's Green Globes Rating System
- Leadership in Energy and Environmental Design (LEED)® Green Building Rating System

Certification systems
- Forest Stewardship Council (FSC) Controlled-Wood Standard
- Programme for the Endorsement of Forest Certification (PEFC) Due Diligence System (replaced the Guide for the avoidance of controversial timber in 2010)
- Sustainable Forestry Initiative (SFI) Procurement Objective

RESOURCES TO ASSESS REQUIREMENTS

Private sector initiatives
- Consumer Goods Forum's guidelines for pulp, paper and packaging
- FAO's Public procurement policies for forest products and their impacts (the report)
- The Forest Industry Carbon Assessment Tool (FICAT), developed by the National Council for Air and Stream Improvement's (NCASI) for the International Finance Corporation (IFC)
- Forest Products Association of Canada (FPAC): A buyers' guide to Canada's sustainable forest products (the report)
- Madera Legal - Asociación Española del Comercio e Industria de la Madera (AEIM)
- Paper Profile
- Publishers' database for Responsible Environmental Paper Sourcing (PREPS)
- Sedex
- String
- Sustainable Forest Finance Toolkit

RESOURCES TO ASSESS REQUIREMENTS

- Sustainable Tropical Timber Coalition's guide for public purchasers in Europe
- Timber Retail Coalition
- Timber Trade Action Plan
- Two Sides

Public sector
- Central Point of Expertise on Timber Procurement (CPET). CPET is an initiative of the UK central government to assist in the implementation of its procurement policy
- New Zealand Government Paper Buyers guidance

Rating systems
- Environmental Paper Assessment Tool (EPAT)
- WWF Paper Scorecard
- WWF Tissue Scoring

NGO/Other initiatives
- Carbon Disclosure Project
- Enhancing the Trade of Legally Produced Timber, a Guide to Initiatives
- Environmental Footprint Comparison Tool
- Environmental Paper Network
- Forest Certification Assessment Guide (FCAG)
- Forest Governance Learning Group
- Forest Legality Alliance
- Global Forest Registry
- Global Timber Tracking Network
- Green Purchasing Network (GPN)
- Greenpeace's Responsible Procurement Guide
- High Conservation Value Resource Network
- Illegal-logging.info
- NEPCon LegalSource Programme.
- Paper Calculator
- Project LEAF
- SmartSource
- Standard Practice for Categorizing Wood and Wood-based Products According to their Fiber Sources
- Timber Tracking Technologies Review
- The Forest Trust
- The Forest Trust's Good Wood, Good Business guide
- Wood for Good Campaign
- WWF's Guide to Buying Paper (companion to WWF's Paper Scorecard)
- WWF's Global Forest and Trade Network (GFTN)

Key sources of information on these tools are available in the references section. These selected resources represent significant efforts by different actors. FSC's Controlled-Wood Standard and PEFC's Due Diligence System are recent efforts addressing concerns related to unwanted sources. Different components of the FSC and PEFC sustainable forest management (SFM) certification standard are covered in other sections of this guide.

STRUCTURE OF THE GUIDE

The information in this publication is organized in five main 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 tools and resources highlighted in the guide in the section named, "Guide to the Guides";
- 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 reference 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.**

10 things you should know

10 things you should know

This guide focuses on 10 key issues, formulated as essential questions, central to the sustainable procurement of wood and paper-based products.

Wood and paper-based products can be an environmentally and socially sound purchasing option.

The essence of sustainable procurement is to select these products with acceptable and even beneficial environmental and social impacts. While sustainable procurement is an investment in a better world, it is also an investment in a better bottom line.

www.SustainableForestProducts.org

1. Where do the products come from?

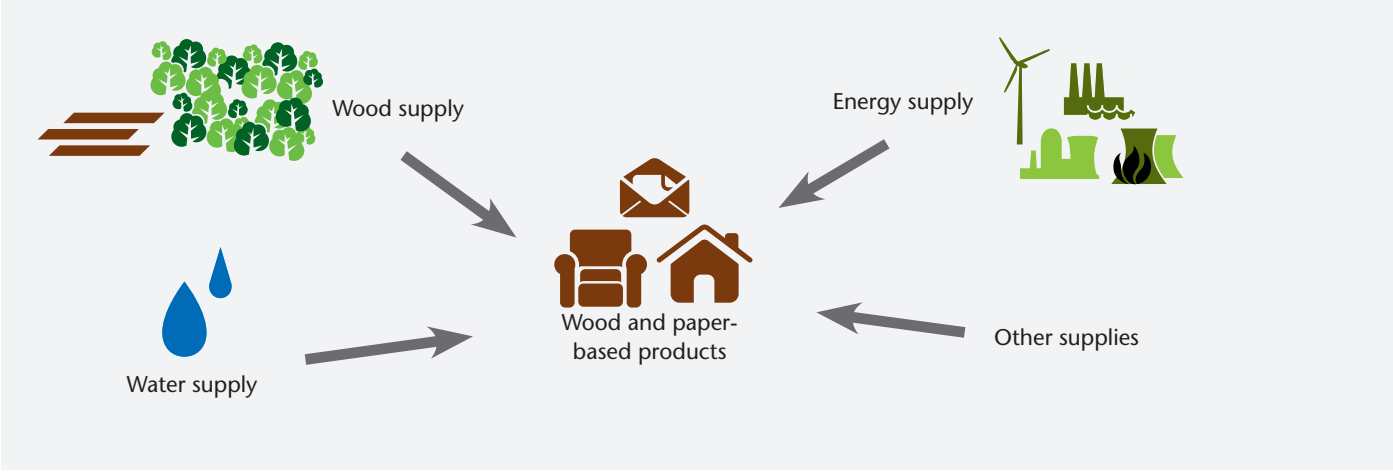
1. Where do the products come from?

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.

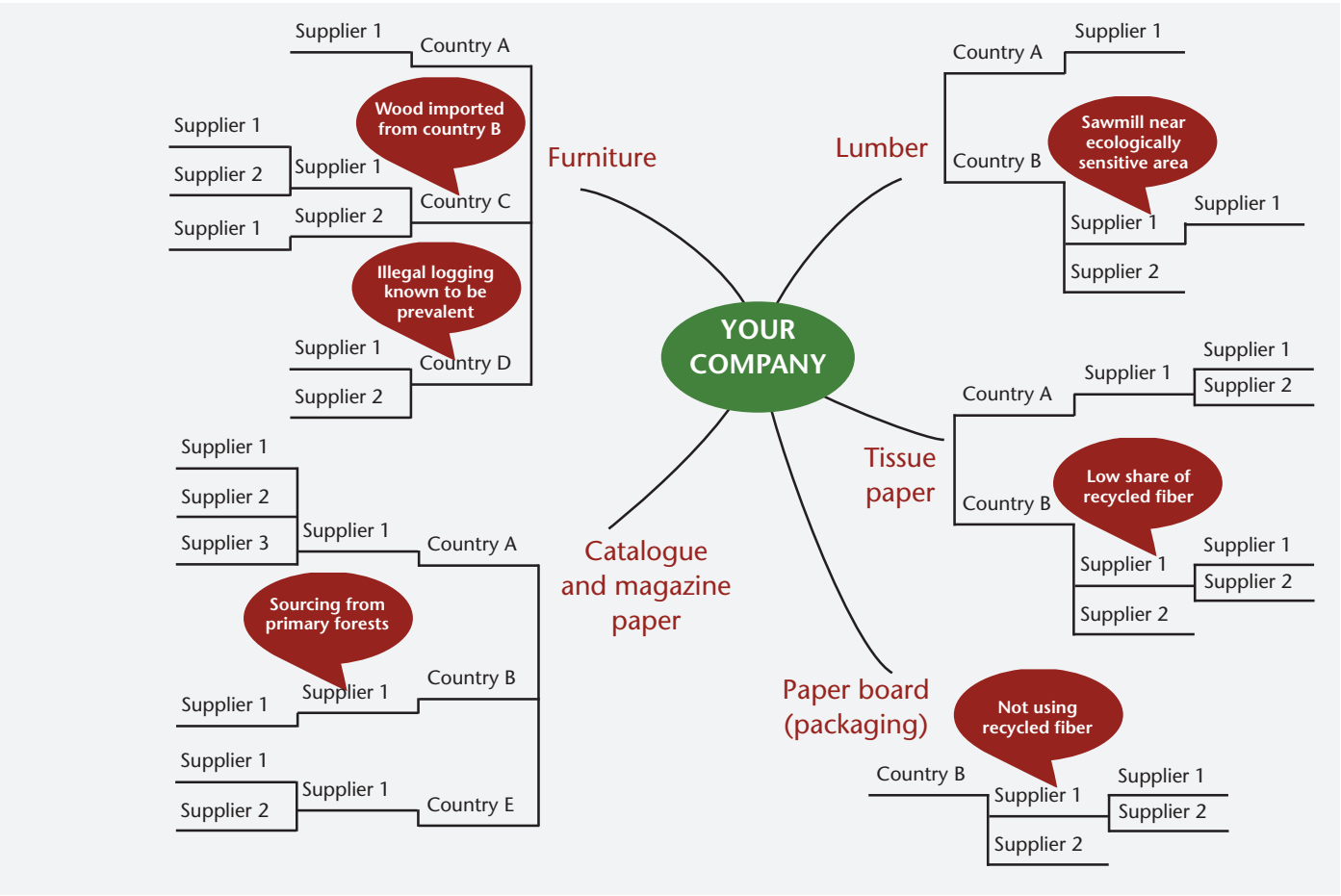
Tracing the origin of wood and paper-based products is not always straightforward. Supply chains can sometimes link many wood producers and dealers across several countries, and procurement portfolios can be complex, with multiple supply chains (Figures 2 and 3).

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.

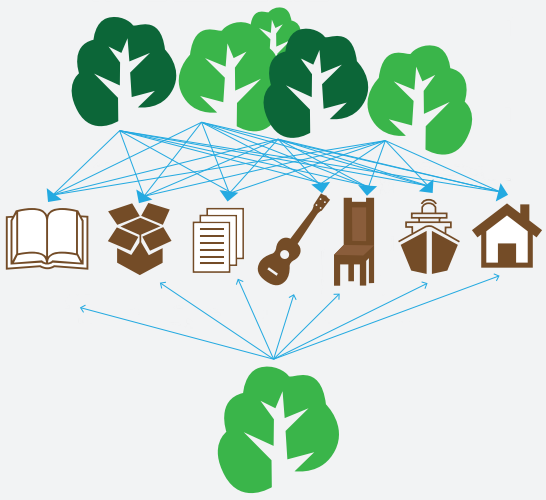
Figure 3. Example of a company's portfolio of wood or paper-based products



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.

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).

Figure 4. Many products, many trees



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). 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.

Several technological approaches are emerging to help trace and verify the origin of the raw materials in products (Table 2). 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 3).

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.[2] In places where the law – both background law and contract law – is strong and properly enforced, sales contracts can be a good compliance mechanism.

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[3]
- 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 their forest lands and thereby externalizing traceability.

[2] 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.

[3] A Chain of Custody certificate documents and systematically verifies the flow of the materials from their origin in the forest to their end-use.

Table 2. Technologies to trace and verify the origin of wood in the supply chain

Technology	Used by	Tested	Process	Product scope	Contacts
DNA Fingerprinting	Forest managers Manufacturers Importers Retailers	Global	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 m^3).	Solid wood	Double Helix Tracking Technologies Pte. Ltd. Phone: +65 6227 9706 http://www.doublehelixtracking.com/
DNA mapping			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.	Solid wood	
Electronic barcoding	Forest managers Processers Importers	West Africa Central Africa Central America South America Southeast Asia	Unique barcodes are attached to trees in the forest and, using software installed onto PDAs, data is collected (e.g. GPS location and species), and uploaded into the software's central online database. Upon harvest, the barcode remains on the stump and corresponding barcodes are attached to felled logs thereby linking them to the source tree. This process is repeated at each point of timber transformation. Timber can then be tracked and traced, using barcode technology, in real time, along the chain of custody, with the software system reconciling data at every control point and alerting users to irregular or possible illegal activities for resolution.	Solid wood	Helveta Ltd. Phone: +44 (0)1235 432 100 www.helveta.com
Fiber analysis	Manufacturers Importers Retailers	Global	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.	Paper	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

Table 3. Technologies and selected technological applications to increase transparency in supply chains

Application	To be used by	Tested	What it is	Scope	Contacts
Technologies					
Isotope analysis	Forest managers Manufacturers Importers Retailers	Africa	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.	Solid wood	TÜV Rheinland, Agrolsolab www.agroisolab.de Phone: +49 (0) 2461 93134010
Applications to collect, analyze and share information about the supply chain					
SmartSource360 (featured in the Guide to the Guides)	Retailers Importers Manufacturers	North America Europe	A web-based supply chain management resource that can be used to trace the supply chain and collect sourcing details about a company's products. With SmartSource360, suppliers down the supply chain are able to directly enter information and provide supporting documentation about the wood and/or fiber-based materials used in the products, including supplier declared risk assessment categorization, species, certification status and forest origin.	Solid wood and paper-based products	SmartSource Phone: +1 (302) 541 4664; +1 (802) 434 8731 www.rainforest-alliance.org
String	Forest managers Manufacturers Importers Retailers	Global	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.	Solid wood and paper-based products	Historic Futures Phone: +44 (0) 1993 886420 www.historicfutures.com
FSC's Online Claims Platform	Forest managers Manufacturers Importers Retailers	Global	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).	Solid wood and paper-based products	FSC Phone: +49 (0) 228 367 660 E-mail: fsc@fsc.org www.ic.fsc.org
PEFC's Global Information Registry	Forest managers Manufacturers Importers Retailers	Global	An online platform to track and trace the flow of certified material information via the Internet. PEFC is currently using a well proven system which requires certified entities to keep detailed records on procured and sold quantities of PEFC certified material. The PEFC Global Information Registry will allow participating certificate holders to receive and to pass on relevant data in electronic format along the entire supply chain, allowing for comprehensive traceability of certified material. The registry is expected to be fully implemented in 2013.	Solid wood and paper-based products	PEFC Phone: +41 (22) 799 4540 E-mail: info@pefc.org www.pefc.org
PREPS (featured in the Guide to the Guides)	Retailers Importers Manufacturers	Europe North America	The PREPS database includes information about paper products, including origin of raw materials. To add a new paper grade to the database, PREEP members nominate the product and the PREEPS secretariat contacts the mills and requests the information.	Paper-based products	PREPS Phone: +44 (0) 207 839 1084 E-mail: info@prepsgroup.com http://prepsgroup.com/home.php

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 ensure that raw materials are harvested and products are 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.

Box 1. The wood supply chain

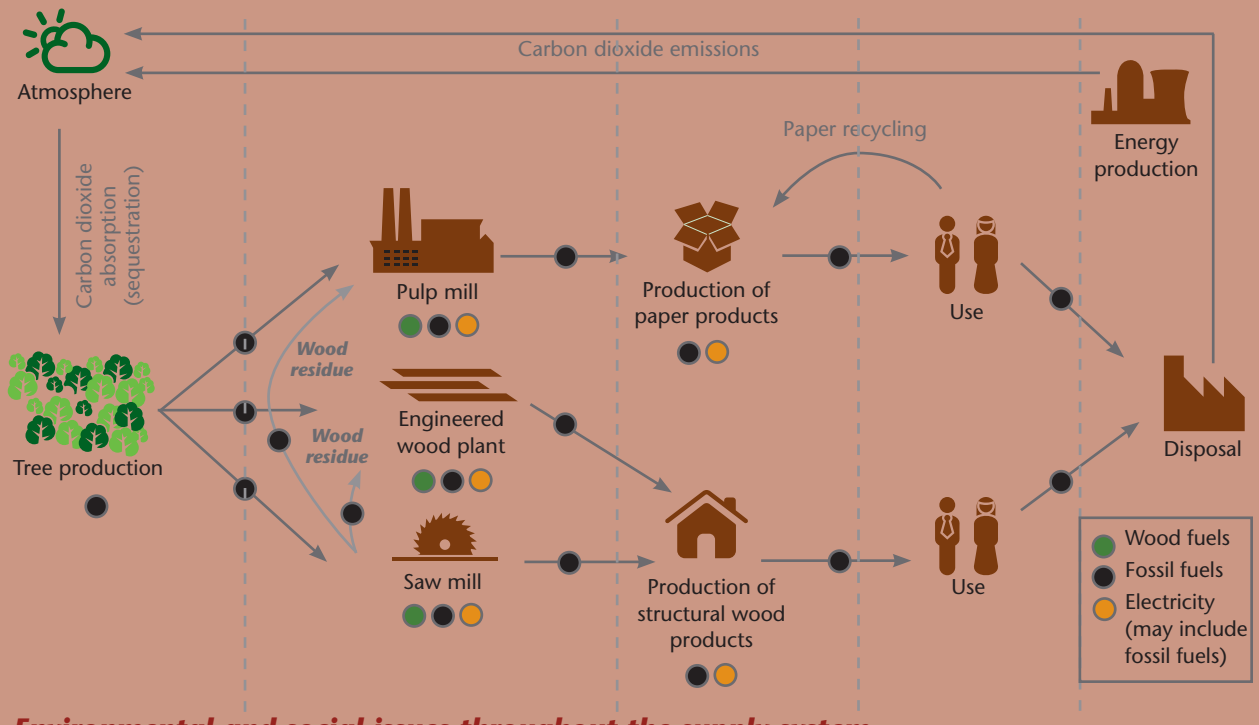
There is no single standard supply chain for wood and paper-based products and all supply chains are different. There are, however, common elements that can help clarify the connections among various manufacturing points, the product flows, and the environmental and social issues associated (figure below).

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).

Generic supply chain and related environmental and social issues



Environmental and social issues throughout the supply system

Primary Sector	Secondary Sector	Tertiary Sector	Use	Disposal
• SFM; Unique forest values, conversion • Climate effects • Harvesting in traditional and community lands without proper permission • Logging in sites important for traditional & local populations • Worker's health & safety • Fair wages	• Efficiency • Pollution • Climate effects • Source reduction • Worker's health & safety • Fair wages	• Efficiency • Pollution • Climate effects • Recycling • Worker's health & safety • Fair wages	• Recycling • Climate effects • Efficiency • Source reduction	• Efficiency • Pollution • Climate effects • Recycling • Worker's health & safety • Fair wages

Dots representing energy inputs do not quantify amounts of energy used in processing or transportation.

SELECTED RESOURCES: TRACEABILITY

See "Guide to the Guides" chapter for more information on each resource.

Procurement requirements

Belgian Government Procurement Policy

CEPI Legal Logging Code of Conduct

Danish Government Procurement Policy for Tropical Forests (under review)

Dutch Government Procurement Criteria for Timber

European Community Green Purchasing Policy

FLEGT & VPAs

French Policy on Public Procurement of Timber and Wood Products

FSC Controlled-Wood Standard

German Government Procurement Policy

Green Globes

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LEED

Mexican Federal Government Procurement Policy

PEFC Due Diligence System

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Swiss Declaration Duty for Timber

UK Timber Trade Federation Responsible Purchasing Policy

Resources to assess requirements

CPET

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

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EPAT®

FCAG

FICAT

Carbon Disclosure Project

FPAC: A Buyers' Guide to Canada's Sustainable Forest Products (the report)

GFTN

Global Timber Tracking Network

Good Wood. Good Business Guide

Greenpeace's Responsible Procurement Guide

Illegal-logging.info

Madera Legal - Asociación Española del Comercio e Industria de la Madera (AEIM)

NEPCon LegalSource Programme

New Zealand Government Paper Buyers' Guide

Paper Profile

PREPS

Project LEAF

SmartSource

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

Sustainable Forest Finance Toolkit

Timber Tracking Technologies Review

Timber Trade Action Plan

The Forest Trust

Two Sides

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WWF Tissue Scoring

2. Is information about the products credible?

2. 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:

1. **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.
2. **Second party verification** – a buyer verifies that a supplier and/or the products of that supplier conform to a certain standard.
3. **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 (Question 3). 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). Forest certification systems are intended to provide an alternative in this part of the supply chain.

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

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

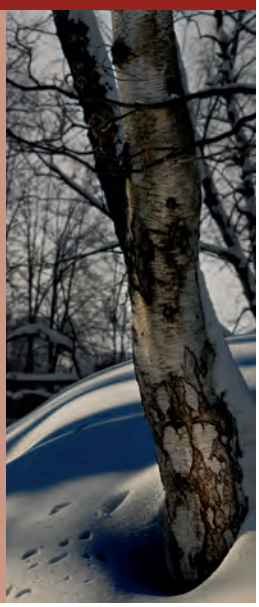
Areas with higher risk of encountering unacceptable practices require more due diligence and more detailed information than areas with lower risk.

High-risk source areas may include:

- **Areas that have unique ecological and socio-cultural features (unique forest values) (addressed in Question 5, protected areas.**
- **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.**



(PEFC). Both are used by community and family-owned forests and large landowners and/or industrial operations.[4] 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 4 provides an overview of the general characteristics of these two systems. Table 4 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.

- **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 4) and some ecolabels (Box 3) can also be of help.

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 7% of the world's total forest area is currently certified. 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.**

[4] 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.

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 (www.blauer-engel.de) – 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 Miljöval (snf.se/bmv/english.cfm) (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 (http://www.ecologo.org/en/) – Founded by the Government of Canada, the Ecologo is North America's largest ecolabel program. Wood and paper-based materials covered include building raw materials, flooring, office furniture and paper products.
- Eco Mark (www.ecomark.jp/english/nintei.html) – administered by the Japan Environment Association, it covers various types of paper, board wood, and furniture and packaging materials.
- Environmental Choice (www.enviro-choice.org.nz) – 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 (ec.europa.eu/environment/ecolabel/index_en.htm) – 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 (www.greenseal.org) – 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 (www.greenguard.org) – 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 (www.geca.org.au) – 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 (www.svanen.nu/Eng/) – 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 (www.iso.org) – Standards 14020 through 14025 provide guidelines for ecolabels for first and third party verification.
- US Federal Trade Commission (www.ftc.gov/bcp/grnrule/guides980427.htm) – provides guidance on the use of ecolabels and the use of environmental marketing claims.
- Consumer Reports Eco-labels (http://www.greenerchoices.org/eco-labels/) – provides guidance, scorecards and comparisons of ecolabels in the US.
- The Global Ecolabeling Network (www.globalecolabelling.net) – provides background information, links to national members, and so on.
- Ecolabel Index (www.ecolabelindex.com). – 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.

Sources: Global Ecolabeling Network, 2007.

Table 4. General characteristics of the two major systems for forest certification

Developed by	Forest Stewardship Council (FSC)	
	GENERAL	
Established	Established in 1993 at the initiative of environmental organizations.	
Basic principle	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- Maintenance of 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.
Components, members, extent	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).
Stakeholder scope	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).
	MONITORING AND VERIFICATION	
Chain-of-custody (CoC)	• 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)
Inclusion of wood from non-certified sources	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 non-forest uses (e) Wood from management units in which genetically modified trees are planted (FSC, 2006)
Verification	Requires third-party verification.	

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 Section IV – Additional resources. (Additional sources: FSC, 2006, 2004B, and 2006; Cashore et al., 2004)

Programme for the Endorsement of Forest Certification (PEFC)

GENERAL

Founded in 1999 in Europe, as an endorsement mechanism for independent, national certification systems.

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).

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).

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.

MONITORING AND VERIFICATION

- 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).

The PEFC's Due Dilligence system requires participants to establish systems to minimize the risk of sourcing raw materials from:

(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.
(PEFC, 2010B).

Requires third-party verification.

SELECTED RESOURCES: MONITORING AND VERIFICATION

See "Guide to the Guides" chapter for more information on each resource.

Procurement requirements

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CEPI Legal Logging Code of Conduct

Danish Government Procurement Policy for Tropical Forests (under review)

Dutch Government Procurement Criteria for Timber

European Community Green Purchasing Policy

FLEGT & VPAs

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3. Have the products been legally produced?

3. Have your products been legally produced?

OVERVIEW OF ILLEGAL LOGGING AND ASSOCIATED TRADE

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 defined illegal logging in their public procurement policies and trade regulations (see Table 6 and Box 6), 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 United States. The scope is limited to plant protection laws and laws governing export or transshipment. Plant protection laws regulate plant theft; taking plants from officially protected areas; taking plants from an officially designated area; taking plants without, or contrary to, required authorizations; and failure to pay appropriate taxes or fees associated with the plant's harvest, transport, or trade.
- Australian Illegal Logging Prohibition (approved in 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.

Examples 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).**
- **Failure to pay legally prescribed taxes, fees, and royalties.**
- **Logging and trading logs and forest products in spite of logging and trade bans (Table 5).**
- **Illegal transfer pricing (e.g., 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 make 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.

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.

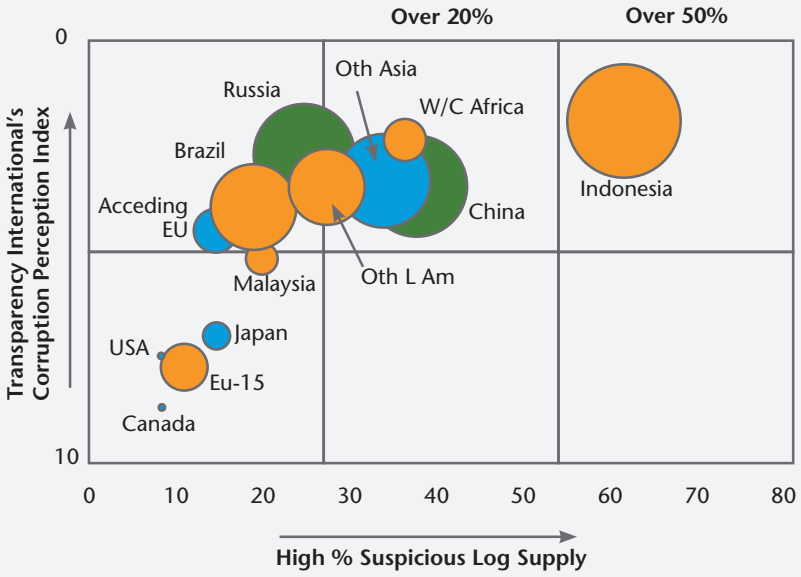
CITES is an international, legally binding agreement to ensure that international trade of certain animals and plants (including wood from certain tree species) does not threaten their survival. CITES establishes controls for the international trade of selected species. All import, export, and introduction 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 to administer 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 August 2012, the following timber species were listed in CITES (see table below).

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).

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

Timber Species Listed in CITES (as of 8/12; excluding species used for medicinal, traditional, or ornamental purposes)

Scientific name	Listing Applies to	Natural distribution	Common and Trade Names	Common Uses (selected)
Appendix I: Timber species that are threatened with extinction. Trade is permitted, but under very restricted circumstances.				
Abies guatemalensis	All parts and derivatives, including manufactured and finished products[1] from any country of origin.	Guatemala, Honduras, Mexico and El Salvador	Guatemalan fir, abeto mexicano, guayami, Mexican fir, pinabete, plumajatzin, plumajillo de montaña, sapin de Guatemala.	Construction.
Araucaria araucana	All parts and derivatives, including manufactured and finished products[2], from any country of origin. Logging ban in Chile since 1976.	Argentina, Chile	Monkey puzzle tree, apeboom, araucaria du Chile, Chilean pine, chilensk tall, Chili pine, Chili tall, Chilie pine, parana pine, pehuen, pilon, pin du Chili, pino, pino araucaria, pino de Chile, pino de Neuquén, pino de Paraná, piñonero, piñón, sapin du Chili, pehúen.	Construction, pallets, engineered wood, flooring, doors and windows.
Balmea stormiae	All parts and derivatives.	Mexico, Guatemala, El Salvador, Honduras	Ayuque	Christmas trees.
Dalbergia nigra	All parts and derivatives, including manufactured and finished products,[3] from any country of origin.	Brazil	Brazilian rosewood, babia rosewood, bahia rosewood, caa-biuna, cabeuna, cabiuna, cabiuna do mato, cabiuna rajada, comore, camboriuna, caviuna, jacaranda, jacarada cabiuna, jacaranda de Brasil, jacaranda wood, jacaranda-da-bahia, jacaranda-preto, jacaranda-rajado, jacaranda-roxo, jacarandaholz, jacaradanda de Brasil, legno di jacaranda, madeira de palisandro, marnut, palisander, Rio rosewood.	Furniture, veneers, cabinetmaking, musical instruments, flooring, carving and sculpture.
Fitzroya cupressoides (Molina) I. M. Johnston	All parts and derivatives, including manufactured and finished products.[4] Logging ban in Chile since 1976.	Argentina, Chile	Alerce, Chilean false larch, alerzcholz, fitzroy cypress, lahuan, patagonian cypress	High end furniture, musical instruments, windows, doors, shutters, beamed ceilings, moldings, decorative veneers, interior and exterior coating, boat building, poles, roofing shingles.
Pilgerodendron uviferum	All parts and derivatives, including manufactured and finished products[5] from any country of origin.	Argentina, Chile	Pilgerodendron, Chilean cedar, ciprés, ciprés de Chile, ciprés de Cordillera,ciprés de las Islas Len, cipresso del Cile, cyprès du Chili, lahuan, lanutanbagio, libocedri dell'america meridion, patagonian cypress, patagonian pilgerodendron, ten, thuja tetragona.	Building, flooring, doors, furniture.

[1] Including building materials, cabinetmaking materials, charcoal, firewood, flooring, containers, fuel wood, furniture, joinery, matches, particleboard, plywood, pulp/paper products, roof shingles and veneer among other products.
[2] Including construction material, flooring, furniture, joinery, plywood, pulp/paper products and railroad trails among other products.
[3] Including bedroom furniture, billiard-cue butts, boat building, bobbins, boxes and crates, brush backs and handles, cabinetmaking materials, chairs, chests, decorative plywood, musical instruments, parts of musical instruments and veneer among other products.
[4] Including agricultural implements, boat building materials, boxes, crates, containers, cabinetmaking materials, carvings, cigar boxes, construction materials, cooperages, flooring, fuel wood, furniture and furniture components, joinery, musical instruments, particleboard, pencils, piling, plywood, poles, pulp/paper products, shakes, shingles, sporting goods and toys among other products.
[5] Including flooring, furniture, posts and timber.

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

Timber Species Listed in CITES (as of 8/12; excluding species used for medicinal, traditional, or ornamental purposes)

Scientific name	Listing Applies to	Natural distribution	Common and Trade Names	Common Uses (selected)
Podocarpus parlatorei	All parts and derivatives, including manufactured and finished products[6] from any country of origin.	Argentina, Bolivia, Peru	Parlatore's podocarp, Monteromero, pino blanco, pino del cerro, pino montano.	Pencils
Appendix II: trade of these species is controlled and regulated to ensure their survival.				
Aniba rosaeodora	Logs, lumber, plywood and veneer, from any country of origin.	Brazil, Colombia, Ecuador, Guyana, French Guiana, Peru, Surinam and Venezuela	Brazilian rosewood	Furniture, turnery, shipbuilding, flooring, agricultural tools
Bulnesia sarmientoi	Logs, lumber, plywood, and veneer from any country of origin.	Argentina, Bolivia, Paraguay	Gaiacwood, bois de gaic, gaiacwood, guajakhoz, guajaco, guajakholz, guayacan, palo balsamo, palo santo, Paraguay-lignum-vitae, true guaiac.	Housing construction (beams, poles), turning, carving, poles and pillars, poles, flooring.
Caesalpinia echinata	Logs, lumber, veneer, and unfinished wood articles from any country of origin.	Brazil	Pernambuco, brasileto, Brazilwood, ibirapitanga, orabutã, pau-Brasil, pau-de-pernambuco, pau-pernambuco, pau-rosado, peachwood, pernambuco-wood	Musical instruments, ornamental turnery, rifle stocks, exterior joinery, wall paneling, wharf building, piling, docks, flooring, veneers, inlays in reproduction of antique furniture.
Caryocar costaricense	All parts and derivatives, including manufactured and finished products[7] from any country of origin.	Colombia, Costa Rica, Panama, Venezuela	Ajo, ajillo, aji, almendrillo, almendro, almendron, cagui, firme, genenè, manu, maqui-maqui cagui, pequia, pequia brava, pete rana do terra firme, petè, pete-rana, plomillo, rana do terra, swari	Bridges, rail tracks.
Gonystylus spp	All *Gonystylus* species, and to all parts and derivatives, including manufactured and finished products[8] from any country of origin.	Brunei, Darussalam, Fiji, Indonesia, Malaysia, Singapore, Solomon Islands, the Philippines	Ramin, ampudji, gaharu, gaheu, gara buaja, kaya garu, lanutanbagio,medang keran, melawis, ramin telur, sang su, seriangun.	Furniture, carving, flooring, picture framing, turnery for handles of non-striking toys, dowels, wooden toys, light building work for skirting, domestic flooring, plywood, decorative veneers, moldings, interior joinery.
Guaiacum spp.	All *Guaiacum* species, and to all parts and derivatives from any country of origin except finished products packaged and ready for retail trade.[9]	Anguilla, Antigua, Barbuda, Bahamas, Barbados, Colombia, Cuba, Dominican Republic, Haiti, Jamaica, Puerto Rico, Venezuela	Lignum vitae, auayacan, palo santo.	Marine equipment such as bushing blocks and bearings for ship's propellers shafts, pulley sheaves and dead-eyes and replacement for metal thrust bearings in steel and tube works, sculpture and carving.

[6] Including timber.
[7] Including railroad ties.
[8] Including brush backs, building materials, ceilings, counter tops, door frames, dowels, flooring, furniture, joinery, moldings, handles (e.g. brooms and umbrellas), paneling, picture frames, plywood, pool cues and racks, rulers, shoji screens, stair treads, stringers, tool handles, toys, trays, tripods, turnery, blinds, window frames among other products.
[9] Including: bearings and bushings, boat building materials, brush backs and handles, bush blocks, furniture, golf club heads, marine construction materials, railroad ties, shade rollers, tables, turnery, and wheels among other products.

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

Timber Species Listed in CITES (as of 8/12; excluding species used for medicinal, traditional, or ornamental purposes)

Scientific name	Listing Applies to	Natural distribution	Common and Trade Names	Common Uses (selected)
Oreomunnea pterocarpa	All parts and derivatives, including manufactured and finished products[10] from any country of origin.	Costa Rica, possibly other Mesoamerican countries	Gavilan, campana, engelhardia pterocarpa, gavilán blanco.	Construction, used in the past for cabinetmaking.
Pericopsis elata	Logs, lumber and veneer.	Cameroon, Congo, Côte d'Ivoire, Democratic Republic of the Congo, Ghana, Nigeria	Afrormosia, African teak, anyeran, asamela, assamela, assemela, awawai, ayin, baracara, benin satinwood, bohala, bohalala, bonsamdua, devils tree, egbi, ejen, golden, kokriki, afrormosia, iatobahy do igapo, kokrodua, liguminosae, mekoe, mohole. obang, ole, olel pardo, peonio, redbark, satinwood, tento, wahala, yellow satinwood.	Interior and exterior buildings, shipbuilding, flooring, stairs, high-class joinery, veneers for furniture, cabinetmaking, flush doors and wall paneling, marine piling, office fittings.
Platymiscium pleiostachyum	All parts and derivatives including manufactured and finished products.[11]	Costa Rica, El Salvador, Honduras, Nicaragua	Cristobal, granadillo, cachimbo, cristóbal, ñambar, roble Colorado.	Paneling, flooring, furniture and musical instruments (drums).
Prunus africana	All parts and derivatives, except finished products packaged and ready for retail and trade.	Angola, Burundi, Cameroon, Democratic Republic of the Congo, Equatorial Guinea, Ethiopia, Kenya, Madagascar, Mozambique, Rwanda, South Africa, Sudan, Swaziland, Uganda, Tanzania, Zambia, Zimbabwe	African cherry, Blackwood, Kanda stick, Pygeum, Red Stinkwood, Red ivory, Cerisier Africain, Prunier d'Afrique, Pygeum, Ciruelo africano.	Furniture, tools, construction. Tree is also used for medicinal and ornamental purposes.
Swietenia humilis	All parts and derivatives, including manufactured and finished products[6] from any country of origin.	Belize, Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama	Pacific Coast mahogany, caoba, mabu, Pacific mahogany.	Carpentry in general; moldings.
Swietenia macrophylla	Logs, lumber, plywood and veneer that originate in Latin America and the Caribbean a exception of Brazil or Nicaragua. There is, however, an export ban in Brazil and Nicaragua.	Belize, Bolivia, Brazil, Colombia, Costa Rica, Ecuador, El Salvador, Guyana, French Guyana, Guatemala, Honduras, Mexico, Nicaragua, Panama, Peru, Venezuela	Bigleaf mahogany, acajou, acajou Amerique, acajou d'Amerique, acajou du Honduras, Adoa, aguano, American mahogany, Americkaans mahonie, Amerikanns mahonie, ara putange, araputanga, bastard lime, bay-mahogany, baywood, belize mahogany, caòba, Honduras mahogany, mara, mogno.	High-end furniture and cabinetmaking, interior joinery, paneling, boat interiors, pianos, burial caskets, carving, moulds and dies, veneers used for plywood manufactured, decorative uses.

[10] Including a variety of products.
[11] Including furniture, musical instruments, timber and veneer.

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

Timber Species Listed in CITES (as of 8/12; excluding species used for medicinal, traditional, or ornamental purposes)

Scientific name	Listing Applies to	Natural distribution	Common and Trade Names	Common Uses (selected)
Swietenia mahagoni	Logs, lumber and veneer from any country of origin.	Anguilla, Antigua and Barbuda, Bahamas, Barbados, Cayman Islands, Colombia, Cuba, Dominican Republic, Grenada, Guadeloupe, Jamaica, Martinique, Montserrat, Peru, Trinidad and Tobago, United States, Venezuela	Caribbean mahogany, acajou, acajou de Cuba, acajou de Saint Domingue, acajou de St. Domingue, acajou des Antilles, aguano, antillen mahogani, bay, mahogany, caoba, caoba de santo domingo, caoba dominicana, caobilla, chiculte, cobano, Cuban mahogany, curlet mahogany, Dominican mahogany, echites mahagoni, gateado, Jamaica mahogany, Kuba mahogany, madiera, mahagoni, mahog, mahogany, mahogany du pays, mahogany petites feuilles, mahok, mahoni, mongo, orura, small-leaf mahogany, West Indian mahogany, West Indies mahogany.	High-end furniture and cabinetmaking, interior joinery, paneling, boat interiors, pianos, burial caskets, carving, molding, veneers used for plywood, decorative uses.
Appendix III: species subject to special management within a country				
Cedrela fissilis	Logs, lumber and veneer from any country of origin.	Argentina, Bolivia, Brazil, Colombia, Costa Rica, Ecuador, Panamá, Paraguay, Peru, Venezuela	Argentinean cedar, Central American cedar, cedro, cigar boxes cedar, rose cedar.	Furniture, cabinets and paneling, high-class joinery, flooring, house construction, boat building, skins of racing boats, canoe decks, cigar boxes, sound boards for organs, clothing chests, and decorative veneers for paneling, plywood, and panel corestock.
Cedrela lilloi	Logs, lumber and veneer from any country of origin.	Argentina, Bolivia, Brazil, Paraguay, Peru	Cedro, atoc, cedro bayo, cedro coya, cedro de altura, cedro de Tucumán, cedro del cerro, cedro peludo, cedro salteno, cedro vírgen.	Musical instruments. High-grade timber.
Cedrela odorata	Logs, lumber and veneer from any country of origin.	Antigua and Barbuda, Argentina, Barbados, Belize, Bolivia, Brazil, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, French Guyana, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Peru, Surinam, Venezuela	Spanish cedar, acajou rouge, akuyari, atoreb, Barbados cedar, Brazilian cedar, British Guiana cedar, British Honduras cedar, cedar, cèdra acajou, cèdre des barbaies, cèdre rouge, cedrela, cedrela wood, cedro, cedro chino, cedro colorado, cedro hembra, cedro macho, cedro obsuro, cedro real, cedro red, cedro rojo, Central American cedar, chujte, cigar-box cedar, cigarbox cedar, Colorado cedro, Cuban cedar, epi, Hondouras cedar, icte, Jamaican cedar, Kalantas, Kapere, Koperi, Kurama, Kurana, Mexican cedar, Nicaraguan cedar, parank, paranka, red cedar, rojas cedar, rosas cedar, South American cedar, Tabasco cedar, tiocuahuitl, Trinidad cedar, Wesindische zedar, West Indian cedar	Ship building, construction, cigar boxes.

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

Timber Species Listed in CITES (as of 8/12; excluding species used for medicinal, traditional, or ornamental purposes)

Scientific name	Listing Applies to	Natural distribution	Common and Trade Names	Common Uses (selected)
Dalbergia retusa	Logs, lumber and veneer that originate from Guatemala, including articles that were re-exported from another country.	Pacific seaboard from Mexico to Panama	Nicaraguan rosewood, cocobolo, cocobolo prieto, funera, granadillo, nambar, palo negro.	Turnery, traditional use for cutlery handlers, knives and tool handles, brush backs, truncheons, bowling bowls, sculpture and carving and decorative uses such as inlay boxes and wooden jewelry, highly decorative veneers for inlay work, for decoration of furniture and paneling.
Dalbergia darienensis	Applies to products that originate from Panama, including articles that were re-exported from another country. Applies to all parts and derivatives, except finished products ready for retail trade.	Colombia, Panama	Indian rosewood.	Cabinet making, furniture, marquetry, parquet flooring, musical instruments.
Dalbergia louvelii	Logs, lumber, veneer. Applies to articles originating in any country.	Madagascar	Madagascar rosewood, palisander, andramena, hendramena, madagaskisk violpalisander, volombodipona, volombodipona a grandes feuilles, volombodipona vavy.	Cabinet making, furniture, marquetry, parquet flooring, musical instruments.
Dalbergia monticola	Logs, lumber and veneer.	Madagascar	Madagascar rosewood, voamboana, palissandre brun, palissandre de Madagascar.	Cabinet making, furniture, marquetry, parquet flooring, musical instruments.
Dalbergia normandii	Logs, lumber and veneer.	Madagascar	Madagascar rosewood	Cabinet making, furniture, marquetry, parquet flooring, musical instruments.
Dalbergia purpurascens	Logs, lumber and veneer.	Madagascar	Madagascar rosewood, hazovola, manary, manary bombay, manary fotsy, manary mainty,manry toloho, manary tsaitondro.	Cabinet making, furniture, marquetry, parquet flooring, musical instruments.
Dalbergia stevensonii	Logs, lumber and veneer that originate from Guatemala, including articles that were re-exported from another country.	Southern Belize and neighboring areas in Guatemala and Mexico	Honduran rosewood, hagaedwood	Musical instruments, moldings, picture frames, decorative veneers, furniture, cabinetmaking, office fittings, paneling, doors, decorative veneer faces, turnery.
Dalbergia xerophila	Logs, lumber and veneer.	Madagascar	English rosewood, cocobolo.	Cabinet making, furniture, marquetry, parquet flooring, musical instruments.
Diospyros spp.	All species of *Diospyros*. Logs, sawn wood and veneer sheets from any country.	Madagascar	Madagascar ebony, ebony.	Musical instruments, sculptures.

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

Timber Species Listed in CITES (as of 8/12; excluding species used for medicinal, traditional, or ornamental purposes)

Scientific name	Listing Applies to	Natural distribution	Common and Trade Names	Common Uses (selected)
Dipteryx panamensis	All parts and derivatives, including manufactured and finished products[12] from any country of origin.	Nicaragua, Costa Rica, Panama and Colombia	Almendro, almendra, almendro de montaña, amans, choiba, eboe, îbu, iqua, Indian almond, sarrapia, tonca, tonka bean, yapo.	Bridges, railroad tracks, hardwood flooring and marine construction.
Pinus koraiensis	Logs, lumber, and veneer from any country of origin.	China, Democratic People's Republic of Korea, Japan, Republic of Korea, Russian Federation	Korean pine, borovica kórejská, borovice korejskã, channamu, hong song, Korea-Kiefer, Koreai fenyõ, pin de Corée.	Carving, patternmaking, paneling, construction, doors, high-class joinery, furniture, decorative veneers.
Podocarpus neriifolius	All parts and derivatives, including manufactured and finished products.	China, Nepal	Black pine podocarp, amanu, black pine, brown pine, bukiti, jati bukit.	General construction work, for car parts, panels, furniture and interior design.
Tetracentron sinense	All parts and derivatives, including manufactured and finished products from any country of origin.	Bhutan, China, Indian, Myanmar, Nepal	Tetracentron, shui quing shu.	

Notes: Other tree species also listed in CITES include: *Aquilaria malaccensis* (II), *Magnolia liliifera var. obovata (III), Podophyllum hexandrum* (II), *Pterocarpus santalinus* (II), *Taxus chinensis, T. cuspidate, T. fauna, T. sumatrana, T. wallichiana (all Taxus sp. listed in Appendix II). Trade of these species, however, is mostly for non-timber products and uses.* Logs are defined as all wood in the rough whether or not stripped of bark or sapwood, or roughly squared for processing. Lumber is defined as wood sawn lengthwise or produced by a profile-chipping process; normally exceeds 6mm in thickness. Plywood is defined as three or more sheets of wood glued and pressed one on the other and generally disposed so that the grains of successive layers are at an angle. Veneer is defined as thin layers or sheets of wood of uniform thickness, usually peeled or sliced for use in plywood and furniture among other products.

Sources: APHIS, 2006; Canadian organization for tropical education and rainforest conservation, 2010; CITES 2003; CITES website; Chen, 2006; Chilebosque.com; DEFRA, 2010; GRIN website; UNEP/WCMC, 2000; UNEP/WCMC Trees conservation information service website; Teck, 2006; USFWS CITES tree species website.

[12] Including bearings and bushings, barge and dock fenders, boat construction articles, chemical derivatives, cogs and shafts, cross ties, fishing rods, flooring, furniture, heavy construction, railroad ties, tool handles, turnery and veneer among other products.

Table 5. 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.

Country	Product and applicability	Year initially enacted*
Africa		
Cameroon	Log export restrictions to progressively increase the share local processing. Export ban that applies to some hardwood species (e.g., iroko, moabi, bibolo, wenge and bubinga).	1999
Cote d'Ivoire	Unprocessed logs export ban. Log export ban for high-value timber species.	1976
Gabon	Export ban on logs, boules and through cut logs.	2010
Ghana	Log export ban.	1994
Madagascar	Export ban on unfinished wood products.	1975
Mozambique	First-class logs cannot be exported; they must be processed domestically.	2012
Nigeria	Log export ban.	1976
America		
Belize	Rosewood logging and export ban.	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.	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.	1997
Costa Rica	Log export ban, and export ban on roughly squared wood from specific species.	1986
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.	1996
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* (washi-ba), *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 wood from certain forests unless it is in finished products.	1998
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.	1970
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; export ban on logs from state and other public lands (except Indian lands) west of the 100th meridian.	1926; 1990
Venezuela	Log export ban for five species: caoba, cedro, mijao, pardillo, pau d'arco.	2001

Table 5. Logging and export bans (cont.)

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.

Country	Product and applicability	Year initially enacted*
Asia & Pacific		
Cambodia	Log export ban.	1992
Fiji	Log export ban.	1994
Indonesia	Log export ban. Ban amended in 2009 to allow plantation-grown logs to be exported.	1980
Laos	Export ban on logs, roundwood, sawn wood and semi-finished products sourced from natural forests.	1991
Malaysia	Quota on export logs from Sarawak and Sabah; Peninsular Malaysia has a total ban on the export of round logs; Sabah allows the export of only 40 percent of the total volume of harvested logs.	1992
New Zealand	Export ban on most logs, chips, and sawn timber from natural forests, along with harvesting restrictions to areas with approved sustainable forest management plans.	1993
Papua New Guinea	Quotas on allowable logs for export, now replaced by log export duties.	1994
Philippines	Export ban on all native wood products except value-added products; export ban on logs from natural forests, but allows export of logs from plantation forests.	1983
Sri Lanka	Logging ban.	1990
Thailand	Logging ban.	1986
Vietnam	Log export ban; export ban on sawn timber from wood harvested from natural forests.	1992

* Year in which the log ban was first enacted. There are cases where the bans have been rescinded temporarily or expanded. Wood importers from these countries should consult local authorities or local stakeholders for the most up-to-date information on trade restrictions.

Sources: African Timber Organization, 2006; Barney and Canby, 2011; Bird, Fometè & Birikorang, 2006; Cerruti & Tacconi, 2006; EIA, 2012; Goetzl & Elström, 2007; Guyana Forestry Commission, 2007; Illegal-logging.info, 2011; ITTO, 2010; ITTO, 2011; Kim, 2010; Llyewellyn, 2012; Olfield, 1998; Sesay, 2010.

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 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 $30-100 billion worth of illegal timber annually (Nellemann, INTERPOL, 2012). Most of this money is untaxed, controlled by organized crime, and used to pay bribes at all levels of government (Pereira Goncalves *et al*, 2012).
- Poverty – indirectly. Governments deprived of revenue by illegal logging have fewer resources to invest in social and public policies.
- Unfair competition – illegal logging and illegal trade can distort the market and reduce the profitability of legal goods; the World Bank puts this cost at more than US$ 10 billion per year (World Bank, 2002A).
- Conflict – the proceeds of illegal logging may be 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 may be destroyed or compromised by illegal logging.

Between 8-10 percent of global wood production is estimated to be illegal, 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 market, either as finished products or raw materials (Seneca Creek and World 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 the 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 (Tables 6, 7 and 8). Trade regulations such as the 2008 amendment to the U.S. Lacey Act, the European Union Illegal Timber Regulation, and the Australian Illegal Logging Prohibition are recent instruments that address illegal logging (Box 6).

[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.

Table 6. Selected public procurement policies (Chronological order)

Country	Year passed	Definition of legality (or reference to existing definitions; in general,	
United Kingdom	2000 (reviewed in 2009)	Timber and wood derived products that originate from forests that meet the following: a) forest owner/manager holds legal use rights to the forests; 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.	
Denmark	2003 (reviewed 2010)	Similar to UK Government definition. Policy requires: a) forest owner/manager to hold legal use rights to forests; b) compliance with relevant laws, including forestry, environmental and labor laws; c) payment of taxes and royalties; and d) compliance with CITES.	
France	2005 (reviewed in 2008)	Does not include specific definition of legality, but requires compliance with CITES. Procurement managers are required to refer to tools such as forest certification, ecolabels, or supplying countries to define which legislation is relevant.	
México	2005	Wood of verified legal origin and in compliance with environmental regulations.	
Netherlands	2005	Uses UK Government definition of legality, meaning that products that originate from forests that meet the following: a) 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.	
Belgium	2006	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.	
Japan	2006	Timber or wood products from a forest that has been legally harvested; the entity that harvested the trees has legal rights to use the forest.	
New Zealand	2007 (reviewed in 2011)	Sustainability, as defined by FSC and PEFC, is the minimum requirement.	

Public procurement policies to address legality and/or sustainability began to emerge in the early 2000s, becoming more prominent in Europe, but now expanding to other countries 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.

	Requirements and applicability	Product scope	Accepted Means of verification or compliance	
			SFM certification systems	Alternative instruments
	Mandatory to central government. Recommended to sub-national governments.	Wood and paper-based products.	FSC, PEFC. Only PEFC endorsed schemes and labeled PEFC, and only SFI 70%.	Requires Legality and Sustainability, or FLEGT-licensed wood. However, where a particular type of product or timber species if required and where there is no sustainable timber of 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.
	Guidelines are voluntary, and aim to help public buyers in actively seeking to buy legal and sustainable timber.	Wood and paper-based.	FSC, PEFC.	SGS's Timber Legality and Traceability Verification; SmartWood's Verification of Legal Compliance. FLEGT-licenses where available.
	Mandatory to central government. Recommended to sub-national governments.	All wood and paper-based products.	FSC, PEFC, CSA, SFI, MTCS, LEI, Kerhout.	Ecolabels; processes involving third-party verification.
	Central government	Furniture and office supplies.	Third-party verification systems registered with the Ministry of Environment and Natural Resources.	
	Mandatory to central government. Recommended to sub-national governments.	Wood and paper-based products.	FSC, PEFC International, but excluding MTCS.	FLEGT-licensed timber. Credible, documentary evidence. Evidence is assessed on a case-by-case basis, based on the Timber Procurement Assessment Commitment guidelines.
	Mandatory to central government.	Solid wood products	FSC, PEFC Belgium and some PEFC certificates.	Forest certified by an independent body, based on internationally recognized criteria. Legality, in itself, not enough as sustainability is the minimum requirement.
	Mandatory to central government.	Solid wood and paper-based products.	FSC, PEFC, SFI, CSA, LEI, Sustainable Green Ecosystem Council.	Wood industry associations' code of conduct, and self-verification mechanisms.
	Mandatory to central government. Recommended to sub-national governments. Abroad mission 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.	Paper and solid wood, and wood-based products.	ATFS, CSA, FSC, MTCS, PEFC, SFI.	Step-wise programs towards certification and legality-verification systems. Third-party certified ecolabels for office papers that contain at least 70% of the fiber content from recycled and/or certified sources.

Table 6. Selected public procurement policies (Chronological order) (cont.)

Country	Year passed	Definition of legality (or reference to existing definitions; in general,	
Germany	2007 (reviewed in 2011)	Sustainability, as defined by FSC and PEFC, is the minimum requirement.	
Norway	2007	Not defined. Ban of tropical timber in public sector construction	
Sao Paulo State, Brazil	2008	There is no specific definition of legality. However, entities trading with timber must be legal and registered and comply with environmental laws. Also, the timber and timber products must be traceable. Brazilian timber products to be traded must possess government-issued Document of Legal Origin (DOF in Portuguese).	
Finland	2010	Legally-sourced raw wood materials are materials sourced from a legal entity with the legal right to harvest; the harvesting and forest management operations are conducted in compliance with the local forest and environmental laws of the place of origin. The wood should also meet CITES regulations.	

Notes: 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; CPET, 2010; Danish Forest and Nature Agency, 2011; EFI, 2010B; European Commission, 2010; European Parliament, 2010; Finish 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.

	Requirements and applicability	Product scope	Accepted Means of verification or compliance	
			SFM certification systems	Alternative instruments
	Mandatory to central government.	Wood in the rough, finished and semi-finished products, products in which wood is the most significant component.	FSC, PEFC.	Certificates comparable to FSC or PEFC, if demonstrated that FSC or PEFC criteria are met in the country of origin. A review will be conducted in 2013 to determine if and how wood from FLEGT-licensed timber is incorporated in the procurement policy.
	Central government.	Wood and paper-based products.	None recognized.	N/A
	Applicable to state government agencies. It is relevant to both, Brazilian timber and timber of foreign origin.	Timber to be used in construction.	None recognized	Only suppliers registered in the Cadmadeira system (Cadastro de Comerciantes de Madeira no Estado de São Paulo) are allowed to bid for government construction contracts. The State Ministry of Environment verifies the legality of the supplier and the DOF. Registered suppliers agree to be audited periodically. Suppliers are required to maintain and provide receipts, transportation authorizations, and other relevant trade documentation.
	Central government currently.	Wood and paper-based products.	PEFC, FSC	Due diligence systems by producers, FLEGT licenses, CITES licenses and other legality verification systems.

Table 7. Examples of Legality Requirements in the Private Sector

Company, policy year	Scope	Legality requirements	
B&Q (home improvement and garden retailer, Europe, 1991)	Timber and paper	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.	
IKEA (furnishings, worldwide, 2006)	Solid wood, veneer, plywood and layer glued wood	Known origin of the wood; compliance with national and regional forest legislation; wood must not originate from protected areas unless harvested according to the management plan.	
Kimberly-Clark Corporation (personal care, paper products, worldwide, 2007)	Tissue hard rolls or finished tissue products containing wood fiber. Wood fiber, includes pulp, logs, whole log chips, woodchips and sawdust	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).	
Staples (office products, worldwide, reviewed 2010)	Paper products of any grade of paper	One of the long term goals of the policy is to source and trade paper products certified under the FSC system.	

Corporate procurement policies have become more prominent in developed countries and among companies with global reach. Over time, companies are increasingly integrating sustainable purchasing practices into their broader sustainability and corporate responsibility policies.

	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. The policy accepts products, at times, 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 get grace period to meet the policy requirements.
	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 on an annual basis, and they must accept auditing at various steps in the supply chain. Wood from certain areas undergoes audits all the way back to the forest. Audit is conducted by company forester or an independent auditor.
	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.
	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.

Table 7. Examples of Legality Requirements in the Private Sector (cont.)

Company, policy year	Scope	Legality requirements	
Unilever (consumer products, worldwide, 2010)	Paper and board packaging	Virgin fiber should be traceable down to the forests where the legal origin can be verified either by legality certification, or by credible evidence.	
Weyerhaeuser (wood and paper-based products manufacturer, worldwide, updated 2012)	Timber and paper	Weyerhaeuser will not knowingly purchase wood, wood fiber, or products for distribution that originate from illegal logging.	
Xerox (office products, worldwide, 2000)	Paper products	Xerox paper suppliers worldwide must have a process to exclude illegally-harvested wood materials from papers sold to Xerox.	

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

	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 PEFC with full chain of custody in compliance with PEFC's "non-controversial" requirements.
	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.
	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.

Table 8. 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.

Trade Association	Legality commitments
In producing countries	
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 Sustainable Timber, AIMEX members commit to ban sales of illegally harvested timber from the Amazon. Although AIMEX does not have a code of conduct, it encourages members to commit to source legal wood; membership is suspended if a member is found guilty of trading illegal wood.
Cameroon – *Groupement Filière Bois du Cameroun* (GFBC) – Represents 18 organizations that are wood producers and exporters.	Through a code of conduct, members commit to respect the relevant legislation in Cameroon, including laws related to forest management, environmental laws, payment of taxes and social/labor legislation. GFBC works with other groups to build its members' capacity in areas of forest management, forest certification and legality.
Canada – Quebec Wood Export Bureau (Q-WEB) – Represents more than 200 wood products manufacturers and exporters in Quebec.	Through a code of conduct, members commit to source wood from companies that know their suppliers and can demonstrate that those suppliers are legal; it also requires that suppliers provide evidence that the operations are legal. Q-WEB encourages members to require their suppliers to abide by the Q-WEB sourcing policy, which requires suppliers (a) to supply wood from areas where logging is authorized and from operations that are legal; (b) to supply wood purchased in a legal way; (d) to pay related pay tax and fees; and (e) to provide evidence of the 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 Legal Wood in Colombia (signed in 2009), FEDEMADERAS committed to develop a code of conduct that would require members to avoid sourcing and trading illegal products. The code of conduct would also specify penalties for non-adherence.
Gabon – Forest Industries Union (UFIGA) – Represents 8 business groups that produce and export wood products.	Through a code of conduct, members commit to ensure traceability of the supply chain and the legal and sustainable forest management of concessions. Implementation of the code of conduct is monitored by interviewing forest managers, auditors, and the Ministry of Forestry.
In buying and producing countries	
China – China Timber and Wood Product Distribution Association (CTWPDA) –represents 1,577 members, mostly manufacturers.	In 2010 CTWPDA established a special committee to, among other things, help set up a responsible procurement system for timber imports.
United States – National Wood Flooring Association (NWFA) – represents all segments of the hardwood flooring industry.	A voluntary program for members, the NWFA Responsible Procurement Program is designed to help companies transition over time to products certified against the FSC standard and provide options for exercising due care under the U.S. Lacey Act. The program is open to NWFA members, but focused on primary and secondary hardwood flooring manufacturers. Companies can participate in the programs at three levels with the highest level (Tier 3) reserved for companies that have achieved 50 percent more of 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 conduct and responsible procurement policy, members commit to purchase timber from legal sources and seek evidence of compliance from suppliers to ensure that the wood meets the legal requirements of the country of origin. Members are also required to establish a due diligence system (e.g., systematically assess risks of illegal wood) in preparation for the EU Timber Regulation. The UK TTF operates a Responsible Purchasing Policy management system, which helps companies assess legality and sustainability, improve sourcing practices, and to 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 and the Australian Illegal Logging Prohibition

In May 2008, the U.S. Congress amended the 100 year-old Lacey Act, which prohibits the transport and trade of illegally gathered wildlife or wildlife products, to include plants and plant products. In October 2010, the European Parliament approved the Illegal Timber Regulation, requiring those who place timber and timber products in the marketplace 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.

	U.S. Lacey Act	EU Timber Regulation	Australian Illegal Logging Prohibition Act 2012 and Regulation (in progress)*
Definition of legality	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 logged in violation of 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.
Requirements and applicability	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. Prohibition in effect since May 2008. Declaration requirements are being implemented in a phased-schedule.	Prohibits placing on the EU market timber harvested illegally under the rules of the country of origin, and products derived from such timber. It also requires economic operators which 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 in their part of the supply chains to keep records of their suppliers and customers to facilitate the traceability of products. The legislation will apply from March 3, 2013 onwards.	Law prohibits import or processing of wood logged in violation of laws in the country of origin. • Effective November 29, 2012: Applies to all importers of timber products and domestic processors of raw logs. • Effective November 30, 2014: Applies to importers of regulated timber products and domestic processors of raw logs. Regulation (in drafting) will require importers of regulated timber products and domestic processors of raw logs to exercise due diligence, which entails knowing details of the wood products (i.e., type of product, common and scientific name of product, country or region of origin, name and address of supplier, volume).
Product scope	All plants and plant-derived products.	Specifies a number of products that are covered under the EUTR.*	Regulated timber products are listed in Schedule 1 of the regulation. Applies to both Australian-grown and imported timber.
Compliance	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).	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.	Importers of regulated timber products and domestic processors of raw logs must assess risks and take measures to reduce risk of trading illegally sourced wood products. Due diligence requirements vary by product.

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

	U.S. Lacey Act	EU Timber Regulation	Australian Illegal Logging Prohibition Act 2012 and Regulation (in progress)*
Penalties	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.	Effective November 29, 2012: For indictment, need proof of importer or processor knowingly, intentionally, or recklessly violating the prohibition. Penalties: Up to 5 years in jail, fines of up to $85,000 AUD for individuals and $425,000 AUD for companies, forfeiture of goods. Effective November 30, 2014: proof of negligence is needed to be deemed in violation of prohibition law. Penalties: Up to 5 years in jail, fines of up to $85,000 AUD for individuals and $425,000 AUD for companies, forfeiture of goods. Effective November 30, 2014: Penalty for violating due diligence requirements will be a fine of up $51,000 AUD for individuals and $255,000 AUD for companies.

* 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.

Sources: EC Timber Regulation website; EIA, 2009; European Forest Institute, 2012; Official Journal of the European Union, 2010; CPET, 201; U.S. Department of Justice, 2012; Mitchell, S. 2013; EU FLEGT Facility. 2012.

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 9).

Table 9. Voluntary Legality Verification Systems

Organization	System/year	Overview	
Commercial Legality Verification Systems			
Bureau Veritas	*Origine et Légalité des Bois* (Timber Origin and Legality, or OLB in French) (Updated 2005, originally developed in 2004).	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.	
CertiSource	Legality Assessment for Verified Legal Timber (Updated 2010, originally developed in 2007).	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.	

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. More detailed overviews and comparisons of legality verification systems have been done by the Central Point of Expertise on Timber Procurement (CPET) and others.

Scope								Implementation		Contact
Geographic	Supply chain	Thematic						Development	Auditing	
		Legal right to harvest[1]	Compliance with laws[2]	Taxes/fees[3]	Tenure/use rights of resources[4]	Trade regulation[5]	Other criteria[6]			
Originally developed to demonstrate legality in tropical regions. Can be applied at the global level.	Origin of timber; CoC	X	X	X	X	X	X	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.	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.	Bureau Veritas Tel: +33-1-14-97-0060
Indonesia	Origin of timber; CoC	X	X	X	X	X	X	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.	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. Finally, certificates information is accessible online and the public to check the certification status of the operations.	Certisource e-mail: http://www.certisource.co.uk/contact-us/ Tel: +62 881 463 8608

Table 9. Voluntary Legality Verification Systems (cont.)

Organization	System/year	Overview	
Keurhout	Keurhout Legal System (Validation of the Legal Origin of Timber; 2004, updated 2009).	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.	

Scope								Implementation		Contact
Geographic	Supply chain	Thematic						Development	Auditing	
		Legal right to harvest[1]	Compliance with laws[2]	Taxes/fees[3]	Tenure/use rights of resources[4]	Trade regulation[5]	Other criteria[6]			
Applicable globally	Origin of timber	X	X	X	X	X	X	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.	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.	Kerhout Tel: +31 24-6454796 E-mail: info@keurhout.nl

Table 9. Voluntary Legality Verification Systems (cont.)

Organization	System/year	Overview	
Rainforest Alliance	SmartWood Verified Legal Origin (VLO) (Updated 2010, first developed in 2007).	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.	
	SmartWood Verified Legal Compliance (VLC) (updated 2010, first developed in 2007).	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.	
Scientific Certification Systems (SCS)	Legal Harvest ™ Verification (LHV) (2010)	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.	
The Soil Association's Woodmark	Verification of origin and legal tenure (2010).	Verifies the legal origin of wood and the rights to harvest it. The system is designed to work, wherever possible, within tan FSC framework, to support companies in achieving FSC certification.	

	Scope								Implementation		Contact
	Geographic	Supply chain	Thematic						Development	Auditing	
			Legal right to harvest[1]	Compliance with laws[2]	Taxes/fees[3]	Tenure/use rights of resources[4]	Trade regulation[5]	Other criteria[6]			
	Generic/Global standard. National standards have been developed for China, Indonesia, Philippines, Brazil, Sabah (Malaysia), Laos, India and the Democratic Republic of Congo.	Origin of timber	X	•	X	X	X	X	Developed by Rainforest Alliance based on existing references. It involves stakeholder review and consultation when necessary.	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.	Rainforest Alliance Tel: +1-212-677-1900 E-mail: info@ra.org
	Generic/Global standard. National standard has been developed for Sabah (Malaysia).	Origin of timber	X	X	X	X	X	X			
	The Program is applicable globally. SCS has auditors in the Americas, Asia, Europe and Oceania.	Origin of timber and CoC	X	X	X	X	X	X	Generic standards developed by SCS 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.	Document review, field audits, and interviews by SCS auditors. Annual audits are required to maintain the participation in the LHV program.	Scientific Certification Systems Tel: +1-510-452-8000
	Globally applicable.	Origin of timber	X	*		X			Developed by the Soil Association and EcoSylva Ltd, based on the FSC definition of legal wood; supports FSC certification.	Evaluation includes stakeholder consultation to cross-check the standard, add credibility and be transparent.	Soil Association wm@soilassociation.org Tel +44 117 914 2435

Table 9. Voluntary Legality Verification Systems (cont.)

Organization	System/year	Overview	
Association of South Eastern Asian Nations (ASEAN)	Criteria and Indicators for Legality of Timber (2009).	The Criteria and Indicators (C&I) are intended to serve as a regional reference framework for the verification of timber legality in member states.	
WWF's Global Forest & Trade Network	Common Legality Framework	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.	
WWF Russia, WWF Denmark with assistance from NepCon	Checklist for verifying the legal origin of Russian timber (2007).	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.	
Timber Trade Action Plan (TTAP).	Legality checklists	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.	

Sources: CPET, 2011; Donovan, 2010; Hinrichs, 2009; CertiSource, 2010; CertiSource, 2011; CertiSource website; Keurhout Management Authority, 2009; Keurhout Management Authority, 2010; Proforest, 2011. Rainforest Alliance website; Rainforest Alliance, 2010 A; Rainforest Alliance, 2010 B; WWF Russia, 2007; SCS 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.

[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.
*partially covered

Scope									Implementation		Contact
Geographic	Supply chain	Thematic							Development	Auditing	
		Legal right to harvest[1]	Compliance with laws[2]	Taxes/fees[3]	Tenure/use rights of resources[4]	Trade regulation[5]	Other criteria[6]				
Member states: Brunei, Cambodia, Lao, Indonesia, Malaysia, Myanmar, Philippines, Thailand, Singapore and Viet Nam.	Origin of timber	X	X	X			X		Through an intergovernmental process	Not defined.	ASEAN Secretariat Tel : +6221 7262991 E-mail: dian@asean.org
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.	Origin of timber, processing and trade	X	X	X	X				Developed by the Global Forest & Trade Network.	Not applicable	Global Forest & Trade Network (GFTN) WWF International, Gland, Switzerland Tel: +44 1394 420 518 (http://sourcing.gftn.panda.org/index.php?id=80)
Russia	Origin of timber and processed products	X	X						It is based on the *Guidelines of timber origin legality verification* developed by WWF Russia. The checklist was field tested by NepCon.	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.	WWF Denmark Tel: +45 35 36 36 35 E-mail: wwf@wwf.dk
Forest and factory legality checklists are available for Brazil, Cameroon, China, Congo-Brazzaville, Gabon, Guyana, Indonesia, Malaysia.	Origin of timber, CoC, and processing	X	X	X	X				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.	Checklists are used by TTAP staff to assess gaps in the legality of the supply chains and implement supply chain control systems.	The Forest Trust Tel: +41(0) 22-367-9441 E-mail: info@tft-forests.org http://www.tft-forests.org/ttap/

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).

Box 8. The European Union Forest Law Enforcement, Governance and Trade (FLEGT) Plan 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 bilateral collaboration frameworks (Voluntary Partnership Agreements, 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 the 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 April 2013, six countries have signed and/or ratified a VPA agreement and are developing the LAS, six countries are in the negotiation phase and 13 countries are in the pre-negotiation phase.

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

Country	Phase	Notes		
		Definition of Legality	Legality Assurance System Applicability (LAS)	Implementation
Cameroon	VPA ratified; System under development	Definition covers fiscal and administrative requirements; harvesting, forest management and processing operations; transportation; social and environmental requirements.	LAS applies to all timber and timber products produced, acquired and/or traded in Cameroon, including imported timber.	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 LAS requirements.
Central Africa Republic	VPA signed; System under development	Definition covers 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.	LAS applies to all timber and timber products derived from industrial forest operations (concessions, plantations); artisanal and community produced products might be covered in the future. A simplified LAS approach for plantations will be developed during the full implementation phase.	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 LAS requirements.
Ghana	VPA ratified; System under development	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.	LAS applies to all timber and timber products produced, processed, traded and exported from Ghana. LAS 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 is a wood tracking system to monitor and control timber throughout the supply chain.	FLEGT Licensing System was expected to be operational at the end of 2010.
Indonesia	VPA agreed	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.	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.	LAS under the VPA builds on the Indonesian Timber Legality Assurance System (Indonesian TLAS) established in 2010. FLEGT licensing under the VPA was expected to begin March 2013.

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

Country	Phase	Notes		
		Definition of Legality	Legality Assurance System Applicability (LAS)	Implementation
Liberia	VPA signed	The definition of legality covers all aspects of timber production throughout the supply chain. 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.	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.	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.
Republic of Congo (Brazzaville)	VPA ratified; System under development	Definition 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.	LAS applies to all timber and timber-based products that are produced, processed, and traded (including imports, exports, and timber in transit) in the country. 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.	FLEGT Licensing System expected to be operational by mid 2011.

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

Countries in information/pre-negotiation phase: Bolivia, Cambodia, Colombia, Côte d'Ivoire, Ecuador, Guatemala, Laos, Myanmar/Burma, Papua New Guinea, Perú, 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 non-governmental 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).**

SELECTED RESOURCES: LEGALITY

See "Guide to the Guides" chapter for more information on each resource.

Procurement requirements

Belgian Government Procurement Policy

CEPI Legal Logging Code of Conduct

Danish Government Procurement Policy for Tropical Forests (under review)

Dutch Government Procurement Criteria for Timber

European Community Green Purchasing Policy

FLEGT & VPAs

French Policy on Public Procurement of Timber and Wood Products

FSC Controlled-Wood Standard

German Government Procurement Policy

Japanese Government Procurement Policy

Mexican Federal Government Procurement Policy

New Zealand Timber and Wood Products Procurement Policy

PEFC Due Diligence System

Swiss Declaration Duty for Timber

Resources to assess requirements

Buying Sustainable Timber – A Guide for Public Purchasers in Europe

CPET

Consumer Goods Forum Guidelines for Pulp, Paper and Packaging

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

Environmental Paper Network

EPAT®

FCAG

Forest Governance Learning Group

Forest Legality Alliance

FPAC: A Buyers' Guide to Canada's Sustainable Forest Products (the report)

GFTN

Global Forest Registry

Global Timber Tracking Network

Good Wood. Good Business Guide

GPN

Greenpeace's Responsible Procurement Guide

High Conservation Value Resource Network

Illegal-logging.info

NEPCon LegalSource Programme

New Zealand Government Paper Buyers Guidance

PREPS

Project LEAF

Sedex

SmartSource

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

String

Sustainable Forest Finance Toolkit

Timber Retail Coalition

Timber Tracking Technologies Review

Timber Trade Action Plan

The Forest Trust

WWF Guide to Buying Paper

WWF Paper Scorecard

WWF Tissue Scoring

4. Have forests been sustainably managed?

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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.

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 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:

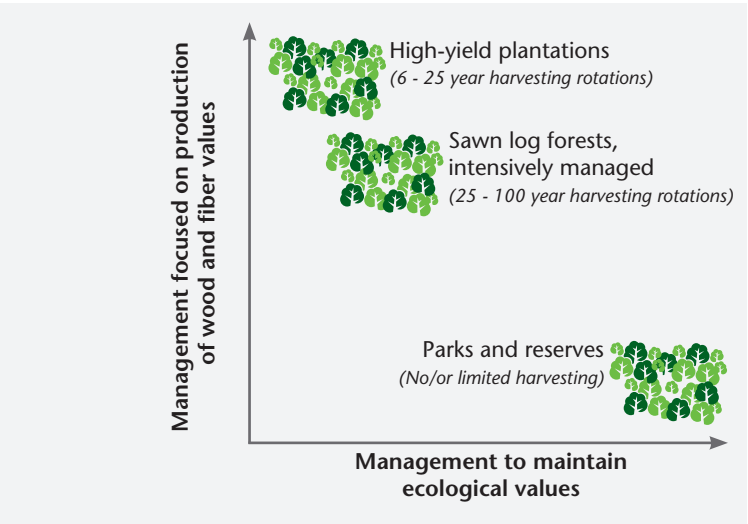
- **Clearcutting** – SFM standards, including CSA, FSC, PEFC and SFI, recognize clearcutting as consistent with SFM in the right forest ecosystems. Clearcutting can accomplish the following:
  - It mimics some of the natural disturbance dynamics of the forests (e.g., fire, wind blow downs, insects).
  - 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 10). All types of forests can be sustainably managed, from primary or natural forests to intensively managed forest plantations (Box 9).

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).

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.

Table 10. How major international certification schemes address selected aspects of SFM

	Forest Stewardship Council (FSC)	Programme for the Endorsement of Forest Certification (PEFC)
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. Standard-setting processes at the national and sub-national level are conducted in a transparent way and involve all interested parties.	Criteria 1 and 6 cover various social concerns. Criteria 1 requires that forest management activities aim to maintain or increase cultural and social values among others. Criteria 6 (maintenance of socio-economic functions and conditions) covers the following among others: stimulation of rural development, property and ownership rights and land tenure, recognition of customary and traditional rights, access to the public for recreational purposes, recognition of areas with historical, cultural or spiritual significance, FPIC, workers' health, labor, and community consultation.
Unique forest 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 management shall aim to maintain, conserve and enhance biodiversity on ecosystems, species and genetic levels and, where appropriate, diversity at the landscape level (Criterion 4). Forest management shall identify, protect and/or conserve ecologically important areas containing significant concentrations of: • Protected, rare, sensitive or representative forest ecosystems such as riparian areas and wetland biotopes • Areas containing endemic species and habitats of threatened species • Endangered or protected genetic in situ resources; and take into account • globally, regionally and nationally significant large landscape areas with natural distribution and abundance of naturally occurring species. Criterion 5 require special care of forest areas that are on sensitive soils, erosion-prone areas, or forests that protect water resources. Criterion 6 requires special care for sites with recognized historical, cultural, or spiritual significance for the local 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 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.	Various elements of Criterion 5 are relevant to forest plantations. Certified plantations should meet a set of requirements concerning, among others, the following aspects: (i) time of establishment; (ii) impacts on unique forest values; and, (iii) impacts on soil and water.
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 pesticides and herbicides should be minimized, used in controlled manner, and take into account appropriate silvicultural alternatives and other biological means. Prohibits the use of pesticides type 1A and 1B, as defined by the World Health Organization. Chlorinated hydrocarbons and other toxic pesticides whose derivatives remain biologically active and accumulate in the food chain are also prohibited unless there are no viable alternatives. (PEFC, 2010).

Table 10. How major international certification schemes address selected aspects of SFM (cont.)

	Forest Stewardship Council (FSC)	Programme for the Endorsement of Forest Certification Schemes (PEFC)
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 plans – including clearcutting – should be based on legislation as well as existing land-use plans and adequately cover forest resources. Regeneration, tending, and harvesting should be carried out in time and manner that do not reduce the productive capacity of the site.
GMOs	Use of GMOs is prohibited; addressed in Principle 6 of FSC.	Use of GMOs is prohibited.
Exotic species	Addressed in Principle 6. Exotic species are permitted, but not promoted. Careful monitoring is required to avoid adverse environmental impacts.	Criterion 3 addresses exotic species. Native species and local provenances should be preferred in reforestation and afforestation. Introduced species can be used after potential impacts on the ecosystem and the genetic integrity of native species is evaluated and if negative impacts can be avoided or minimized.

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.

Box 9. Plantations

The increasing demand for wood and paper-based products will most 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 the 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. Run-off, overspray and groundwater contamination can be issues if these practices are not carried out correctly.
Wood harvested from forest plantations is often very uniform in terms of species and size, thereby improving processing and manufacturing efficiency.	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.
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.	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.
Greater economic value of plantations can keep forest land in forest use, where a natural forest may not be economically sustainable.	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.

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.

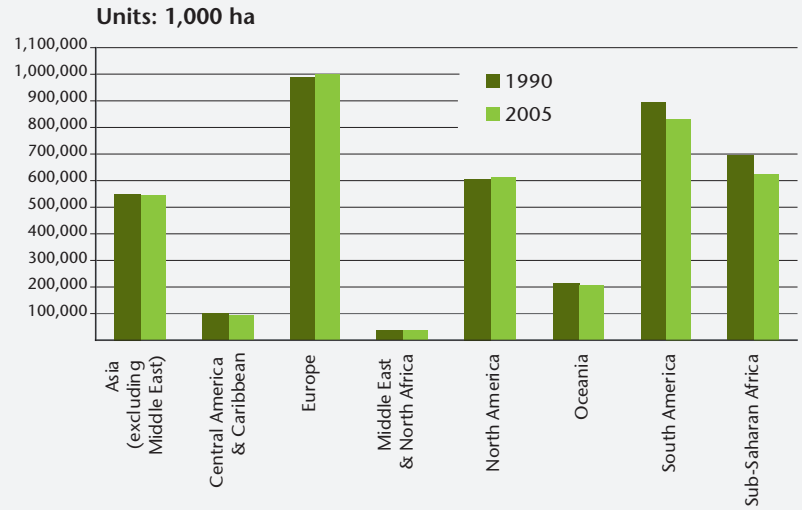
Forest conversion happens when a natural forest is transformed into a highly cultivated forest, often with introduced tree species and control of the hydrological and nutrient regime, with a focus on wood production.

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 11 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, a standing forest or a forest plantation can be greater to society than the value of a converted forest area.

Table 11. Factors underlying forest land-use change and conversion in the tropics

Factors	Underlying causes
Economic	Market growth and commercialization: rapid market growth of the export-oriented sector, increased market accessibility, growth of industries, lucrative foreign exchange earnings, growth of demand for goods and services. Economic structures: large individual speculative gains, poverty and related factors, economic downturn, crisis conditions. Urbanization and industrialization: growth of urban markets, rapid build-up of new forest-based (or related) industries. Special economic parameters: comparative advantages due to cheap, abundant production, factors in resource extraction and use, as well as price.
Policy and institutional	Policies: taxation, credits, subsidies, licenses, concessions, economic development, population (migration), and land ownership policies. Institutional factors: corruption, poor performance, mismanagement, etc. Property rights regime: insecure ownership, rush to establish property rights, titling, consolidation, open access conditions, etc.
Technological	Agro-technological changes, technological applications in the wood sector, and other production factors in agriculture.
Social and cultural	Social unrest and disorder (war, civil war, etc.), health and economic conditions, government policy failures. Cultural factors include concern (or lack of) towards forest protection and sustainable use.
Demographic	Population growth and increasing demand for products, food, space, etc.
Other	Soil quality, water availability, slope, topography, 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.

SELECTED RESOURCES: SFM, LAND-USE CHANGE AND FOREST CONVERSION

See "Guide to the Guides" chapter for more information on each resource.

Procurement requirements

Belgian Federal Government Procurement Policy

Danish Government Procurement Policy for Tropical Forests (under review)

Dutch Government Procurement Criteria for Timber

European Community Green Purchasing Policy

FLEGT & VPAs
French Policy on Public Procurement of Timber and Wood Products

German Government Procurement Policy

Green Globes

Japanese Government Procurement Policy

LEED

Mexican Federal Government Procurement Policy

New Zealand Timber and Wood Products Procurement Policy

Public Procurement Policies for Forest Products and their Impacts

SFI Procurement Objective

UK Timber Trade Federation Responsible Purchasing Policy

Resources to assess requirements

Buying Sustainable Timber – A Guide for Public Purchasers in Europe

CPET

Consumer Goods Forum Guidelines for Pulp, Paper and Packaging

Environmental Paper Network

EPAT®

FCAG

FICAT

Carbon Disclosure Project

Forest Governance Learning Group

FPAC: A Buyers' Guide to Canada's Sustainable Forest Products (the report)

Global Forest Registry

Global Timber Tracking Network Good Wood. Good Business Guide

GPN

Greenpeace's Responsible Procurement Guide

High Conservation Value Resource Network

Illegal-logging.info

New Zealand Government Paper Buyers guidance

Paper Profile

PREPS

SmartSource

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

Sustainable Forest Finance Toolkit

Timber Tracking Technologies Review

Timber Retail Coalition

The Forest Trust

Wood for Good

WWF GFTN

WWF Guide to Buying Paper

WWF Paper Scorecard

WWF Tissue Scoring

5. Have unique forest values been protected?

5. Have unique forest values been protected?

For the purposes of this guide, the term "unique forest values" is used as a generic term for areas with unique qualities within the forest landscape (Box 10). They typically need special attention and treatment. Depending on their features and significance, these places 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.

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 unique forest values 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 special to warrant protection.
- Stakeholders may differ in their opinion of what qualifies as a unique forest value.

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 special and an official government-led initiative is underway to protect it. In this case, voluntary protection efforts are needed to maintain the special 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 special place. 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 12). 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 forests with unique values, including:

- **Precautionary management** – ensuring that special 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 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 definition of unique forest values is a major concern, and stakeholder support for each definition varies.

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.**

Box 10. What constitutes a unique forest value?

There is no universally agreed definition of unique forest values. 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, among others.
  - 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 unique forest 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 of existing protection of forests with unique values?

Governmental action to identify unique forest 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; UNEP/WCMC's Tree Conservation Information Service (www.unep-wcmc.org/trees/trade/40_species_in_trade.htm); Gordon et al., 2005.

Table 12. Definitions related to unique forest values

A variety of definitions for unique forest values has been proposed by different stakeholders in different places.

Developed by	Definition	Characteristics	
Alliance for Zero Extinction (AZE)	AZE sites (AZE, 2007)	Focus on sites in most urgent need of conservation to prevent species extinction. 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.	
American Tree Farm System (ATFS)	Special sites (AFF, 2010)	Sites of special interest because of their recreational, historical, biological, archaeological and geological features.	
Birdlife International, Conservation International, and Plantlife International	Key biodiversity areas (Eken et al., 2004)	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.	
Conservation International	Biodiversity hotspots (Conservation International, 2007)	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.	
Conservation International	Major tropical wilderness areas (Mittermeier et al., 2001)	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.	
Finnish Forest Certification System	Key biotopes (Mikkelä et al., 2001; FFCS, 1999)	• 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.	
ForestEthics, Natural Resources Defense Council, Rainforest Action Network, Greenpeace	Endangered forests (Forest Ethics et al., 2006)	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	
FSC	High conservation value forests (HCVF) (FSC, 1996)	• 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	
Greenpeace	High carbon stock (HCS) forest (Greenpeace, 2013, 2014)	HCS forests in Indonesia are defined by vegetation cover according to analysis of satellite images and field plots. HCS include 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.	
Greenpeace/WRI	Intact Forest Landscapes (IFLs) (Greenpeace, 2006)	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.	
Natura Networking Programme	Natura 2000 Sites (Natura Networking Programme, 2007; European Commission, 2003)	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)	
SFI	Forests with exceptional conservation value (FECV) (SFB, 2004)	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 outlined	Notes
	Management for conservation.	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.
	To the extent practicable, management practices must protect these sites.	Special sites can be identified directly on the ground by landowner and an ATFS inspection forester.
	Conservation of the sites to reduce global biodiversity loss.	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*
	Conservation can be carried out through a variety of approaches including the establishment of protected areas and the implementation of economic alternatives.	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.*
	Conservation can be carried out through large-scale conservation set-asides.	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 are to be left in their natural state and only subject to gentle management operations.	Guidelines for assessing and protecting key biotopes have been produced (Korpela, 2004); key biotopes have been identified by different stakeholders.
	No intensive industrial activities or extraction. "No-go" zones. Endangered forests are defined as a subset of HCVFs due to their outstanding ecological values.	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).*
	Management to maintain or enhance features of these forests.	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.
	Conservation of HCS forests; non-HCS forests potentially suitable for oil palm development.	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.
	Management for conservation of biological diversity.	Maps of Intact Forest Landscapes for northern forests are available *(globalforestwatch.org)*, as well as draft maps for other forest biomes *(intactforests.org).*
	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.	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*
	Managed in a way that protects their unique qualities and promotes conservation of biodiversity.	FECVs are identified with assistance from information provided by NatureServe in the US and Canada. Outside North America, these areas can be identified based on identified biodiversity hotspots and other important areas in the tropics.

Table 12. Definitions related to unique forest values

A variety of definitions for unique forest values has been proposed by different stakeholders in different places.

Developed by	Definition	Characteristics	
Wildlife Conservation Society	Last of the Wild (Sanderson et al., 2002)	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.	
World Bank	Critical forests (World Bank, 2002B)	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.	
WRI	Frontier forests (Bryant et al., 1997)	Relatively undisturbed large tracts of forests are capable of sustaining viable populations of all native species.	
WWF	Global 200 (WWF, 2007)	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 outlined	Notes
	These areas are a guide to opportunities for effective conservation.	569 places have been identified. Maps are available at *www.ciesin.columbia.edu/wild_areas/*
	Definition is for internal purposes. The Bank would not finance projects that would involve significant conversion or degradation of critical forest areas.	Critical forests are identified by the Bank or an authoritative source, determined by the regional environment sector unit.
	No management preferences outlined.	Maps available at *www.globalforestwatch.org*
	Primary objective is to promote their conservation.	Maps available at *www.worldwildlife.org.* WWF also uses the HCVF concept to define unique forest values at a more local scale.

SELECTED RESOURCES: UNIQUE FOREST VALUES

See "Guide to the Guides" chapter for more information on each resource.

Procurement requirements

Danish Government Procurement Policy for Tropical Forests (under review)

Dutch Government Procurement Criteria for Timber

FSC Controlled-Wood Standard

PEFC Due Diligence System

SFI Procurement Objective

UK Timber Trade Federation Responsible Purchasing Policy

Resources to assess requirements

CPET

Environmental Paper Network

EPAT®

FCAG

FPAC: A Buyers' Guide to Canada's Sustainable Forest Products (the report)

Global Forest Registry

Good Wood. Good Business guide

Greenpeace's Responsible Procurement Guide

High Conservation Value Resource Network

Illegal-logging.info

PREPS

SmartSource

Sustainable Forest Finance Toolkit

The Forest Trust

WWF GFTN

WWF Guide to Buying Paper

WWF Paper Scorecard

WWF Tissue Scoring

6. Have climate issues been addressed?

6. Have climate issues been addressed?

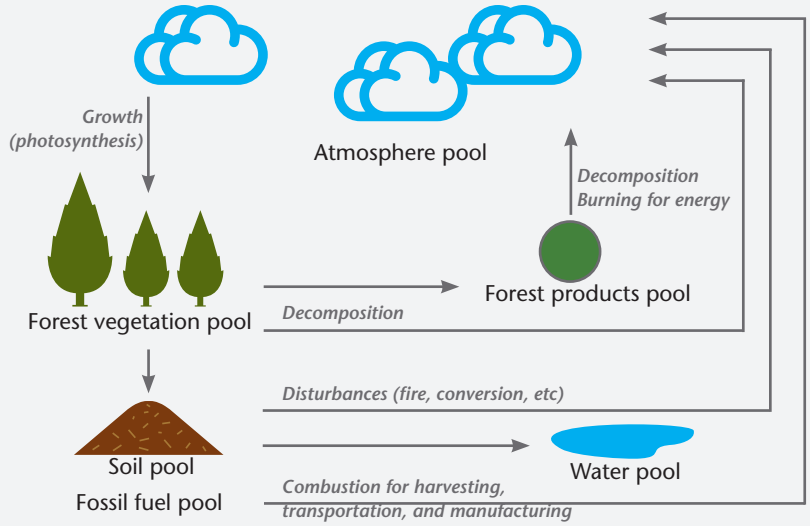
Climate and forests are intrinsically linked. As a result of climate change, forests are stressed by higher mean annual temperatures, altered precipitation patterns, and more frequent and extreme weather events. At the same time, forests mitigate climate change through uptake of carbon, and the loss 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).

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



The burning of forest products substitutes for the use of fossil fuels.

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 et al. 2009).

Forest restoration

Establishing new forests on suitable land and replanting on formerly forested areas can store additional carbon (Box 12). 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).

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). 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 13).

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).**

Table 13. 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.com/
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.gov.au/reducing-carbon/carbon-farming-initiative
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.permanentforests.com/
Voluntary carbon standards			
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.org/
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/

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).

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).

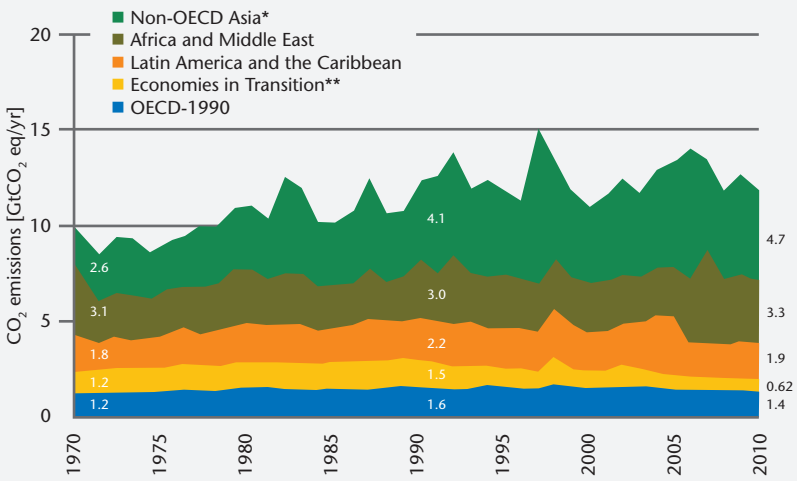
CONTRIBUTIONS TO CLIMATE CHANGE

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).

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.

Figure 9. Carbon dioxide emissions from forest and peat fires and decay between 1970 and 2010 (adapted from IPCC, 2014).



* **Non-OECD Asia** include all Asian countries except Japan and Korea.
** **Economies in Transition** include Croatia, Cyprus, Czech Republic, Estonia, Latvia, Lithuania, Malta, Poland, Russian Federation, Slovakia, Slovenia, Kyrgyzstan, Tajikistan, Armenia, Georgia, Moldova (Republic of), Ukraine, Uzbekistan, Albania, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Hungary, Kazakhstan, Macedonia, Montenegro, Romania, Serbia, Serbia and Montenegro, and Turkmenistan.

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

- **Logging operations** – Machinery and equipment 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.

SELECTED RESOURCES: CLIMATE CHANGE

See “Guide to the Guides” chapter for more information on each resource.

Resources to assess requirements

Dutch Government Procurement Criteria for Timber

Environmental Footprint Comparison Tool

Environmental Paper Network

EPAT®

FICAT

Carbon Disclosure Project

Forest Governance Learning Group

FPAC: A Buyers’ Guide to Canada’s Sustainable Forest Products (the report)

Illegal-logging.info

Paper Profile

PREPS

Project LEAF

Sedex

Sustainable Forest Finance Toolkit

Timber Retail Coalition

The Forest Trust

Two Sides

Wood for Good

WWF GFTN

WWF Guide to Buying Paper

WWF Paper Scorecard

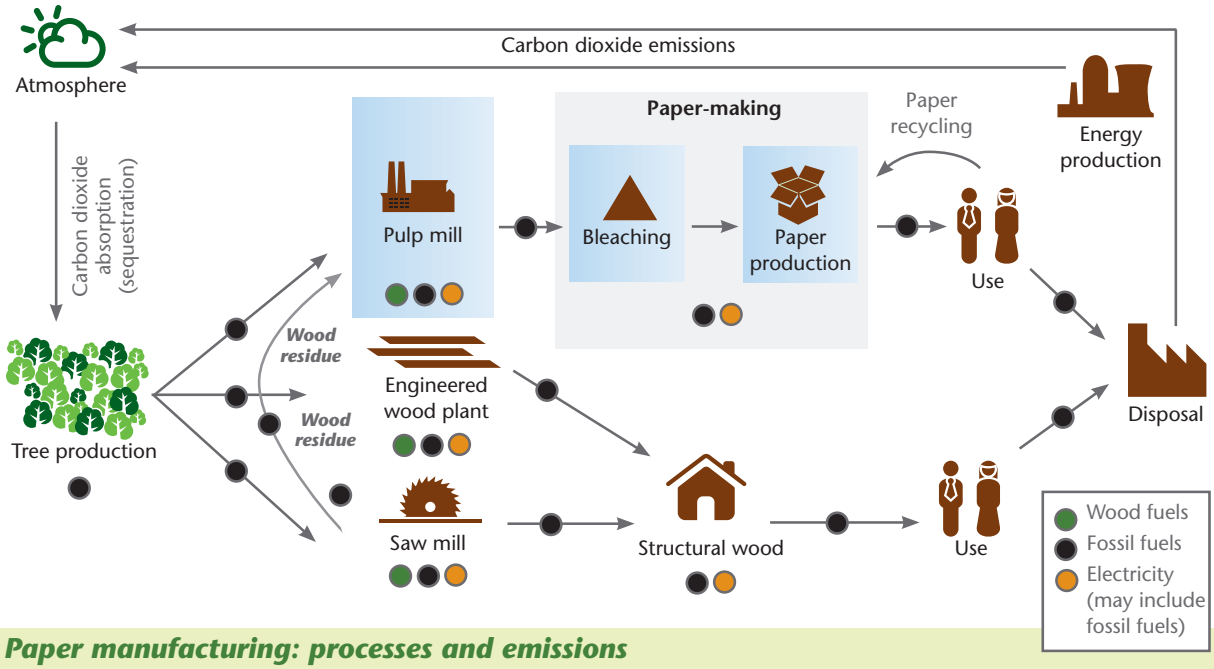
WWF Tissue Score

7. Have appropriate environmental controls been applied?

7. 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.
- The 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:

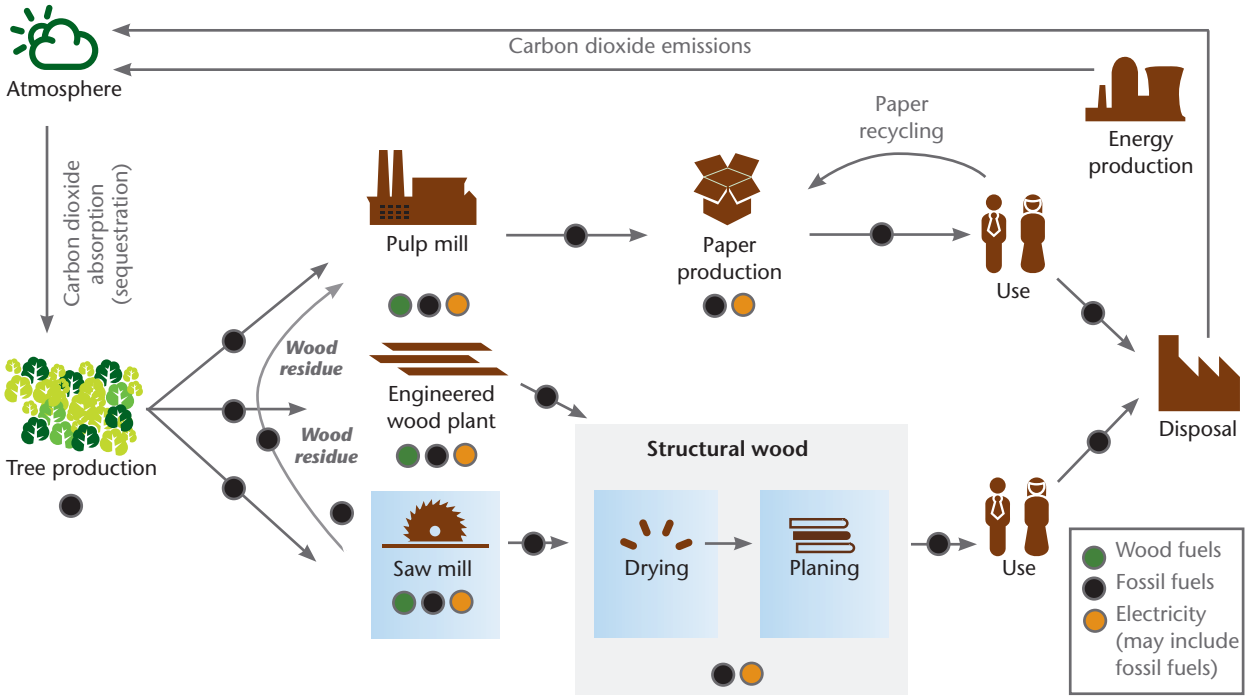
- Re-pulping: separating fibers from other substances (i.e., dirt, plastic, wax in specialty paper) and from each other. Sulfur, formaldehyde, naphthalene and sodium compounds are used to facilitate the process.
- De-inking: removing the ink from the paper and from the pulp mix by washing, flotation, 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.

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.

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

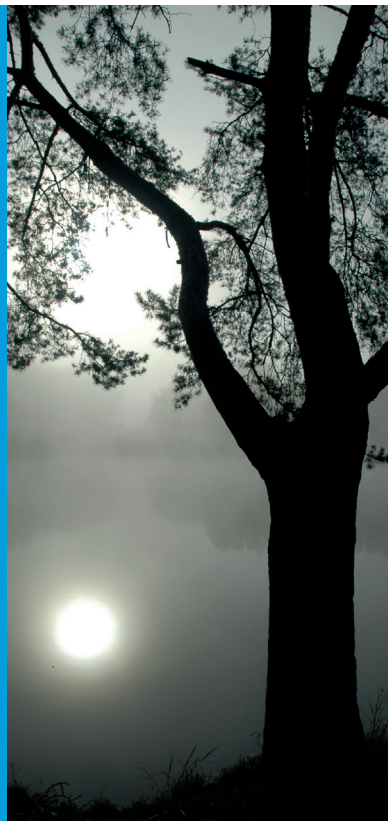
More information on pollutants commonly associated with manufacturing of wood and paper-based products can be found in Box 15.

Bleaching can be a potentially major source of pollution (Box 16). 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.

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.**



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 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 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 process 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 an indicator of continued technological improvement. However, AOX from ECF-bleached pulp do not contain highly chlorinated compounds.

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 (www.marketsinitiative.org) (5/09/07).

Renewable eucalyptus plantations grown in Brazil for the leading global producer of bleached eucalyptus pulp

Traditional bleach

SELECTED RESOURCES: ENVIRONMENTAL CONTROLS

See "Guide to the Guides" chapter for more information on each resource.

Procurement requirements

Dutch Government Procurement Criteria for Timber

European Community Green Purchasing Policy

Green Globes

Japanese Government Procurement Policy

LEED

Mexican Federal Government Procurement Policy

SFI Procurement Objective

Resources to assess requirements

Environmental Footprint Comparison Tool

Environmental Paper Network

EPAT®

FPAC: A Buyers' Guide to Canada's Sustainable Forest Products (the report)

GPN

New Zealand Government Paper Buyers' guidance

Paper Profile

Sustainable Forest Finance Toolkit

Two Sides

Wood for Good

WWF GFTN

WWF Guide to Buying Paper

WWF Paper Scorecard

WWF Tissue Scoring

8. Have fresh and recycled fibers been used appropriately?

8. 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.

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.

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. 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 (NCASI 2014).

Box 17. Fibers: terms 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).

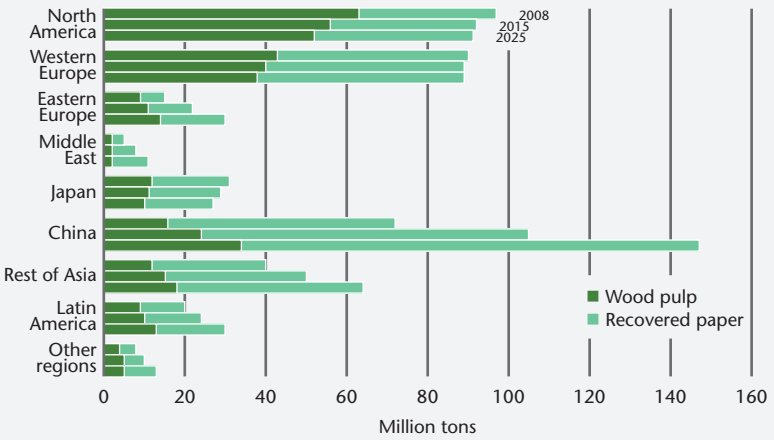
Recycled fiber: Fibers that have been recovered from pre- or post-consumer paper or paper-board products, sorted, re-pulped, and are available for use in paper products with recycled content.

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).

Sources: Adapted from NCASI 2014

Figure 12. Past and projected demand for fresh wood pulp and recovered fiber by region



Source: WBCSD 2012 Future from Fibre, data from Poyry.

Note: Trends in regional and country demand for recovered fiber, with demand rising for both fresh and recovered content in Asia, particularly China, and demand for fresh wood pulp decreasing in Europe and North America as demand for recovered fiber increases.

ENVIRONMENTAL FACTORS

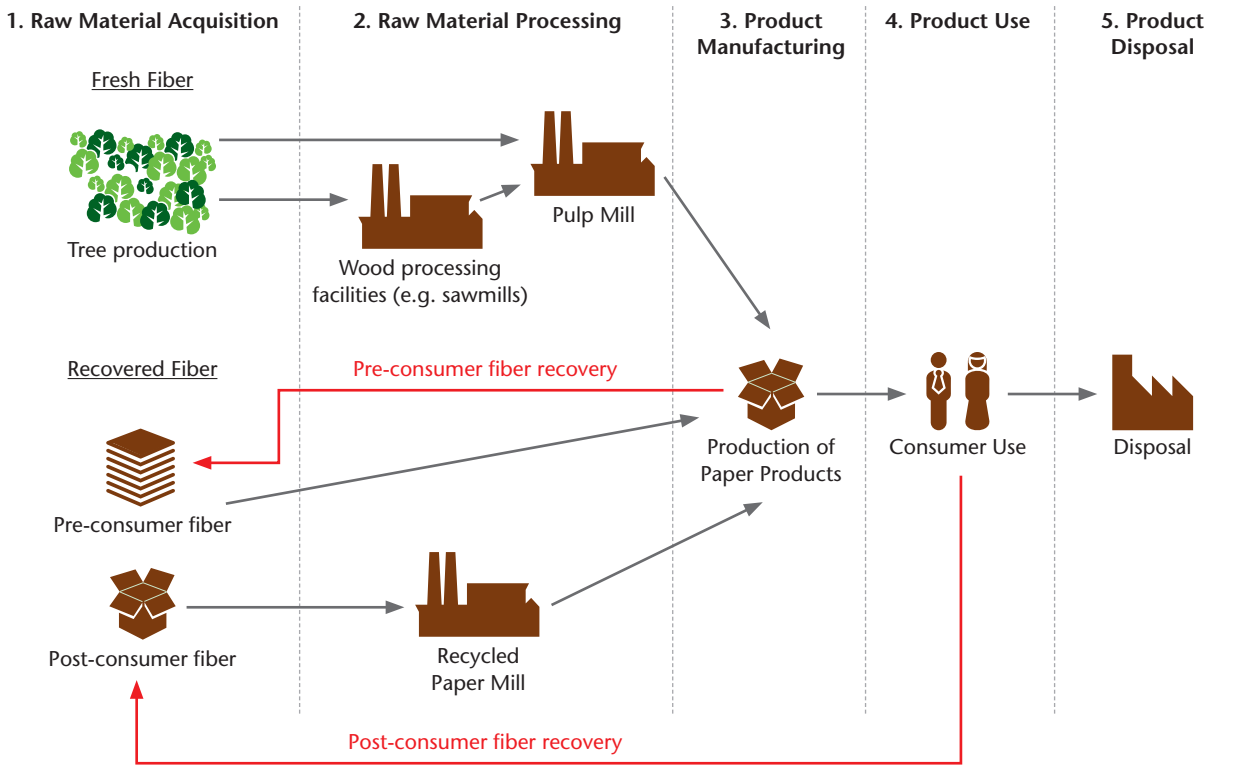
Using recycled fibers to produce paper reduces pressure on forest areas because less fresh content is needed per unit of paper produced. However, the recovery and recycling process is resource and energy intensive. The decision about whether to use recovered fibers and what percentage to use should be 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, sorting, 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 fibers are 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*
   Creating paper from both fresh fibers and recovered fibers creates air emissions, wastewater effluent, wastewater treatment residuals, and uses water and energy.

   Processing recovered fibers produces air emissions, wastewater effluent, and wastewater treatment residuals.

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, NCASI 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:

- The demand for wood fibers from unsustainable sources is reduced, as is the pressure on forests for fiber production and the risk of companies procuring fresh fiber from illegal sources or high-risk forest areas. Using by-products from annual agricultural crops to produce paper and paper products can reduce negative environmental impacts caused by field-burning or landfilling of crop residuals.
- 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:

1. Will the use of alternative fibers allow forests to be conserved because fiber can be sourced from faster-growing alternative crops?
2. 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.).
3. Is there a risk that existing forest land will be converted to agriculture to increase supply of alternative fibers?
4. 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 company may also set targets for increasing the relative proportion of recycled and fresh fiber content in its products. A procurement policy may also incorporate supportive measures for helping local governments to collect recycled fibers in sufficient amounts to meet demand.**

SELECTED RESOURCES: FRESH AND RECYCLED FIBER

See “Guide to the Guides” chapter for more information on each resource.

Procurement requirements

European Community Green Purchasing Policy

Green Globes

Japanese Government Procurement Policy

LEED

Mexican Federal Government Procurement Policy

Resources to assess requirements

Environmental Footprint Comparison Tool

Environmental Paper Network

EPAT®

FICAT

FPAC: A Buyers’ Guide to Canada’s Sustainable Forest Products (the report)

GPN

Greenpeace’s Responsible Procurement Guide

New Zealand Government Paper Buyers guidance

Paper Profile

PREPS

Sustainable Forest Finance Toolkit

The Forest Trust

Two Sides

wood for good

WWF GFTN

WWF Guide to Buying Paper

WWF Paper Scorecard

WWF Tissue Scoring

9. Have other resources been used appropriately?

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).

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 the 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.

Some pulp mills burn residual biomass, both to meet their own energy needs, and to sell surplus energy to the grid. However, most mills do not, 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.

Wood transportation vehicle in Germany

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:

- **Wood as a building material.**
- **Wooden furniture.**
- **Comparison between single-use diapers with absorbent gels, commercially laundered cloth diapers, and home-laundered cloth diapers.**
- **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 are thus limited by the boundaries of the assessment.**

SELECTED RESOURCES: SOURCE REDUCTION

See "Guide to the Guides" chapter for more information on each resource.

Procurement requirements

Green Globes	Japanese Government Procurement Policy	LEED

Resources to assess requirements

Environmental Paper Network	GPN	The Forest Trust
EPAT®	Paper Profile	WWF Guide to Buying Paper
FPAC: A Buyers' Guide to Canada's Sustainable Forest Products (the report)	Sedex	WWF Tissue Scoring

10. Have the needs of local communities or indigenous peoples been addressed?

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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 issues 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 issues involve a variety of topics. They are included in the concept of sustainable forest management (Brack, 2010). Table 14 lists 15 specific issues grouped in six categories. The issues highlighted in bold are elaborated in the text below.

Table 14. Social issues relevant to sustainable procurement of wood and paper-based products

Typology	Issue	Description
Rights of ownership and access	**Explicit respect for the rights of indigenous peoples**	Includes the recognition and support of the identity, culture, and rights of indigenous peoples. Legal land ownership can also be included in this category. Legal land ownership varies from country to country. Some countries recognize the legal land ownership by indigenous peoples under national law, some retain state ownership while allowing access and management by indigenous peoples, and others do not recognize any rights of indigenous peoples. (See "Recognition of the rights of indigenous peoples and local communities," below.)
	Rights of local communities	May or may not include indigenous peoples. Refers to the rights of forest communities to own and access forests. Communities may have access to and manage forests that they do not own. (See "Recognition of the rights of indigenous peoples and local communities," below.)
	Property, land tenure, access, and use rights	Refers to the definition and protection of property rights, and land tenure and use of the forests by communities, governments, and forest enterprises. This issue is linked to the two previous issues. It can be especially contentious in countries (developed and developing) where communities have historical claims to land ownership. (See "Property, land tenure and access and use rights," below.)
	Recognition of customary rights	Refers to indigenous peoples' rights to regulate their access to and management of forests based on their customary laws and institutions. Although international human rights laws recognize these rights, the extent to which they are recognized in national contexts varies. Where customary rights are recognized by law, they can be in conflict with the civil or common law.
Protection of workers' rights and conditions	**Health and safety**	Includes health and safety standards in various international conventions and national laws. (See "Protection of workers' rights and conditions of employment," below.)
	Other employment conditions	Includes levels of pay, minimum wages, security of employment, and access to training, medical care, housing, and welfare benefits. These aspects might not be covered by international conventions such as those of the International Labour Organization (ILO). (See "Protection of workers' rights and conditions of employment," below.)
Rights of communities	Needs of local population, sharing costs and benefits	Refers to the extent to which the needs of the local population, including sharing the costs and benefits from forestry activities, are taken into account in pursuing sustainable forestry management (SFM).
	Compensation	Commercial logging can have major negative impacts on livelihoods and quality of life in local communities. Companies can help compensate communities by providing employment, education and training, health care, and improved infrastructure, among other things.
Cultural, spiritual, and recreational issues	Maintenance of recreational and educational uses	Includes cultural, spiritual, and recreational uses of the forests.
	Protection of cultural and spiritual sites and values	Forests fulfill many cultural and spiritual roles for forest communities; particular sites are often of specific cultural and archaeological value.
Process issues: participation in decision-making and access to dispute resolution	**Participation**	Refers to the right of relevant stakeholders to participate in decision-making processes that affect the management of forests, or in dispute-resolution mechanisms. Relevant stakeholders may include local communities, indigenous peoples, workers and their unions, and, in some cases, interested civil society organizations and individuals. (See "Participation and access to information," below.)
	Access to information	Refers to two rights: the right to demand government-held information (and some private information), and the right to proactively receive information. Access to information is an enabling right to public participation. (See "Participation and access to information," below.)
	Dispute-resolution mechanisms	Access to fair and equitable mechanisms to resolve disputes among stakeholders, for instance, a dispute over access to the forest resources between the company and the local community.
Law enforcement	Law enforcement	Similar to governance. Failure to enforce the law can undermine other rights.
	Conflict timber	Occurs when revenue from timber sales or concessions is used to finance the purchase of weapons and fuel armed conflicts. (See "Conflict 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 15). 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), are examples of communities exercising their right to access, use, and benefit from the forests.

Table 15. Key international commitments and standards on social issues and forests

ISSUES	AGREEMENTS					
	Agenda 21	Forest Principles	The Intergovernmental Panel on Forests (IPF) and the Intergovernmental Forum on Forests (IFF) Proposals for Action	International Convention on Civil and Political Rights and International Covenant on Economic, Social and Cultural Rights	Convention on Biological Diversity	International Labour Organization, core conventions and Convention 169
	UN plan for sustainable development, from the Earth Summit	International, nonbinding, consensus on the management and conservation of forests, from the Earth Summit	International non-binding proposals developed through a UN process to address a variety of forest issues	International UN agreements to promote universal respect for, and observance of, human rights and freedoms	International convention to promote sustainable development focusing on biodiversity, started at the Earth Summit	Instruments that recognize, promote and protect indigenous and tribal peoples' rights
Ensure the participation of local communities and indigenous peoples and other major groups in the formulation, planning, and implementation of national forest policies.	✓	✓	✓		✓	
Recognize and support the cultural identity, culture, and rights of indigenous peoples and other forest-dependent people.	✓	✓	✓	✓	✓	✓
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.		✓			✓	✓
Formulate policies and laws to secure land tenure of indigenous peoples and local communities.	✓	✓	✓	✓		✓
Ensure that external trade policies take into account community rights.				✓		
Recognize and support community-based forest management.			✓		✓	
Develop regimes for protection, use, and maintenance of traditional knowledge and customary use.	✓				✓	✓
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.	✓			✓		✓
Involvement of unions and workers in all processes for forest planning.	✓					

Source: Adapted from Forest Peoples Programme, 2004.

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).

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.[6] 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, 2008). 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, Ghana's 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)[7] 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).

[6] 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).

[7] 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).

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, 2004). Timber linked to funding violent conflicts can enter supply chains without a designation of its point of origin.

ADDRESSING SOCIAL ISSUES

Some companies address social issues 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 issues in the forest sector. The Forests Dialogue (TFD), for example, has conducted several dialogues and produced documents relevant to social issues (Box 20).

Box 20. The Forests Dialogue

The Forests Dialogue (TFD) is an independent platform and process to build stakeholder alliances and jointly address forest management challenges. Hosted at the Yale University of Forestry and Environmental Studies, TFD is committed to the conservation and sustainable use of forests; engaging diverse groups of stakeholders from developed as well as developing countries. TFD supports and reinforces forest management efforts by creating leadership cadres on key issues through transparent, constructive, and collaborative dialogue. TFD 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 issues 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 issues 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 16). 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 16. 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 sector projects
Social and Biodiversity Impact Assessment Manual for REDD+ Projects: Part 2- Social Impact Assessment Toolbox	Climate, Community & Biodiversity Alliance (CCBA)	REDD+ projects
Database of Tools and Resources for Assessing Social Impact	Foundation Center	Private sector projects
Social Impact Assessment of Resource Projects	International Mining for Development Centre	Mining and energy sector projects
A Comprehensive Guide for Social Impact Assessment	UN Public Administration Network	Development projects
Good Practice Guide: Indigenous Peoples and Mining	International Council on Mining and Metals	Mining sector projects
Akwé: Kon. Voluntary Guidelines for the Conduct of Cultural, Environmental and Social Impact Assessments	Secretariat of the Convention on Biological Diversity	Development projects; impacts on sacred sites or areas traditionally used by indigenous peoples
Manual for Social Impact Assessment of Land-based Carbon Projects	Forest Trends, CCBA, Fauna and Flora International and Rainforest Alliance	Land-based carbon projects

Human Rights Impact Assessments (HRIAs) are emerging resources that could be used to evaluate risks and impacts on social issues 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,[8] 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 issues covered in this section. Some of the most serious social issues 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 issues

- **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 issues 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 with other aspects of sustainable procurement of wood-based products, tracing the production chain back to its beginning can help assess the risk and opportunities associated with social issues. In some areas, monitoring and verification are especially important.

[8] Human Rights Impact Resource Centre, www.humanrightsimpact.org.

SELECTED RESOURCES: SOCIAL ISSUES

See "Guide to the Guides" chapter for more information on each resource.

Procurement requirements

Belgian Government Procurement Policy

Danish Government Procurement Policy for Tropical Forests (under review)

Dutch Government Procurement Criteria for Timber

FLEGT & VPAs

FSC Controlled-Wood Standard

Illegal Timber Regulation

PEFC Due Diligence System

Public Procurement Policies for Forest Products and their Impacts

SFI Procurement Objective

UK Timber Trade Federation Responsible Purchasing Policy

Resources to assess requirements

Buying Sustainable Timber – A Guide for Public Purchasers in Europe

CPET

Environmental Paper Network

EPAT®

FCAG

Forest Governance Learning Group

FPAC: A Buyers' Guide to Canada's Sustainable Forest Products (the report)

Good Wood. Good Business Guide

Greenpeace's Responsible Procurement Guide

High Conservation Value Resource Network

Illegal-logging.info

NEPCon LegalSource Programme

Sedex

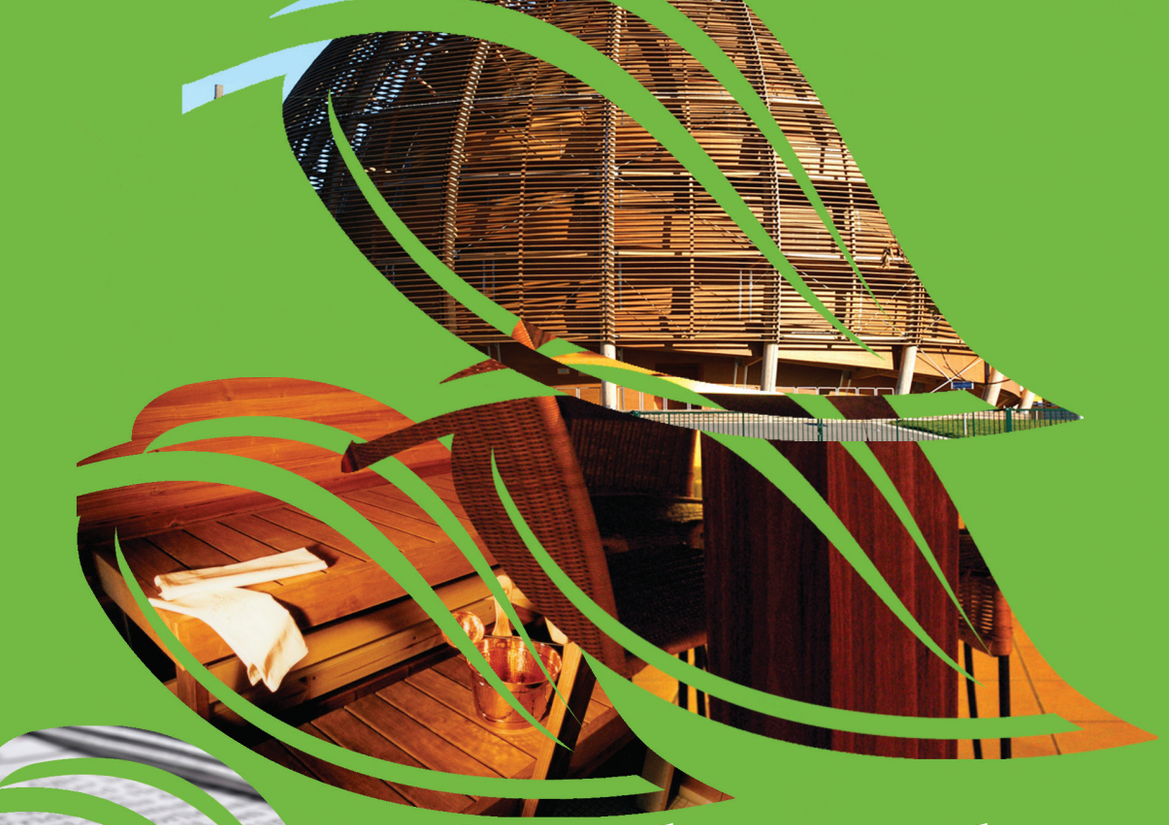
The Forest Trust

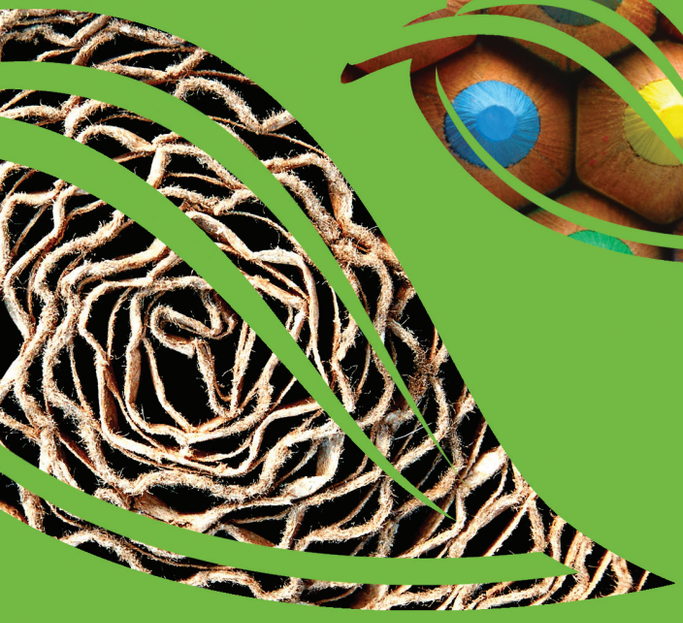
WWF GFTN

WWF Guide to Buying Paper

WWF Paper Scorecard

WWF Tissue Scoring






Guide to the Guides:

A catalogue of selected resources

Guide to the Guides

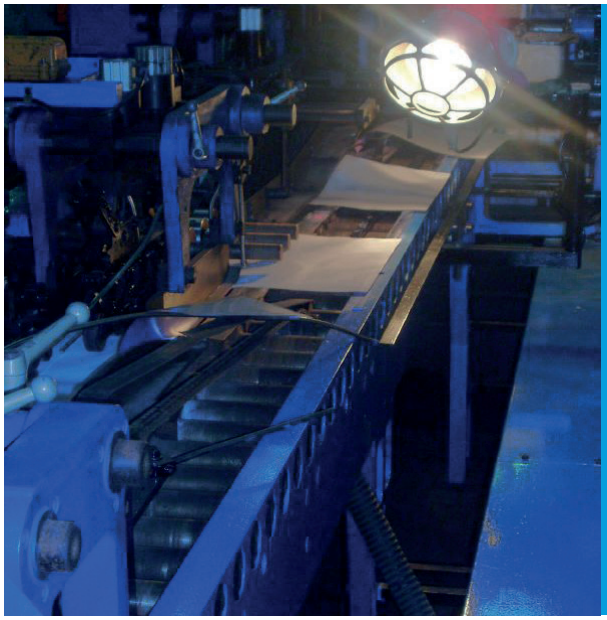
A number of tools and resources – projects, initiatives, labels and publications – exist to support sustainable procurement of wood and paper-based products. Various tools have different things to offer. They differ in their geographical and thematic scope, in their focus within the wood chain, in the reasons for why they exist, in the constituency backing them, in their level of depth and detail, in their user-friendliness, etc. It is difficult to characterize them or place them in any kind of unified system.

This section presents the characteristics of 61 tools, by placing them in two overview tables (Tables 17 and 18). The Guide to the guides are grouped into three categories, depending on their relevance and focus:

- Solid wood products.
- Paper-based products.
- Wood-based products in general.

Within a category, the tools and resources are further defined by their focus in the supply chain, and by their geographic area of relevance. Each tool's primary issues of concern are noted, as well as the contact information.

Note – more complete information about each of these tools is available at *www.SustainableForestProducts.org.*



Factors to consider regarding the selection of a tool or resource

- **Does the program/organization fit with the corporate procurement strategy? Is it credible?**
- **Does the tool align with the company's supply chain and geographic area of operations?**
- **Are the goals and mission of the tool consistent with the company's business strategy and long-term vision?**
- **Will the company be able to provide input into future decisions about the tool and its use?**
- **Is it a holistic approach? Does it cover a sufficiently broad array of issues?**

Table 17. Summary of resources exclusively for either wood or paper-based products

Scope/Resource	Type	Focus in supply chain				Geographic areas of interest	Thematic coverage				
		Forest production	Processing/ manufacturing	Retail/use	Trade		Traceability	Monitoring and verification	Legality	SFM	Forest conversion
Solid wood											
Belgian Government Procurement Policy	Government policy	✓			✓	Global	✓	✓	✓	✓	✓
Buying Sustainable Timber – A Guide for Public Purchasers in Europe				✓	✓	Global			✓	✓	✓
German Government Procurement Policy	Government policy	✓			✓	Global	✓	✓	✓	✓	✓
Green Globes	Certification standard	✓		✓		U.S.	✓			✓	✓
Greenpeace's Responsible Procurement Policy	Publication	✓		✓	✓	China, with global implications	✓	✓	✓	✓	✓
Leadership in Energy and Environmental Design (LEED) Rating Systems	Certification standard	✓		✓		U.S.	✓			✓	✓
Madera Legal - Asociación Española del Comercio e Industria de la Madera (AEIM)					✓	Global			✓		

Unique forest values	Climate change	Environmental protection	Fresh and recycled fiber	Use of other resources	Social issues	Brief characterization	Contact details
					✓	The Policy is applicable to wood-derived products, except paper. The Policy is compulsory for all entities of the federal government, and it focuses on wood from sustainably harvested timbers. The definition includes provisions related to traceability, legality, and specific requirements for sustainable forest management certification systems.	Federal Public Service Health, Food Chain Safety and Environment Phone: +32 2 524 96 55 Website: http://www.guidedesachatsdurables.be
					✓	Guidelines for setting up public procurement systems for purchasing sustainable timber, compiled by the Sustainable Timber Action project. The initiative ended in November 2013, and the Sustainable Timber Action project was taken on by the European Sustainable Tropical Timber Coalition (http://www.europeansttc.com/). The guide offeres a straightforward procurement model and suggested language for tendering documents.	Sustainable Timber Action Phone: +49 (761) 368 920 Email: procurement@iclei.org http://www.sustainable-timber-action.org/ http://www.europeansttc.com/
		✓	✓	✓		Procurement policy for wood and wood products only from veriably legal and SMF.	German Federal Ministry of Consumer Protection, Food and Agriculture Phone: +49 (030) 200 60 www.bmelv.de
						Rating standard for commercial buildings.	The Green Building Initiative Phone: +1 877 424 4241 E-mail: info@thegbi.org www.thegbi.org
✓			✓		✓	Provides advice and assistance to solid-wood retailers devising and implementing a responsible procurement policy using Greenpeace's Timber Standard. The Timber Standard is a benchmark and it outlines a step-wise transition towards buying products that are sustainable. Sustainable products are defined as FSC-certified and/or are made of 100% recycled materials.	Greenpeace China Phone: +86 10 6554 6931 E-mail: greenpeace.china@cn.greenpeace.org www.greenpeace.org/china/en/
		✓	✓	✓		Rating standards for various types of buildings.	Green Building Council Phone: + 1 800 795 1747 or +1 202 828 5110 E-mail: info@usgbc.org www.usgbc.org
						Website hosted by AEIM (the Spanish Timber Trade Federation) providing support tools for forest product companies to comply with the EUTR due diligence requirement.	AEIM Phone: +34 91 547 97 45 E-mail: aeim@aeim.org http://www.maderalegal.info

Table 17. Summary of resources exclusively for either wood or paper-based products

Scope/Resource	Type	Focus in supply chain				Geographic areas of interest	Thematic coverage				
		Forest production	Processing/ manufacturing	Retail/use	Trade		Traceability	Monitoring and verification	Legality	SFM	Forest conversion
Timber Retail Coalition	Initiative/ Project	✓		✓	✓	Europe, with global implications			✓	✓	✓
Timber Trade Action Plan	Initiative/ Project	✓		✓	✓	Global	✓	✓	✓		
UK Timber Trade Federation Responsible Purchasing Policy	Trade association policy	✓	✓		✓	Global	✓	✓		✓	✓
Wood for Good Campaign	Organization	✓		✓	✓	Global				✓	✓
Paper-based products											
Consumer Goods Forum Guidelines for Pulp, Paper & Packaging		✓	✓	✓	✓	Global	✓		✓		✓

Unique forest values	Climate change	Environmental protection	Fresh and recycled fiber	Use of other resources	Social issues	Brief characterization	Contact details
	✓					The Coalition – founded by European retailers Kingfisher, Marks & Spencer, IKEA and Carrefour Group – seeks to raise awareness and support clear and pragmatic regulations and legislation to ensure that timber and timber products in the European markets are legal, responsibly sourced, and sustainable. The Coalition also seeks to raise awareness of other environmental issues such as deforestation and climate change. The European Retail Roundtable serves as the Coalition Secretariat.	European Retail Round Table Phone: +32 (2) 286 51 22 E-mail: smancini@errt.org www.errt.org/timber-retail-coalition
						A project aimed to reduce trade in illegal timber by helping members of European timber trade federations to work towards legality verification of their timber and wood products, and to implement robust chain of custody systems. TTAP is a private-sector initiative created by a number of European timber trade federations, and it is being implemented by the The Forest Trust. TTAP is funded by the European Commission and its European partner timber trade federations.	The Forest Trust Phone: +41 (0) 22 367 9442 http://www.tft-forests.org/
✓					✓	Management system compliant with UK central government requirements for legality and sustainability.	Timber Trade Federation Phone: +44 (0) 20 78 39 18 91 E-mail: ttf@ttf.co.uk www.ttf.co.uk
	✓	✓	✓			Practical guidance to develop and implement sustainable procurement.	wood. for good Phone: +44 (0) 800 279 0016 E-Mail: contact@woodforgood.com www.woodforgood.com
						The Pulp, Paper, & Packaging Guidelines are intended to assist companies in the development of their own policies for sourcing pulp, paper and packaging and offer an number of recommendations on how to get there. The guidelines are not mandatory, but instead provide voluntary guidance. The guidelines propose a three-pronged approach to eliminating controversial sources from supply chains: • Develop sourcing policies that avoid controversial sources of pulp, paper and packaging contributing to deforestation.• Verify supply from high priority countries has low risk of controversial sources contributing to deforestation. • Disclose company policies, goals and progress to avoid controversial sources of pulp, paper and packaging contributing to deforestation in their individual supply chains.	The Consumer Goods Forum Sustainability – Climate Change and Waste Streams Phone: +33 1 82 00 95 95 Email: sustainability@theconsumergoodsforum.com

Table 17. Summary of resources exclusively for either wood or paper-based products

Scope/Resource	Type	Focus in supply chain				Geographic areas of interest	Thematic coverage				
		Forest production	Processing/ manufacturing	Retail/use	Trade		Traceability	Monitoring and verification	Legality	SFM	Forest conversion
Environmental Footprint Comparison Tool	Assessment methodology		✓			U.S. and Canada					
Environmental Paper Assessment Tool V.2.0.	Assessment methodology	✓	✓	✓		Global, but primarily U.S. and Canada	✓	✓	✓	✓	✓
Environmental Paper Network	Organization	✓	✓	✓	✓	Global	✓	✓	✓	✓	✓
New Zealand Government Paper Buyers Guidance	Publication	✓			✓	New Zealand with global implications	✓	✓	✓	✓	✓
Paper Profile	mechanism	✓	✓			Europe / Global	✓	✓		✓	✓
Publisher's database for Responsible Environmental Paper Sourcing (PREPS)	Initiative/ Project	✓	✓			Global	✓	✓	✓	✓	✓

Unique forest values	Climate change	Environmental protection	Fresh and recycled fiber	Use of other resources	Social issues	Brief characterization	Contact details
	✓	✓	✓			An online information-support tool for companies and paper products buyers to weigh and analyze the trade-offs and co-benefits of managing the environmental footprint of papermaking. The tool focuses benefits and tradeoffs of using recycled fiber, water and energy use, and emissions to water and air.	National Council of Air and Stream Improvements (NCASI). Phone: (919) 941-6400 E-Mail:paperenvironment@ncasi.org www.paperenvironment.org
✓	✓	✓	✓	✓	✓	Comprehensive, online decision-support tool to facilitate direct dialogue and collaboration between producers and buyers on various issues; allows users to evaluate trade-offs in purchasing decisions.	GreenBlue Phone: +1 434 817 1424 E-mail: info@greenblue.org www.epat.org
✓	✓	✓	✓	✓	✓	A network of organizations providing information and guidance on various aspects of paper. Information and guidance is based on a common framework (common vision) for environmental and social sustainability in the production and consumption of pulp and paper products. The Network maintains and promotes various internet-based applications where its environmental and social goals are evaluated, and where guidance and practical tools for paper purchasers are provided.	Environmental Paper Network Phone: +1 828 251 8558 E-mail: info@environmentalpaper.org www.environmentalpaper.org
		✓	✓			Provides general overview of key issues and practical guidance for New Zealand paper buyers in selecting their products.	New Zealand Ministry for the Environment E-mail: govt3@mfe.govt.nz www.mfe.govt.nz
	✓	✓	✓	✓		Voluntary system to provide information to the consumer about various environmetnal parameters of specific paper products.	Finnish Paper Engineers' Association Phone: +358 (9) 132 6688 E-mail: info@papereng.fi www.papereng.fi
✓	✓		✓	✓		A joint initiative from twenty-three publishers to promote responsible paper supply chains. In 2012, PREPS membership was also opened to printers. PREPS has developed a database focusing on various aspects of the pulp and paper manufacturing processes, the forests from where the raw materials originate, as well as CO_2 emissions and water use at the paper mill level. Members interested in adding new information to the database must ask the PREPS Secretariat, and PREPS will contact the mills directly and ask for technical specifications and forest source information. The information is organized by paper grades and mills. Paper grades are graded according to a PREPS Grading System based on the recycled content of the paper, whether or not is certified, whether or not the source or origin is known and if there are risks associated with that origin. The Grading System does not account for CO_2 emissions or water consumption.	Publisher's database for Responsible Environmental Paper Sourcing (PREPS) E-mail: info@prepsgroup.com http://prepsgroup.com/home.php

Table 17. Summary of resources exclusively for either wood or paper-based products

Scope/Resource	Type	Focus in supply chain				Geographic areas of interest	Thematic coverage				
		Forest production	Processing/ manufacturing	Retail/use	Trade		Traceability	Monitoring and verification	Legality	SFM	Forest conversion
Two Sides	Organization	✓	✓	✓		Europe, U.S. and Canada	✓	✓			
World Wildlife Fund Guide to Buying Paper	Publication	✓	✓	✓	✓	Global	✓	✓	✓	✓	✓
World Wildlife Fund Paper Scorecard	Assessment methodology	✓	✓		✓	Global	✓	✓	✓	✓	✓
World Wildlife Fund Tissue Scoring	Assessment methodology	✓	✓	✓		Europe	✓	✓	✓	✓	✓

Unique forest values	Climate change	Environmental protection	Fresh and recycled fiber	Use of other resources	Social issues	Brief characterization	Contact details
	✓	✓	✓			Two Sides is an initiative of a number of companies from the graphic communications supply chain. The initiative includes actors involved in forest, pulp, paper, inks and chemicals, and printing and publishing industries. The objective of the initiative is (i) to promote the responsible production and use of print and paper products; and (ii) to make information about industry sustainability and performance available to all stakeholders.	Two Sides Phone: +44-115-8412 129 E-mail: info@twosides.info www.twosides.info
✓	✓	✓	✓	✓	✓	Companion to WWF Paper Scorecard. Provides guidance on various issues and showcases examples of companies taking action on issues covered.	WWF International Phone: +41 (0)22 364 91 11 www.panda.org/paper/toolbox
✓	✓	✓	✓		✓	Scoring system for paper.	WWF International Phone: +41 (0)22 364 91 11 www.panda.org/paper/toolbox
✓		✓	✓	✓	✓	Rating system to assess tissue paper sourcing.	WWF International Phone: +41 (0)22 36491 11

Table 18. Summary of resources for both wood and paper-based products

Scope/Resource	Type	Focus in supply chain				Geographic areas of interest	Thematic coverage				
		Forest production	Processing/ manufacturing	Retail/use	Trade		Traceability	Monitoring and verification	Legality	SFM	Forest conversion
Solid wood and paper-based products											
A Buyer's Guide to Canada's Sustainable Forest Product	Publication	✓	✓	✓	✓	Canada, with global implications	✓	✓	✓	✓	✓
CEPI Legal Logging Code of Conduct	Trade association policy	✓			✓	Europe	✓	✓	✓		
Danish Government Procurement Policy for Tropical Forests	Government policy	✓	✓		✓	Global	✓	✓	✓	✓	✓
Dutch Government Procurement Criteria for Timber	Government policy	✓			✓	Global	✓	✓	✓	✓	✓
Enhancing the Trade of Legally Produced Timber, a Guide to Initiatives	Publication	✓	✓	✓	✓		✓	✓	✓		
European Community Green Purchasing Policy	Government policy	✓	✓		✓	Global	✓	✓	✓	✓	✓

Unique forest values	Climate change	Environmental protection	Fresh and recycled fiber	Use of other resources	Social issues	Brief characterization	Contact details
✓	✓	✓	✓	✓	✓	Uses the WRI/WBCSD 10 key questions framework, to provide buyers with information to reassure them about the social and environmental qualities of Canada's forest products. Includes sample forest products procurement/financing policy, environmental performance data of FPAC members, as well as additional resources including a glossary.	Forest Products Association of Canada Phone: +1 613 563 1441 E-mail: Ottawa@fpac.ca www.fpac.ca
						States CEPI member companies' commitments to address illegal logging. Commitments include: to operate in full compliance with laws; to purchase only wood that is legally harvested; to set up traceability systems to ensure compliance; to document the legality of the wood purchased and build internal staff capacity to implement the commitment.	Confederation of European Paper Industries (CEPI) Phone: +32 (2) 627 49 27 11 E-mail: mail@cepi.org www.cepi.org
✓					✓	Guidelines for purchasing of tropical timber	Danish Ministry of the Environment Phone: +45 (72) 54 20 00 E-mail: sns@sns.dk www.sns.dk
✓	✓	✓			✓	The Procurement Criteria for Timber prefers wood products that are sustainable and legal. If sustainably produced products are not available, they at least have to be from legal sources. To help implement this policy, the Dutch government established the Timber Procurement Assessment System (TPAS). TPAS seeks to provide assurance to national and local government institutions that the wood products they purchase meet the government sustainability and legality requirements. The Timber Procurement Assessment Commitment (TPAC) is a body within the TPAS to provide guidance to assess evidence of compliance. TPAC is also responsible for evaluating evidence of compliance provided by forest certification systems and other verification systems.	Timber Procurement Assessment System Phone: +31 (0)70 3586 300 E-mail: smk@smk.nl www.tpac.smk.nl
						A guide to 127 major initiatives that promote the legal production and trade of timber. The guide provides an overview of the array of initiatives, highlighting trends, gaps, and major opportunities.	Tropenbos International Phone: +31 317 481416 E-mail: tropenbos@tropenbos.org http://www.tropenbos.org/
		✓	✓			Policy to promote public green procurement, increase similarities among procurement criteria of EU member states, and provide guidance and advice. Priority products include paper and furniture.	European Environment Agency Phone: +45 33 36 7100 http://ec.europa.u/environment/gpp/index_en.htm

Table 18. Summary of resources for both wood and paper-based products

Scope/Resource	Type	Focus in supply chain				Geographic areas of interest	Thematic coverage				
		Forest production	Processing/ manufacturing	Retail/use	Trade		Traceability	Monitoring and verification	Legality	SFM	Forest conversion
FLEGT and VPAs	Policy instrument	✓			✓	Global	✓	✓	✓	✓	✓
Forest Certification Assessment Guide	Assessment methodology	✓				Global	✓	✓	✓	✓	✓
Carbon Disclosure Project	Reporting mechanism	✓				Global	✓	✓		✓	✓
Forest Industry Carbon Assessment Tool	Assessment methodology	✓	✓	✓		Global	✓			✓	✓
Forest Legality Alliance	Project	✓			✓	Global			✓		

Unique forest values	Climate change	Environmental protection	Fresh and recycled fiber	Use of other resources	Social issues	Brief characterization	Contact details
					✓	The Forest Law Enforcement, Governance and Trade (FLEGT) Plan is the European Union (EU) response to illegal logging and deforestation concerns. The Plan recognizes that consumer countries' demand for forest products contributes to forest loss. The Plan seeks to (i) develop markets for legal products in Europe; and (ii) establish bilateral partnerships (Voluntary Partnership Agreements, VPAs) with producing countries to build their capacity and support reforms in the governance of their forest sectors, in order to reduce the production of illegally harvested timber. The VPAs also seek to establish and implement tracking and licensing systems (Legality Assurance Systems - LASs) to ensure that only legally produced products enter the European Union.	European Commission Environment DG http://ec.europa.eu/environment/contact/contact_en.htm
✓					✓	Framework for the evaluation of certification systems to assess compliance with World Bank and WWF policies.	World Bank / WWF International Phone: +41 (0) 22 364 91 11 or +1 202 473 10 00 www.forest-alliance.org
✓	✓					The initiative, now part of the Carbon Disclosure Project is designed to create transparency and improve companies' understanding of the "forest footprint" of their direct operations and the operations they finance. The «forest footprint» focuses on production, use, and trade of key commodities linked to global deforestation: timber, soy, beef and leather, palm oil and biofuels. Every year, a number of companies are invited to disclose information about policies related to the sustainable supply chains for these commodities, and the actions they are taking to manage risks.	Carbon Disclosure Project Phone: 44-20-7970-5660 http://www.cdproject.net
	✓		✓			An online, comprehensive, assessment tool to estimate direct and indirect (Scope 1, 2, and 3) GHG emissions for the forest products industry. FICAT incorporates elements of the WRI/WBCSD GHG Protocol, it is structured around CEPI's Carbon Footprint Framework, and it uses data from the Intergovernmental Panel on Climate Change (IPCC). The tool can be also used to educate users about the complexities associated with estimating GHG emissions of forest products.	National Council for Air and Stream Improvement, Inc and the International Finance Corporation Phone: +1 919 941 6400 www.FICATModel.org
						A public-private initiative to reduce illegal logging through supporting the supply of legal forest products. The Alliance seeks to raise awareness of demand-side legality requirements, produce innovative practical tools to help forest products supply chains to screen out illegal wood, and demonstrate compliance with legality requirements.	World Resources Institute / Environmental Investigation Agency Phone: +1 202-729-7600 E-mail: forestlegality@wri.org www.forestlegality.org

Table 18. Summary of resources for both wood and paper-based products

Scope/Resource	Type	Focus in supply chain				Geographic areas of interest	Thematic coverage				
		Forest production	Processing/ manufacturing	Retail/use	Trade		Traceability	Monitoring and verification	Legality	SFM	Forest conversion
French Policy on Public Procurement of Timber and Wood Products	Government policy	✓			✓	Global	✓	✓	✓	✓	✓
FSC Controlled-Wood Standard	Certification standard	✓	✓		✓	Global	✓	✓	✓		
Global Forest and Trade Network (a WWF initiative)	Initiative	✓	✓	✓	✓	Global	✓	✓	✓	✓	✓
Global Forest Registry	Initiative/ Project	✓			✓	Global			✓	✓	✓
Global Timber Tracking Network	Initiative/ Project	✓	✓		✓	Global	✓	✓	✓	✓	✓
Green Purchasing Network	Organization		✓	✓		Japan		✓	✓	✓	✓

Unique forest values	Climate change	Environmental protection	Fresh and recycled fiber	Use of other resources	Social issues	Brief characterization	Contact details
						National forest products procurement policy; required for central government procurement officials; recommended to local authorities.	Ministère de l'Écologie, de l'Énergie du Développement durable et de l'Aménagement du territoire Phone: +33 (0) 1 40 81 83 32 E-mail: remy.risser@developpement-durable.gouv.fr www.ecoresponsabilite.environnement.gouv.fr
✓					✓	Within the FSC sytem, a standard to avoid trading of illegal and environmentally and socially damaging wood.	Forest Stewardship Council Phone: +49 (228) 367 66 26 E-mail: fsc@fsc.org www.fsc.org
✓	✓	✓	✓		✓	Promotes responsible forest management and trade through a step-wise approach toward credible certification.	WWF International Phone : +41 22 364 9111 www.gftn.panda.org
✓						The Global Forest Registry is a map-based database, designed to help evaluate the risk of obtaining wood from controversial sources, as defined by the Forest Stewardship Council in the Controlled Wood standard. The definition of controversial sources includes: wood harvested illegally; wood harvested in violation of traditional or civil rights; wood harvested from areas being converted from forests and other wooded ecosystems to plantations or non-forest uses; and wood from forests in which genetically modified trees are planted. The database builds on publicly-available global sources of information for more than 150 countries. The database also includes more detailed information for countries that have completed FSC-approved controlled wood risk assessments.	NEPCon Phone: +372 - 7 380 723 E-mail: rp@nepcon.net; hh@nepcon.net www.globalforestregistry.org
						The Global Timber Tracking Network (GTTN), coordinated by Bioversity International, is an effort to promote the use of DNA and stable isotopes to fight illegal control. The network is developing a global database of DNA and stable isotope fingerprints of major commercial timber species, which could help reinforce illegal logging laws and certification standards by helping verify that the species listed in the paperwork is legal and labeled correctly. The database will also allow importers and authorities to verify the declared origin of wood and wood products.	Bioversity International Phone: + (603) 89423891 E-mail: gttn@cgiar.org http://www.globaltimbertrackingnetwork.org/
		✓	✓	✓		Guidance for green purchasing, including various types of paper products and furniture.	Green Purchasing Network Phone: +81 (3) 3406 5155 E-mail: gpn@net.email.ne.jp www.gpn.jp

Table 18. Summary of resources for both wood and paper-based products

Scope/Resource	Type	Focus in supply chain				Geographic areas of interest	Thematic coverage				
		Forest production	Processing/ manufacturing	Retail/use	Trade		Traceability	Monitoring and verification	Legality	SFM	Forest conversion
High Conservation Value (HCV) Resource Network		✓			✓	Global			✓	✓	✓
Illegal-logging.info	Initiative/ Project	✓	✓	✓	✓	Global	✓	✓	✓	✓	✓
Japanese Government Procurement Policy	Government policy	✓	✓		✓	Japan/Global	✓	✓	✓	✓	✓
Mexican Federal Government Procurement Policy	Government policy	✓	✓			Mexico	✓	✓	✓	✓	✓

Unique forest values	Climate change	Environmental protection	Fresh and recycled fiber	Use of other resources	Social issues	Brief characterization	Contact details
✓					✓	The High Conservation Value Resource Network (HCVRN) is a member-based organization that supports the consistent implementation of the High Conservation Value (HCV) approach, which helps identify, manage and monitor significant biological, ecological, social or cultural values in a variety of production landscapes. The HCV approach is one of the main requirements of major voluntary sustainability standards schemes, such as the Forest Stewardship Council (FSC) and the Roundtable on Sustainable Palm Oil (RSPO), and procurement and investment policies. The HCVRN also provides guidance documents, tools and templates to improve HCV assessments, and licenses lead HCV assessors and monitors the quality of their work over time.	HCV Resource Network c/o Proforest Phone:+44 (0) 1865 243 493 Email: secretariat@hcvnetwork.org http://hcvnetwork.org
✓	✓				✓	Data warehouse maintained by the British organization Chatham House dedicated to illegal logging and associated trade. The warehouse contains documents, presentations, media records and links related to illegal logging and the trade in illegal timber. The web site provides a contextual framework, which outlines major themes related to illegal logging: causes and drivers of illegal logging and trade, initiatives and approaches to address the problem, relevant policies and legislation, key actors and stakeholders, indicators of progress and important sources of information. Information is provided at both the regional and country level.	Chatham House Phone: +44 (0) 20 7957 5711 E-mail: admin@illegal-logging.info http://www.illegal-logging.info/
		✓	✓	✓		Guidelines for verification of legality and sustainability of wood and wood products.	Forestry Agency, Ministry of Agriculture, Forestry and Fisheries of Japan http://www.maff.go.jp/e/index.html
		✓	✓			Within the Purchasing, Leasing and Public Services Law, all federal government agencies should ensure that the origin of the products is known, and that they originate from sustainably managed forests. In addition, the origin and sustainability of the products should be verified by third party auditing bodies recognized by the Ministry of Natural Resources.	Dirección General de Recursos Materiales Inmuebles y Servicios, SEMARNAT Phone: +52 562-80600 www.semarnat.gob.mx

Table 18. Summary of resources for both wood and paper-based products

Scope/Resource	Type	Focus in supply chain				Geographic areas of interest	Thematic coverage				
		Forest production	Processing/ manufacturing	Retail/use	Trade		Traceability	Monitoring and verification	Legality	SFM	Forest conversion
NEPCon LegalSource Programme	Certification standard	✓	✓		✓	Global	✓	✓	✓		
New Zealand Timber and Wood Products Procurement Policy	Government policy	✓			✓	Global		✓	✓	✓	✓
PEFC Due Dilligence System	Certification Standard	✓	✓		✓	Global	✓	✓	✓		
Project LEAF	Initiative/ Project	✓			✓	Global	✓	✓	✓		
Public Procurement Policies for Forest Products and their Impacts	Publication	✓			✓	Global		✓		✓	✓

Unique forest values	Climate change	Environmental protection	Fresh and recycled fiber	Use of other resources	Social issues	Brief characterization	Contact details
					✓	The NEPCon LegalSource Programme offers third party certification for forest product traders, processors and forest managers, confirming that they exercise due care to reduce the risk of sourcing and trading illegally harvested forest products. The LegalSource standard is designed to be compatible with laws that are established or coming into place in the US, EU and Australia, with the aim of excluding material originating from illegal harvesting from their markets. The standard is also applicable to forest operations and companies that export to such markets or simply want to reduce the risk of sourcing illegal forest products.	NEPCon Forest Legality Programme www.nepcon.net Email: cs@nepcon.net Phone: +4531587981
						Procurement policy for New Zealand government agencies to address illegal logging and support international sustainable forest management.	Forest Policy Coordination Ministry of Agriculture and Forestry Phone: +64 (04) 894 0679 www.maf.govt.nz/forestry/twpp/index.htm
✓					✓	The PEFC's Due Diligence System requires participants to establish supply chain control systems to minimize the risk that certified products include raw materials from controversial sources.	PEFC Council Phone: +41 22 799 45 40 E-mail: info@pefc.org www.pefc.org
	✓					A recently launched partnership between Interpol and the United Nations Environment Programme (UNEP), Project LEAF (Law Enforcement Assistance for Forests) is an initiative dedicated to combating forest crime, including illegal logging and timber trafficking. Project LEAF seeks to respond to organized transnational forest-criminal activity through an international, coordinated response and in collaboration with national law enforcement agencies. Specific activities involve gathering information and generating relevant analysis, build in-country law enforcement capacity, and providing insights into the way organized crime operates.	INTERPOL Fax: +33(0) 47244-7163 www.interpol.int environmentalcrime@interpol.int
					✓	Synthesis and a comparative review of public timber procurement policies around the world.	Ardot Phone: +358 (0) 9 44 88 61 E-mail: ardot@ardot.fi www.ardot.fi

Table 18. Summary of resources for both wood and paper-based products

Scope/Resource	Type	Focus in supply chain				Geographic areas of interest	Thematic coverage				
		Forest production	Processing/ manufacturing	Retail/use	Trade		Traceability	Monitoring and verification	Legality	SFM	Forest conversion
SEDEX	Reporting mechanism	✓	✓		✓	Global			✓		
SmartSource	Service provider; offers a reporting mechanism for clients (SmartSource 360). Reporting mechanism	✓	✓		✓	Global	✓	✓	✓	✓	✓
Standard Practice for Categorizing Wood and Wood-based Products According to Their Fiber Sources	Certification standard	✓				Global, but available data are initially limited to the U.S.	✓	✓	✓	✓	✓

Unique forest values	Climate change	Environmental protection	Fresh and recycled fiber	Use of other resources	Social issues	Brief characterization	Contact details
	✓			✓	✓	Sedex is a supply chain management tool that helps companies identify, manage and mitigate ethical risks in global supply chains. As the largest collaborative platform for managing ethical supply chain data, Sedex engages with all tiers of the supply chain with the aim of driving improvements and convergence in responsible business practices. Sedex members can share and manage information related to Labour Standards, Health & Safety, The Environment and Business Practices. Members also have access to a range of tools and reports, including industry specific questionnaires and risk analysis tools. Sedex members benefit from a flexible framework that can be used with any code, standard or company policy. Sedex does not prescribe a specific audit report or reporting requirements, but the organization does provide a publicly available common audit reporting format and methodology (the Sedex Members Trade Audit, or SMETA) designed to reduce duplication of effort in ethical trade auditing.	Sedex Phone: +44 (0)20 7902 2320 (UK) +86 (0)21 6103 1622 (China) +1-888-487-6146 (US/CAN) E-mail: helpdesk@sedexglobal.com (UK) helpdeskchina@sedexglobal.com (China) http://www.sedexglobal.com/
✓						A supply chain management resource that supports forest products purchasing programs by (a) tracing the origin of products throughout the supply chain; (b) evaluating various risks (of illegal logging, unsustainable forest management) associated with the supply chains; and (c) developing and implementing policies and actions to address the risk. Under the latter, SmartSource also provides support to their clients in educating their staff and communicating the policy with suppliers and other stakeholders. Under the upcoming SmartSource360 platform (applicable to a and b above), companies throughout the supply chain will be able provide information directly about the raw materials in the products, including the place of origin. Rainforest Alliance SmartSource program staff reviews and verifies claims made by suppliers regarding source category and country of materials they have sold, through an annual audit process.	Rainforest Alliance Phone: (802) 434-5491 E-mail: mcomolli@ra.org http://www.rainforest-alliance.org/forestry/sourcing
						A voluntary standard to communicate conformance of wood and paper-based products with requirements of different tracing systems, forest management certification programs, and voluntary and regulatory standards related to forest products.	ASTM International Phone: +1 -610- 832-9500 www.astm.org

Table 18. Summary of resources for both wood and paper-based products

Scope/Resource	Type	Focus in supply chain				Geographic areas of interest	Thematic coverage				
		Forest production	Processing/ manufacturing	Retail/use	Trade		Traceability	Monitoring and verification	Legality	SFM	Forest conversion
String	Reporting mechanism	✓	✓		✓	Global	✓	✓	✓		
Sustainable Forest Finance Toolkit	Publication	✓	✓		✓	Global	✓	✓	✓	✓	✓
Sustainable Forestry Initiative Procurement Objective	Certification standard	✓	✓		✓	U.S. and Canada	✓	✓		✓	✓
Swiss Declaration Duty for Timber	Government policy	✓			✓	Global	✓	✓	✓		
The Forest Governance Learning Group	Initiative/ Project	✓			✓	Asia and Africa		✓	✓	✓	✓

Unique forest values	Climate change	Environmental protection	Fresh and recycled fiber	Use of other resources	Social issues	Brief characterization	Contact details
						String is an online, data recording, tool. The system enables users at all phases in the supply chain to request information about the product from their suppliers. If the data is missing, or if certain validation rules are not met, the data will be marked as incomplete or invalid. Users can generate reports from the data to get a complete picture of the flow of the product throughout the supply chain, and all the available data. By tracing products at a batch level, String makes it difficult for quantities of certified products to be falsified, and as each organization is responsible for their own data there is a clear record of who recorded what and when. String is flexible, and it can be customized to record any data about any type of product. The system has been piloted in a number of industries including timber, textiles and minerals.	Historic Futures Phone: +44 (0) 1993 886420 http://www.stringtogether.com/
✓	✓	✓	✓			The Toolkit is designed to assist and inform forest sector lending and investment decisions, specifically focusing on the production and processing of forest products, and carbon and ecosystem services markets. The Toolkit includes information and specific advice, in the form of questions, for finance officers to evaluate risk, manage investment portfolios, develop forest-sector investment policies, and sustainable procurement.	PriceWaterhouseCoopers LLP UK Sustainability and Climate Change Phone: +44 20 7804 3978 www.pwc.co.uk/sustainability
✓					✓	Purchasing requirements for wood and fiber under SFI certification standard.	Sustainable Forestry Initiative Phone: +1 202 596-3450 www.sfiprogram.org
						Requires suppliers of solid wood products to provide information about the species of wood and place of harvest. The Duty seeks to promote transparency and enable customers to choose responsible wood products.	Federal Consumer Affairs Bureau (FCAB) Phone: 031 322 20 00 Website:www.konsum.admin.ch/holzdeklaration/
	✓				✓	It is an informal network of national organizations in Africa and Asia focused on forest governance issues, particularly making connections between "those marginalized from forest governance" with decision-makers. The alliance's goal is to improve governance of forest resources internationally and in the countries where it operates. The alliance conducts focused case studies, develops tools and strategies, and convenes stakeholders for dialogue and exchanges among other things. The Forest Governance Learning Group is active in Cameroon, China, Ghana, India, Indonesia, Malawi, Mozambique, South Africa, Tanzania, Uganda and Vietnam.	RECOFTC Phone: +44 (0) 20 7957 5711 E-mail: info@recoftc.org http://www.recoftc.org/site/resources/Forest-Governance-Learning-Group/

Table 18. Summary of resources for both wood and paper-based products

Scope/Resource	Type	Focus in supply chain				Geographic areas of interest	Thematic coverage				
		Forest production	Processing/ manufacturing	Retail/use	Trade		Traceability	Monitoring and verification	Legality	SFM	Forest conversion
The Forest Trust	Organization	✓	✓	✓	✓	Global	✓	✓	✓	✓	✓
The Forest Trust's Good Wood, Good Business Guide	Publication	✓		✓	✓	Global	✓	✓	✓	✓	✓
Timber Tracking Technologies Review	Publication	✓	✓	✓	✓	Global	✓	✓	✓	✓	✓
UK Government Central Point of Expertise on Timber Procurement (CPET)	Organization	✓	✓		✓	Global	✓	✓	✓	✓	✓

Unique forest values	Climate change	Environmental protection	Fresh and recycled fiber	Use of other resources	Social issues	Brief characterization	Contact details
✓	✓		✓	✓	✓	Helps link business to responsibly managed forests. TFT members commit to sourcing from sustainable forests that are credibly certified, or TFT forest projects advancing towards credible forest certification. TFT supports companies to establish wood control systems that ensure no undesirable wood enters into their products.	The Forest Trust Phone: +41 (0)22 367 94 40 http://www.tft-forests.org/
✓					✓	Practical guidance to develop and implement sustainable procurement	The Forest Trust Phone: +41 (0)22 367 94 40 http://www.tft-forests.org/
						A report that provides a summary of electronic and semi-electronic timber tracking technologies and case studies aimed at providing guidance to timber tracking users, as well as general information on tracking technologies and drivers of its application. Timber tracking technologies and databases allows users to collect data on the source of timber and timber products, and store that information in an accessible and user-friendly database. It also allows users to track information about their supply chains, reduce the risk of illegal or unsustainable wood products entering the supply chain, or to fulfill requirements of forest certification schemes.	Bioversity International / CIGAR Phone: (39-06) 61181 E-mail: bioversity@cgiar.org http://www.bioversityinternational.org/
✓					✓	Provides guidance for compliance with UK central government purchasing requirements for sustainability and legality.	EFECA Phone: +44 (0)1305 236 100 E-mail: cpet@efeca.com www.cpet.org.uk

LIST OF TOOLS AND RESOURCES

A Buyer's Guide to Canada's Sustainable Forest Products

Main Issues of Concern	Description
Traceability	Assures readers that the origins of Canada's wood and paper -based products are often well-known and documented, although there are products originating in some areas with less rigorous supply chains; suggests that buyers ask their suppliers questions.
Monitoring and Verification	Discusses trends of Canadian forest companies turning to third -party certification; provides information about the proportion of third -party certified forests in Canada.
Legality	Assures readers about the lack of systemic issues i n the forest sector that could allow illegal logging in Canada.
SFM, Land-Use Change, and Forest Conversion	Highlights member companies' efforts and collaborations with stakeholders to improve environmental performance; assures commitment towards forest certification and provides data about the extent of third-party certified forests in Canada.
Unique forest values	Highlights efforts, commitments and collaborations between member companies and stakeholders to identify and preserve various types of special sites in Canada.
Climate Change	Highlights efforts towards increasing the use of biomass electricity; increasing the carbon sequestration potential of forests and forest products; and reducing the use of energy, fossil fuels, and greenhouse gas emissions.
Environmental Controls	Provides information showing decline in emissions of pollutants to water and air over the past decade.
Fresh and Recycled Fiber	Highlight efforts of members to develop reliable sources of fresh and recycled fiber and increase fresh and recycled fiber in finished products. Provides concrete facts to document such efforts.
Source Reduction	Provides statistics showing decline in water usage over the past decade. Within the climate change context, provides statistics showing decrease in fossil fuel consumption a nd waste generation.
Social Issues	Highlights collaboration and engagement with various stakeholders, such as Aboriginal Peoples, NGOs and research institutions. Introduces member companies' approaches and principles of corporate social responsibility.

Belgian Government Procurement Policy

Main Issues of Concern	Description
Traceability	Requires that forest management certification systems ensure the traceability of the products through a chain of custody system.
Monitoring and Verification	Requires that sustainably harvested timber is certified by an independent body on the basis of internationally recognized criteria. FSC and PEFC have been approved to meet the requirements of the Procurement Policy.
Legality	Requires that wood harvesting complies with national laws and international conventions.
SFM, Land-Use Change, and Forest Conversion	Sustainably harvested timber is defined as wood from sustainably managed forests that has been certified by an independent body on the basis of internationally recognized criteria. FSC and PEFC have been approved to meet the Procurement Policy requirements.
Unique forest values	Requires that forest management is based on a highly developed social dialogue, and is respectful of the rights of indigenous peoples. The Policy requires that the certification system establishes safeguards to ensure environmental and social protection. The Policy also requires that the certification system includes participation, and that it i s transparent.

Buying Sustainable Timber – A Guide for Public Purchasers in Europe

Main Issues of Concern	Description
Legality	Proposed procurement guidelines build on verified legal origin (through FSC or PEFC certification, or by following the UK Government Timber Procurement Policy)
SFM, Land-Use Change, and Forest Conversion	The procurement model is based on sustainable forest management (through FSC or PEFC certification, or by following the UK Government Timber Procurement Po licy)
Social Issues	While social issues are not included as mandatory feature of the proposed procurement model, there is a section that explores how social issues, such as fair trade, can be integrated into the policy .

CEPI Carbon Footprint Framework

Main Issues of Concern	Description
Traceability	First two elements of the framework evaluate carbon sequestration and storage in forests, and promote maintaining the lands forested. Encourages members to estimate (i) changes in carbon stocks and link them to specific products, and (ii) carbon stored in their products.
Monitoring and Verification	Promotes the use of recognized standards in the evaluation of the carbon footprint including official standards, such as ISO guidelines for life cycle assessments and Carbon Trust. It provides guidance about stakeholder-supported resources such as EPAT, WRI/WBCSD'S, Greenhouse gas (GHG) Protocol and the Paper Profile.
SFM, Land-Use Change, and Forest Conversion	Promotes the maintenance of lands forested and emphasizes on the renewability of forest products.
Climate Change	Framework provides a structure and guidance for individual CEPI member-companies to estimate – and communicate with stakeholders – the net greenhouse emissions associated with their products (carbon footprint). Evaluation of carbon footprint is based on 10 elements throughout the supply chain: carbon sequestered in forests and stored in forest products, emissions in transportation, manufacturing, use, recycling and disposal. Highlights the renewability of forests and the capacity of forests and forest products to sequester and store carbon.
Fresh and Recycled Fiber	Provides guidance in the assessment of greenhouse gas emissions generated by producing wood fiber and recycled fiber.
Source reduction	Carbon footprint assessments should take into account reductions in fossil-fuel generated electricity, and possibly miscellaneous emissions, such as those generated in treating wastewater.
Environmental Controllers	Provides guidance in the assessment of fossil fuel-derived CO_2 emissions in the manufacturing process. Inclusion in the evaluation of other greenhouse gas emissions is left at the discretion of the company.

CEPI Legal Logging Code of Conduct

Main Issues of Concern	Description
Traceability	Members commit to set up and use reliable verification/tracking systems and use third -party certification chain-of-custody to document the wood flow.
Monitoring and Verification	Members commit to set up and use reliable verificati on systems, apply third-party certification of the chain-of-custody, and EMS.
Legality	Members commit to full compliance with all applicable laws related to logging and purchasing wood. Members commit to implement procurement procedures that comply with laws corresponding to the underlying principles of the EMS. The legality of purchased wood is to be appropriately documented; support and cooperation with governments in their action to halt illegal logging is expected.

Consumer Goods Forum Guidelines for Pulp, Paper and Packaging

Main Issues of Concern	Description
Traceability	The guidelines recommend various means to improving traceability as a key step towards transparency: • Documenting the legality of a source • Using wood with chain of custody certification • Sourcing wood from certified sustainably man aged forests
Legality	The Consumer Goods Forum Guidelines suggest the verification of legal sourcing by third - party inspection in high-priority countries (as defined in the guidelines), and monitoring in those countries where the risk of sourcing potenti al illegal timber is high.
Forest conversion	The Consumer Goods Forum Guidelines suggest the verification of virgin fiber sourcing by third-party inspection in high-priority countries (as defined in the guidelines), and monitoring in those countries where the risk of contributing to deforestation and forest conversion is high.

Danish Government Procurement Policy for Tropical Forests (under review)

Main Issues of Concern	Description
Traceability	Draft criteria include requirements to track products throughout the s upply chain and verification through the certification process.
Monitoring and Verification	Requirements for monitoring and verification are covered through the certification process.
Legality	Legality requirements in draft criteria are similar to UK cen tral government criteria for legal timber. Requires that the forest owner/manager hold legal use rights, compliance with all relevant laws related to forest management, environment, labor and welfare, health and safety and other parties' tenure and use rig hts. Draft criteria also require payment for all relevant royalties and taxes, as well as compliance with CITES requ irements. Accepts CSA, FSC, MTCS, PEFC and SFI as schemes that provide adequate documentation of legality. Criteria includes compliance with relevant international, national and/or
SFM, Land-Use Change, and Forest Conversion	Draft criteria address seven thematic elements for SFM, including protection and productive functions of forest resources and forest health and vitality. Previous guideli nes considered FSC and MTCS (PEFC endorsed) to provide adequate guarantees for sustainably produced tropical wood.
Unique forest values	Draft criteria includes seven thematic elements against which SFM should be addressed; one of these elements is the protecti on and maintenance of biodiversity, conservation/along with key ecosystems or habitats and protection of features and species of outstanding or exceptional value.
Social Issues	Draft criteria includes seven thematic elements against which SFM should be ad dressed; one of these elements is the protection and maintenance of biodiversity, conservation/along with key ecosystems or habitats and protection of features and species of outstanding or exceptional value.

Dutch Government Procurement Criteria for Timber

Main Issues of Concern	Description
Traceability	Criteria require evidence that Chain-of-Custody systems are in place in each step of the supply chain. The Criteria also requires that each organization in the supply chain maintains contacts and records of their trade tran sactions.

Monitoring and Verification	The Dutch government has set up a Timber Procurement Assessment System (TPAS) to assess the evidence of compliance. Forest management certification systems can be used as evidence of compliance, as well as first, second, and third-party verification systems. For certification, TPAC has evaluated a number of systems. As of November 2010, FSC and PEFC, except MTCS, are accepted as evidence of compliance with the Dutch procurement policy.
Legality	Criteria include compliance with relevant international, national and/or regional/local legislation and regulations. In particular, the Criteria highlight the following: legal rights to use forests, respect and payment of taxes, fees and royalties, compliance with forest managem ent laws and regulations (including international agreements such as CITES), and respect of indigenous and local tenure and use rights.
SFM, Land- Use Change, and Forest Conversion	The Criteria includes principles and criteria to maintain and enhance biodi versity, including the protection of special places (see Question 4), as well as protected and endangered species. The Criteria does not accept wood from converted areas, except when conversion occurs under justified exceptional circumstances such as a nat ural disaster. The Criteria accepts wood from plantations if they were established before 1997, and if at least 5% of the plantation is allowed to re-grow as natural forests. The Criteria prefer plantations made up of native species, and it does not accept genetically modified organisms. The Criteria requires that forest management maintains and, to the degree possible, enhances the vitality of the forests in terms of protection of soil and water resources, use of fires, and use of reduced - impact logging. The Criteria also requires that the SFM is implemented through a system that includes periodic monitoring, expert knowledge, and stakeholder involvement.
Unique forest values	Requires that areas of high ecological value and representative of the forest types th at occur within the forest management unit are identified, inventoried and protected.
Climate Change	The Criteria requires that the forest management system at a minimum maintains important ecological cycles, such as carbon.
Environmental Controls	The Criteria requires that avoidable damage to the ecosystem be prevented, by applying suitable methods and techniques for logging and infrastructure building. The Criteria allows the use of chemicals only if the use of ecological processes and ecological alternatives are proven to be insufficient. It does not allow the use of class 1A and 1B pesticides, as defined by the World Health Organization, and or chlorinated hydrocarbons.
Social Issues	The Criteria requires that the interests of directly and indirectly involved stakeholders should be taken into account. Specifically, the Criteria require that tenure and use rights are respected, stakeholders are consulted, and that the forest management plan, and relevant information, is publicly available. The Criteria also includes specifications for safety, health and labor conditions.

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

Main Issues of Concern	Description
Traceability	Provides contextual information on chain of custody and forest certification. The overview includes and profiles tools and initiatives that help track forest supply chains.
Monitoring and Verification	Provides contextual information on chain of custody and forest certification. The overview includes and profiles initiatives that help track forest supply chains, including technology tools.
Legality	Provides contextual information on legal initiatives (at global, regional, national, and local scales) that address illegal logging and trade in illegal timber. It includes government initiatives (e.g. bilateral and multilateral processes, trade agreements, public procurement policies) and private sector initiatives (e.g. certification agreements, legality verification systems) among others.

Environmental Footprint Comparison Tool

Main Issues of Concern	Description
Climate Change	Provides general overview information about greenhouse gas (GHG) emissions from the paper-making process, and the role of forests, wood and paper -based products in storing carbon. It also covers the links between GHG emissions and energy usage.
Environmental Controls	Provides general overview information about the use of water and energy in the paper - making process, and tradeoffs and co-benefits derived from both reduced water usage and reduced energy consumption, in terms of pollutant emissions. It also provides an overview of impacts resulting from efforts to reduce emissions of specific pollutants, including chlorinated compounds.
Fresh and Recycled Fiber	Provides general overview information about fiber recycling and statistics about recycling and recovery rates in the U.S. The website also provides an overview of the impacts of using more or less fresh and recycled fiber in manufacturing various paper grades, in terms of water usage, energy consumption, greenhouse gas emissions, emissions to air, water and solid waste, as well as demand for virgin fiber.

Environmental Paper Assessment Tool V.2.0.

Main Issues of Concern	Description
Traceability	Rates percentage of new fiber input that can be traced back to its origin to the forest management unit. Allows users to view individual companies' part of the final product.
Monitoring and Verification	Rates degree of verification. It also rates whether a company has EMS, monitoring programs and procedures to manage negative impacts on communities.
Legality	Rates compliance of paper-making facilities with international labor, human and health conventions.
SFM, Land-Use Change, and Forest Conversion	Rates fiber from operations certified under CSA, FSC, PEFC, SFI and other national and international certification systems.
Unique forest values	Measures the extent to which paper producers and their fiber suppliers identify and manage fiber from sensitive forests. Criteria for sensitive forests include biodiversity, viable natural species populations, rare, threatened or endangered ecosystems, ecosystem services, subsistence needs and critical cultural values.
Climate Change	Rates the CO_2 emitted to the air per unit of product, as well as efforts to reduce greenhouse gas emissions.
Environmental Controls	Rates minimization of impacts on water, air, soil and climate; rates release of sulfur dioxide, nitrogen oxides, total particulate matter, mercury, absorbable organic halogens, total suspended solids, carbon dioxide, as well as solid waste, total suspended solids and oxygen demand per unit of finished product and by types of mills.
Fresh and Recycled Fiber	Rates the percentage of pre- and post-consumer fiber, as well as the use of agricultural residues.
Source Reduction	Rates the recyclability and compostability of other mat erials (wax, plastic and metal), as well as the amount of water and energy used throughout the manufacturing process.
Social Issues	Rates mill systems for ensuring worker safety and health, engagement with stakeholders, and public disclosure of indicators covered by EPAT.

Environmental Paper Network (EPN)

Main Issues of Concern	Description
Traceability	Promotes the use of credible chain-of-custody tracking systems to identify the origin of fiber sources, as well as mechanisms to report results. Provides tracking forms.
Monitoring and Verification	Promotes fiber that comes from FSC certified forest operations and accurate carbon footprint a ccounting.
Legality	Rates compliance of paper-making facilities with international labor, human and health conventions.
SFM, Land-Use Change, and Forest Conversion	Seeks to end the clearing of natural forest ecosystems and the conversion of these forests into plantations for paper fiber. Seeks to reduce geographically disproportionate and wasteful consumption of paper. Discourages the use of GMOs, and promotes sourcing from FSC certified forest operations.
Unique forest values	Seeks to end the use of wood fiber from endangered forests. Provides a definition of endangered forests and an overview.
Climate Change	Addresses climate change through promoting sustainable forest management, shifting sourcing from endangered forests, reducing use of natural resources in general, and supporting paper recycling. Promotes accurate carbon footprint accounting. EPN's Paper Calculator estimates CO2 emissions depending on the paper grade and percentage of fresh and recycled fiber per ton. It also estimates methane emissions for end -of-life.
Environmental Controls	Seeks to minimize impacts on water and air throughout the entire paper supply chain; promotes the use of chlorine-free paper and provides information about different bleaching processes. EPN's Paper Calculator estimates emissions of various air and water pollutants depending on the paper grade and percentage of fresh and recycled fiber per ton, as entered by the user.
Fresh and Recycled Fiber	Seeks to eliminate the production of papers manufactured solely using virgin fiber and maximize pos t- consumer fiber content in all paper types. Provides information about the benefits of using recycled fiber. EPN's Paper Calculator estimates environmental impacts and changes in wood usage based on the paper grade and percentage of fresh and recycled fiber used. Provides detail guidance about impacts and implications of using fresh and recycled fiber.
Source Reduction	Seeks to eliminate excessive and unnecessary paper consumption, promotes the use of alternative crops if they are environmentally and socially preferable to wood sources of fiber. Provides information on consumption, as well as advice, case studies and resources to increase efficiency in the use of paper. EPN's Paper Calculator estimates changes in wood, water, energy usage and waste volume, based on paper grade and percentage of fresh and recycled fiber used, and using a life cycle perspective.
Social Issues	Provides information and examples of social impacts on Main Issues of Concern such as land claims, FPIC, emissions of pollutants and economic impacts. Provide s guidance and recommendations, and showcases best and worst practices.
Social Issues	Rates mill systems for ensuring worker safety and health, engagement with stakeholders, and public disclosure of indicators covered by EPAT.

European Community Green Purchasing Policy

Main Issues of Concern	Description
Traceability	Recognizes chain-of-custody certificates from FCS or PEFC. It also recognizes EU Forest Law Enforcement, Governance and Trade (FLEGT) licenses from countries that have signed voluntary partnership agreements. For non -certified products, require ability to trace through the supply chain to the origin.
Monitoring and Verification	Recognizes European Ecolabel, FSC and PEFC certificates as evidence of compliance and verification, as well as any other appropriate means of proof, such as a technical dossier issued by the manufacturer, or a test re port from an independent body.

Legality	For paper, core criteria propose that all fiber must come from legally harvested sources; in addition, award criteria should allow giving preference to fiber coming from sustainably harvested sources. The comprehens ive standards propose additional award criteria related to compliance with the full set of EU Ecolabel requirements.
SFM, Land-Use Change, and Forest Conversion	Proposes award criteria that promote products from forests that are sustainably managed for virgin fiber, solid wood and wood-based products for construction, according to PEOLG, the United Nations Conference on Environment and Development (UNCED) Forest Principles, as well as international SFM Criteria and Indicators.
Environmental Controls	Recycled paper should be at least elementary chlorine free. The comprehensive criteria for paper propose applying the full set of criteria from the EU Ecolabel. Paper must be at least Elementary Chlorine Free; Totally Chlorine Free will also be accepted.
Fresh and Recycled Fiber	For paper, core criteria for paper propose 100% recovered paper fibers. Comprehensive criteria propose full compliance with the EU Ecolabel criteria or other Type I ecolabel criteria.

FLEG & VPAs

Main Issues of Concern	Description
Traceability	One of the goals of the FLEGT VPA is the establishment and implementation of Legality Assurance Systems (LASs) to ensure and demonstrate the legal origin of the wood. The LASs could be built on existing in-country schemes.
Monitoring and Verification	One of the goals of the FLEGT VPA is the establishment and implementation of Legality Assurance Systems (LASs) to guarantee the legality and reliable tracking of timber products. The LASs include the independent verification of law co mpliance, and they could be built on existing in-country schemes.
Legality	The FLEGT focuses on capacity-building and improvement of governance in the forest sector of producing countries. A key aspect in establishing an in -country FLEGT VPA is to define what constitutes legal timber, based on national laws and regulations.
SFM, Land-Use Change, and Forest Conversion	The FLEGT LASs should be based on national standards for forest management, rooted in the national laws and regulations of partner countries .
Social Issues	The definition of what constitutes legally produced wood in VPA countries should be produced through a multi-stakeholder dialogue. The definition of legally produced wood should also cover recognition and protection of property rights, esp ecially the rights of forest-dwelling communities.

Forest Certification Assessment Guide (FCAG)

Main Issues of Concern	Description
Traceability	Includes considerations about explicit performance requirements including chain -of-custody. FCAG assesses certification systems' provisions for the control of chain -of-custody from the forest of origin to the final product.
Monitoring and Verification	Includes criteria to assess the absence of conflicts of interest in a certification scheme's decision-making process. It also includes criteria and requirements to assess the independence of the evaluation and verification of performance in f orest management and the chain-of-custody standard. Criteria and requirements to assess the use of monitoring systems to evaluate overall management, and the social and environmental impacts are also included.
Legality	Includes criteria and requirements for assessing compliance with relevant national and international laws, treaties and agreements.
SFM, Land-Use Change, and Forest Conversion	Includes criteria and requirements to assess compatibility with globally applicable SFM principles and continued improvement of forest management. Assesses whether or not certification systems' provisions for forest plantations ensure that plantations do not lead to the conversion of critical natural habitats.

Unique forest values	Includes provisions regarding the establis hment of plantations, the conversion or loss of critical natural habitats, the mitigation of environmental impacts to conserve biological diversity and other ecosystem services, and the maintenance of critical forest areas and other critical natural habitats.
Social Issues	Includes criteria and requirements for assessing compatibility with globally applicable social principles including: respect for human, indigenous and worker's rights; meaningful and equitable participation of all major stakeholder group s; and transparency in decision-making and public reporting.

Forest Footprint Disclosure Project

Main Issues of Concern	Description
Traceability	Companies are asked to disclose information about their ability to trace the commodities to the place of origin, and the steps they are taking to improve and manage traceability.
Monitoring and Verification	Companies are asked to disclose information about public commitments and policies related to third-party certification systems.
SFM, Land-Use Change, and Forest Conversion	Companies are asked to disclose information about public commitments and policies related to sustainability, sustainable sourcing, third -party certification systems, and deforestation.
Climate Change	Companies are asked to disclose information about public commitments and policies related to climate change.

The Forest Governance Learning Group (FGLG)

Main Issues of Concern	Description
Monitoring and Verification	Provides contextual information and links to sources of information about forest certification systems, legality verification systems and technologies to help track and verify the origin and identity of the timber used in the products.
SFM, Land-Use Change, and Forest Conversion	The alliance has conducted various case studies about community-based forest management and community forest enterprises.
Legality	Alliance members are involved in in-country policy discussions around legality in the forest sector, including the negotiation of a legal timber partnership agreement between the European Commission and the government of Ghana, and law enforcement actions in Mozambique, and potential social and environmental impacts from a VPA.
Climate Change	Alliance members are involved in in-country policy discussions and negotiations around REDD often from a social-issues angle.
Social issues	Alliance members are involved in in-country policy discussions around social issues including land tenure, social justice in forest operations, forest operations and poverty reduction and community forest management and enterprises.

Forest Industry Carbon Assessment Tool

Main Issues of Concern	Description
Traceability	GHG emissions are estimated throughout the sup ply chain, beginning with the production of raw materials, including emissions associated with land use conversion --if applicable-- carbon stored in products throughout their life span, product manufacturing and use, transportation, recycling and disposal.
SFM, Land-Use Change, and Forest Conversion	Estimates GHG emissions, if applicable, from land use conversions including converting natural forests to plantations and grasslands to forest plantations.

Climate Change	Estimates direct and indirect (Scope 1,2, and 3) GHG emissions of forest products throughout the supply chain, including emissions associated with land use conversion, carbon stored in products throughout their life span, manufacturing, use, recycling and disposal. FICAT also allows for incorporating indirect emissions, such as those generated by off-site energy sources.
Fresh and Recycled Fiber	Estimates avoided GHG emissions by recycling products.

Forest Legality Alliance (FLA)

Main Issues of Concern	Description
Legality	The Alliance seeks to raise awareness of demand -side legality requirements such as the U.S. Lacey Act, to produce practical tools to help forest products supply chai ns screen out illegal wood and exercise due care, and to demonstrate compliance with legality requirements. The Risk Information Tool provides general information on countries and species to help buyers evaluate the risk of illegality of their supply sources.

French Policy on Public Procurement of Timber and Wood Products

Main Issues of Concern	Description
Traceability	Requires suppliers to compile and retain information about the country of origin, species and contact details of their suppliers (requirement is mandatory for basic products such as logs, sawnwood, veneer, plywood).
Monitoring and Verification	Evidence of legality or sustainable forest management is required. These guarantees must be obtained through a process that includes third -party verification.
Legality	Does not include definition of legality; procurement managers are required to refer to existing tools such as forest certification systems, ecolabels, or the supplying countries that could define which legislation is relevant. Requires compliance with CITES.
SFM, Land-Use Change, and Forest Conversion	Procurement managers are required to refer to existing tools such as forest certification systems or ecolabels. Does not include a definition of sustainability.

FSC Controlled Wood Standard

Main Issues of Concern	Description
Traceability	Includes specifications to ensure the tracking of wood to the country and district level.
Monitoring and Verification	Standard is subject to third-party verification.
Legality	Requires wood harvesting to comply with all applicable harvesting laws in the jurisdiction.
Unique forest values	Requires that wood harvesting should not threaten high conservation value forests. Evidence of compliance is required.
Social Issues	Requires that wood should not be harvested in violation of traditional and civil rights.

German Government Procurement Policy

Main Issues of Concern	Description
Traceability	Accepts FSC and PEFC certificates although the systems can be excluded if the complete traceability of the product cannot be guaranteed.
Monitoring and Verification	Accepts FSC and PEFC as guarantee that wood and wood products certified under these systems come from verifiable legal origin and are produced under SFM.

Legality	Requires that wood come from verifiable legal forest management, initially as verified by FSC and PEFC.
SFM, Land-Use Change, and Forest Conversion	Requires that wood-based products be harvested from verifiable legal and sustainably managed forest operations. Certificates issued from FSC and PEFC are recognized as guarantees of SFM, but the systems can be excluded if sustainable management cannot be guaranteed.

Global Forest and Trade Network (WWF GFTN)

Main Issues of Concern	Description
Traceability	Provides guidance on gathering information and assessing supplier data regarding the origin of wood products. Provides sample questionnaires and advice on setting up supplier databases (White and Sarshar, 2006).
Monitoring and Verification	Provides advice on setting up internal monitoring and tracking systems. Promotes credible third-party certified products.
Legality	Provides advice for keeping illegally harvested wood out of the supply chain. Advice includes providing definitions of legal wood, addressing bad or unfair laws, examples of procurement policies, list of CITES listed species, and lists of legal documentation for various countries (see Miller et al., 2006).
SFM, Land-Use Change, and Forest Conversion	Promotes credible certification as a tool for improving forest management. Provides advice on options for addressing land-use change issues.
Unique forest values	Provides overview information about high conservation value forests, and advice on options to address sourcing from these areas.
Climate Change	Supports efficient use of energy to minimize direct/indirect impacts on climate change, management to improve levels of carbon sequestration.
Environmental Controls	Supports procedures for minimizing pollution and impr oving the acquisition, transportation, storage and management of toxic substances. Promotes nonuse/ production of toxic chemicals and compliance with local and international conventions regarding emissions, effluents and wastes.
Fresh and Recycled Fiber	Provides advice on defining levels of fresh and recycled fiber and systems to certify recycled materials.
Social Issues	Provides information on social issues related to wood and paper purchasing, as well as information on areas where these issues are most relevant (see Wh ite and Sarshar, 2006). Requires compliance with ILO convention on indigenous and tribal peoples, and the UN declaration of human rights. Endorses good labor practices through compliance with local and international labor laws.

Global Forest Registry

Main Issues of Concern	Description
Legality	The Global Forest Registry incorporates Transparency International's Corruption Perception Index as a way to assess risk of illegality, as well as relevant national and sub -national data when available. The Main Issues of Concern covered by the Registry, based on the requirements of the FSC's Controlled Wood Standard, include: prevalence of illegal harvesting; enforcement of logging related laws; existence of effective systems for legal harvest and wood purchases, as well as levels of corruption.
SFM, Land-Use Change, and Forest Conversion	Sustainability Main Issues of Concern covered, based on the requirements of FSC's Controlled Wood Standard, include: conversion of forest to plantations or non -forest uses; no net loss and no significant rate of loss (>0.5% per year) of natural forests to other naturally wooded ecosystems; no use of genetically modified trees. Among other national and sub-national relevant sources of information, the Registry incorporates information from the FAO's State of the World's Forests report to assess risk of fores t conversion. Also, all countries are classified as low risk of sourcing commercial wood from GMOs, with the exception of China, where there are GMO plantations.

Unique forest values	FSC's Controlled Wood Standard requires that companies must assess if there a re high conservation values at the ecoregional level that are threatened by management. To this end, the Registry incorporates the following information: Biodiversity Hotspots; Global 200 Ecoregions; Frontier Forests and Intact Forest Landscapes, in additi on to existing information for national and sub-national high conservation value forests assessments.

Global Timber Tracking Network

Main Issues of Concern	Description
Traceability	The network will create a database of DNA and stable isotope fingerprints for commonly traded species to help identify species and track the origin of wood and wood products along the supply chain.
Monitoring and Verification	The information in the database will be useful for monitoring and verification. Genetic and stable isotope testing can help track and monitors the flow of the timber throughout the supply chain.
Legality	Genetic and stable isotope testing can help verify the wood species listed on papers, and thus, support adherence to regulations for timber harvesting and trade.
SFM, Land-Use Change, and Forest Conversion	The information in the database will be useful to help verify compliance with certification standards. Genetic and stable isotope testing can help verify the adherence to certification efforts, which support sustainable forest management.

Green Globes Rating System

Main Issues of Concern	Description
Traceability	Promotes the use of locally manufactured materials.
SFM, Land-Use Change, and Forest Conversion	Scores whether wood-based products originate from operations that are certified by the American Tree Farm System, CSA, FSC and SFI.
Environmental Controls	Prefers materials with low environmental impact.
Fresh and Recycled Fiber	Rates proportion of construction materials that contain recycled post-consumer content.
Source Reduction	Rates the proportion of building materials that are reused.

Green Purchasing Network (GPN)

Main Issues of Concern	Description
Monitoring and Verification	Prefers suppliers that implement EMS to monitor and improve performance, as well as suppliers that proactively disclose environmental information.
Legality	Promotes the use of raw materials that have been produced in compliance with the laws and the rules of the regions where they were harvested.
SFM, Land-Use Change, and Forest Conversion	Prefers products using sustainably produced renewable natural re sources, including certified products.
Environmental Controls	Prefers paper bleached without chlorine.
Fresh and Recycled Fiber	Prefers products that are easily recycled and contain high percentages of fresh and recycled fiber.
Source Reduction	Prompts user to assess whether or not the product is needed before purchasing. GPN also prefers products where the manufacturing and distribution processes minimize the use of resources and energy.

Greenpeace's Responsible Procurement Policy

Main Issues of Concern	Description
Traceability	Timber standard discourages purchasing timber from unknown sources and it accepts – in the short-term – timber from verified, known legal sources. Provides questionnaires and other resources to assist companies' evaluation of their supply chains. Recognizes and promotes FSC Chain-of-Custody Standard.
Monitoring and Verification	Recognizes and promotes FSC third-party verification mechanisms. Encourages third -party independent verification for legality and sustainability. Verification is r equired for timber from known legal sources to be accepted in the short -term.
Legality	Promotes sourcing legally known and verified timber. Recognizes and promotes FSC legality requirements.
SFM, Land-Use Change, and Forest Conversion	Promotes and recognizes FSC forest certification standard for sustainability. Discourages purchasing timber from conflict and converted areas, as well as timber from plantations where GMOs are grown. Provides list of tree species used in plantations that grow GMOs.
Unique forest values	Recognizes and promotes FSC forest certification standard, which includes specifications for high conservation value forest management.
Fresh and Recycled Fiber	Promotes procurement of recycled products.
Social Issues	Recognizes FSC forest certification standard for covering social issues in the production of raw materials.

High Conservation Value (HCV) Resource Network

Main Issues of Concern	Description
Legality	The HCV approach was created to be used in the context of certification, which provides an additional level of assurance. The HCVRN recommends users to follow the Principles of Application of the HCV approach. Users should ensure that their procurement is compliant with international, national and local laws, respects tenure, customary rights and consent of indigenous peoples and local communities, and compliant with laws regulating the use and management of land and water.
SFM, Land-Use Change, and Forest Conversion	The HCVRN advises against converting areas that are needed to maintain or enhance HCVs. Additionally, the HCVRN recommends using the HCV approach as part of a certification scheme where other principles can support environmental good practice.
Unique forest values	The HCVRN supports the identification of HCVs through assessments and responsible management and monitoring of HCVs in forest landscapes.
Social Issues	Two of the six categories of HCVs are areas fundamental to the needs of local communities and indigenous peoples, and areas of cultural, archaeological, economic, or religious significance. These HCVs should be identified through engagement with local communities and indigenous peoples.

Illegal-logging.info

Main Issues of Concern	Description
Traceability	Provides and links to contextual information sources on traceability including reports, studies tracking trade flows among regions, and other analyses. It also provides links and information about tools to track forest products, including forestry certification systems, chain of custody standards, standards to verify the origin and legality of the raw materials and technological tools to track materials throughout the supply chain.
Monitoring and Verification	Provides contextual information and links to sources of information about forest certification systems, legality verification systems and technologies to help track and verify the origin and identity of the timber used in the products.

SFM, Land-Use Change, and Forest Conversion	Provides and links to contextual information sources on sustainable forest management, forest conversion, and deforestation and land-use change.
Legality	The data warehouse is dedicated to everything related to illegal logging. The web site provides data and links to contextual information on major themes related to illegal logging: causes and drivers of illegal logging and trade, initiatives and approaches to address the problem, policies and legislation aimed at tackling illegal logging and trade, key actors and stakeholders, indicators of progress and important sources of information. Information is provided at both the regional and country level, and it is organized by topic.
Unique forest values	Provides and links to contextual information sources on various types of special places including high conservation value forests, endangered forests, forests with exceptional conservation value, and others.
Climate Change	Provides and links to contextual information sources related to climate change and forests. The site has a section dedicated to forests and Climate Change, and Reduced Emissions from forest Degradation and Deforestation.
Social issues	Provides and links to contextual information sources related to social aspects and forests. Themes covered include labor and health, social conflict related to illegal logging, public participation and others.

Japanese Government Procurement Policy

Main Issues of Concern	Description
Traceability	Requires that relevant documentation and evidence (e.g., invoices, contract sales, logging notification, etc.) be preserved during definite terms.
Monitoring and Verification	Requires verification of legality and sustainability through various instruments and procedures, such as wood industry associations' codes of conduct, self-verification mechanisms and forest certification systems. Certification systems that are recognized to meet monitoring and verification requirements include Japan's Sustainable Green Ecosystem Council, the Canadian Standards Association (CSA), the Indonesian Lembaga Ekolabel (LEI), the Malaysian Timber Certification Council (MTCS), PEFC, and SFI.
Legality	Requires that timber be harvested in a legal manner, consistent with procedures in the forest laws of timber-producing countries. Legality is a priority for the Japanese government.
SFM, Land-Use Change, and Forest Conversion	Requires that timber be harvested under a sustainable management regime, and verified through various instruments such as forest certification systems (CSA, FSC, Japan's Sustainable Green Ecosystem Council, LEI, MTCS, PEFC and SFI), codes of conduct of wood industry associations, and self-verification mechanisms.
Environmental Controls	Includes specifications for pollutant emissions in the processing of procured raw materials.
Fresh and Recycled Fiber	Requires specific percentages of fresh and recycled fiber for various solid and pulp-based products.
Source Reduction	Requires simple packaging.

Leadership in Energy and Environmental Design (LEED) Rating Systems

Main Issues of Concern	Description
Traceability	Promotes the use of locally manufactured materials.
SFM, Land-Use Change, and Forest Conversion	Promotes SFM through the use of FSC certification.
Environmental Controls	Promotes the reduction of waste.

Fresh and Recycled Fiber	Rates the proportion of materials that contain fresh and recycled fiber and the proportion of used materials (e.g. in renovation projects) being recycled, including paper, wood flooring, cardboard, etc.
Source Reduction	Rates the proportion of building materials that are reused.

Madera Legal - Asociación Española del Comercio e Industria de la Madera (AEIM)

Main Issues of Concern	Description
Legality	The website provides detailed information aimed at companies importing timber to Spain about the FLEGT action plan, the EUTR and other relevant EU policies and directives. The website also includes information about CITES, the timber species listed under each CITES appendix, and the contact information for the Spanish CITES authority. Further, the website features a risk tool, which allows the user to learn about timber producing countries. The tool includes information about main product categories sourced from these countries, about legality and governance concerns, and provides a risk rating and recommendations for due diligence steps.

Mexican Federal Government Procurement Policy

Main Issues of Concern	Description
Traceability	Timber and wooden furniture products should be third-party certified to ensure that the origin of the raw materials is known.
Monitoring and Verification	Timber and furniture products should be third-party certified to ensure (i) that the origin of the products is known; and, (ii) that the forests where the raw materials originated were sustainably managed. Auditing bodies should register, and be previously approved by, the Ministry of Environment.
Legality	Wood of verified legal origin and in compliance with environmental regulations.
SFM, Land-Use Change, and Forest Conversion	Timber and wooden furniture products should be third-party certified to ensure that the forests from which the raw materials originated were sustainably managed.
Environmental Controls	Office paper products should be at least 50% Chlorine-free.
Fresh and Recycled Fiber	At least 50% of the fibers of office paper products should be recycled or certified.

NEPCon LegalSource Programme

Main Issues of Concern	Description
Traceability	The program offers tools, templates, procedures, training to design and implement a due diligence system. Organizations using the LegalSource standard are required to compile and store information about the supply chain detailed enough to allow a meaningful risk assessment.
Monitoring and Verification	The LegalSource program audits and certifies compliance with the participant's due diligence system.
Legality	The LegalSource standard provides a system for organisations to re duce the risk of sourcing illegally harvested and traded forest products. The standard enables companies to apply a precise risk specification in their supply chain and to aim risk mitigating actions at the specified risks.
Social issues	The legality definition applied in the LegalSource standard includes social issues in so far as they are regulated by law in the country of harvest.

New Zealand Timber and Wood Products Procurement Policy

Main Issues of Concern	Description
Monitoring and Verification	Requires government departments to maintain records that demonstrate verification of the legality of the operations from where products were harvested.

Legality	Seeks to ensure procurement of only legally sourced timber and wood products. Provides guidance for implementation through supplier engagement and contract clauses and documentation for the verification of legality; recognizes third-party forest certification as a way to verify legality, as well as legality validation schemes and ecolabels.
SFM, Land-Use Change, and Forest Conversion	Strongly encourages procurement of sustainably produced timber and wood products. Recognizes full third-party forest certification and step-wise certification as ways to identify sustainability.

Paper Profile

Main Issues of Concern	Description
Traceability	Provides information on how the origin of wood fiber is documented and whether the mill receives wood from certified forests.
Monitoring and Verification	Provides information on whether or not a mill receives wood from certified forests, and the certification systems used. It also includes a description of certified environmental management systems.
SFM, Land-Use Change, and Forest Conversion	Provides information on whether or not the mill receives wood from certified forests, and under which certification systems.
Climate Change	Provides information about the total amount of energy procured, pos sible energy surplus and the CO_2 emissions from burning fossil fuels and peat.
Environmental Controls	Provides a summary of air, water and solid emissions in pulp and paper production, including: chemical oxygen demand, absorbable organic halogens, nitrog en, phosphorous, sulfur dioxide, nitrogen oxides, as well as solid waste.
Fresh and Recycled Fiber	Includes a summary of fresh and recycled fiber.
Source Reduction	Provides a summary of the electricity procured for both the pulp and paper mills, in relation to the amount of pulp used in the paper.

PEFC Due Diligence System

Main Issues of Concern	Description
Traceability	Provides specifications for tracking and collecting and maintaining documentation about the origin of the materials.
Monitoring and Verification	Standard is subject to third-party verification.
Legality	Requires the implementation of supply-chain control mechanisms to minimize sourcing materials from forest management act ivities that do not comply with local, national or international laws.
Unique forest values	Requires that forest management activities maintain, conserve and enhance Unique forest values.
Social Issues	Requires participants to establish systems to minimize the risk of sourcing raw materials from forest management activities that do not comply with local, national or international laws related to workers' health and labor and indigenous peoples' property, tenure and use rights.

Project LEAF

Main Issues of Concern	Description
Traceability	One of the objectives of the project is to provide an overview of the extent, primary geographic locations, and routes, of networks involved in illegal logging, corruption, fraud, laundering and smuggling of wood products.
Monitoring and Verification	One of the objectives of the project is to provide an overview of the extent, primary geographic locations and routes, of networks involved in illegal logging, corruption, fraud, laundering and smuggling of wood products.

Legality	One of the objectives of the project is to provide an overview of the extent, primary geographic locations, routes, causes and structure of networks involved in illegal logging, corruption, fraud, laundering and smuggling of wood products. Another objective is to provide support to countries in improving enforcement efforts, and build the capacity for law enforcement by providing training and operational support; a third objective involves developing best practices for combating forest-related corruption. Under Project LEAF, INTERPOL will conduct groundbreaking, intelligence-led law enforcement operations to combat illegal logging.
Climate Change	One of the objectives of the project is to develop best practices for combating REDD-related and forest- related corruption.
Social Issues	Requires participants to establish systems to minimize the risk of sourcing raw materials from forest management activities that do not comply with local, national or international laws related to workers' health and labor and indigenous peoples' property, tenure and use rights.

Public Procurement Policies for Forest Products and their Impacts

Main Issues of Concern	Description
Monitoring and Verification	Reviews verification requirements issued by public timber procurement policies in Belgium, Denmark, France, Japan, Netherlands, New Zealand and the UK.
SFM, Land-Use Change, and Forest Conversion	Reviews how different public procurement policies define or address sustainability (e.g., through certification systems, providing definitions and guidance, adopting third -party definitions, etc). Provides an analysis of t he impacts of public procurement policies on the forests and forest certification.
Social Issues	Reviews how public procurement policies include, exclude or address social Main Issues of Concern (socioeconomic, cultural and spiritual), compliance with fun damental rights, equality, non-discrimination, and others.

Publisher's database for Responsible Environmental Paper Sourcing (PREPS)

Main Issues of Concern	Description
Traceability	Paper and Forest Sources grading includes adherence to certification and labeling schemes, including FSC and PEFC.
Monitoring and Verification	Accepts FSC and PEFC as guarantee that wood and wood products certified under these systems come from verifiable legal origin. Paper samples are also tested based on the trans-shipment risk of the country where it is manufactured. The PREPS Grading System also recognize paper that is certified by another recognized certification scheme, or if comes from a low to high risk source (accounts for lower scores).
SFM, Land-Use Change, and Forest Conversion	Accepts FSC and PEFC as a guarantee that wood comes from areas that are managed sustainably.
Legality	Requires that wood comes from verifiable legal forest management, initially as verified by FSC and PEFC.
Climate Change	Members track information on fossil fuel CO_2 emissions by paper mills based on direct reporting from paper mills; however, this information is not a factor in the PREPS Grading System.
Fresh and Recycled Fiber	Includes information on the extent that paper is made from recycled material in PREPS Grading System.
Use of Resources	Members track information on fossil fuel CO_2 emissions by paper mills based on direct reporting from paper mills; however, this information is not a factor in the PREPS Grading System.

Unique forest values	Requires that wood does not comes from a low risk country, as defined by the Country Forest Risk Tool developed by PREPS, and does not originate from within a WWF-defined Ecoregion. The Forest Risk Tool has three separate stages 1) Country risk assessment (assesses the risk of illegal logging, conversion, and the rate of forest loss occurring within a particular country) 2) Specific Eco-Region assessment (includes the WWF list terrestrial eco-regions to determine particular areas with high conservation value) 3) Importing country risk assessment (looks at whether a country imports a significant amount of wood from those countries listed as HIGH RISK in the initial Country Risk Assessment)

Sedex

Main Issues of Concern	Description
Legality	Users can store supply chain information related to ethical and responsible practices covered by International Labour Organization, the Ethical Trade Initiative, or the UN Global Compact. It does not require reporting of this information, but encourages audits which track compliance with local laws and regulations.
Climate Change	Although not required, members are encouraged to a nalyze and track the carbon footprint in their operations.
Source Reduction	Although not required, members are encouraged to analyze and track their usage of electricity, gas, water, renewable energy, and waste production in their operations.
Social Issues	Allows members to store, share, and report supply chain information related to international labor standards and health and safety and compliance with laws on these issues.

SmartSource

Main Issues of Concern	Description
Traceability	The SmartSource program works with clients to trace the supply chains for specific products to identify, as accurate as possible, the source or origin of the raw materials in the product.
Monitoring and Verification	SmartSource staff reviews and verifies claims made by suppliers regarding the origin of the raw materials in the products.
SFM, Land-Use Change, and Forest Conversion	SmartSource staff review and verify the claims made by suppliers regarding the origin of the raw materials in the products.
Legality	SmartSource staff reviews and verifies the legality claims made by suppliers regarding the origin of the raw materials in the products.
Unique forest values	Suppliers are required to declare whether or not the raw materials originated in areas considered to be HCVFs. SmartSource staff reviews and assess risk based on the origin of the raw materials and potential overlap with HCVFs.

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

Main Issues of Concern	Description
Traceability	The Standard does not cover, and is not applicable to, materials from unknown sources. Users need to know the geographic origin of the raw materials that go into the product to a level that is appropriate to support claims to consumers.
Monitoring and Verification	The Standard is applicable to non-controversial products of known origin, including SFM certified products, legally-verified products, or products with chain of custody certification. The Standard seeks to provide a framework to help differentiate products in the marketplace, based on qualities and values important to the buyers, and beyond the variability of forestry certification systems.

Legality	The Standard is applicable only to products th at originate from jurisdictions with low risk of illegal activity, or from controlled wood standards, stair -step standards, legality assessments, or other proprietary standards.
SFM, Land-Use Change, and Forest Conversion	The Standard characterizes sources as "responsible" if controls in place ensure compliance with best management practices to protect water sources. It characterizes sources as "certified" if they are certified to credible forest certification schemes, or conform to the American Society for Testing and Materials' (ASTM) own standard for the evaluation of forest management plans. The Standard also includes in appendices, for discussion purposes, provisions related to protective forestry practices. Practices including cultivation of exotic species, forest composition changes, systematic use and reliance on chemicals, and systematic elimination of natural in-growth of native trees cumulatively disqualify a source from being characterized as coming from areas with protective practices.

String

Main Issues of Concern	Description
Traceability	String users are able to trace any product along the supply chain, from the forest to the finished product. This includes complex and extended supply chains and through the transformati onal processes.
Monitoring and Verification	Buyers and suppliers use a "handshake" mechanism to confirm that the data already entered by the previous organization is correct before entering their own data. If the data recorded is missing, or in violation of previously established validation rules, the system marks the data as incomplete or invalid. The system has built-in tools for third party auditing.
Legality	String makes it easier to identify data discrepancies. The "handshake" mechanism between buyer and supplier means that all actors along the supply chain would be in collusion to enable deliberate falsification of the data. String can be customized to store/request legality/verification documents or certificates.

Sustainable Forestry Initiative Procurement Objective (SFI Procurement Objective)

Main Issues of Concern	Description
Traceability	In the US and Canada, requires an auditable system to ensure that the raw material in the supply chain is from responsible and legal sources. This includes landowner outreach, use of qualified resource and qualified logging professional and adherence to best management practices. For sources outside North America, it requires participants to assess and address risk of acquiring materials from controversial sources.
Monitoring and Verification	For the US and Canada, requires participants to have an auditable system to address Forest of Exceptional Conservation Value in harvest of purchased stu mpage, implement a policy to ensure that facility inventories and fiber sourcing activities do not compromise adherence to the principles of sustainable forestry, and shall monitor the use of best management practices. Outside the US and Canada, requires participants to ensure their fiber sourcing programs support principles of sustainable forestry, including efforts to promote conservation of biodiversity, thwart illegal logging and avoid controversial sources and encourage socially sound practices.
SFM, Land-Use Change, and Forest Conversion	Participants' procurement programs are expected to promote SFM principles.
Unique forest values	For the US and Canada, participants' shall provide information to landowners for identification and protection of important habitat elements for wildlife and biodiversity, including Forest with Exceptional Conservation Value. This includes program to address FECV in harvests of purchased stumpage. Outside US and Canada, participants shall their fiber sourcing support efforts t o promote conservation of biodiversity procurement policies are expected to promote the conservation of biodiversity hotspots and major tropical wilderness areas.

Social Issues	Requires the establishment of an auditable system for compliance with socially sound management practices. In countries without effective laws and law enforcement, participants must assess and address issues related to workers' health and safety, fair labor practices, indigenous peoples' rights, antidiscrimination and anti -harassment measures, prevailing wages, and workers' right to organize.

Sustainable Forest Finance Toolkit

Main Issues of Concern	Description
Traceability	The Toolkit provides a general, high-level overview of different sustainability Main Issues of Concern and issues along supply chains of forest products. The Toolkit also provides advice and information for financial institutions to assess and man age risk, depending on the country of origin of the products involved, and the location of operations.
Monitoring and Verification	The Toolkit provides general information about third-party verification systems, including SFM certification systems. It also provides links to SFM certification case studies, and advice about self and third-party performance monitoring, and stakeholder engagement to verify information.
Legality	The Toolkit provides a general overview of legality and illegal activities in the forestry sector. It also provides general information about emerging demand side legality requirements, such as the U.S. Lacey Act and FLEGT. The Toolkit also includes case studies.
SFM, Land-Use Change, and Forest Conversion	The Toolkit provides general information about Sustainable Forest Management; specific SFM topics include: forest conversion, GMOs, exotic species, use of chemicals, forest restoration, and clearcuts. Plantations are covered extensively, as well as information about SFM certification systems.
Unique forest values	The Toolkit provides general background information about special places.
Climate Change	The Toolkit includes information about the relationship between forests and the global carbon cycle, as well as the role of forests in provi ding ecosystem services such as air quality regulation, provision of genetic resources, and others. It covers Main Issues of Concern such as afforestation, reforestation, Reduced Emissions from Degradation and Deforestation, as well as wood-based biofuels.
Environmental Controls	The Toolkit provides information about using Environmental Management Systems to improve environmental performance.
Fresh and Recycled Fiber	The Toolkit provides general background information about recycled fiber streams.

Swiss Declaration Duty for Timber

Main Issues of Concern	Description
Traceability	Requires suppliers to provide the place of harvest. In general the information should be posted on the product, close to it, or in the packaging. Initially, roundwood, wood in the rough and some solid wood products are covered. Declaration requirements to other wood products will be extended and clarified as t he EU Illegal Timber Regulation is implemented.
Monitoring and Verification	The Federal Consumer Affairs Bureau will conduct various forms of enforcement including surveys at points of sale and documentation audits. The agency might also enlist assistance of private and public organizations in enforcement actions.
Legality	With the database on the website of the Federal Consumer Affairs Bureau, it is possible to obtain information about the scientific name and the trade name of the type of wood, necessary for the declaration. In addition, the database provides distribution areas of different types of wood, as well as information on whether the type of wood is protected by the Convention on International Trade in Endangered Species of Wild Fauna and Flora.

Timber Tracking Technologies Review

Main Issues of Concern	Description
Traceability	Provides contextual information on timber tracking technologies that trace forest products through supply chain.
Monitoring and Verification	Provides contextual information on timber tracking technologies that trace forest products through the supply chain, supporting adherence to chain of custody and verification systems.
Legality	Provides contextual information on timber tracking technologies that trace forest products through the supply chain, supporting adherence to regulations for timber harvesting and trade.
SFM, Land-Use Change, and Forest Conversion	Provides contextual information on timber tracking technologies that trace forest products through the supply chain, supporting adherence to forest management certification standards.

Timber Trade Action Plan

Main Issues of Concern	Description
Traceability	Provides training, advice and financial support to companies aiming at the establishment of robust chain-of-custody systems that allow them to track their wood from the forest s through processing facilities and to export destinations in the EU.
Monitoring and Verification	Promotes third-party verification. Participating companies are required to comply with chain - of-custody and legality requirements that include specifications for verification.
Legality	Compiles legality checklists against which it assesses gaps in the legality of identified supply chains in producer countries in Africa, Latin America and Asia; it offers technical guidance to companies to fill such gaps and to achieve third-party verification of legality. Country legality checklists are developed based on international legality requirements (e.g., Smartwood, etc.) and in-country draft or generic legality standards, when available.

Timber Retail Coalition

Main Issues of Concern	Description
Legality	Campaigns publicly and privately for legislation and regulation that Coalition members can realistically apply and implement, in order to ensure the legality of timber and timber products in the EU markets.
SFM, Land-Use Change, and Forest Conversion	Campaigns publicly and privately for legislation and regulation that Coalition members can realistically apply and implement, in order to ensure the sustainability of timber and timber products in the EU markets.
Climate Change	The Coalition campaigns on forest -related topics such as deforestation and its impact on climate change.

Tropical Forest Trust's Good Wood, Good Business Guide

Main Issues of Concern	Description
Traceability	Provides advice for companies to identify the sources of their wood (e.g., sending questionnaires, interviewing suppliers, etc). Provides an overview of options for wood tracking, chains-of-custody, and potential issues.
Monitoring and Verification	Provides advice about third-party verification systems, as well as potential issues.
Legality	Provides overview definitions of illegal and legal wood, as well as guidance to exclude illegal wood from the supply chain.

SFM, Land-Use Change, and Forest Conversion	Promotes sourcing from verifiable sustainably managed forests. Provides an overview of international initiatives to develop criteria and indicators for assessing, monitoring and reporting on SFM, as well as certification systems. Definition of un wanted wood includes wood from forest conversion projects, dam clearance projects and others.
Unique forest values	Provides an overview of unwanted wood, includes wood from high conservation value forests, endangered forests, and others.
Social Issues	Provides an overview of unwanted wood, which includes: material from places where harvesting is associated with human rights violations, wood used to underwrite armed conflicts, or wood that breaks UN trade sanctions.

Tropical Forest Trust (TFT)

Main Issues of Concern	Description
Traceability	Identifies origin of raw materials for members' products and conducts field scoping to ensure basic legality requirements are met as a minimum first step. Provides guidance on procurement policies; assists members to establish chain -of-custody systems and provides monitoring of such systems.
Monitoring and Verification	Promotes third-party certification. Provides second-party monitoring for members through the supply chain: monitoring members' progress towards credible forest certification standard levels in forest operations; monitoring traceability of wood in processing f acilities; and monitoring wood use and sourcing to decrease that from unwanted sources and increase use of good wood.
Legality	Evaluates operations' compliance with basic legality requirements through field checks. Establishes and monitors supply manageme nt systems in forest operations and processing facilities and provides guidance towards specific legal standards.
SFM, Land-Use Change, and Forest Conversion	Promotes SFM by providing technical guidance in forest operations towards credible forest certification. Promotes increased efficiency in forest management through training on reduced impact logging practices.
Unique forest values	Promotes sourcing from production forests and avoiding wood from unwanted sources such as protected areas.
Climate Change	Through the Climate Tree Initiative, promotes conservation of tropical forests to reduce greenhouse emissions and protect climate. Advocates ways to be carbon responsible.
Fresh and Recycled Fiber	Promotes verification of recycled status.
Source Reduction	By working to enhance wood control systems in factories, increases efficiency in the use of other resources. Offers guidance and recommendations for using reclaimed or recycled timber. Promotes verification of recycled status.
Social Issues	Trains forest companies to implement all social elements of FSC certification. Encourages business to donate directly to community forest programs.

Two Sides

Main Issues of Concern	Description
Traceability	The initiative provides general information about supply chains for printed products, from the forests to the final product.
Monitoring and Verification	Provides general information and links to FSC and PEFC in the UK.
Climate Change	The initiative provides links, documents and case studies related to CO_2 emissions due to timber harvesting and the paper making process.
Environmental Controls	The initiative provides links, documents and case studies related to air and water emissions in the paper making process.
Fresh and Recycled Fiber	The initiative provides links, documents and case studies related to paper recycling.

Wood for Good Campaign

Main Issues of Concern	Description
SFM, Land-Use Change, and Forest Conversion	Promotes forest certification (CSA, FSC, PEFC, and SFI).
Climate Change	Promotes the use of wood to address climate change; greater use of wood stimulates the expansion of forests, greater storage of carbon in trees and products, r ecovery of stored energy by burning wood as a substitute for fossil fuels, and reduction of greenhouse emissions.
Environmental Controls	Measures wood against other construction materials (steel and concrete) through comparisons of environmental impacts in manufacturing processes.
Fresh and Recycled Fiber	Promotes recycling of wood products.

World Wildlife Fund Guide to Buying Paper

Main Issues of Concern	Description
Traceability	Promotes the use of Environmental Management Systems (EMS) and third -party verification; showcases a company tracking supply chain.
Monitoring and Verification	Promotes the use of EMS and third-party verification.
Legality	Promotes the avoidance of illegal and other un acceptable sources. Promotes forest certification as a means to avoid sourcing raw materials harvested through illegal practices.
SFM, Land-Use Change, and Forest Conversion	Provides background information about SFM and links to additional resources; prom otes forest certification as means to avoid sourcing raw materials from areas that have been converted; showcases company sourcing certified materials.
Unique forest values	Promotes the avoidance of illegal and other unacceptable sources. Promotes forest certification as a means to avoid sourcing raw materials harvested from high conservation value forests.
Climate Change	Provides background information; promotes reduction of CO_2 emissions and showcases companies reducing CO_2 emissions.
Environmental Controls	Provides background information about pollution and most notable pollutants. Promotes the use of EMS by forest-producing companies to improve environmental performance, and promotes the use of TCF paper.
Fresh and Recycled Fiber	Provides background information and advice about increasing use of recycled fiber. Showcases examples of companies using recycled fiber.
Source Reduction	Provides background information and advice to reduce paper consumption.
Social Issues	Promotes the avoidance of illegal and other unacceptable sources. Promotes forest certification as means to avoid sourcing raw materials harvested in violation of customary rights.

World Wildlife Fund Guide to Buying Paper

Main Issues of Concern	Description
Traceability	Rates percentage of fiber from certified sources.
Monitoring and Verification	Rates fiber from certified operations as well as manufacturing operations that implement EMS.
Legality	Rates percentage of fibers that are certified to avoid the potential inclusion of fiber from unwanted sources.
SFM, Land-Use Change, and Forest Conversion	Rates percentage of FSC certified fiber.
Unique forest values	Provides safeguards to avoid potential inclusion of unwante d sources of fiber, in line with FSC Controlled-Wood Standard.

Climate Change	Rates fossil fuels' contribution to climate change and global warming through emissions of CO_2.
Environmental Controls	Rates safeguards to avoid potential inclusion of unwanted sources of fiber, aligned with the FSC Controlled-Wood Standard.
Fresh and Recycled Fiber	Rates and promotes the use of post -consumer recycled fiber.
Social Issues	Rates safeguards to avoid potential inclusion of unwanted sources of fiber, aligned with the FSC Controlled-Wood Standard.

World Wildlife Fund Tissue Scoring

Main Issues of Concern	Description
Traceability	Rates the implementation of transparent process(es) for the systematic tracking of materials, in order to compile evidence to ensure that the origin of commodities traded and/or processed is known.
Monitoring and Verification	Rates the systematic tracking of paper-based materials, as well as whether tracking is monitored and independently verified. Rates companies' co mmitment to implementing an EMS and making such commitments publicly available. Progress towards environmental and social policies should be reported through an annual corporate/environmental responsibility report.
Legality	Scoring criteria include clear policies aimed at eliminating all raw materials from illegal and controversial sources.
SFM, Land-Use Change, and Forest Conversion	Rates companies' commitment to eliminate all sourcing of materials from the conversion of natural forests. Gives preference for buying wood from FSC certified plantations, and companies committed to improvement of management that enhances biodiversity in plantations and in the adjacent areas. Scoring criteria also considers whether or not companies have a commitment to make st epwise progress towards certification.
Unique forest values	Rates whether companies have a policy to eliminate all raw materials from controversial sources, including forests of high biodiversity value.
Environmental Controls	Rates whether a company has a vision and targets for the production process with specific commitments to reduce/eliminate emissions of various substances including carbon dioxide, nitrogen oxides, sulfur compounds, total suspended solids, phosphorous, nitrogen, biological and chemical oxygen demand, and absorbable organic halogens, as well as the reduction of solid and hazardous waste to landfill. It also rates commitments to ongoing research and development into cleaner production and transportation technologies.
Fresh and Recycled Fiber	Rates companies' specific commitments to maximize the use of post -consumer fresh and recycled fiber and optimize the use of virgin fiber.
Source Reduction	Rates whether companies have set a vision and targets for the production process to minimize the use of non-wood inputs (water, energy and additives), and maximize the use of biomass and other renewable energy.
Social Issues	Rates whether a company has a clear policy to eliminate all raw materials from controversial sources, including sourcing from forests where the rights of local communities and indigenous peoples are compromised.

UK Government Central Point of Expertise on Timber Procurement (CPET)

Main Issues of Concern	Description
Traceability	Provides advice to evaluate supply chains, including contractual requirements. CPET's framework to assess compatibility of forest certification systems with UK government procurement policy covers chain-of-custody standards.
Monitoring and Verification	Provides advice on obtaining evidence of compliance and means of verification. CPET's framework to assess compliance of certification systems with UK central government procurement requirements includes elements of certification and accreditation.

Legality	Provides advice and guidance for compliance with UK central government procurement requirements for the legality of wood products. Accepts CSA, FSC, MTCS, PEFC, and SFI certification as evidence of legality.
SFM, Land-Use Change, and Forest Conversion	Provides advice and guidance to comply with UK central government requirements for sustainability, including a framework to assess compatibility of certification systems and other types of evidence. Recognizes CSA, FSC, PEFC, and SFI certification as evidence of sustainability.
Unique forest values	Addresses issues of special places to the degree they are incorporated in requiremen ts of certification standards for sustainability.
Social Issues	Addresses social issues to the degree they are incorporated in requirements of certification standards for sustainability and legality.

UK Timber Trade Federation Responsible Purchasing Policy

Main Issues of Concern	Description
Traceability	Provides assistance to members to evaluate the supply chain of their products, the levels of risk of their suppliers and country of origin for their products.
Monitoring and Verification	Provides assistance and guidance to its members to verify compliance with the Federation's purchasing policy, as well as with UK central government sustainability and legality procurement requirements. Members are expected to complete annual management reports, which are evaluated by an independent auditor to assess compliance with the Federation's responsible purchasing policy.
SFM, Land-Use Change, and Forest Conversion	Provides guidance and advice to its members to evaluate compliance with sustainability requirements of the UK central government procurement policy. Members must not trade wood from forests being converted to plantations or non -forest land uses.
Unique forest values	Members must not trade wood from forests where high conservation value is threatened by management activities.
Social Issues	Provides guidance and assistance to members to evaluate compliance with legality requirements of the UK central government procurement policy, including compliance with social standards and laws. Members must not trade wood harvested in violation of traditional and civil rights.

Additional resources

Additional resources

CITES

- CITES website – www.cites.org.
- Environment Canada, USDA-Forest Service, CITES. 2002. CITES Identification guide of tropical woods protected under CITES. Ottawa: Environment Canada. Online at http://www.ec.gc.ca/Publications/30572765-7F5C-4EAF-AC70-774EC56F69BF%5CCITES-Identification-Guide---Tropical-Woods.pdf (11/19/12).
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Climate Change

- Global Issues: Climate change and global warming: carbon sinks, forests and climate change – www.globalissues.org (11/19/12).
- Miner, R. 2003. *Characterizing carbon sequestration in forest products along the value chain.* Research Triangle Park, NC: NCASI. Online at http://www.ncasi.org/publications/Detail.aspx?id=2625 (11/19/12).
- The Forest Dialogue: forest and climate website - http://environment.yale.edu/tfd/dialogues/forests-and-climate/ (11/19/12).
- WBCSD and WRI – GHG Protocol Initiative – www.ghgprotocol.org (11 /19/12).

Efficiency

- JAAKKO PÖYRY Consulting. 2003. *Summary of international pulp and paper industry structure and best practice*. Vantaa, Finland: Jaakko Pöyry Consulting.
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Deforestation and land-use conversion

- Center for International Forestry Research – www.cifor.org (11/19/12).
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- NASA's Goddard Space Flight Center – Forest ecosystem dynamics website – http://forest.gsfc.nasa.gov/ (11/19/12).
- WWF Forest conversion website – http://wwf.panda.org/what_we_do/footprint/agriculture/forescomversion.cfm (11/19/12).

Environmental management systems

- BSI Group – www.bsi-global.com (11/19/12).
- ISO Standard for Management Systems – ISO 14000 Series. Available for purchase at www.iso.org (11/19/12).
- Environmental Management Systems Network – www.emsnet.com (11/19/12).
- Institute of Environmental Management and Assessment – www.iema.net (11/19/12).

- UK Department for Environment, Food and Rural Affairs Environmental Management Systems page – http://archive.defra.gov.uk/environment/business/scp/actions/ems.htm (11/19/12).
- US Environmental Protection Agency – Overview information on environmental management systems website – http://www.epa.gov/compliance/incentives/ems/ (11/19/12).

Forest certification

- American Tree Farm System website – www.treefarmsystem.org (11/19/12).
- Brazilian Forest Certification System (CERFLOR) – www.inmetro.gov.br/qualidade/cerflor.asp (11/19/12).
- CSA – National Standards for Sustainable Forest Management – www.csa-international.org (11/19/12).
- Chilean Forest Certification System (CERTFOR) – www.certfor.org (11/19/12).
- FSC – http://ic.fsc.org/index.htm (11/19/12).
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Forest certification comparisons

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Table 19. Publicly available corporate procurement policies

Selected list of corporate procurement policies and standards. In many cases, sustainable procurement practices are determined by a company's general business practices, codes, values, principles and standards. Sustainable procurement policies for wood and paper-based products are not necessarily singled out from procurement policies.

Company	Aspects covered in procurement policy/practices	Focus	URL
Banking			
Bank of America	• Origin • Information accuracy • Legality • Sustainability • Unique forest values • Fresh and recycled fiber • Use of resources	Paper-based products	environment.bankofamerica.com
JP Morgan Chase	• Information accuracy • Sustainability • Fresh and recycled fiber • Use of resource	Paper-based products	www.jpmorganchase.com
Royal Bank of Canada	• Information accuracy • Sustainability • Fresh and recycled fiber • Use of resources	Paper-based products	www.rbc.com
Scotiabank	• Information accuracy • Legality • Sustainability • Unique forest values • Environmental protection • Use of resources • Communities • Local communities and indigenous peoples	Paper-based products	www.scotiabank.comf
Construction/Developers			
Countryside Properties	• Origin • Information accuracy • Legality • Sustainability • Fresh and recycled fiber	Wood products	www.countryside-properties-corporate.com
Skanska	• Information accuracy • Sustainability • Legality	Wood-based products	www.skanska.com
Wates	• Origin • Information accuracy • Legality • Sustainability	Wood products	www.wates.co.uk
Construction/Investment/Services			
Balfour Beatty Corporation	• Origin • Information accuracy • Sustainability	Wood-based products	www.balfourbeatty.co.uk
Cosmetics/Beauty			
Avon Products Inc.	• Origin • Information accuracy • Legality • Sustainability • Unique forest values • Climate change • Environmental Protection • Fresh and recycled fiber • Use of resources • Local communities and indigenous peoples	Paper-based products	http://www.avoncompany.com

Forestry			
April	• Origin • Information accuracy • Legality • Unique forest values	Wood products	www.aprilasia.com
DLH Group	• Origin • Information accuracy • Legality • Sustainability	Wood products	www.dlh-group.com
Domtar	• Origin • Information accuracy • Legality • Sustainability	Paper-based products	www.domtar.com
FinnForest	• Origin • Information accuracy • Legality • Sustainability • Unique forest values • Local and indigenous communities	Wood products	www.finnforest.co.uk
Metsä Group	• Origin • Legality • Information accuracy • Sustainability • Environmental protection • Use of resources • Climate change • Local and indigenous communities	Wood and paper-based products	www.metsagroup.com
Nippon Paper Group	• Origin • Information accuracy • Legality • Sustainability • Local and indigenous communities	Wood products	www.np-g.com
Oji Paper Group	• Origin • Information accuracy • Legality • Sustainability • Unique forest values • Use of resources • Climate change • Environmental protection • Local and indigenous communities	Wood and paper-based products	www.ojipaper.co.jp
Stora Enso	• Origin • Information accuracy • Legality • Sustainability • Unique forest values • Environmental protection • Local and indigenous communities	Wood and paper-based products	www.storaenso.com
UPM	• Origin • Information accuracy • Legality • Sustainability • Environmental protection • Local and indigenous communities • Unique forest values	Wood and paper-based products	www.upm.com
Furnishing			
IKEA Group	• Origin • Information accuracy • Legality • Sustainability • Unique forest values	Wood products	www.ikea-group.ikea.com
Williams Sonoma	• Information accuracy • Legality • Sustainability • Unique forest values • Fresh and Recycled Fiber • Use of resources	Paper-based products	www.williams-sonomainc.com

Logistics and communications			
Deutsche Post World Net	• Information accuracy • Sustainability • Fresh and Recycled Fiber	Paper-based products	www.dpwn.de
Media			
Bertelsmann AG	• Origin • Information accuracy • Legality • Sustainability • Environmental protection • Fresh and Recycled Fiber • Unique forest values • Use of resources	Paper-based products	www.bertelsmann.de
Multiproducts			
Kimberly-Clark	• Information accuracy • Legality • Sustainability • Unique forest values • Environmental protection • Fresh and Recycled Fiber • Local and indigenous communities	Paper-based products	www.kimberly-clark.com
Unilever	• Information accuracy • Sustainability • Fresh and Recycled Fiber • Use of resources	Paper-based products	www.unilever.com
Outfitters			
Limited Brands	• Information accuracy • Legality • Sustainability • Unique forest values • Environmental protection • Fresh and Recycled Fiber • Use of resources • Local and indigenous peoples	Paper-based products	www.limitedbrands.com
L.L. Bean	• Origin • Information accuracy • Legality • Sustainability • Unique forest values • Fresh and Recycled Fiber • Use of resources • Environmental protection • Local and indigenous communities	Paper-based products	www.llbean.com
Norm Thompson	• Origin • Information accuracy • Sustainability • Unique forest values • Environmental protection • Use of resources • Fresh and Recycled Fiber	Paper-based products	www.normthompson.com
REI	• Origin • Legality • Information accuracy • Sustainability • Unique forest values • Fresh and Recycled Fiber • Use of resources • Local and indigenous communities	Paper-based products	www.rei.com
Packaging (specialty)			
Tetra Pak	• Origin • Information accuracy • Legality • Sustainability • Unique forest values	Paper-based products	www.tetrapak.com

Printing/Publishing			
Axel Springer AG	• Origin • Information accuracy • Legality • Sustainability • Unique forest values • Environmental protection • Local and indigenous communities • Fresh and Recycled Fiber	Paper-based products	www.axelspringer.de
New York Times	• Information accuracy • Sustainability • Fresh and Recycled Fiber • Environmental protection • Use of resources	Paper-based products	www.nytco.com
Random House UK	• Origin • Information accuracy • Legality • Sustainability • Unique forest values • Fresh and Recycled Fiber • Environmental protection • Local and indigenous communities	Paper-based products	www.randomhouse.co.uk
Time Warner	• Origin • Information accuracy • Legality • Sustainability • Fresh and Recycled Fiber • Local and indigenous communities	Paper-based products	www.timewarner.com
Retail			
B&Q	• Origin • Information accuracy • Sustainability • Fresh and Recycled Fiber • Local and indigenous communities	Wood products	www.diy.com
Carrefour	• Origin • Information accuracy • Legality • Sustainability • Fresh and Recycled Fiber	Wood and paper-based products	www.carrefour.com
Hubert	• Information accuracy • Legality • Sustainability • Environmental protection • Recycling • Local and indigenous communities	Wood and paper-based products	www.hubert.com/comp/responsibility.asp
Jewson (Saint-Gobain Building Distribution in the UK and Ireland)	• Origin • Legality • Information accuracy • Sustainability	Wood products	www.jewson.co.uk
Lowes	• Information accuracy • Sustainability • Unique forest values • Fresh and Recycled Fiber • Use of resources	Wood products	www.lowes.com
Marks & Spencer	• Information accuracy • Sustainability • Fresh and Recycled Fiber • Use of resources	Wood and paper-based products	plana.marksandspencer.com
Mondi	• Origin • Information accuracy • Legality • Sustainability • Unique forest values • Environmental protection • Local and indigenous communities	Wood and paper-based products	www.mondigroup.com

OfficeMax	• Origin • Legality • Information accuracy • Sustainability • Unique forest values • Fresh and Recycled Fiber	Paper-based products	about.officemax.com
RONA	• Origin • Information accuracy • Legality • Sustainability • Unique forest values • Climate change • Environmental protection • Use of resources • Indigenous and local peoples	Wood products	www.rona.ca
Staples	• Information accuracy • Sustainability • Unique forest values • Fresh and Recycled Fiber	Paper-based products	www.staples.com
The Home Depot	• Origin • Information accuracy • Legality • Sustainability • Unique forest values • Use of resources	Wood products	corporate.homedepot.com
Technology			
Dell	• Origin • Fresh and Recycled Fiber • Unique forest values • Sustainability • Information accuracy • Use of resources	Wood and paper-based products	www.dell.com
Epson	• Legality • Sustainability • Unique forest values • Environmental protection • Local and indigenous communities	Paper-based products	www.epson.co.jp
Hewlett-Packard	• Legality • Sustainability • Fresh and Recycled Fiber • Use of resources • Climate change • Environmental protection • Local communities and indigenous peoples	Paper-based products	www.hp.com
Kodak	• Information accuracy • Sustainability • Fresh and Recycled Fiber • Use of resources	Wood and paper-based products	www.kodak.com
Xerox	• Origin • Information accuracy • Sustainability • Environmental protection • Fresh and Recycled Fiber • Use of resources	Paper-based products	www.xerox.com

Terminology

Terminology

ACRONYMS

AFF	American Forest Foundation
AOX	Absorbable Organic Halogens
ASEAN	Association of Southeast Asian Nations
ATFS	American Tree Farm System
ATO	African Timber Organization
AZE	Alliance for Zero Extinction
BOD	Biological Oxygen Demand
CBD	Convention on Biological Diversity
CEPI	Confederation of European Paper Industries
CIFOR	Center for International Forestry Research
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CO_2	Carbon Dioxide
CoC	Chain of custody
COD	Chemical Oxygen Demand
CPET	Central Point of Expertise on Timber Procurement (UK)
CPI	Corruption Perception Index
CSA	Canadian Standards Association
ECF	Elemental Chlorine Free
EECF	Enhanced Elemental Chlorine Free
EMS	Environmental Management System
EPAT®	Environmental Paper Assessment Tool
EPE	European Partners for the Environment
FAO	Food and Agriculture Organization
FCAG	Forest Certification Assessment Guide
FECV	Forests with Exceptional Conservation Value
FICAT	Forest Industry Carbon Assessment Tool
FLEG	Forest Law Enforcement and Governance
FLEGT	Forest Law Enforcement, Governance and Trade
FPAC	Forest Products Association of Canada
FPIC	Free Prior and Informed Consent
FSC	Forest Stewardship Council
GBI	The Green Building Initiative
GFTN	Global Forest and Trade Network
GHG	Green House Gases
GMOs	Genetically Modified Organisms (also Genetically Modified – GM)
GPN	Green Purchasing Network
HCVF	High Conservation Value Forests
IFC	International Finance Corporation
IGPN	International Green Purchasing Network
IPCC	Intergovernmental Panel on Climate Change
IPF/IFF	Intergovernmental Panel on Forests/ Intergovernmental Forum on Forests
IPM	Integrated Pest Management
ISO	International Organization for Standardization
ITTO	International Tropical Timber Organization
IUCN	World Conservation Union, formerly International Union for Conservation of Nature and Natural Resources
IUFRO	International Union of Forest Research Organizations
LAS	Legality Assurance System
LCA	Life Cycle Assessment
LEED	Leadership in Energy and Environmental Design
LEI	Lembaga Ekolabel Indonesia (Indonesian Ecolabeling Institute)
MTCS	Malaysian Timber Certification Standard
NCASI	National Council for Air and Stream Improvement, Inc.
NGO	Non-Governmental Organization
OECD	Organization for Economic Co-operation and Developmen
PEFC	Programme for the Endorsement of Forest Certification
PEOLG	Pan-European Operational Level Guidelines
QACC	Questionnaire for Assessing the Comprehensiveness of Certification Schemes
SCS	Scientific Certification Systems
SFI, Inc.	Sustainable Forestry Initiative
SFM	Sustainable Forest Management
SMS	Social Management System
TCF	Totally Chlorine Free
TFT	The Forest Trust
TI	Transparency International
TLTV	Timber Legality and Traceability
TTAP	Timber Trade Action Plan
TTF	Timber Trade Federation
UNEP	United Nations Environment Programme
VLC	Verification of Legal Compliance
VLO	Verification of Legal Origin
VOCs	Volatile Organic Compounds
VPA	Voluntary Partnership Agreement
WB	World Bank
WBCSD	World Business Council for Sustainable Development
WCMC	World Conservation Monitoring Centre
WRI	World Resources Institute
WWF	World Wide Fund for Nature

GLOSSARY

bill of lading
A document establishing the terms of contract between a shipper and a transportation company to move freight from one point to another for a specific charge. The shipper often prepares the bill of lading on forms issued by the carrier (GFTN, 2005).

biodiversity
Also, biological diversity. The variety of living organisms from all sources including terrestrial, marine and other aquatic ecosystems, as well as the ecological complexes of which they are part. This includes diversity within species, between species and of ecosystems (CBD, 2007).

carbon sequestration
The different processes through which carbon is removed from the atmosphere and stored in soil, biomass, geological formations and oceans.

chain of custody (CoC)
The systematic tracking of wood-based products from their origin in the forest to their end-use.

clearcutting
A timber harvesting method that involves the removal of standing trees in a given area (ACF, 2006).

critical forests
See Table 12.

critically endangered species
Species considered to be facing an extremely high risk of extinction in the wild (IUCN, 2006).

endangered forests
See Table 12.

endangered species
Any species facing a very high risk of extinction in the wild. Examples of endangered commercial tree species include Cerjeira or roble del país (*Amburana cearensis*), Palissandre (*Dalbergia davidii*), and Australian hickory (*Flindersia ifflaiana*) (IUCN, 2006).

endemic species
Species that live exclusively in certain areas and do not exist anywhere else (IUCN, 2006)

engineered wood
Also known as composite woods, engineered woods are manufactured by binding wood particles or fibers with adhesives to meet specific design requirements. Uses of engineered woods are often similar to those of solid wood (Composite Panel Association, 2007). Engineered wood products include plywood, oriented strand board and fiberboard.

environmental management systems (EMS)
A set of processes and practices that enables an organization to reduce its environmental impacts and increase operational efficiency (EPA, 2007).

exotic species
A species that exists in the free state in an area but is not native to that area. (IUCN, 2007A).

fiberboard
An engineered wood made of wood fibers or particles bonded together with wax and adhesives. Fiberboards include particle board, medium-density fiberboard, high-density fiberboard and hardboard, depending on the density of the particles.

flagship species
A species that can be used to anchor a conservation campaign because it arouses public interest and sympathy (Simberloff, 1998).

forest concession
Generally speaking, a forest concession is a contract between a forest owner and another party, allowing the management and harvesting of wood resources from a given area (Gray, 2002).

forest conversion
When natural forests are converted to highly cultivated forests, typically with an increased focus on wood production, and decreased environmental benefits.

forest land-use change
Also called Deforestation – where forests are being converted from natural forests to other land uses (agriculture, cattle ranching, urbanization, etc). Such land-use change may or may not be legal and can result in forested areas that do not have the prospect of being sustainably managed.

forests with exceptional conservation value (FECV)
See Table 12.

free prior informed consent (FPIC)
ILO's Convention 186 (ILO, 1998), defines FPIC as the right of communities "to exercise control, to the extent possible, over their own economic, social and cultural development." The principles FPIC are evolving through international debate to help define and require appropriate consultation and consent. A full discussion can be found in Herz et al., 2007.

frontier forests
See Table 12.

genetically modified organisms (GMOs)
An organism that, through human intervention in a laboratory, has had its genetic code deliberately altered. Genetic modification may be used to alter any of a wide range of traits (Alberta Forest Genetic Resources Council, 2007).

high conservation value forests (HCVF)
See Table 12.

indicator species
Species that define a characteristic or trait of the environment. Indicator species are used to assess the condition of an environment because they are often more sensitive than other species to environmental changes.

intact forest landscapes (IFL)
See Table 12.

integrated pest management (IPM)
An approach to enhancing crop and livestock production, based on an understanding of ecological principles. Chemical pesticides are used only when biological and cultural control methods and available technologies fail to keep pests below acceptable levels, and when assessment of associated risks and benefits indicates that the benefits of the use of chemicals outweigh the costs (SPIPM, 2007).

invasive species
Species which are non-native to the ecosystem under consideration, and whose introduction is likely to cause economic, environmental, or human health harm (NISIC, 2007).

kenaf
A plant related to cotton and okra that can be used as alternative fiber for paper-making (Vision Paper, 2007).

key biotopes
See Table 12.

keystone species
Species whose activity governs the well-being of many other species (Simberloff, 1998).

life cycle assessment (LCA)
A tool to objectively evaluate the overall environmental impacts associated with a product.

major tropical wilderness areas
See Table 12.

non-wood forest products (NTFP)
All forest products except timber. Non-wood forest products include other materials obtained from trees, such as resins and leaves, as well as other plant and animal products, such as mushrooms, berries, medicinal herbs, game, etc. (FAO, 2007A).

old growth forests
A forest that has originated through natural succession and maintains significant portions of dead wood and old trees. A multi-layered structure is often present and the forest may be at climax (mature) stage (Lund, 2007).

oriented strand board
An engineered wood made from strands of wood in specific orientations bonded together with wax and adhesives. Oriented strand board has similar properties to plywood but is less expensive.

paper-based products
Include cardboard and various types of paper such as newsprint, copy paper, tissue paper, and construction paper.

phytosanitary certificate
A document often required by governments for the import of non-processed plant products. Depending on the state

or country, export products should meet certain sanitary standards related to storage, pests, plant diseases, chemical treatment and weeds (GFTN, 2005).

plywood
An engineered wood made of thin slices of wood bonded together with adhesives. Plywood is used for many purposes because of its strength, resistance to twisting, cracking, and shrinkage.

protected areas
IUCN defines a protected area as an area of land and/or sea especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means (IUCN, 2007B).

pulp mill
Manufacturing facility to reduce wood into cellulose fibers for paper-making.

sawmill
Manufacturing facility to cut logs into boards.

scope 1, 2 and 3 GHG emissions
Direct and indirect GHG emissions. Scope 1 are emissions from sources that are controlled or owned by the reporting/assessing entity. Scope 2 are GHG emissions from consumption of purchased electricity, heat or steam. Scope 3 are other indirect emissions, such as those associated with the extraction or production of purchased materials and fuel, transport-related activities in vehicles not owned or controlled by the reporting entity, electricity-related activities not covered in Scope 2, outsourced activities, waste disposal, etc (GHG 2009).

social management system (SMS)
A management system to encompass the conscious management of interactions between an organization and its social environment (Social Management Systems, 2007).

solid wood products
Include lumber or timber products for building materials and furniture.

species richness
The number of different species found in a specific area. Species richness is used as a measure of biodiversity.

supply chain (also supply system)
The different steps through which wood and paper-based products go, from being harvested to an end product.

threatened species
Threatened species is a group of three categories: critically endangered species, endangered species, and vulnerable species. Endangered species are considered to be facing a very high risk of extinction in the wild, while vulnerable species are considered to be facing a high risk of extinction in the wild (IUCN, 2007A).

traceability
The ability to track wood between two subsequent points of the chain of custody.

umbrella species
Species that, if protected, protect many other species because of their large-size habitat requirements (Simberloff, 1998).

unwanted sources
In addition to illegal logging, a number of controversial sources of wood including: protected areas or forests that have been proposed for national parks but have not yet been formally protected; forests deemed to be Unique forest values; forests where there are serious tenure disputes (particularly where these involve the failure to respect the customary rights of indigenous or local people); forests that are inappropriately converted to other land uses (Nussbaum and Simula, 2005).

vulnerable species
When a species is facing a high risk of extinction in the wild. Commercial vulnerable tree species include Afzelia (*Afzelia bipindensis*), Merbau (*Intsia bijuga*), and Tule (*Milicia excelsa*) (IUCN, 2006).

water effluent
Waterborne waste.

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WBCSD

The World Business Council for Sustainable Development (WBCSD) is a CEO-led organization of forward-thinking companies that galvanizes the global business community to create a sustainable future for business, society and the environment. Together with its members, the council applies its respected thought leadership and effective advocacy to generate constructive solutions and take shared action. Leveraging its strong relationships with stakeholders as the leading advocate for business, the council helps drive debate and policy change in favor of sustainable development solutions. The WBCSD provides a forum for its 200 member companies – who represent all business sectors, all continents and a combined revenue of more than $7 trillion – to share best practices on sustainable development issues and to develop innovative tools that change the status quo. The Council also benefits from a network of 60 national and regional business councils and partner organizations, a majority of which are based in developing countries.

The WBCSD Forest Solutions Group's mission is to provide business leadership in expanding sustainable forest-based solutions to meet the needs of people now and in the future. The group's working scope addresses a range of sustainability challenges and opportunities, often based on open stakeholder dialogue and engagement, clarifies misperceptions about the forest-based industry, and emphasizes the role of forests, forest products and the whole forest sector in developing and sustaining a low-carbon and bio-based economy.

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WORLD RESOURCES INSTITUTE

WRI is a global research organization that works closely with leaders to turn big ideas into action to sustain a healthy environment—the foundation of economic opportunity and human well-being.

Our Challenge
Natural resources are at the foundation of economic opportunity and human well-being. But today, we are depleting Earth's resources at rates that are not sustainable, endangering economies and people's lives. People depend on clean water, fertile land, healthy forests, and a stable climate. Livable cities and clean energy are essential for a sustainable planet. We must address these urgent, global challenges this decade.

Our Vision
We envision an equitable and prosperous planet driven by the wise management of natural resources. We aspire to create a world where the actions of government, business, and communities combine to eliminate poverty and sustain the natural environment for all people.

Our Approach

COUNT IT
We start with data. We conduct independent research and draw on the latest technology to develop new insights and recommendations. Our rigorous analysis identifies risks, unveils opportunities, and informs smart strategies. We focus our efforts on influential and emerging economies where the future of sustainability will be determined.

CHANGE IT
We use our research to influence government policies, business strategies, and civil society action. We test projects with communities, companies, and government agencies to build a strong evidence base. Then, we work with partners to deliver change on the ground that alleviates poverty and strengthens society. We hold ourselves accountable to ensure our outcomes will be bold and enduring.

SCALE IT
We don't think small. Once tested, we work with partners to adopt and expand our efforts regionally and globally. We engage with decision-makers to carry out our ideas and elevate our impact. We measure success through government and business actions that improve people's lives and sustain a healthy environment.

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