



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

Guide and resource kit

Version 3 Update December 2012



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WORLD
RESOURCES
INSTITUTE

Sourcing and legality aspects



Origin

Where do the products come from?



Information accuracy

Is information about the products credible?



Legality

Have the products been legally produced?

Environmental aspects



Sustainability

Have forests been sustainably managed?



Special forests

Have special forests been protected?



Climate change

Have climate issues been addressed?



Environmental protection

Have appropriate environmental controls been applied?



Recycled fiber

Has recycled fiber been used appropriately?



Other resources

Have other resources been used appropriately?

Social aspects



Local communities and indigenous peoples

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

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All information contained in this guide, and more,
is available at www.SustainableForestProducts.org.

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The background of the cover is a photograph of a dense forest. In the foreground, there are large, vibrant green ferns. Several tall, dark tree trunks stand prominently. In the lower right corner, a stream flows over rocks, creating white water rapids. The overall atmosphere is natural and serene.

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, and an expanded overview of the social implications of forest products.

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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Introduction

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).

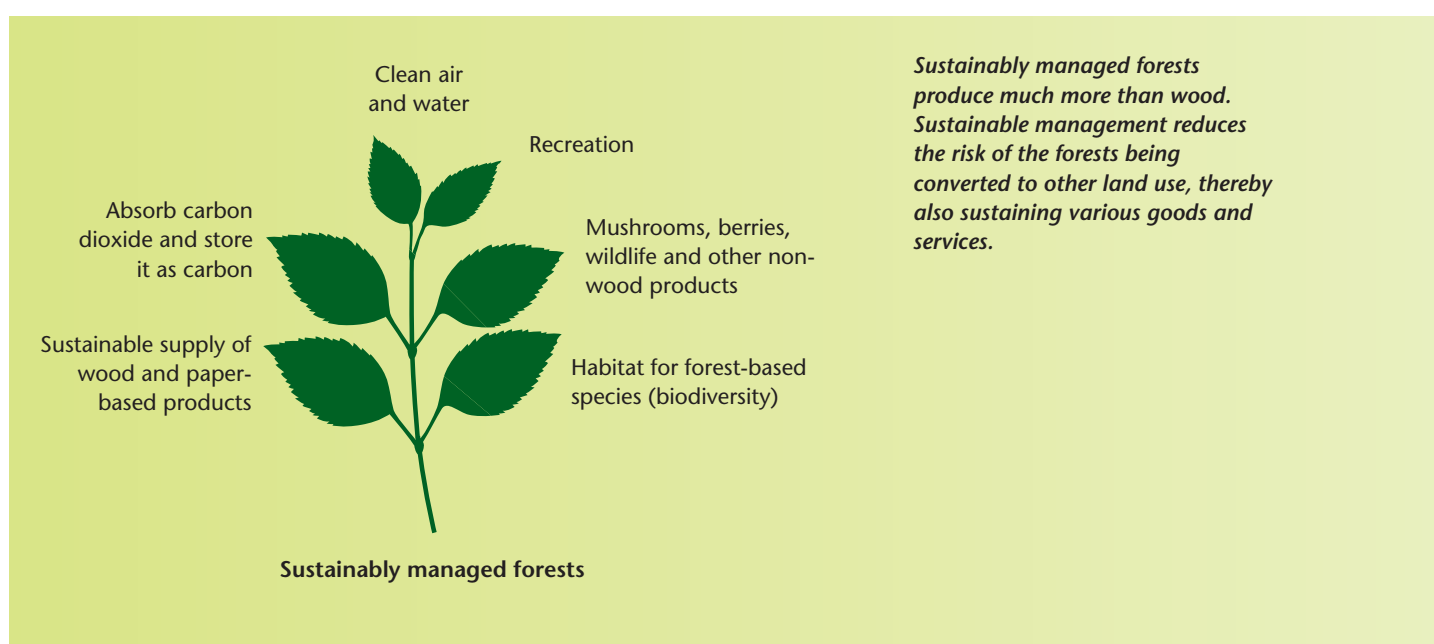
Interest in procurement of wood and paper-based goods produced in a sustainable manner is growing. Concerned consumers, retailers, investors, communities, governments, and other groups increasingly want to know that in buying and consuming these products they are making positive social and environmental 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 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 products¹ 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	RESOURCES TO ASSESS REQUIREMENTS
<p>Private sector initiatives</p> <ul style="list-style-type: none"> Confederation of European Paper Industries' (CEPI) Legal Logging Code of Conduct (www.cepiprint.ch/environment) UK Timber Trade Federation Responsible Purchasing Policy (www.ttfrpp.co.uk) <p>Public sector</p> <ul style="list-style-type: none"> Belgian Government Procurement Policy Danish Government Procurement Policy for Tropical Forests (www.2.skovognatur.dk/udgivelser/2003/tropical/) 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 (ec.europa.eu/environment/gpp/index_en.htm) French Policy on Public Procurement of Timber and Wood Products (www.ecoresponsabilite.environnement.gouv.fr) German Government Procurement Policy (www.bmelv.de) Japanese Government Procurement Policy (www.env.go.jp/en/) Mexican Federal Government Procurement Policy New Zealand Timber and Wood Products Procurement Policy (www.mfe.govt.nz) Swiss Declaration Duty for Timber <p>Rating systems</p> <ul style="list-style-type: none"> Green Building Initiative's Green Globes Rating System (www.thegbi.org) Leadership in Energy and Environmental Design (LEED)® Green Building Rating System (www.ws gbc.org/leed/) <p>Certification systems</p> <ul style="list-style-type: none"> Forest Stewardship Council (FSC) Controlled-Wood Standard (www.fsc.org) Programme for the Endorsement of Forest Certification (PEFC) Due Diligence System (replaced the Guide for the avoidance of controversial timber in 2010) (www.pefc.org) Sustainable Forestry Initiative (SFI) Procurement Objective (www.sfi program.org) 	<ul style="list-style-type: none"> Sedex (www.sedexglobal.com) String (www.historicfutures.com) Sustainable Forest Finance Toolkit Timber Retail Coalition Timber Trade Action Plan (www.timbertradeactionplan.info) Two Sides (www.twosides.info) <p>Public sector</p> <ul style="list-style-type: none"> Central Point of Expertise on Timber Procurement (CPET) (www.cpet.org.uk). CPET is an initiative of the UK central government to assist in the implementation of its procurement policy New Zealand Government Paper Buyers guidance (www.mfe.govt.nz/issues/sustainable-industry/govt3/topic-areas/office-consumables/paper-products.html) <p>Rating systems</p> <ul style="list-style-type: none"> Environmental Paper Assessment Tool (EPAT) (www.epat.org) WWF Paper Scorecard (www.panda.org) WWF Tissue Scoring (www.panda.org) <p>NGO/Other initiatives</p> <ul style="list-style-type: none"> Standard Practice for Categorizing Wood and Wood-based Products According to their Fiber Sources Enhancing the Trade of Legally Produced Timber, a Guide to Initiatives (www.tropenbos.org). Environmental Defense Fund's Paper Calculator (www.papercalculator.org) Environmental Footprint Comparison Tool (www.paperenvironment.org) Environmental Paper Network (www.environmentalpaper.org) Forest Certification Assessment Guide (FCAG) (www.worldwildlife.org/alliance) Forest Footprint Disclosure Project (www.forestdisclosure.com/) Forest Governance Learning Group (http://www.iied.org/forest-governance-learning-group). Forest Legality Alliance (www.forestlegality.org) Global Forest Registry (www.globalforestregistry.org) Global Timber Tracking Network (www.globaltimbertrackingnetwork.org) Green Purchasing Network (GPN) (www.gpn.jp) Greenpeace's Responsible Procurement Guide Illegal-logging.info (www.illegal-logging.info). NEPCON LegalSource Programme (www.nepcon.net). Project LEAF (www.interpol.int) SmartSource (http://www.rainforest-alliance.org/forestry/sourcing). Timber Tracking Technologies Review (www.biodiversityinternational.org). Tropical Forest Trust (www.tropicalforesttrust.org) Tropical Forest Trust's Good Wood. Good Business (www.tropicalforesttrust.com/reports.php) (the report) Wood for Good Campaign (www.woodforgood.com) WWF's Guide to Buying Paper (companion to WWF's Paper Scorecard) WWF's Global Forest and Trade Network (GFTN)
RESOURCES TO ASSESS REQUIREMENTS	RESOURCES TO ASSESS REQUIREMENTS
<p>Private sector initiatives</p> <ul style="list-style-type: none"> CEPI Carbon Footprint Framework FAO's Public procurement policies for forest products and their impacts (the report) (www.fao.org/forestry/site/trade/en/) 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) (www.fpac.ca) Paper Profile (www.paperprofile.com) Publishers' database for Responsible Environmental Paper Sourcing (PREPS) (www.prepsgroup.com). 	

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 highlighted in the guide;
- Sources of additional information – commonly cited instruments, tools, processes, etc.;
- A key to the terminology, in the form of acronyms and a glossary of terms; the field has developed a rich terminology which may be a source of confusion and misunderstanding;
- A 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.

Sourcing and legality aspects	
	<p>Origin Where do the products come from?</p>
	<p>Information accuracy Is information about the products credible?</p>
	<p>Legality Have the products been legally produced?</p>
Environmental aspects	
	<p>Sustainability Have forests been sustainably managed?</p>
	<p>Special forests Have special forests been protected?</p>
	<p>Climate change Have climate issues been addressed?</p>
	<p>Environmental protection Have appropriate environmental controls been applied?</p>
	<p>Recycled fiber Has recycled fiber been used appropriately?</p>
	<p>Other resources Have other resources been used appropriately?</p>
Social aspects	
	<p>Local communities and indigenous peoples Have the needs of local communities or indigenous peoples been addressed?</p>

www.SustainableForestProducts.org



1. Where do the products come from?

Sourcing and legality aspects



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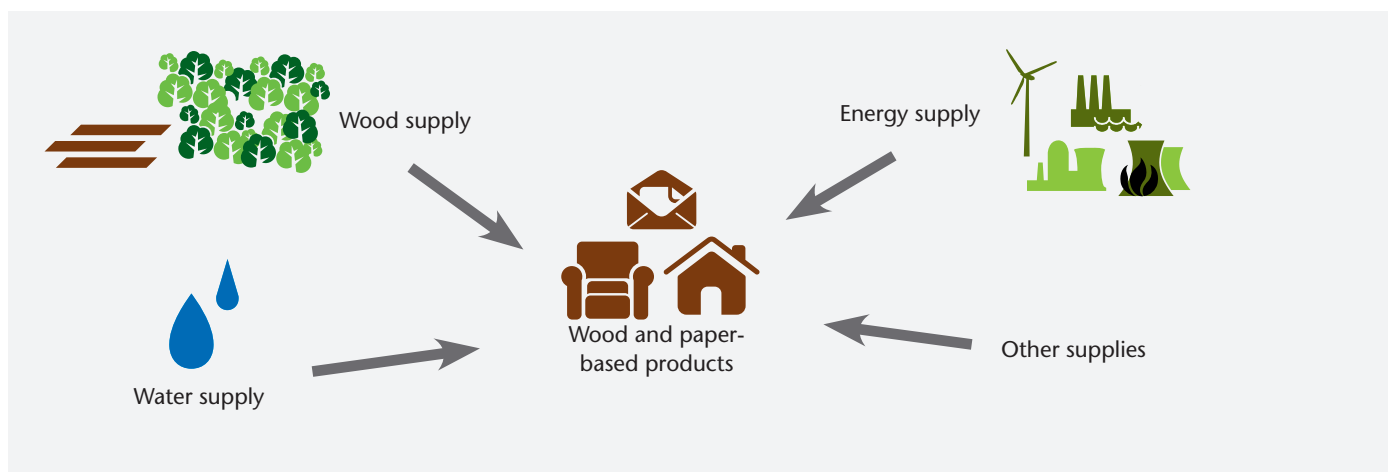
Traceability is the ability to track sources of wood in finished products through the supply chain to – as close as is practical – their origins. A clear sense of all the links in the products' supply chain will be useful for the procurement manager to assess:

- 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.

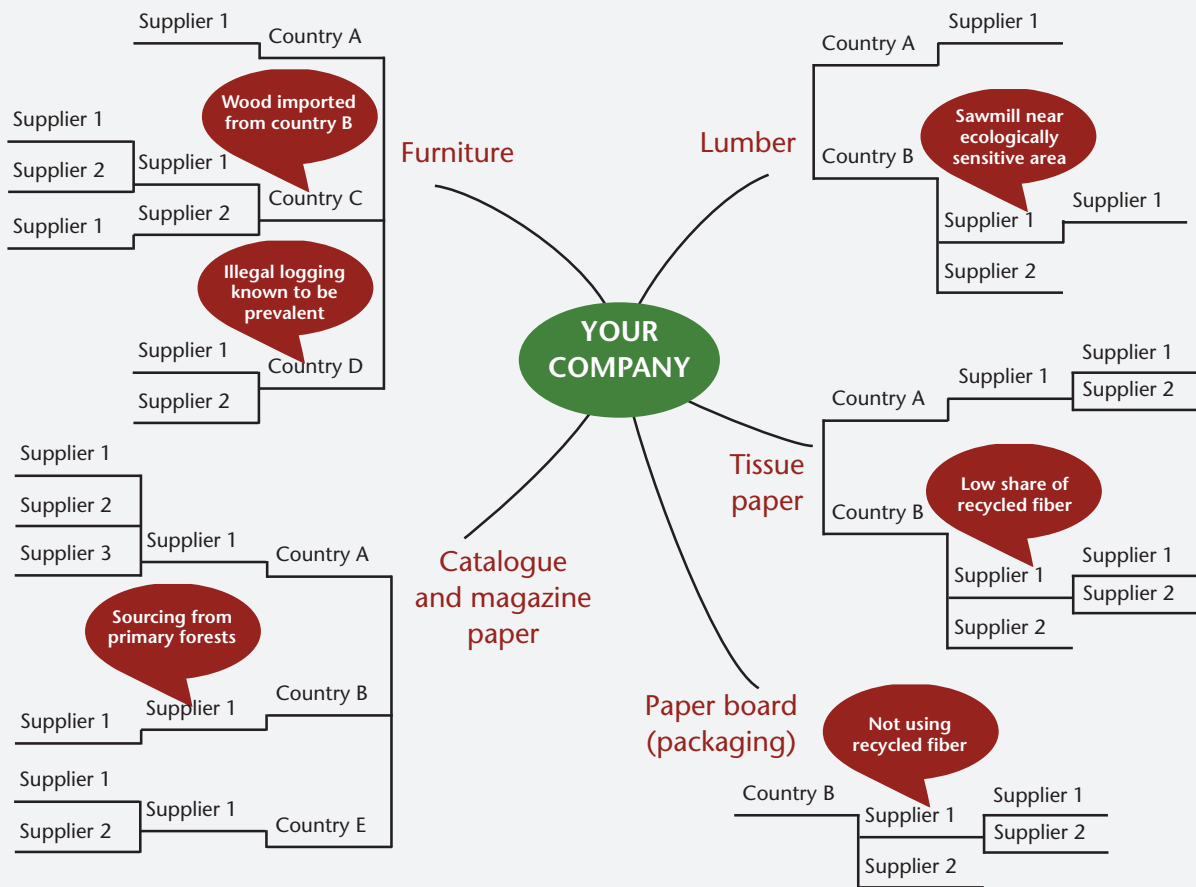
Tracing the origin of wood and paper-based products is not always straightforward. Supply chains can sometimes link many wood producers and dealers across several countries, and procurement portfolios can be complex, with multiple supply chains (Figures 2 and 3).

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

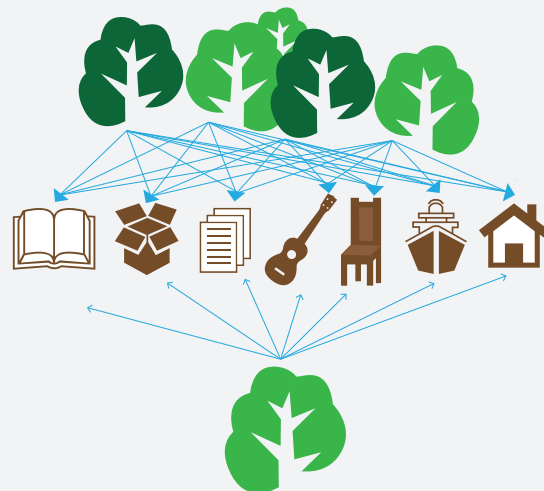


The supply chain associated with each product varies depending on the product, the location of the purchaser in the supply chain, and the context of the procurement. This figure shows an example of how a company may engage in a number of different supply chains, each with its own challenges and opportunities.

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) certificate³
- 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 Processors 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.agrolsolab.de Phone: +49 (0) 2461 93134010
Applications to collect, analyze and share information about the supply chain					
SmartSource (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

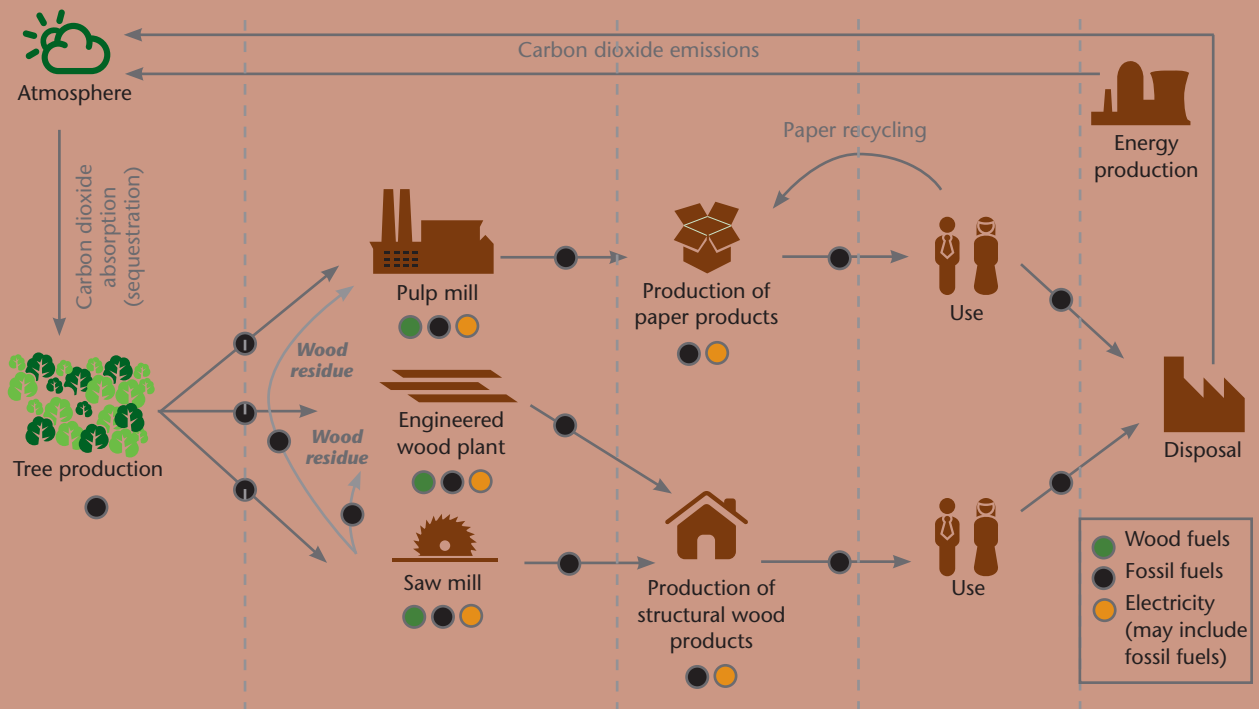
There is no single standard supply chain for wood and paper-based products and all supply chains are different. There are, however, common elements that can help clarify the connections among various manufacturing points, the product flows, and the environmental and social issues associated (figure below).

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
<ul style="list-style-type: none"> SFM; special forests, 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 	<ul style="list-style-type: none"> Efficiency Pollution Climate effects Source reduction Worker's health & safety Fair wages 	<ul style="list-style-type: none"> Efficiency Pollution Climate effects Recycling Worker's health & safety Fair wages 	<ul style="list-style-type: none"> Recycling Climate effects Efficiency Source reduction 	<ul style="list-style-type: none"> 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.

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 (special forests) (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.



SELECTED RESOURCES: TRACEABILITY

Procurement requirements

Belgian Government Procurement Policy	Requires that forest management certification systems ensure the traceability of the products through a chain of custody system.
CEPI Legal Logging Code of Conduct	Members commit to set up and use reliable verification/tracking systems and use third-party certification chain of custody to document the wood flow.
Danish Government Procurement Policy for Tropical Forests (under review)	Draft criteria include requirements to track products throughout the supply chain and verification through the certification process.
Dutch Government Procurement Criteria for Timber	Criteria requires 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 transactions.
European Community Green Purchasing Policy	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, requires ability to trace through the supply chain to the origin.
FLEGT & VPAs	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.
French Policy on Public Procurement of Timber and Wood Products	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).
FSC Controlled-Wood Standard	Includes specifications to ensure the tracking of wood to the country and district level.
German Government Procurement Policy	Accepts FSC and PEFC certificates although the systems can be excluded if the complete traceability of the product cannot be guaranteed.
Green Globes	Promotes the use of locally manufactured materials.
Japanese Government Procurement Policy	Requires that relevant documentation and evidence (e.g., invoices, contract sales, logging notification, etc.) be preserved during definite terms.
LEED	Promotes the use of locally manufactured materials.
Mexican Federal Government Procurement Policy	Timber and wooden furniture products should be third-party certified to ensure that the origin of the raw materials is known.
PEFC Due Diligence System	Provides specifications for tracking and collecting and maintaining documentation about the origin of the materials.
SFI Procurement Objective	In the US and Canada, requires an auditable system to characterize the lands from where raw materials are procured and improve rates of compliance with best management practices. For sources outside North America, it requires participants to assess and address risk of acquiring materials from unwanted sources.
Swiss Declaration Duty for Timber	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 the EU Illegal Timber Regulation is implemented.
UK Timber Trade Federation Responsible Purchasing Policy	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.

Resources to assess requirements

CEPI's Carbon Footprint Framework	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.
CPET	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.
Enhancing the Trade of Legally Produced Timber, a Guide to Initiatives	Provides contextual information on chain of custody and forest certification. The overview includes and profiles tools and initiatives that help track forest supply chains.
Environmental Paper Network	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.
EPAT®	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.
FCAG	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.
FICAT	GHG emissions are estimated throughout the supply 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.
Forest Footprint Disclosure Project	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.
FPAC: A Buyers' Guide to Canada's Sustainable Forest Products (the report)	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.
GFTN	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).
Global Timber Tracking Network	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.
Good Wood. Good Business Guide	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.
Greenpeace's Responsible Procurement Guide	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.
Illegal-logging.info	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.

NEPCon LegalSource Programme	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.
New Zealand Government Paper Buyers' Guide	Accepts chain of custody certificates, ecolabels and self-declarations as evidence to verify the origin of the products.
Paper Profile	Provides information on how the origin of wood fiber is documented and whether the mill receives wood from certified forests.
PREPS	Paper and Forest Sources grading includes adherence to certification and labeling schemes, including FSC and PEFC.
Project LEAF	The project seeks 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.
SmartSource	The SmartSource program works with clients to trace the supply chains for specific products to identify, as accurate as possible, the forest source or origin of the raw materials in the product. SmartSource360 allows for full traceability of supply chain.
Standard Practice for Categorizing Wood and Wood-based Products According to their Fiber Sources	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.
String	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 transformational processes.
Sustainable Forest Finance Toolkit	The Toolkit provides a general, high-level overview of different sustainability aspects and issues along supply chains of forest products. The Toolkit also provides advice and information for financial institutions to assess and manage risk, depending on the country of origin of the products involved, and the location of operations.
Timber Tracking Technologies Review	Provides contextual information on timber tracking technologies that trace forest products through supply chain.
Timber Trade Action Plan	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 forests through processing facilities and to export destinations in the EU.
Tropical Forest Trust	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.
Two Sides	The initiative provides general information about supply chains for printed products, from the forests to the final product.
WWF Guide to Buying Paper	Promotes the use of Environmental Management Systems (EMS) and third-party verification; showcases a company tracking supply chain.
WWF Paper Scorecard	Rates percentage of fiber from certified sources.
WWF Tissue Scoring	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.



2. Is information about the products credible?

Sourcing and legality aspects



Origin

Where do the products come from?



Information accuracy

Is information about the products credible?



Legality

Have the products been legally produced?

Environmental aspects



Sustainability

Have forests been sustainably managed?



Special forests

Have special forests been protected?



Climate change

Have climate issues been addressed?



Environmental protection

Have appropriate environmental controls been applied?



Recycled fiber

Has recycled fiber been used appropriately?



Other resources

Have other resources been used appropriately?

Social aspects



Local communities and indigenous peoples

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



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 (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.

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.

- **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).

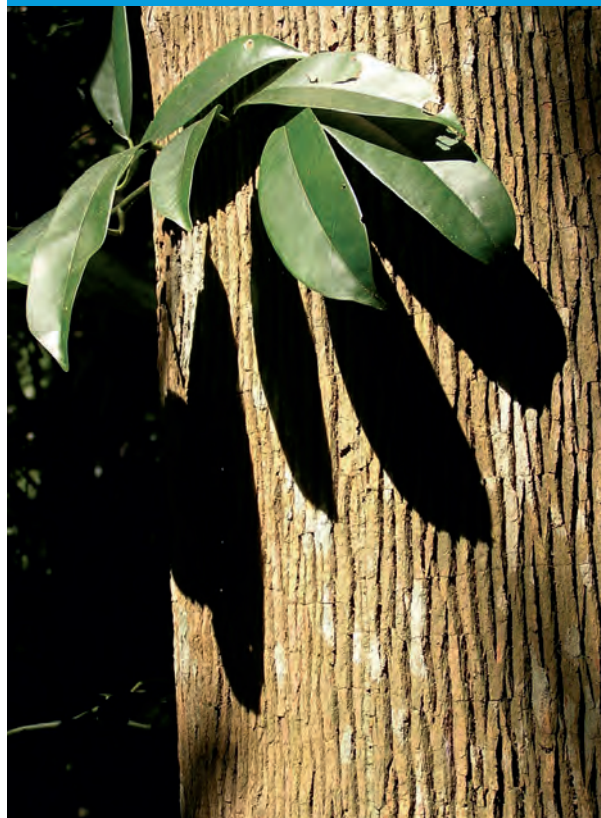
Environmental Management Systems (EMS) and Social Management Systems (SMS) can be useful in the manufacturing process. An EMS is generally defined as a series of processes and practices seeking to assess and reduce the environmental impact of an organization, while an SMS encompasses the management of 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.



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.green seal.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	<p>FSC is a system of national and regional standards consistent with ten principles of SFM that cover the following issues:</p> <ol style="list-style-type: none"> 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 	<p>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).</p> <p>There is variation in regional standards and in interim standards adopted by auditing bodies.</p>
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 setting process. FSC follows the ISEAL Code of Good Practice for Setting Social and Environmental Standards. (FSC website).
	MONITORING AND VERIFICATION	
Chain-of-custody (CoC)	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • 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. <p>(FSC policy on percentage-based claims, and various FSC guidelines for certification bodies)</p>
Inclusion of wood from non-certified sources	<p>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:</p> <p>(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.</p>	<p>(b) Wood harvested in violation of traditional and civil rights</p> <p>(c) Wood harvested in forests where high conservation values are threatened by management activities</p> <p>(d) Wood harvested in forests being converted from forests and other wooded ecosystems to plantations or non-forest uses</p> <p>(e) Wood from management units in which genetically modified trees are planted (FSC, 2006)</p>
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), Canada (CSA, SFI), Chile (Certfor), Czech Republic, Denmark, 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 Standard 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 complaints 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

Procurement requirements

Belgian Government Procurement Policy	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.
CEPI Legal Logging Code of Conduct	Members commit to set up and use reliable verification systems, apply third-party certification of the chain of custody, and EMS.
Danish Government Procurement Policy for Tropical Forests (under review)	Requirements for monitoring and verification are covered through the certification process.
Dutch Government Procurement Criteria for Timber	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.
European Community Green Purchasing Policy	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 report from an independent body.
FLEGT & VPAs	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 compliance, and they could be built on existing in-country schemes.
French Policy on Public Procurement of Timber and Wood Products	Evidence of legality or sustainable forest management is required. These guarantees must be obtained through a process that includes third-party verification.
FSC Controlled-Wood Standard	Standard is subject to third-party verification.
German Government Procurement Policy	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.
Japanese Government Procurement Policy	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.
Mexican Federal Government Procurement Policy	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.
New Zealand Timber and Wood Products Procurement Policy	Requires government departments to maintain records that demonstrate verification of the legality of the operations from where products were harvested.

PEFC Due Diligence System	Standard is subject to third-party verification.
Public Procurement Policies for Forest Products and their Impacts	Reviews verification requirements issued by public timber procurement policies in Belgium, Denmark, France, Japan, Netherlands, New Zealand and the UK.
SFI Procurement Objective	For the US and Canada, requires participants to have an auditable system characterizing the lands where raw material is procured in compliance with best management practices. As needed, participants implement either individually, cooperatively or third-party evaluations of on-the-ground compliance.
Swiss Declaration Duty for Timber	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.
UK Timber Trade Federation Responsible Purchasing Policy	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.

Resources to assess requirements

CEPI’s Carbon Footprint Framework	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 the Carbon Trust. It provides guidance about stakeholder-supported resources such as EPAT, WRI/WBCSD’s Greenhouse Gas (GHG) Protocol and the Paper Profile.
CPET	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.
Enhancing the Trade of Legally Produced Timber, a Guide to Initiatives	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.
Environmental Paper Network	Promotes fiber that comes from FSC certified forest operations and accurate carbon footprint accounting.
EPAT®	Rates degree of verification. It also rates whether a company has EMS, monitoring programs and procedures to manage negative impacts on communities.
FCAG	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 forest 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.
Forest Footprint Disclosure Project	Companies are asked to disclose information about public commitments and policies related to third-party certification systems.

10 things you should know | 2. Is the information about the products credible?

Forest Governance Learning Group	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.
FPAC: A Buyers' Guide to Canada's Sustainable Forest Products (the report)	Discusses trends of Canadian forest companies turning to third-party certification; provides information about the proportion of third-party certified forests in Canada.
GFTN	Provides advice on setting up internal monitoring and tracking systems. Promotes credible third-party certified products.
Global Timber Tracking Network	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.
Good Wood. Good Business Guide	Provides advice about third-party verification systems, as well as potential issues.
GPN	Prefers suppliers that implement EMS to monitor and improve performance, as well as suppliers that proactively disclose environmental information.
Greenpeace's Responsible Procurement Guide	Recognizes and promotes FSC third-party verification mechanisms. Encourages third-party independent verification for legality and sustainability. Verification is required for timber from known legal sources to be accepted in the short-term.
Illegal-logging.info	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.
New Zealand Government Paper Buyers' Guide	Accepts chain of custody certificates, ecolabels and self-declarations as evidence to verify environmental claims of the products.
Paper Profile	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.
PREPS	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).
Project LEAF	The project seeks 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.
SmartSource	SmartSource staff reviews and validates claims made by suppliers regarding the origin of the raw materials in the products and relies on credible third-party certification and verification programs for sources with significant risk of controversial sourcing practices.
Standard Practice for Categorizing Wood and Wood-based Products According to their Fiber Sources	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.

10 things you should know I 2. Is the information about the products credible?

String	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.
Sustainable Forest Finance Toolkit	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.
Timber Tracking Technologies Review	Provides contextual information on timber tracking technologies that trace forest products through supply chain.
Timber Trade Action Plan	Promotes third-party verification. Participating companies are required to comply with chain of custody and legality requirements that include specifications for verification.
Tropical Forest Trust	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 facilities; and monitoring wood use and sourcing to decrease that from unwanted sources and increase use of good wood.
Two Sides	Provides general information and links to FSC and PEFC in the UK.
WWF Guide to Buying Paper	Promotes the use of EMS and third-party verification.
WWF Paper Scorecard	Rates fiber from certified operations as well as manufacturing operations that implement EMS.
WWF Tissue Scoring	Rates the systematic tracking of paper-based materials, as well as whether tracking is monitored and independently verified. Rates companies’ commitment 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.



3. Have the products been legally produced?

Sourcing and legality aspects



Origin

Where do the products come from?



Information accuracy

Is information about the products credible?



Legality

Have the products been legally produced?

Environmental aspects



Sustainability

Have forests been sustainably managed?



Special forests

Have special forests been protected?



Climate change

Have climate issues been addressed?



Environmental protection

Have appropriate environmental controls been applied?



Recycled fiber

Has recycled fiber been used appropriately?



Other resources

Have other resources been used appropriately?

Social aspects



Local communities and indigenous peoples

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



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 created definitions of illegal logging within public procurement policies and trade regulations (see Table 5 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 U.S. The scope of laws is limited to plant protection laws, or laws to regulate: plant theft; taking plants from officially protected areas; taking plants from an officially designated area; taking plants without, or contrary to, required authorizations; failure to pay appropriate taxes or fees associated with the plant's harvest, transport, or trade; laws governing export or transshipment.
- Australian Illegal Logging Prohibition, Proposed (approved by Parliament's House of Representatives in 2011; being considered by the Senate at the time of writing, 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.

Some examples of what have been considered illegal forestry activities are given in Box 4.

Legality is not a synonym for sustainable forest management. What is "sustainable" may not always be

legal (World Bank, 2006; Contreras-Hermosilla et al., 2007), and what is legal may not be sustainable.

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

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

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

Illegal logging and illegal trade can create serious problems:

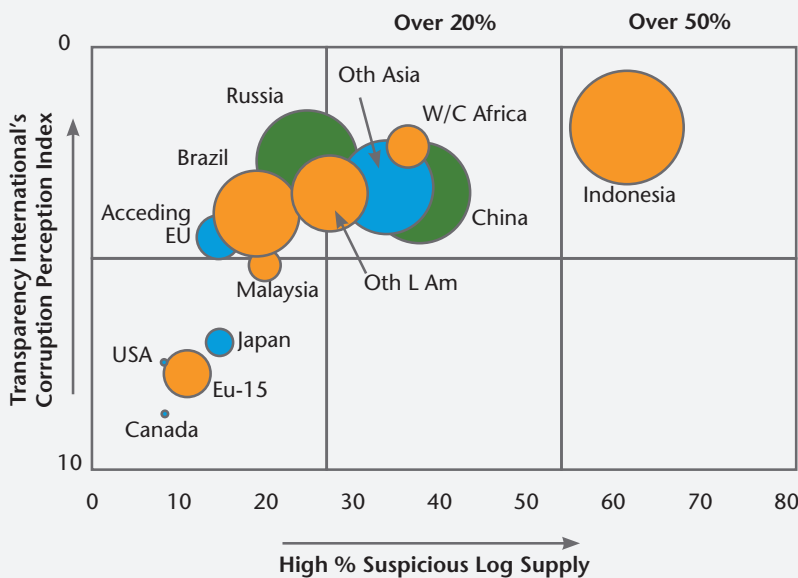
- Government revenue losses – a recent World Bank analysis estimates that illegal logging generates approximately U\$10-15 billion in criminal proceeds. Most of this money is untaxed, controlled by organized crime, and used to pay bribes at all levels of government (Pereira Goncalves et al, 2012).
- Poverty – indirectly, if governments are unable to invest in social and public policies because of financial limitations.

- Unfair competition – market distortion and reduction of profitability for legal goods; the World Bank puts this cost at more than US\$ 10 billion per year (World Bank, 2002A).
- Conflict – when the proceeds of illegal logging are used to support and fund conflict (Thomson, J., and R. Kanaan. 2004). Large-scale illegal logging operations are often tied to high level corruption and organized crime networks (Pereira Goncalves et al, 2012).
- Unplanned, uncontrolled and unsustainable forest management.
- Forest destruction – areas important for biological conservation, ecosystem services, and local livelihoods.

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

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

Figure 5. Corruption and Illegal Logging Activity (2004)



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

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

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

EFFORTS TO ADDRESS ILLEGAL LOGGING AND ASSOCIATED TRADE

During the last five to ten years, addressing illegal logging and illegal trade has risen to the top of the international forestry agenda. Several international processes⁵ have taken up this issue. Demand for legally-sourced wood and

paper-based products in global markets has also increased, as a result of changes in public and private procurement policies (Tables 5 and 6). Trade regulations such as the 2008 amendment of the U.S. Lacey Act, and the European Union Illegal Timber Regulation, have become the most recent instruments to address illegal logging (Box 6).

⁵ 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.

Box 4. Examples of illegal forestry activities

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.
- Illegal transfer pricing (e.g. when it is to avoid duties and taxes), timber theft, and smuggling.
- Money laundering.
- Failure to fully report volumes harvested or reporting different species for tax evasion purposes.

Different definitions of illegal logging 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 between 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.

In Switzerland, the Ordinance on Declaring Wood and Wood Products (*Ordonnance sur la Déclaration 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 7).

The European Union, through Voluntary Partnership Agreements, is also working with a select number of forested countries to build their capacity and support reforms in the governance of their forest sectors, to reduce the production of illegally-harvested timber (Box 7).

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 wide range of 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.

Table 5. Selected public procurement policies

Country	Year passed	Definition of legality	Requirements and applicability	
United Kingdom	2000 (reviewed in 2009 and 2010)	Timber and wood derived products that originate from forests that meet the following: a) forest owner/manager holds legal use rights to the forest; b) compliance by both the forest management organization and any contractors with local and national legal requirements including forest management, environment, labor and welfare, health and safety, other parties' tenure and use rights, c) payment of all relevant royalties and taxes, and d) compliance with CITES requirements. The UK policy requires Legality and Sustainability or FLEGT-licensing.	Mandatory to central government. Recommended to sub-national governments.	
Denmark	2003 (reviewed 2010)	Similar to UK Government definition. Policy requires a) forest owner/manager to hold legal use rights to the forests; b) compliance with relevant laws, including forestry, environmental and labor laws; (c) payment of taxes and royalties; and (d) compliance with CITES.	Guidelines are voluntary, and aim to help public buyers in actively seeking to buy legal and sustainable timber.	
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.	Mandatory to central government. Recommended to sub-national governments.	
Mexico	2005	Wood of verified legal origin and in compliance with environmental regulations.	Central government.	
Netherlands	2005	Uses UK Government definition of legality, meaning 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.	Mandatory to central government. Recommended to sub-national governments.	
Belgium	2006 (reviewed in 2008)	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.	Mandatory to central government.	
Japan	2006	Timber harvested in compliance with the laws of the producing countries.	Mandatory to central government. Recommended to sub-national governments.	
New Zealand	2006	Timber or wood products from a forest that that has been legally harvested; the entity that harvested the trees has legal rights to use the forest.	Mandatory to central government.	
Germany	2007 (reviewed in 2011)	Sustainability, as defined by FSC and PEFC, is the minimum requirement.	Mandatory to central government. Recommended to sub-national governments. Abroad missions of the Federal Armed Forces are exempt. If serious deficiencies (e.g. products, or parts of products come from illegal logging) are found in the approved certification systems, the systems will be given up to 12 months, subject to certain conditions, to correct deficiencies. If deficiencies are not corrected then, the certification system will be excluded from the Federal Government's procurement regime.	

	Product scope	Means of verification for legality requirements	
		SFM certification systems ¹	Alternative instruments
	Wood and paper-based products.	FSC, PEFC.	Requires Legality and Sustainability, or FLEGT-licensed wood. However, where a particular type of product or timber species is required and where there is no sustainable timber or FLEGT-licensed timber or alternative available, timber that is verified to meet the UK government requirements for legality can be accepted. Only legality verification systems ensuring full legal compliance as delivered by the VLC definition will be accepted
	Wood and paper-based.	FSC, PEFC.	SGS's Timber Legality and Traceability Verification; SmartWood's Verification of Legal Compliance. FLEGT-licenses where available.
	All wood and paper-based products.	FSC, PEFC, CSA, SFI, MTCS, LEI, Kerhout.	Ecolabels; processes involving third-party verification.
	Furniture and office supplies.	Third-party verification systems registered with the Ministry of Environment and Natural Resources.	
	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.
	Solid wood products.	FSC, PEFC.	Forests certified by an independent body, based on internationally recognized criteria. Legality, in itself, not enough as sustainability is the minimum requirement.
	Solid wood and wood-based products.	FSC, PEFC, SFI, CSA, LEI, Sustainable Green Ecosystem Council.	Wood industry associations' code of conduct, and self-verification mechanisms.
	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 fiber content from recycled and/or certified sources.
	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 or origin. A review will be conducted in 2013 to determine if and how wood from FLEGT-licensed timber is incorporated in the procurement policy.

Table 5. Selected public procurement policies (cont.)

Country	Year passed	Definition of legality	Requirements and applicability	
Norway	2007	Not defined. Ban of tropical timber in public sector construction.	Central government.	
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).	Applicable to state government agencies. It is relevant to both, Brazilian timber and timber of foreign origin.	
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.	Central government currently.	

	Product scope	Means of verification for legality requirements	
		SFM certification systems ¹	Alternative instruments
	Wood and paper-based products.	None recognized.	N/A
	Timber to be used in construction.	None recognized.	Only suppliers registered in the Cadmadeira system (<i>Cadastro de Comerciantes de Madeira no Estado de São Paulo</i>) 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.
	Wood and paper-based products.	PEFC, FSC	Due diligence systems by producers, FLEGT licenses, CITES licenses and other legality verification systems.

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

Sources: Atanasova, 2010; Belgian Council of Ministers, 2005; Belgian Government, 2008; Chatham House, 2010; 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.

¹ Certification systems recognized to fulfill legality requirements; in some instances the certification systems might not be recognized to fulfill sustainability requirements.

Table 6. Selected legality requirements in the private sector

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

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 (homefurnishing, worldwide, 2011)	Board material (chipboard and particle board), solid wood, veneer, plywood and layer glued wood.	Known origin of the wood; compliance with national and regional forest legislation.	
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.	

	Approach
	<p>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.</p> <p>At times, the policy accepts products from sources engaged in step-wise processes towards certification, if there is an independently verifiable action plan. Policy requires suppliers to meet one of the following criteria: a) have a MoU with The Forest Trust; b) have a SmartWood SmartStep action plan and written contract to progress towards FSC; or c) have signed agreements with WWF's GFTN to achieve FSC and have in place an independently verified full chain of custody. There are exceptions to the policy on a case-by-case basis where fully-compliant products are not available. In these cases, suppliers might obtain a grace period to meet the policy requirements.</p>
	<p>The policy requires suppliers to have processes and systems in place to ensure that the wood meets the requirements. Suppliers are required to report the origin, volume and species of the wood used in the products three times a year (detailed reporting annually), and they must accept auditing at various steps in the supply chain.</p> <p>Wood from high risk areas for illegal logging undergoes audits all the way back to the forest. Audit is conducted by the company forester or an independent auditor. Operations with FSC CoC certification covering the scope of production for IKEA qualify as compliant. IKEA promotes the use of FSC certified sources with full Chain of Custody certification to the direct suppliers to the company (referred to as preferred sources).</p>
	<p>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.</p> <p>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.</p> <p>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.</p>
	<p>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.</p> <p>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.</p>

Table 6. Selected legality requirements in the private sector (cont.)

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

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
	<p>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.</p> <p>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 when they are in compliance with the policy’s “non-controversial sources” requirements of the policy’s implementation guidelines.</p>
	<p>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.</p>
	<p>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.</p>

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).

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 Authority.

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).

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.				
<i>Abies guatemalensis</i>	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.
<i>Araucaria araucana</i>	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, Chile 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.
<i>Balmea stormiae</i>	All parts and derivatives.	Mexico, Guatemala, El Salvador, Honduras	Ayuque	Christmas trees.
<i>Dalbergia nigra</i>	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.
<i>Fitzroya cupressoides</i>	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.
<i>Pilgerodendron uviferum</i>	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)
<i>Podocarpus parlatorei</i>	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.				
<i>Aniba rosaedora</i>	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.
<i>Bulnesia sarmientoi</i>	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 guaiaac.	Housing construction (beams, poles), turning, carving, poles and pillars, poles, flooring.
<i>Caesalpinia echinata</i>	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.
<i>Caryocar costaricense</i>	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.
<i>Gonystylus spp.</i>	All <i>Gonystylus</i> 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.
<i>Guaiaacum spp.</i>	All <i>Guaiaacum</i> 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 propeller 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 10/10; excluding species used for medicinal, traditional or ornamental purposes)

Scientific name	Listing applies to	Natural distribution	Common and trade names	Common uses (selected)
<i>Oreomunnea pterocarpa</i>	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.
<i>Pericopsis elata</i>	Logs, lumber and veneer.	Cameroon, Congo, Côte d'Ivoire, Democratic Republic of the Congo, Ghana, Nigeria	Afromrosia, African teak, anyeran, asamela, assamela, assemela, awawai, ayin, baracara, benin satinwood, bohala, bohalala, bonsamdua, devils tree, egbi, ejen, golden, kokriki, afromrosia, 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.
<i>Platymiscium pleiostachyum</i>	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).
<i>Prunus africana</i>	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.
<i>Swietenia humilis</i>	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.
<i>Swietenia macrophylla</i>	Logs, lumber, plywood and veneer that originate in Latin America and the Caribbean with the exception of Brazil and 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, Americaans mahonie, Amerikanns mahonie, ara putange, araputanga, bastard lime, bay-mahogany, baywood, belize mahogany, caoba, 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.
<i>Swietenia mahagoni</i>	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 mahogoni, gateado, Jamaica mahogany, Kuba mahogany, mädiera, 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.

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)
Appendix III: species subject to special management within a country				
<i>Cedrela fissilis</i>	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, decorative veneers for paneling, plywood and panel corestock.
<i>Cedrela lilloi</i>	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.
<i>Cedrela odorata</i>	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 obscuro, 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.
<i>Dalbergia retusa</i>	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.
<i>Dalbergia darienensis</i>	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.

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)
<i>Dalbergia louvelii</i>	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.
<i>Dalbergia monticola</i>	Logs, lumber and veneer.	Madagascar	Madagascar rosewood, voamboana, palissandre brun, palissandre de Madagascar.	Cabinet making, furniture, marquetry, parquet flooring, musical instruments.
<i>Dalbergia normandii</i>	Logs, lumber and veneer.	Madagascar	Madagascar rosewood	Cabinet making, furniture, marquetry, parquet flooring, musical instruments.
<i>Dalbergia purpurascens</i>	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.
<i>Dalbergia stevensonii</i>	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.
<i>Dalbergia xerophila</i>	Logs, lumber and veneer.	Madagascar	English rosewood, cocobolo.	Cabinet making, furniture, marquetry, parquet flooring, musical instruments.
<i>Diospyros spp.</i>	All species of <i>Diospyros</i> . Logs, sawn wood and veneer sheets from any country.	Madagascar	Madagascar ebony, ebony.	Musical instruments, sculptures.
<i>Dipteryx panamensis</i>	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, ibu, iqua, Indian almond, sarrapia, tonca, tonka bean, yapo	Bridges, railroad tracks, hardwood flooring and marine construction.
<i>Pinus koraiensis</i>	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 korejská, channamu, hong song, Korea-Kiefer, Koreai fenyő, pin de Corée	Carving, patternmaking, paneling, construction, doors, high-class joinery, furniture, decorative veneers.

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.

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)
<i>Podocarpus neriifolius</i>	All parts and derivatives, including manufactured and finished products.	China, Nepal	Black pine podocarp, amanu, black pine, brown pine, bukiti, jati bukiti.	General construction work, for car parts, panels, furniture and interior design.
<i>Tetracentron sinense</i>	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.

Box 6. The U.S. Lacey Act and the EU Illegal Timber Regulation (EUTR)

In May 22, 2008, the U.S. Congress amended the 100 year-old Lacey Act on the prohibition of transporting and trading illegally gathered wildlife or wildlife products to include plants and plant-products. On October 20, 2010, the European Parliament

approved the Illegal Timber Regulation, requiring those who place timber and timber products in the market place to curb illegally harvested timber and timber products. Below is a general comparison of these two trade regulations.

	U.S. Lacey Act	EU Illegal Timber Regulation
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.
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.	Prohibits placing on the EU market timber and timber products harvested illegally based on the rules of the country of origin. It also requires economic operators who first place timber on the EU market to employ a system to exercise due diligence to ensure that the timber they trade was harvested legally. Requires economic operators and traders to keep records of their suppliers and customers to facilitate traceability of the products.
Product scope	All plants and plant-derived products.	Covers a wide range of products including solid wood products, plywood, fiberboard, pulp and paper. However, the regulation does not cover 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.
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. 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).	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 legal.

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

	U.S. Lacey Act	EU Illegal Timber Regulation
Penalties	<p>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).</p> <p>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).</p>	<p>Penalties will be defined by member states.</p>
Implementation	<p>The prohibition is in effect since May 2008, the declaration requirements are being implemented in a phased-schedule.</p>	<p>The legislation will apply from March 3, 2013 onwards. EU member states are responsible for implementing and enforcing the regulation through Competent Authorities. The European Commission is responsible for monitoring implementation by the member states.</p>

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, 2010.

Box 7. The European Union Forest Law Enforcement, Governance and Trade (FLEGT) Process and the Voluntary Partnership Agreements

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

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

1. *Development cooperation with producing countries* – through actions that promote and implement solutions that are equitable and enhance transparency, and that build capacity and support policy reform.
2. *Promote trade in legal timber* – through the development and implementation of multilateral collaboration frameworks (VPAs) that include the establishment of legality assurance licensing systems.
3. *Promote public procurement policies* – that take into account the legality of timber products.
4. *Support private sector initiatives* – to address illegal logging, including through corporate social responsibility practices, voluntary codes of conduct and development and implementation of voluntary licensing schemes.
5. *Support and promote safeguards on investments* – to encourage banks and financial institutions investing in the forest sector to develop due care and screening procedures to avoid projects that could potentially encourage illegal logging.
6. *Use existing or upcoming legal instruments* – to support the Plan, for example, the EU Illegal Timber Regulation
7. *Work to define and address conflict timber.*

Overall, the Action Plan seeks to develop markets for legal products in Europe, and establish bilateral partnerships (Voluntary Partnership Agreements, or VPAs) with producing countries to build their capacity and support reforms in the

governance of their forest sectors to reduce the production of illegally harvested timber. The VPAs also seek to establish and implement tracking and licensing systems, called Legality Assurance Systems, to ensure that only legally produced products enter the European Union. Establishing a Voluntary Partnership Agreement involves four phases:

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

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

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

Country	Phase	Notes		
		Definition of Legality	Legality Assurance System (LAS) Applicability	Implementation
Cameroon	VPA ratified; system being developed	Legality definition covers the following aspects: 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 the requirements of the LAS.

Box 7. 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 (LAS) Applicability	Implementation
Central African Republic	VPA signed; system being developed	Legality definition covers the following aspects: legality of the operation; right of access to the resource; social and environmental requirements as well as rights of indigenous and local communities; logging and processing requirements; transportation and traceability; compliance with contractual obligations and relationships with subcontractors for activities other than logging.	LAS applies to all timber and timber products derived 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 requirements of the LAS.
Ghana	VPA ratified; system being developed	Legality definition covers: timber source (land ownership); allocation of timber rights; timber harvesting operations; transportation; processing and trade; and, fiscal obligations. The definition includes compliance with environmental and social requirements.	LAS applies to all timber and timber products produced, processed, traded and exported from Ghana. LAS system also applies to all products, including those that are not traded in European markets and timber sold on the domestic market. Central to the LAS system is a wood tracking system to monitor and control timber throughout the supply chain.	FLEGT Licensing system under development and is expected to issue licenses in 2013.
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 is expected to begin in January 2013.
Liberia	VPA signed	The definition of legality covers all aspects of timber production throughout the supply chain (forest management, timber production, processing and export). It covers aspects such as legal eligibility to operate in the forest sector; forest resource rights allocation; social obligations of contractors to local people; forest management standards for operations and harvesting to ensure sustainability; environmental obligations; regulation of timber transport and traceability obligations; timber processing requirements; workers' rights, health, safety and welfare; payment of taxes, fees and other payments; export and trade requirements; transparency measures and information disclosure.	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.

Country	Phase	Notes		
		Definition of Legality	Legality Assurance System (LAS) Applicability	Implementation
Republic of Congo (Brazzaville)	VPA ratified; system being developed	The definition of legality is applicable to both natural forests and plantations. There are two coherent definitions that are based on the forest types and forest ownership regimes; these definitions cover all types of timber and timber products. Key aspects covered by the definition of legality are: legal right to operate; access rights; social requirements, including participation of local communities and indigenous peoples; forest management, harvesting and processing of timber; transport and trade; fiscal obligations.	LAS applies to all timber and timber-based products that are produced, processed, and traded (including imports, exports and timber in transit) in the Republic of Congo. Timber and timber products that are not sold in European markets and those that are sold on the domestic market are also subject to the LAS.	FLEGT Licensing system is under development and is expected to be operational by mid 2013.
Countries in the negotiation phase: Democratic Republic of Congo, Gabon, Guyana, Honduras, Ivory Coast, Malaysia, Vietnam.				
Countries in information/pre-negotiation phase: Bolivia, Cambodia, Colombia, Ecuador, Guatemala, Laos, Myanmar/Burma, Papua New Guinea, Peru, Sierra Leone, the Solomon Islands and Thailand.				
In the context of global climate change, the FLEGT initiative and process and the development and implementation of VPAs can be seen as efforts to improve governance in the forest sector which, in turn, can be used to help countries meet		national objectives related to the Reduction in Emissions from Deforestation and Forest Degradation (REDD) (see Section on Climate Change).		

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

Table 7. Selected Voluntary Legality Verification Systems

Organization	System/year	Overview	Scope					
			Geographic	Supply chain	Thematic			
					Legal right to harvest ¹	Compliance with laws ²	Taxes/fees ³	
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.	Originally developed to demonstrate legality in tropical regions. Can be applied at the global level.	Origin of timber; CoC	X	X	X	
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.	Indonesia	Origin of timber; CoC	X	X	X	
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.	Applicable globally	Origin of timber	X	X	X	

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 carried out 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 comparisons of legality verification systems have been carried out by the Central Point of Expertise on Timber Procurement (CPET) and others.

				Implementation		Contact
				Development	Auditing	
Tenure/use rights of resources ⁴	Trade regulation ⁵	Other criteria ⁶				
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 at least once a year.	Bureau Veritas Phone: +33-1-14-97-0060	
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.	<p>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.</p> <p>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.</p>	Certisource Phone: +62 881 463 8608 E-Mail: www.certisource.co.uk/contact-us/	
X	X	X	Developed by Keurhout based on experience, existing references, expert and stakeholder consultation. The standard was developed in coordination with the Netherlands Timber Trade Association.	<p>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.</p> <p>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.</p>	Keurhout Phone: +31 24-6454796 E-Mail: info@keurhout.nl	

Organization	System/year	Overview	Scope				
			Geographic	Supply chain	Thematic		
					Legal right to harvest ¹	Compliance with laws ²	Taxes/fees ³
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.	Generic/Global standard. National standards developed for China, Indonesia, Philippines, Brazil, Sabah (Malaysia), Laos, India and the Democratic Republic of Congo.	Origin of timber	X	*	X
	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 regulations. "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.	Generic/Global standard. National standard has been developed for Sabah (Malaysia).	Origin of timber	X	X	X
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 Program is applicable globally. SCS has auditors in the Americas, Asia, Europe and Oceania.	Origin of timber and CoC	X	X	X
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 an FSC framework, to support companies in achieving FSC certification.	Globally applicable.	Origin of timber	X	*	

				Implementation		Contact
				Development	Auditing	
	Tenure/use rights of resources ⁴	Trade regulation ⁵	Other criteria ⁶			
	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 Phone: +1-212-677-1900 E-Mail: info@ra.org
	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 reviews, field audits, and interviews by SCS auditors. Annual audits are required to maintain the participation in the LHV program.	Scientific Certification Systems Phone: +1-510-452-8000
	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 to be transparent.	Soil Association Phone: +44 117 914 2435 E-Mail: wm@soilassociation.org

Organization	System/year	Overview	Scope				
			Geographic	Supply chain	Thematic		
					Legal right to harvest ¹	Compliance with laws ²	Taxes/fees ³

Selected additional resources

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.	Member states: Brunei, Cambodia, Lao, Indonesia, Malaysia, Myanmar, Philippines, Thailand, Singapore and Viet Nam.	Origin of timber	X	X	X	
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.	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	
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 wood. It is meant to cover changes to the Russian Forest Code implemented in 2007.	Russia	Origin of timber and processed products	X	X		
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.	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	

Notes:

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

				Implementation		Contact
				Development	Auditing	
	Tenure/use rights of resources ⁴	Trade regulation ⁵	Other criteria ⁶			
			X	Through an intergovernmental process	Not defined.	ASEAN Secretariat Phone: +6221 7262991 E-Mail: dian@asean.org
	X			Developed by the Global Forest & Trade Network.	Not applicable	Global Forest & Trade Network (GFTN) Phone: +44 1394 420 518
				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 Phone: +45 35 36 36 35 E-Mail: wwff@wwf.dk
	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 Phone: +41(0) 22-367-9441 E-Mail: info@tft-forests.org Website: www.tft-forests.org/ttap/

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; SGS, 2010 A; EcoSylva, 2010; TFT website; GFTN Guide to Legal and Responsible Sourcing website.

SELECTED RESOURCES: LEGALITY

Procurement requirements

Belgian Government
Procurement Policy

Requires that wood harvesting complies with national laws and international conventions.

CEPI Legal Logging Code
of Conduct

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.

Danish Government
Procurement Policy for Tropical
Forests (under review)

Legality requirements in draft criteria are similar to UK central 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 rights. Draft criteria also require payment for all relevant royalties and taxes, as well as compliance with CITES requirements. Accepts CSA, FSC, MTCS, PEFC and SFI as schemes that provide adequate documentation of legality.

Dutch Government Procurement
Criteria for Timber

Criteria includes 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 management laws and regulations (including international agreements such as CITES), and respect of indigenous and local tenure and use rights.

European Community Green
Purchasing Policy

For paper, core criteria propose that all fiber must come from legally harvested sources; in addition, award criteria should allow to give preference to fiber coming from sustainably harvested sources. The comprehensive standards propose additional award criteria related to compliance with the full set of EU Ecolabel requirements.

FLEGT & VPAs

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.

French Policy on Public Procurement
of Timber and Wood Products

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.

FSC Controlled-Wood Standard

Requires wood harvesting to comply with all applicable harvesting laws in the jurisdiction.

German Government
Procurement Policy

Requires that wood come from verifiable legal forest management, initially as verified by FSC and PEFC.

Japanese Government
Procurement Policy

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.

Mexican Federal Government Procurement Policy	Wood of verified legal origin and in compliance with environmental regulations.
New Zealand Timber and Wood Products Procurement Policy	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.
PEFC Due Diligence System	Requires the implementation of supply-chain control mechanisms to minimize sourcing materials from forest management activities that do not comply with local, national or international laws.
Swiss Declaration Duty for Timber	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

Resources to assess requirements

CPET	Provides advice and guidance for compliance with UK central government procurement requirements for the legality of wood products. Accepts FSC and PEFC, as evidence of legality.
Enhancing the Trade of Legally Produced Timber, a Guide to Initiatives	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 Paper Network	Rates compliance of paper-making facilities with international labor, human and health conventions.
EPAT®	Rates compliance of paper-making facilities with international labor, human and health conventions.
FCAG	Includes criteria and requirements for assessing compliance with relevant national and international laws, treaties and agreements.
Forest Governance Learning Group	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.
Forest Legality Alliance	The Alliance seeks to raise awareness of demand-side legality requirements such as the U.S. Lacey Act, to produce innovative practical tools to help forest products supply chains screen out illegal wood and exercise due care, and to demonstrate compliance with legality requirements.

10 things you should know | 3. Have the products been legally produced?

FPAC: A Buyers' Guide to Canada's Sustainable Forest Products (the report)	Assures readers about the lack of systemic issues in the forest sector that could allow illegal logging in Canada.
GFTN	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).
Global Forest Registry	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 aspects 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.
Global Timber Tracking Network	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.
Good Wood. Good Business Guide	Provides overview definitions of illegal and legal wood, as well as guidance to exclude illegal wood from the supply chain.
GPN	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.
Greenpeace's Responsible Procurement Guide	Promotes sourcing legally known and verified timber. Recognizes and promotes FSC legality requirements.
Illegal-logging.info	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.
NEPCon LegalSource Programme	The LegalSource standard provides a system for organisations to reduce 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.
New Zealand Government Paper Buyers Guidance	Verification methodology provides five options to verify compliance with legality requirements. Options include combinations of forest certification systems, ecolabels, chain of custody certificates and self declarations.
PREPS	Requires that wood comes from verifiable legal forest management, initially as verified by FSC and PEFC.

Project LEAF	The project provides 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.
Sedex	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.
SmartSource	Suppliers are required to conduct a ‘risk assessment’ to determine whether wood/fiber source could be derived from illegal harvesting or trading activities. SmartSource relies on credible third party certification and verification programs for assessing legality for sources with significant risk of illegal harvesting and trading of wood and/or fiber. SmartSource staff reviews and validates the legality claims made by suppliers regarding the origin and attributes of the raw materials in the products.
Standard Practice for Categorizing Wood and Wood-based Products According to their Fiber Sources	The Standard is applicable only to products that originate from jurisdictions with low risk of illegal activity, or from controlled wood standards, stair-step standards, legality assessments, or other proprietary standards.
String	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 Forest Finance Toolkit	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.
Timber Retail Coalition	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.
Timber Tracking Technologies Review	Provides contextual information on timber tracking technologies that trace forest products through supply chain.
Timber Trade Action Plan	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.

10 things you should know | 3. Have the products been legally produced?

Tropical Forest Trust

Evaluates operations' compliance with basic legality requirements through field checks. Establishes and monitors supply management systems in forest operations and processing facilities and provides guidance towards specific legal standards.

WWF Guide to Buying Paper

Promotes the avoidance of illegal and other unacceptable sources. Promotes forest certification as a means to avoid sourcing raw materials harvested through illegal practices.

WWF Paper Scorecard

Rates percentage of fibers that are certified to avoid the potential inclusion of fiber from unwanted sources.

WWF Tissue Scoring

Scoring criteria include clear policies aimed at eliminating all raw materials from illegal and controversial sources.



4. Have forests been sustainably managed?

Sourcing and legality aspects



Origin

Where do the products come from?



Information accuracy

Is information about the products credible?



Legality

Have the products been legally produced?

Environmental aspects



Sustainability

Have forests been sustainably managed?



Special forests

Have special forests been protected?



Climate change

Have climate issues been addressed?



Environmental protection

Have appropriate environmental controls been applied?



Recycled fiber

Has recycled fiber been used appropriately?



Other resources

Have other resources been used appropriately?

Social aspects



Local communities and indigenous peoples

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



4. Have forests been sustainably managed?

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

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

Sustainable forestry

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

- **Economic** – the capacity of the forests to attract investment and support economically viable forest uses in the present and the future is undiminished. The forest is not used beyond its long-term capacity for production of wood and non-wood forest products.

- **Social** – include a variety of aspects such as:
 - The rights of indigenous peoples and local communities are respected and protected.
 - Forest workers are healthy, safe, and their rights are protected (e.g., freedom of association, right to bargain, child labor, forced labor, equal remuneration and non-discrimination).
 - Local communities, including indigenous peoples, benefit economically from forest management.
 - Sites of religious, spiritual, archaeological, historic, as well as of aesthetic and recreational value are preserved.
- **Environmental** – forest use protects biodiversity (ecosystems, species, genes and ecological processes) and the capacity to maintain ecosystem processes and services such as watershed protection, pollination, protection against mudslides, aesthetic beauty, carbon storage, etc.

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



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:

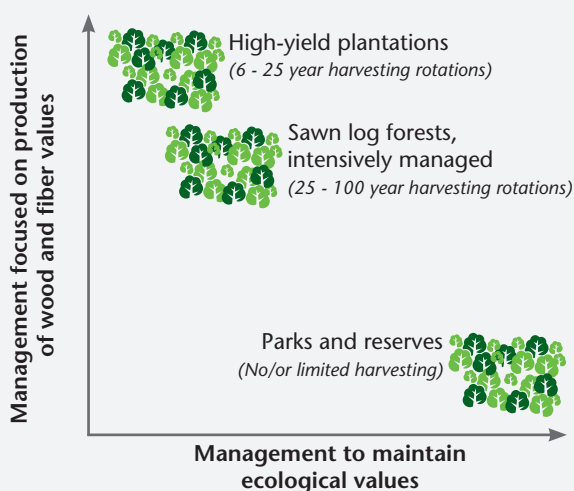
- **Clearcutting** – SFM standards, including CSA, FSC, PEFC and SFI, recognize clearcutting as consistent with SFM in the right forest ecosystems. Clearcutting can accomplish the following:
 - It mimics some of the natural disturbance dynamics of the forests (e.g., fire, wind blow downs, insects).
 - 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 9). All types of forests can be sustainably managed, from primary or natural forests to intensively managed forest plantations (Box 8).

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, see the section on inclusion of non-certified wood in Table 4.

Table 8. 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.
Special forests	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: <ul style="list-style-type: none"> • 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). <p>Forest management shall identify, protect and/or conserve ecologically important areas containing significant concentrations of:</p> <ul style="list-style-type: none"> • 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. <p>Criterion 5 require special care of forest areas that are on sensitive soils, erosion-prone areas, or forests that protect water resources.</p> <p>Criterion 6 requires special care for sites with recognized historical, cultural, or spiritual significance for the local communities.</p>
Forest plantations	Principles 6 and 10 of the FSC principles address forest plantations. Certified forest plantations should meet a set of requirements concerning: <p>(i) representation on landscape; (ii) time of establishment; and, (iii) design of the management blocks (i.e., blocks promote biodiversity).</p> <p>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.</p>	Various elements of Criterion 5 are relevant to forest plantations. Certified plantations should meet a set of requirements concerning, among others, the following aspects: <p>(i) time of establishment; (ii) impacts on special forests; and, (iii) impacts on soil and water.</p>
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. <p>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.</p>	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 8. 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 8. 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

Forest plantations can return degraded or worn out lands to productive use and protect soil from erosion.

The rapid growth of forest plantations can produce more wood, faster, requiring less land to produce a specified amount of wood.

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.

Wood harvested from forest plantations is often very uniform in terms of species and size, thereby improving processing and manufacturing efficiency.

Focusing wood production in fast-growing forest plantations can allow other native/natural forests to be managed for other uses such as biodiversity, non-wood forest products, and aesthetics.

Greater economic value of plantations can keep forest land in forest use, where a natural forest may not be economically sustainable.

Disadvantages

There is often limited biodiversity if the forest is managed in single species plantations, resulting in reduced wildlife habitat and ecosystem value.

Diseases and pests which target a particular tree species can have devastating impacts in single species plantations.

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.

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.

Rights of local communities and indigenous peoples may be ignored. Forest plantations often take over large areas of land that become unavailable to other users (e.g., fuel-wood collection, non-wood forest products) and can distort income distribution in households and communities.

Clearance of natural forests to establish plantations.

The two principal concerns about forest plantations are:

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

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

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.

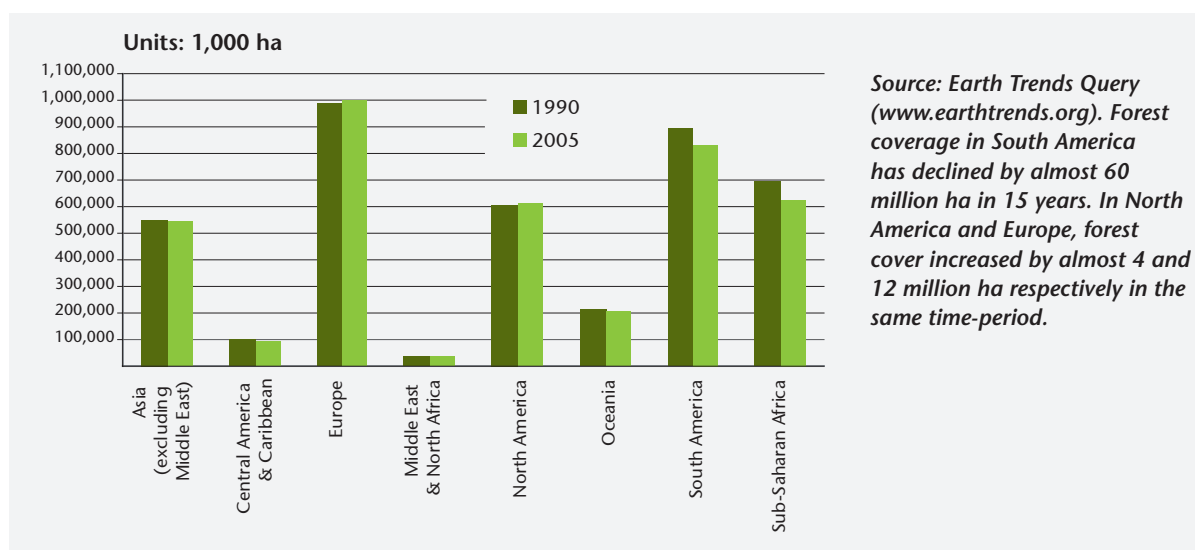
Forest conversion happens when a natural forest is transformed into a highly cultivated forest, often with introduced tree species and control of the hydrological and nutrient regime, with a focus on wood production.

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

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 9 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 9. Factors underlying forest land-use change and conversion in the tropics	
Factors	Underlying causes
Economic	<p>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.</p> <p>Economic structures: large individual speculative gains, poverty and related factors, economic downturn, crisis conditions.</p> <p>Urbanization and industrialization: growth of urban markets, rapid build-up of new forest-based (or related) industries.</p> <p>Special economic parameters: comparative advantages due to cheap, abundant production, factors in resource extraction and use, as well as price.</p>
Policy and institutional	<p>Policies: taxation, credits, subsidies, licenses, concessions, economic development, population (migration), and land ownership policies.</p> <p>Institutional factors: corruption, poor performance, mismanagement, etc.</p> <p>Property rights regime: insecure ownership, rush to establish property rights, titling, consolidation, open access conditions, etc.</p>
Technological	<p>Agro-technological changes, technological applications in the wood sector, and other production factors in agriculture.</p>
Social and cultural	<p>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.</p>
Demographic	<p>Population growth and increasing demand for products, food, space, etc.</p>
Other	<p>Soil quality, water availability, slope, topography, and vegetation types.</p>

(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

Procurement requirements

Belgian Federal Government Procurement Policy	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 meet the Procurement Policy requirements.
Danish Government Procurement Policy for Tropical Forests (under review)	Draft criteria address seven thematic elements for SFM, including protection and productive functions of forest resources and forest health and vitality. Previous guidelines considered FSC and MTCS (PEFC endorsed) to provide adequate guarantees for sustainably produced tropical wood.
Dutch Government Procurement Criteria for Timber	The Criteria includes principles and criteria to maintain and enhance biodiversity, including the protection of special forests (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 natural 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.
European Community Green Purchasing Policy	Proposes award criteria that promotes 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.
FLEGT & VPAs	The FLEGT LASs should be based on national standards for forest management, rooted in the national laws and regulations of partner countries.
French Policy on Public Procurement of Timber and Wood Products	Procurement managers are required to refer to existing tools such as forest certification systems or ecolabels. Does not include a definition of sustainability.
German Government Procurement Policy	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.
Green Globes	Scores whether wood-based products originate from operations that are certified by the American Tree Farm System, CSA, FSC and SFI.

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Japanese Government Procurement Policy	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.
LEED	Promotes SFM through the use of FSC certification.
Mexican Federal Government Procurement Policy	Timber and wooden furniture products should be third-party certified to ensure that the forests from which the raw materials originated were sustainably managed.
New Zealand Timber and Wood Products Procurement Policy	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.
Public Procurement Policies for Forest Products and their Impacts	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 the impacts of public procurement policies on the forests and forest certification.
SFI Procurement Objective	Participants' procurement programs are expected to promote SFM principles.
UK Timber Trade Federation Responsible Purchasing Policy	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.

Resources to assess requirements

CEPI's Carbon Footprint Framework	Promotes the maintenance of lands forested and emphasizes on the renewability of forest products.
CPET	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.
Environmental Paper Network	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.
EPAT®	Rates fiber from operations certified under CSA, FSC, PEFC, SFI and other national and international certification systems.

FCAG	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.
FICAT	Estimates GHG emissions, if applicable, from land use conversions including converting natural forests to plantations and grasslands to forest plantations.
Forest Footprint Disclosure Project	Companies are asked to disclose information about public commitments and policies related to sustainability, sustainable sourcing, third-party certification systems, and deforestation.
Forest Governance Learning Group	The alliance has conducted various case studies about community-based forest management and community forest enterprises.
FPAC: A Buyers' Guide to Canada's Sustainable Forest Products (the report)	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.
Global Forest Registry	Sustainability aspects 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 forest 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.
Global Timber Tracking Network	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.
Good Wood. Good Business Guide	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 unwanted wood includes wood from forest conversion projects, dam clearance projects and others.
GPN	Prefers products using sustainably produced renewable natural resources, including certified products.
Greenpeace's Responsible Procurement Guide	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.

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Illegal-logging.info	Provides and links to contextual information sources on sustainable forest management, forest conversion, and deforestation and land-use change.
New Zealand Government Paper Buyers guidance	Verification methodology provides five options to verify compliance with sustainability requirements. Options include combinations of forest certification systems, ecolabels, chain of custody certificates and self declarations.
Paper Profile	Provides information on whether or not the mill receives wood from certified forests, and under which certification systems.
PREPS	Accepts FSC and PEFC as a guarantee that wood comes from areas that are managed sustainably.
SmartSource	Suppliers are required to conduct a 'risk assessment' to determine whether wood/fiber source could be derived from conversion activities. SmartSource relies on credible third-party certification and verification programs and credible, peer reviewed, science-based, and publicly available resources for identifying SFM, potential Land-Use Change and Forest Conversion activities associated with particular supplying entities and countries. Staff review and validate the claims made by suppliers regarding the origin and attributes of the raw materials in the products.
Standard Practice for Categorizing Wood and Wood-based Products According to their Fiber Sources	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.
Sustainable Forest Finance Toolkit	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.
Timber Tracking Technologies Review	Provides contextual information on timber tracking technologies that trace forest products through the supply chain, supporting adherence to forest management certification standards.
Timber Retail Coalition	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.
Tropical Forest Trust	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.

Wood for Good

Promotes forest certification (CSA, FSC, PEFC, and SFI).

WWF GFTN

Promotes credible certification as a tool for improving forest management.
Provides advice on options for addressing land-use change issues.

WWF Guide to Buying Paper

Provides background information about SFM and links to additional resources;
promotes forest certification as means to avoid sourcing raw materials from areas that
have been converted; showcases company sourcing certified materials.

WWF Paper Scorecard

Rates percentage of FSC certified fiber.

WWF Tissue Scoring

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 stepwise progress towards certification.



5. Have special forests been protected?

Sourcing and legality aspects



Origin

Where do the products come from?



Information accuracy

Is information about the products credible?



Legality

Have the products been legally produced?

Environmental aspects



Sustainability

Have forests been sustainably managed?



Special forests

Have special forests been protected?



Climate change

Have climate issues been addressed?



Environmental protection

Have appropriate environmental controls been applied?



Recycled fiber

Has recycled fiber been used appropriately?



Other resources

Have other resources been used appropriately?

Social aspects



Local communities and indigenous peoples

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



5. Have special forests been protected?

For the purposes of this guide, the term “special forests” is used as a generic term for areas with unique qualities within the forest landscape (Box 9). 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, course-scale maps of special forests exist, and they can be used to identify areas where a site-specific evaluation should be performed.

Some special forests 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 special forests 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 special forest.

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 special forest. 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 special forests (Table 10). With few exceptions, the areas that correspond to these definitions have not been mapped, making it difficult to analyze the extent to which they overlap. Along with the definition, stakeholders have recommended management regimes for these special forests, including:

- **Precautionary management** – ensuring that 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 special forests 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 special forests. The lack of a universally agreed definition of special forests is a major concern, and stakeholder support for each definition varies.



Factors to consider regarding special forests

- Some special forests 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 special forests:

- 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 special forests.
- Pursuit of legal opportunities to protect special forests by encouraging land transfers to conservation organizations or establishing conservation easements.

Box 9. What constitutes a special forest?

There is no universally agreed definition of special forests. 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 “special” 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 special forests have been:

- What process is used to define, identify and map special forests?
- 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 special forests protection?
- The criteria, or, how special is special enough?

Governmental action to identify special forests (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 10. Definitions related to special forests

A variety of definitions for special forests 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: <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • 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 (Mikkela et al., 2001; FFCS, 1999)	<ul style="list-style-type: none"> • Sites designed for protection under the Finnish Nature Conservation Act such as wild woods rich in broad-leaved 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: <ul style="list-style-type: none"> • 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)	<ul style="list-style-type: none"> • 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/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: <ul style="list-style-type: none"> • 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.
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: <ul style="list-style-type: none"> • 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
	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: Birdlife 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: <ul style="list-style-type: none"> • 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.
	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 Natura 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.
	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 special forests at a more local scale.

SELECTED RESOURCES: SPECIAL FORESTS

Procurement requirements

Danish Government Procurement Policy for Tropical Forests (under review)	Draft criteria includes seven thematic elements against which SFM should be addressed; 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	Requires that areas of high ecological value and representative of the forest types that occur within the forest management unit are identified, inventoried and protected.
FSC Controlled-Wood Standard	Requires that wood harvesting does not threaten high conservation value forests. Evidence of compliance is required.
PEFC Due Diligence System	Requires that forest management activities maintain, conserve and enhance special forests.
SFI Procurement Objective	For the US and Canada, requires that participants' procurement policies promote conservation of biological diversity, critical wildlife habitat, threatened, endangered, imperiled, and critically imperiled species. Outside North America, procurement policies are expected to promote the conservation of biodiversity hotspots and major tropical wilderness areas.
UK Timber Trade Federation Responsible Purchasing Policy	Members must not trade wood from forests where high conservation value is threatened by management activities.

Resources to assess requirements

CPET	Addresses issues of special forests to the degree they are incorporated in requirements of certification standards for sustainability.
Environmental Paper Network	Seeks to end the use of wood fiber from endangered forests. Provides a definition of endangered forests and an overview.
EPAT®	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.
FCAG	Includes provisions regarding the establishment 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.
FPAC: A Buyers' Guide to Canada's Sustainable Forest Products (the report)	Highlights efforts, commitments and collaborations between member companies and stakeholders to identify and preserve various types of special sites in Canada.

Global Forest Registry	FSC's Controlled Wood Standard requires that companies must assess if there are 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 addition to existing information for national and sub-national high conservation value forests assessments.
Good Wood. Good Business guide	Provides an overview of unwanted wood, includes wood from high conservation value forests, endangered forests, and others.
Greenpeace's Responsible Procurement Guide	Recognizes and promotes FSC forest certification standard, which includes specifications for high conservation value forest management.
Illegal-logging.info	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.
PREPS	Requires that wood does not comes from a high 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).
SmartSource	Suppliers are required to conduct a 'risk assessment' to determine whether wood/ fiber source could be derived from areas considered to be HCVPs. Smartsources relies on credible third party certification and verification programs for assessing impacts of forest management activities in forests where High Conservation Values (HCV) exist. SmartSource staff reviews and validates the HCV claims made by suppliers regarding the origin and attributes of the raw materials in the products.
Sustainable Forest Finance Toolkit	The Toolkit provides general background information about special forests.
Tropical Forest Trust	Promotes sourcing from production forests and avoiding wood from unwanted sources such as protected areas.
WWF GFTN	Provides overview information about high conservation value forests, and advice on options to address sourcing from these areas.
WWF Guide to Buying Paper	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.
WWF Paper Scorecard	Provides safeguards to avoid potential inclusion of unwanted sources of fiber, in line with FSC Controlled-Wood Standard.
WWF Tissue Scoring	Rates whether companies have a policy to eliminate all raw materials from controversial sources, including forests of high biodiversity value.



6. Have climate issues been addressed?

Sourcing and legality aspects



Origin

Where do the products come from?



Information accuracy

Is information about the products credible?



Legality

Have the products been legally produced?

Environmental aspects



Sustainability

Have forests been sustainably managed?



Special forests

Have special forests been protected?



Climate change

Have climate issues been addressed?



Environmental protection

Have appropriate environmental controls been applied?



Recycled fiber

Has recycled fiber been used appropriately?



Other resources

Have other resources been used appropriately?

Social aspects



Local communities and indigenous peoples

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



6. Have climate issues been addressed?

Climate and forests are intrinsically linked. As a result of climate change, forests are stressed through higher mean annual temperatures, altered precipitation patterns and more frequent and extreme weather events. At the same time, forests play a dual role in climate change. Forests mitigate climate change through uptake of carbon and, when sustainably produced, wood-based biofuels to replace fossil fuels. Land-use conversion and forest degradation, however, cause carbon emissions that contribute to climate change.

MITIGATION OF CLIMATE CHANGE

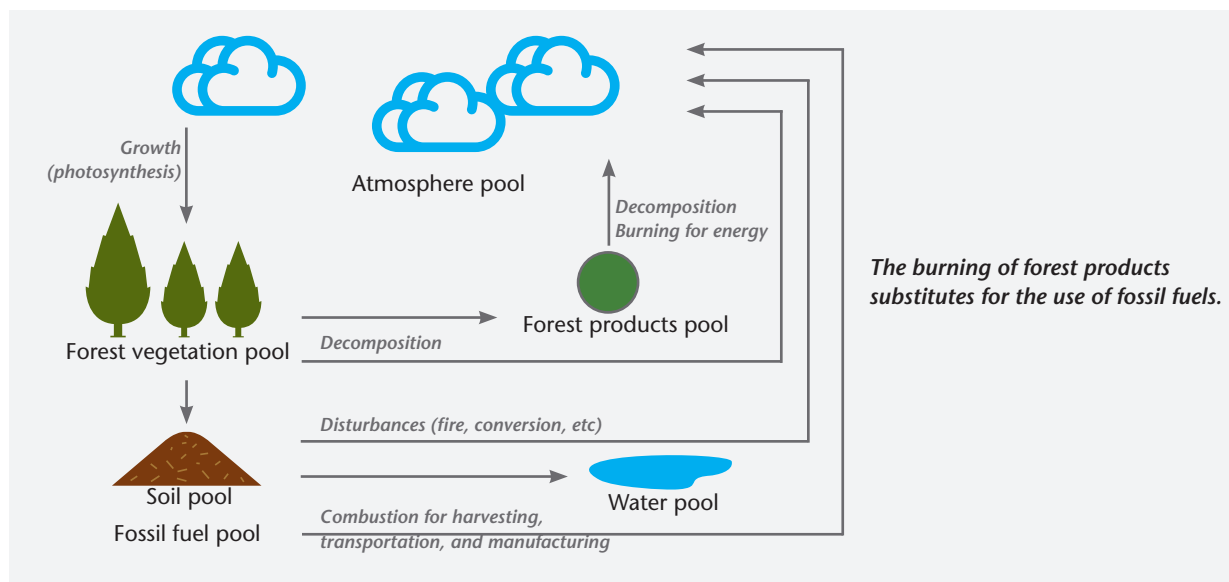
Forests remove carbon from the atmosphere (carbon sequestration) and store it as the biomass (wood and peat) that they produce and accumulate (Figure 8). Some carbon also remains stored in wood products through their lifetime, though this varies significantly between product types (on average, solid wood products last longer than paper-based products). The amount of carbon stored in products is estimated to be increasing by about 540 million tons of CO₂ per year (NCASI, 2007). Carbon in both forests and products is released back to the atmosphere, either through decomposition (slowly), or burning (quickly). Establishing new forests on open land and replanting formerly forested areas can store additional carbon.

Wood-based biofuels recycle to the atmosphere carbon captured through tree growth. Burning wood-based biofuels results in no net effect on atmospheric CO₂. Compared to fossil fuels, which transfer carbon from geologic reserves into the atmosphere, wood-based biomass fuels are considered “carbon neutral” when the forests from which the fuels were taken remain as forested areas. There is increasing interest in the use of biomass fuels from forests; however, if carried to the extreme, demand for wood-based fuels could result in negative effects:

- Unsustainable harvesting for biomass
- Reduced carbon sequestration
- Distortion of markets for limited wood supplies.

Wood-based fuels can substitute for fossil fuels; and when they do, they reduce the amount of carbon that reaches the atmosphere, as long as the areas from where they originate remain forested or trees are planted elsewhere to compensate. There has been an increasing interest in using biofuels from the forest to reduce fossil emissions, especially from the transportation sector.

Figure 8. Carbon pools and exchanges between pools



CONTRIBUTIONS TO CLIMATE CHANGE

When forests are logged, destroyed or burned at a faster rate than they grow back, they contribute to climate change. In a sustainably managed forest, logging is balanced by re-growth, but when forest land is converted to other uses there can be a significant net contribution to greenhouse gas emissions (Figure 9). An estimated 24% of global carbon dioxide emissions are attributable to land-use changes and forestry activities (Baumert et al., 2005).

Clearing of forests for agriculture is the leading cause of deforestation. In Africa, this is typically small-scale subsistence farming, while in South America it is large-scale cattle ranching and agricultural production. In Asia, the production of palm oil, coffee and timber are the primary drivers of land-use change. Deforestation generally does not occur in northern forests, apart from forest loss due to urban sprawl.

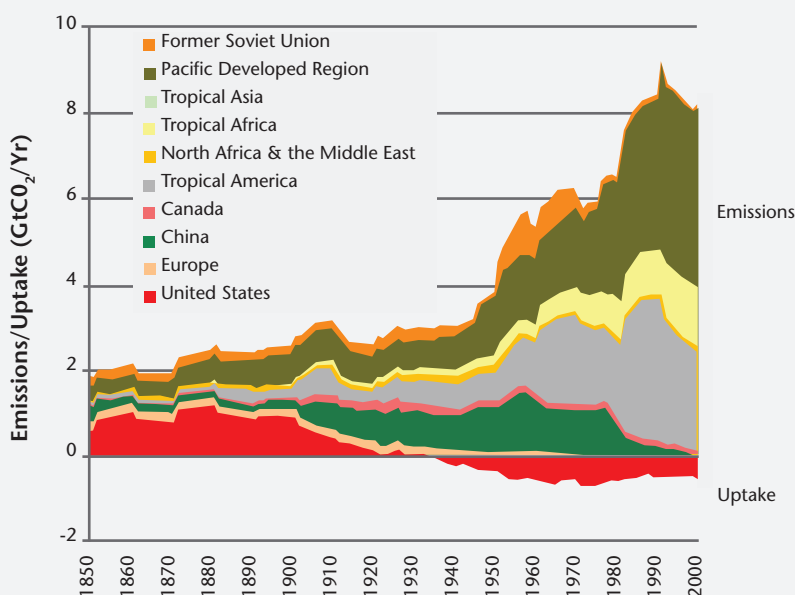
Logging of tropical hardwoods can sometimes be the critical first step, causing the deforestation process by providing other users with access roads. However, deforestation is generally not driven by the demand for

forest products. Logging, if carried out under a sustainable forest management regime, does not contribute to deforestation.

Sustainably managed forests are approximately carbon neutral. They form a mosaic across the landscape in which the growth of trees over a large area will compensate for the carbon lost through annual logging of a much smaller area. On the other hand, a forest landscape subjected to land-use change or over-harvesting will release more carbon than it takes up. The rate of recapture of atmospheric carbon depends on several factors:

- A young stand with small trees will absorb carbon as the trees grow, but the amount of carbon stored is initially small because of the small size of the trees and the more rapid decomposition of organic matter under an open canopy.
- An old stand with big trees is the result of a long period of biomass accumulation. Although the science is still inconclusive, it is generally true that old stands with big trees store large amounts of carbon, but as their growth stagnates they may no longer take up as much carbon as they release.

Figure 9. Uptake and emissions from land-use change between 1850 and 2000



The negative emissions, (uptake) post-1940 are largely due to increasing forest area in the US and Europe. The peak emissions in 1990 are linked to forest fires in Indonesia.

Source: Stern, 2007.

- Some people have suggested that stable old-growth forests should be replaced with stands of young, vigorously growing trees as a way to increase carbon uptake. This would reduce the amount of carbon stored on the land, however, and it would take decades, or even centuries, for the newer stands to recapture it.

Compared with other products, those produced from sustainably managed forests are generally considered carbon neutral, because the wood contains recycled carbon, i.e., carbon that was taken from the atmosphere (rather than from fossil deposits in the ground). The bottom line is to have more carbon stored and less removal (that will capture more carbon), rather than less storage and more removals.

When the full supply-chain impacts of wood products are measured, significant sources of carbon dioxide can be identified, similar to those associated with production of

competing products. Emission sources associated with forest products include:

- **Logging operations** – machinery and equipment that use fossil fuels for logging.
- **Transportation** – use of fossil fuels.
- **Manufacturing** – some manufacturing can be considered carbon neutral if the process uses biofuels, or some other renewable non-fossil fuel alternatives that have not been produced in previously forested areas, for energy. However, mechanical pulping (used for newsprint and catalogue papers) does not result in burnable process residuals, so external energy is usually required.
- **Disposal** – emissions may result when products decompose in the landfill. On the other hand, paper products properly disposed of in a modern landfill can sequester carbon long-term.



Factors to consider regarding climate change

- The forest industry is a major user of wood-based fuels. 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.
- In terms of energy and climate change, biofuels are generally considered positive; however, there are real concerns about conversion of forest land to unsustainable biofuel crops (e.g., corn or sugar cane), or an expansion of the agricultural frontier that will result in increased pressure for land-use change of forests.

SELECTED RESOURCES: CLIMATE CHANGE

Resources to assess requirements

CEPI's Carbon Footprint Framework	Framework provides a structure and guidance for individual CEPI member-companies to estimate – and communicate with stakeholders – the net greenhouse gas 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.
Dutch Government Procurement Criteria for Timber	The Criteria requires that the forest management system at a minimum maintains important ecological cycles, such as carbon.
Environmental Footprint Comparison Tool	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 Paper Network	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.
EPAT®	Rates the CO ₂ emitted to the air per unit of product, as well as efforts to reduce greenhouse gas emissions.
FICAT	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.
Forest Footprint Disclosure Project	Companies are asked to disclose information about public commitments and policies related to climate change.
Forest Governance Learning Group	Alliance members are involved in in-country policy discussions and negotiations around REDD+ often from a social-issues angle.
FPAC: A Buyers' Guide to Canada's Sustainable Forest Products (the report)	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.
Illegal-logging.info	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.
Paper Calculator	Estimates CO ₂ emissions depending on the paper grade and percentage of recycled content per ton. It also estimates methane emissions for end-of-life.

Paper Profile	Provides information about the total amount of energy procured, possible energy surplus and the CO ₂ emissions from burning fossil fuels and peat.
PREPS	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.
Project LEAF	One of the objectives of the project is to develop best practices for combating REDD-related and forest-related corruption.
Sedex	Although not required, members are encouraged to analyze and track the carbon footprint in their operations.
Sustainable Forest Finance Toolkit	The Toolkit includes information about the relationship between forests and the global carbon cycle, as well as the role of forests in providing ecosystem services such as air quality regulation, provision of genetic resources, and others. It covers aspects such as afforestation, reforestation, Reduced Emissions from Degradation and Deforestation, as well as wood-based biofuels.
Timber Retail Coalition	The Coalition campaigns on forest-related topics such as deforestation and its impact on climate change.
Tropical Forest Trust	Through the Climate Tree Initiative, promotes conservation of tropical forests to reduce greenhouse emissions and protect climate. Advocates ways to be carbon responsible.
Two Sides	The initiative provides links, documents and case studies related to CO ₂ emissions due to timber harvesting and the paper making process.
Wood for Good	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, recovery of stored energy by burning wood as a substitute for fossil fuels, and reduction of greenhouse emissions.
WWF GFTN	Supports efficient use of energy to minimize direct/indirect impacts on climate change, management to improve levels of carbon sequestration.
WWF Guide to Buying Paper	Provides background information; promotes reduction of CO ₂ emissions and showcases companies reducing CO ₂ emissions.
WWF Paper Scorecard	Rates fossil fuels' contribution to climate change and global warming through emissions of CO ₂ .
WWF Tissue Score	Rates whether or not a company has set a vision and targets for maximizing the use of biomass and other renewable energy, reducing CO ₂ emissions, and ongoing research and development of cleaner production and transportation technologies.



7. Have appropriate environmental controls been applied?

Sourcing and legality aspects



Origin

Where do the products come from?



Information accuracy

Is information about the products credible?



Legality

Have the products been legally produced?

Environmental aspects



Sustainability

Have forests been sustainably managed?



Special forests

Have special forests been protected?



Climate change

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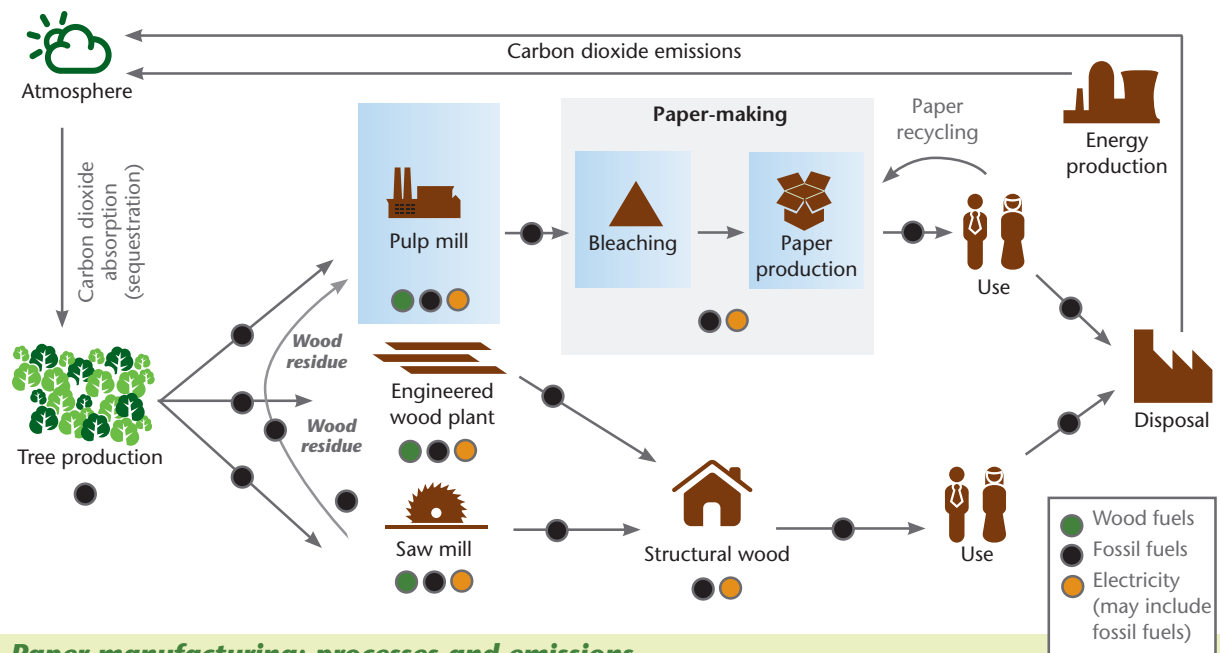


7. Have appropriate environmental controls been applied?

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:

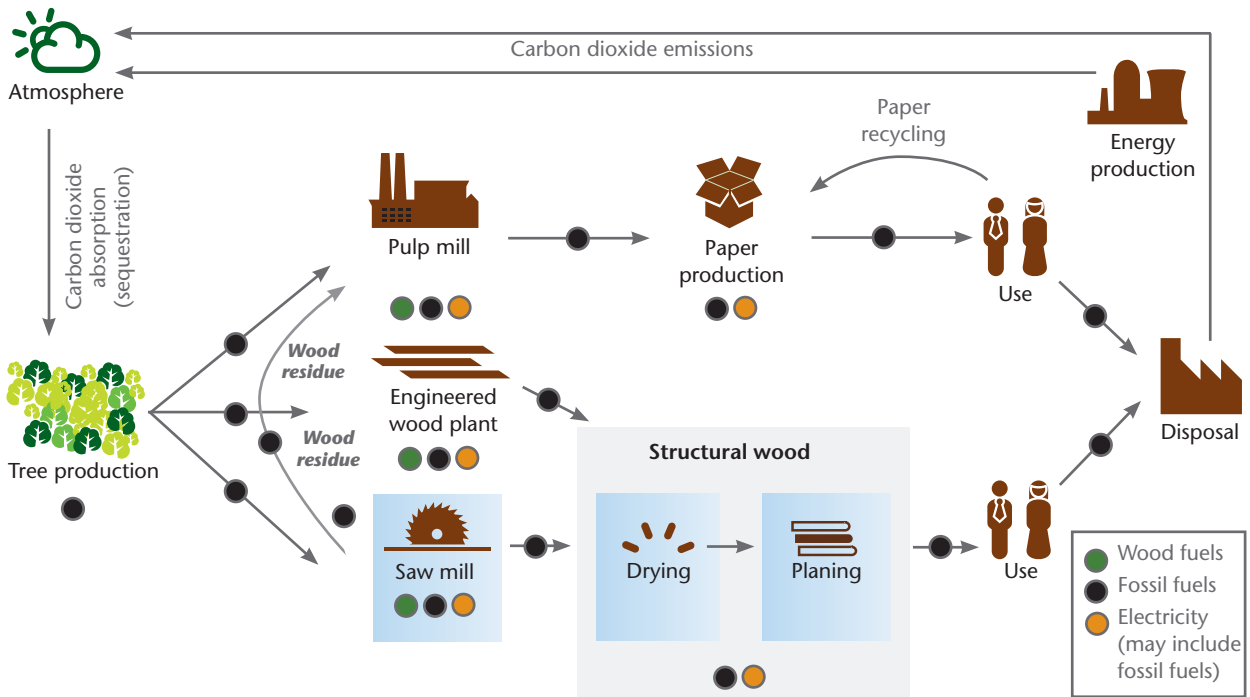
- **Re-pulping:** separating fibers from other substances (i.e., dirt, plastic, wax in specialty paper) and from each other. Sulfur, formaldehyde, naphthalene and sodium compounds are used to facilitate the process.
- **De-inking:** removing the ink from the paper and from the pulp mix by washing, flotation, 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 10 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 10.

Bleaching can be a potentially major source of pollution (Box 11). 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 10. 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 11. 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

Procurement requirements

Dutch Government Procurement Criteria for Timber	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.
European Community Green Purchasing Policy	Recycled paper should be at least elementary chlorine free. The comprehensive criteria for paper proposes 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.
Green Globes	Prefers materials with low environmental impact.
Japanese Government Procurement Policy	Includes specifications for pollutant emissions in the processing of procured raw materials.
LEED	Promotes the reduction of waste.
Mexican Federal Government Procurement Policy	Office paper products should be at least 50% Chlorine-free.
SFI Procurement Objective	Requires the establishment of an auditable system for compliance with environmental best management practices.

Resources to assess requirements

CEPI's Carbon Footprint Framework	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.
Environmental Footprint Comparison Tool	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.
Environmental Paper Network	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.
EPAT®	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.
FPAC: A Buyers' Guide to Canada's Sustainable Forest Products (the report)	Provides information showing decline in emissions of pollutants to water and air over the past decade.

10 things you should know | 7. Have appropriate environmental controls been applied?

GPN	Prefers paper bleached without chlorine.
New Zealand Government Paper Buyers' guidance	Recognizes the use of ecolabels and self declarations as evidence to verify that products meet bleaching requirements.
Paper Calculator	Estimates emissions of various air and water pollutants depending on the paper grade and percentage of recycled content per ton, as entered by the user.
Paper Profile	Provides a summary of air, water and solid emissions in pulp and paper production, including: chemical oxygen demand, absorbable organic halogens, nitrogen, phosphorous, sulfur dioxide, nitrogen oxides, as well as solid waste.
Sustainable Forest Finance Toolkit	The Toolkit provides information about using Environmental Management Systems to improve environmental performance.
Two Sides	The initiative provides links, documents and case studies related to air and water emissions in the paper making process.
Wood for Good	Measures wood against other construction materials (steel and concrete) through comparisons of environmental impacts in manufacturing processes.
WWF GFTN	Supports procedures for minimizing pollution and improving the acquisition, transportation, storage and management of toxic substances. Promotes non-use/production of toxic chemicals and compliance with local and international conventions regarding emissions, effluents and wastes.
WWF Guide to Buying Paper	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.
WWF Paper Scorecard	Rates pollution from organic waste and from absorbable chlorinated compounds. Promotes unbleached or totally chlorine free products.
WWF Tissue Scoring	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.



8. Has recycled fiber been used appropriately?

Sourcing and legality aspects



Origin

Where do the products come from?



Information accuracy

Is information about the products credible?



Legality

Have the products been legally produced?

Environmental aspects



Sustainability

Have forests been sustainably managed?



Special forests

Have special forests been protected?



Climate change

Have climate issues been addressed?



Environmental protection

Have appropriate environmental controls been applied?



Recycled fiber

Has recycled fiber been used appropriately?



Other resources

Have other resources been used appropriately?

Social aspects



Local communities and indigenous peoples

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



8. Has recycled fiber been used appropriately?

Recycling is common to the paper-making industry. The main raw material for paper used to be recycled clothes, until scarcity of clothes, rising demand and technological improvements allowed the use of wood fibers (Holik, 2006). Today, a significant amount of wood by-products from industrial processes are used, including trees that are too small or crooked to be cut into lumber, sawmill residue, and residue from the making of wood pulp (bark and non-cellulose parts of the wood).

The use of recycled fiber is exclusive to paper-based products. Recycling has increased significantly in many

countries (Table 11) and one reason for the growth in demand for recycled fiber is that some governments and institutions have established requirements for recycled content. However, in some regions, the availability of recycled fibers may not be sufficient to meet the demand, and fiber collection can be a major bottleneck. In addition to the paper industry, collecting fibers to be recycled involves many actors such as city governments, municipalities, and waste management facilities and, in some cases, the recycled fiber is not enough to meet the demand.

Table 11. Recovered paper in the world

Region/Year	1990	1995	2000	2005	Recovery rate (Putz, 2006)
Africa	734,970	909,800	1,166,700	1,515,700	N/A
Asia	24,322,100	33,493,771	44,076,152	52,077,715	57%
Europe	24,088,000	33,641,000	43,991,709	54,774,990	55%*
North and Central America	28,788,008	33,246,500	45,945,000	47,806,928	38%**
South America	2,417,000	2,665,000	4,455,000	4,867,700	N/A

Production is in metric tons (Mt). Trends show an increase in production of recovered paper. Recovered paper includes paper and paperboard that has been used for its original purposes and residues from paper conversion. This includes waste and scrap collected for reuse as a raw material for the manufacture of paper and related products. Sources: Putz, 2006; FAO Faostat website (faostat.fao.org); CEPI, 2006.

** EU Countries plus Czech Republic, Hungary, Norway, the Slovak Republic and Switzerland. Recovery rate is 62.6% if including European recovered paper recycled in third countries.*

*** North America only.*

A constant flow of virgin fiber into the fiber network is needed because wood fibers cannot be recycled indefinitely. Depending on the origin of the virgin fiber and the type of products, fiber is typically degraded and unusable after five to seven cycles. Thus, virgin fiber is constantly added to the fiber network to compensate for the retirement of degraded fiber, archival storage of paper, and loss of fiber through normal use and disposal of certain paper products, such as personal care and tissue products.

A recent study suggests that the paper supply in Canada and the United States would develop serious problems in a matter of days if the input of fresh fiber was eliminated (Metafore, 2006).⁵

In addition to recycled fibers, non-wood crops such as bamboo, kenaf and bagasse can also be used to produce paper (Box 12).



Factors to consider regarding recycled content

- Use of recycled content is generally considered positive and can be an environmentally preferable source of fiber. Many consumers would like to see an increase in recycled content.
- The optimum percentage of recycled content depends on a combination of commercial, technical and political factors and is not necessarily the same as the maximum percentage. To determine targets for recycled content, close contacts with suppliers is important, but engagement of other stakeholders in a transparent dialogue is a useful supplementary strategy.
- The optimum percentage of recycled content is not the same for all types of paper products; some end-products are more suitable for high recycled content than others. Differences in technical constraints and market sensitivity to product performance play significant roles.
- Consider the holistic environmental impacts of recycled content versus sustainable sourced fiber. The benefits of increased recycled fiber may be offset by non-fiber inputs such as chemicals or energy. For instance, depending on the processing, recycling of fibers may require additional inputs of fossil fuels because waste byproducts used to produce energy are not as available as when processing virgin fibers.
- Recycling involves investments at various steps of the process, and it is not completely free from environmental impacts (Box 13).
- Responsible burning of wastepaper may be better for the environment than collection in remote areas of low supply density. Attempts to reach a 100% collection rate would not only be fruitless but also produce unintended negative effects, such as increased carbon emissions associated with the additional transportation needed to collect fiber. However, this relationship may change depending on changing prices for oil and fiber.
- Recycling can be part of a sustainable procurement policy in several ways. Apart from purchasing specifications for recycled content, a company may also set targets for increasing the proportion of recycled content in its products, and support measures for helping local governments to collect recycled fibers in sufficient amounts to meet demand. The costs for upgrading fiber quality rise rapidly when recycling rates become high.

⁵ The same study examined production of newsprint in Canada and the US. The result suggests that production of newsprint would have to cease after three and a half months if only recovered fiber were used.

Box 12. Alternative fibers

Non-wood fibers, or other agricultural residues used in paper-making, include flax, kenaf, hemp, bamboo, rye, wheat straw and fiber from sugar cane (bagasse). Alternative fibers and agricultural residues have some advantages for paper-making:

- The demand for wood fibers from unsustainable sources is reduced, as is the pressure on forests for fiber production.
- Rural economies and employment can benefit. In India and China, in particular, non-wood fibers play an important role in some rural economies.

However, alternative fibers have failed to attract a strong interest from major industrial paper makers for several reasons:

- Poor availability and logistical difficulties – certain alternative fibers are not available throughout the year, and storage capacity would be needed to feed mills year-round; production of alternative fibers may involve a large number of suppliers.
- Scale, supply and markets – the supply system and customer base for wood fiber are well established, whereas a supply system for alternative fibers would have to be designed and constructed, and offers less predictability and control.
- The need for intensive management – non-wood fibers would have to be grown as intensively-managed crops on large areas, in order to sustain a large-scale manufacturing operation. The environmental side effects of this may be greater than those of SFM.
- Technical properties – some alternative fibers may not meet the performance requirements for certain products (e.g., rice straw for making newsprint). There are still some processing problems, due to high silica content in some alternative fibers (e.g., straw).

Some key questions to consider when requesting paper made from alternative fibers:

1. Does it remove incentives to keep the landscape forested?
2. Do the environmental advantages persist when the production expands to the necessary scale, or does it result in more negative environmental impacts? (consider water use, chemical inputs, energy requirements, climate effects, etc).
3. What is the risk that forest land will be converted to agriculture?
4. What effects, both positive and negative, would this have on local communities and indigenous peoples?



Flax bush on Tiritiri Matangi Island, New Zealand



Bamboo plantation



Wheat straw

Box 13. Recycling and environmental impacts

Wood and paper-based products have environmental implications at every stage of their life cycle. Recycling is better in general because it can reduce the demand on virgin fiber to a certain degree. From a life cycle assessment (LCA) perspective, the environmental impacts of fiber recycling and reuse need to be considered. Enhancing one aspect of fiber recycling could offset the benefits and increase the negative impacts in another stage of the life cycle of the product. There are disagreements among stakeholders about the benefits and negative environmental impacts of recycled fiber.

	VIRGIN FIBER PRODUCT	RECYCLED FIBER PRODUCT
Raw material acquisition	Trees grown, harvested, transported and chipped.	Used products collected, transported, and sorted. There might be cases, where paper with high content of recycled fiber generates more fossil fuel-based CO ₂ emissions because of transportation.
Raw material processing	Water, energy, and chemicals used to extract fibers from wood chips.	Water, energy, and chemicals used to clean and re-pulp used products, remove fillers, and de-ink fibers.
Processing by-products	Air emissions, water effluent, non-hazardous waste (wastewater treatment residuals). Some solid waste used as soil nutrients.	Fewer air emissions, similar water effluent, significantly more wastewater treatment residuals.
Product manufacturing	Water and energy used to make paper from pulp.	Water and energy used to make paper from pulp. Recycled fibers can increase the amount of energy (including fossil fuel energy) needed in paper-making, because they dry less efficiently. Fibers that shorten/break during recycling process can end up as solid waste.
Product use	The amount of fiber or product needed to perform a given task (i.e., make 100 copies, absorb 2 grams of fluid).	Recycling process breaks and stiffens fibers, resulting in reduced performance in some types of products. More fiber per sheet may be needed, or more product used, to adjust for poorer performance.
Product disposal	Paper products typically recycled or disposed as solid waste or in wastewater. When products are no longer recyclable, they can be burned to generate energy.	Similar disposal routes for products made from recycled fibers. When products are no longer recyclable, they can be burned to generate energy.

SELECTED RESOURCES: RECYCLED CONTENT

Procurement requirements

European Community Green Purchasing Policy	For paper, core criteria for paper proposes 100% recovered paper fibers. Comprehensive criteria proposes full compliance with the EU Ecolabel criteria or other Type I ecolabel criteria.
Green Globes	Rates proportion of construction materials that contain recycled post-consumer content.
Japanese Government Procurement Policy	Requires specific percentages of recycled content for various solid and pulp-based products.
LEED	Rates the proportion of materials that contain recycled content and the proportion of used materials (e.g., in renovation projects) being recycled, including paper, wood, flooring, cardboard, etc.
Mexican Federal Government Procurement Policy	At least 50% of the fibers of office paper products should be recycled or certified.

Resources to assess requirements

CEPI's Carbon Footprint Framework	Provides guidance in the assessment of greenhouse gas emissions generated by producing wood fiber and recycled fiber.
Environmental Footprint Comparison Tool	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 recycled content in manufacturing various paper grades, in terms of water usage, energy consumption, greenhouse gases emissions, emissions to air, water and solid waste, as well as demand for virgin fiber.
Environmental Paper Network	Seeks to eliminate the production of papers manufactured solely using virgin fiber and maximize post-consumer fiber content in all paper types. Provides information about the benefits of using recycled fiber.
EPAT®	Rates the percentage of pre- and post-consumer fiber, as well as the use of agricultural residues.
FICAT	Estimates avoided GHG emissions by recycling products.
FPAC: A Buyers' Guide to Canada's Sustainable Forest Products (the report)	Highlight efforts of members to develop reliable sources of recycled content and increase recycled content in finished products. Provides concrete facts to document such efforts.

GPN	Prefers products that are easily recycled and contain high percentages of recycled content.
Greenpeace's Responsible Procurement Guide	Promotes procurement of recycled products.
New Zealand Government Paper Buyers guidance	Accepts the use of forest certification systems as well as other ecolabels, self declarations and independent third-party certification as evidence that products meet recycled content requirements.
Paper Calculator	Estimates environmental impacts and changes in wood usage based on the paper grade and percentage of recycled content used. Provides detail guidance about impacts and implications of using recycled content.
Paper Profile	Includes a summary of recycled content.
PREPS	Includes information on the extent that paper is made from recycled material in PREPS Grading System.
Sustainable Forest Finance Toolkit	The Toolkit provides general background information about recycled fiber streams.
Tropical Forest Trust	Promotes verification of recycled status.
Two Sides	The initiative provides links, documents and case studies related to paper recycling.
wood for good	Promotes recycling of wood products.
WWF GFTN	Provides advice on defining levels of recycled content and systems to certify recycled materials.
WWF Guide to Buying Paper	Provides background information and advice about increasing use of recycled fiber. Showcases examples of companies using recycled fiber.
WWF Paper Scorecard	Rates and promotes the use of post-consumer recycled fiber.
WWF Tissue Scoring	Rates companies' specific commitments to maximize the use of post-consumer recycled content and optimize the use of virgin fiber.



9. Have other resources been used appropriately?

Sourcing and legality aspects



Origin

Where do the products come from?



Information accuracy

Is information about the products credible?



Legality

Have the products been legally produced?

Environmental aspects



Sustainability

Have forests been sustainably managed?



Special forests

Have special forests been protected?



Climate change

Have climate issues been addressed?



Environmental protection

Have appropriate environmental controls been applied?



Recycled fiber

Has recycled fiber been used appropriately?



Other resources

Have other resources been used appropriately?

Social aspects



Local communities and indigenous peoples

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



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 13).

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 14. 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.

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



SELECTED RESOURCES: SOURCE REDUCTION

Procurement requirements

Green Globes	Rates the proportion of building materials that are reused.
Japanese Government Procurement Policy	Requires simple packaging.
LEED	Rates the proportion of building materials that are reused.

Resources to assess requirements

CEPI's Carbon Footprint Framework	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 Paper Network	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.
EPAT®	Rates the recyclability and compostability of other materials (wax, plastic and metal), as well as the amount of water and energy used throughout the manufacturing process.
FPAC: A Buyers' Guide to Canada's Sustainable Forest Products (the report)	Provides statistics showing decline in water usage over the past decade. Within the climate change context, provides statistics showing decrease in fossil fuel consumption and waste generation.
GPN	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.
Paper Calculator	Promotes source reduction in the use of paper. Estimates changes in wood, water, energy usage and waste volume, based on paper grade and percentage of recycled content used, and using a life cycle perspective.
Paper Profile	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.
Sedex	Although not required, members are encouraged to analyze and track their usage of electricity, gas, water, renewable energy, and waste production in their operations.
Tropical Forest Trust	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.

10 things you should know | 9. Have other resources been used appropriately?

WWF Guide to Buying Paper

Provides background information and advice to reduce paper consumption.

WWF Tissue Scoring

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.



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

Sourcing and legality aspects



Origin

Where do the products come from?



Information accuracy

Is information about the products credible?



Legality

Have the products been legally produced?

Environmental aspects



Sustainability

Have forests been sustainably managed?



Special forests

Have special forests been protected?



Climate change

Have climate issues been addressed?



Environmental protection

Have appropriate environmental controls been applied?



Recycled fiber

Has recycled fiber been used appropriately?



Other resources

Have other resources been used appropriately?

Social aspects



Local communities and indigenous peoples

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



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

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

Along with environment and economics, social well-being is one of the three pillars of sustainability (Brack, 2010). Social 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 12 lists 15 specific issues grouped in six categories. The issues highlighted in bold are elaborated in the text below.

Table 12. 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 13). 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 15), are examples of communities exercising their right to access, use, and benefit from the forests.



Table 13. 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 15. 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 of Indigenous Peoples (Lehr and Smith, 2010).

CONFLICT TIMBER

Forests and forest products have been connected to violent social conflicts. In some cases, 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 16).

Box 16. 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 14). 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?

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

Procurement requirements

Belgian Government Procurement Policy	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 is transparent.
Danish Government Procurement Policy for Tropical Forests (under review)	Draft criteria include seven thematic elements, including maintenance of socioeconomic functions, legality of property and tenure rights, respect for customary and traditional rights, as well as health and workers' rights.
Dutch Government Procurement Criteria for Timber	The Criteria requires that the interests of directly and indirectly involved stakeholders should be taken into account. Specifically, the Criteria requires that tenure and use rights are respected, stakeholders are consulted, and that the forest management plan, and relevant information, are publicly available. The Criteria also includes specifications for safety, health and labor conditions.
FLEGT & VPAs	The definition of what constitutes legally produced wood in VPA countries should be produced through a multistakeholder dialogue. The definition of legally produced wood should also cover recognition and protection of property rights, especially the rights of forest-dwelling communities.
FSC Controlled-Wood Standard	Requires that wood is not harvested in violation of traditional and civil rights.
Illegal Timber Regulation	In its definition of legal timber products, the Regulation includes respect of third parties' legal rights concerning use and tenure.
PEFC Due Diligence System	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	Reviews how public procurement policies include, exclude or address social aspects (socioeconomic, cultural and spiritual), compliance with fundamental rights, equality, non-discrimination, and others.
SFI Procurement Objective	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, anti-discrimination and anti-harassment measures, prevailing wages, and workers' right to organize.
UK Timber Trade Federation Responsible Purchasing Policy	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.

Resources to assess requirements

CPET	Addresses social issues to the degree they are incorporated in requirements of certification standards for sustainability and legality.
Environmental Paper Network	Provides information and examples of social impacts on aspects such as land claims, FPIC, emissions of pollutants and economic impacts. Provides guidance and recommendations, and showcases best and worst practices.
EPAT®	Rates mill systems for ensuring worker safety and health, engagement with stakeholders, and public disclosure of indicators covered by EPAT.
FCAG	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 groups; and transparency in decision-making and public reporting.
Forest Governance Learning Group	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.
FPAC: A Buyers' Guide to Canada's Sustainable Forest Products (the report)	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.
Good Wood. Good Business Guide	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.
Greenpeace's Responsible Procurement Guide	Recognizes FSC forest certification standard for covering social issues in the production of raw materials.
Illegal-logging.info	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.
NEPCon LegalSource Programme	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.
Sedex	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.

10 things you should know | 10. Have the needs of local communities or indigenous peoples been addressed?

Tropical Forest Trust

Trains forest companies to implement all social elements of FSC certification. Encourages business to donate directly to community forest programs.

WWF GFTN

Provides information on social issues related to wood and paper purchasing, as well as information on areas where these issues are most relevant (see White 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.

WWF Guide to Buying Paper

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.

WWF Paper Scorecard

Rates safeguards to avoid potential inclusion of unwanted sources of fiber, aligned with the FSC Controlled-Wood Standard.

WWF Tissue Scoring

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.





Selected tools

Selected tools

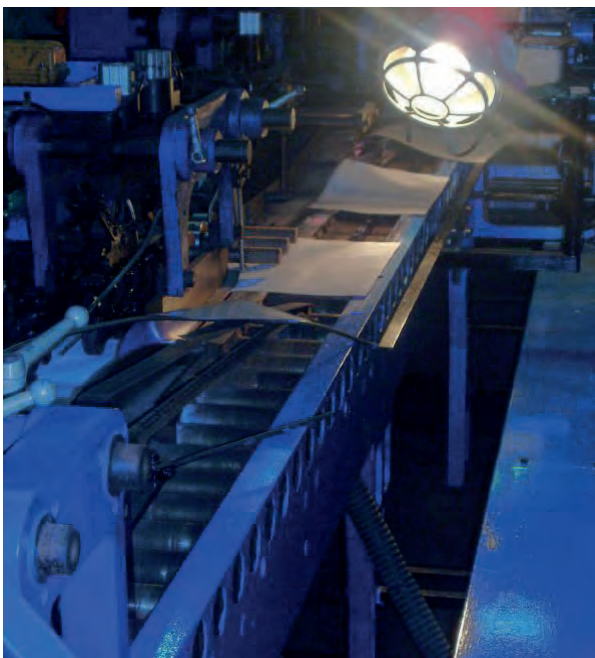
A number of tools – projects, initiatives, labels and publications – exist to support sustainable procurement of wood and paper-based products. Various tools have different things to offer. They differ in their geographical and thematic scope, in their focus within the wood chain, in the reasons for 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 58 tools, by placing them in two overview tables (Tables 15 and 16). The selected tools 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 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

- 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 15. Summary list of tools exclusively for either wood or paper-based products

SCOPE	Focus in supply chain				Geographical areas of interest	Main issues of concern						
	Forest production	Processing/manufacturing	Retail/use	Trade		Traceability	Monitoring and verification	Legality	SFM	special forests	Forest conversion	Social issues
SOLID WOOD												
Belgian Government Procurement Policy	✓			✓	Europe, with global implications	✓	✓	✓	✓			✓
German Government Procurement Policy	✓			✓	Global	✓	✓	✓	✓			
Global Timber Tracking Network	✓	✓		✓	Global	✓	✓	✓	✓		✓	
Greenpeace's Responsible Procurement Policy	✓		✓	✓	China with global implications	✓	✓	✓	✓	✓	✓	✓
The Green Building Initiative's Green Globes™ Rating System	✓		✓		US	✓			✓			
The Leadership in Energy and Environmental Design (LEED)® Green Building Rating System	✓		✓		US	✓			✓			

				Brief characterization	Contact details
Pollution	Recycled content	Climate change	Source reduction		
				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 www.guidedesachatsdurables.be
				Procurement policy for wood and wood products only from verifiably legal and SFM.	German Federal Ministry of Consumer Protection, Food and Agriculture Phone: +49 (030) 200 60 www.bmelv.de
				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 Fax: + (603) 89487655 E-mail: gttn@cgiar.org http://www.globaltimbertrackingnetwork.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 commercial buildings.	The Green Building Initiative Phone: +1 877 424 4241 E-mail: info@thegbi.org www.thegbi.org
✓	✓		✓	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

Table 15. Summary list of tools exclusively for either wood or paper-based products

SCOPE	Focus in supply chain				Geographical areas of interest	Main issues of concern						
	Forest production	Processing/manufacturing	Retail/use	Trade		Traceability	Monitoring and verification	Legality	SFM	special forests	Forest conversion	Social issues
Timber Retail Coalition	✓		✓	✓	Europe, with global implications			✓	✓			
Timber Tracking Technologies Review	✓	✓	✓	✓	Global	✓	✓	✓	✓			
Timber Trade Action Plan	✓		✓	✓	Global	✓	✓	✓				
UK Timber Trade Federation Responsible Purchasing Policy	✓	✓		✓	Global	✓	✓	✓	✓	✓	✓	✓
Tropical Forest Trust's Good Wood, Good Business Guide.	✓		✓	✓	Global/Tropics	✓	✓	✓	✓	✓	✓	✓
Wood for Good Campaign	✓		✓	✓					✓			

				Brief characterization	Contact details
Pollution	Recycled content	Climate change	Source reduction		
		✓		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 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 / CGIAR Phone: +(39 06) 61181 E-mail: bioversity@cgiar.org http://www.bioversityinternational.org/
				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 Tropical Forest Trust. TTAP is funded by the European Commission and its European partner timber trade federations.	Tropical Forest Trust Phone: +41 (0) 22 367 9442 E-mail: ttap@tropicalforesttrust.com www.timbertradeactionplan.info
				Management system compliant with UK central government requirements for legality and sustainability.	UK 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.	Tropical Forest Trust Phone: +41 (0)22 367 94 40 E-mail: tft@tropicalforesttrust.com www.tropicalforesttrust.com
✓	✓	✓		Brochures, fact sheets, education materials.	wood. for good Phone: +44 (0) 800 279 0016 E-Mail: contact@woodforgood.com www.woodforgood.com

Table 15. Summary list of tools exclusively for either wood or paper-based products

SCOPE	Focus in supply chain				Geographical areas of interest	Main issues of concern						
	Forest production	Processing/manufacturing	Retail/use	Trade		Traceability	Monitoring and verification	Legality	SFM	special forests	Forest conversion	Social issues
PULP AND PAPER-BASED												
CEPI Carbon Footprint Framework	✓	✓	✓	✓	Europe	✓	✓		✓		✓	
Environmental Footprint Comparison Tool		✓			North America							
Environmental Paper Assessment Tool ® V.2.0	✓	✓	✓		Global but primarily in the US and Canada	✓	✓	✓	✓	✓		✓
Environmental Paper Network	✓	✓	✓	✓	Global	✓	✓	✓	✓	✓	✓	✓
New Zealand Government Paper Buyers guidance	✓			✓	New Zealand with global implications			✓	✓			
Paper Calculator	✓	✓			North America (Canada and the United States)							
Paper Profile	✓	✓			Europe/Global	✓	✓		✓			

				Brief characterization	Contact details
Pollution	Recycled content	Climate change	Source reduction		
✓	✓	✓	✓	Framework provides a comprehensive structure, overview and guidance for individual CEPI member companies to estimate--and communicate with stakeholders--the net greenhouse gas emissions associated with their products (carbon footprint). Evaluation of carbon footprint is based on 10 elements throughout the products' supply chain.	Confederation of European Paper Industries Phone: +32 2 627 4928 E-mail: mail@cepi.org www.cepi.org
✓	✓	✓		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: +1 438 817 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
✓	✓	✓	✓	Online tool to quantify and compare the environmental impacts of 13 paper choices based on the use of recycled content and source reduction; calculations are based on the analysis of the Paper Task Force, which examines environmental impacts and implications through the entire life cycle of paper.	Environmental Defense Fund Phone: +1 212 505 2100 www.papercalculator.org
✓	✓		✓	Voluntary system to provide information to the consumer about various environmental parameters of specific paper products.	Finnish Paper Engineers' Association Phone: +358 (9) 132 6688 E-mail: info@papereng.fi www.papereng.fi

Table 15. Summary list of tools exclusively for either wood or paper-based products

SCOPE	Focus in supply chain				Geographical areas of interest	Main issues of concern						
	Forest production	Processing/manufacturing	Retail/use	Trade		Traceability	Monitoring and verification	Legality	SFM	special forests	Forest conversion	Social issues
Publisher's database for Responsible Environmental Paper Sourcing (PREPS)	✓	✓			Global	✓	✓	✓	✓			
TwoSides	✓	✓	✓		Europe, with global implications	✓	✓		✓			
World Wildlife Fund Guide to Buying Paper	✓	✓	✓	✓	Global	✓	✓	✓	✓	✓	✓	
World Wildlife Fund Paper Scorecard	✓	✓		✓	Global	✓	✓	✓	✓	✓	✓	✓
World Wildlife Fund Tissue Scoring	✓	✓	✓		Europe	✓	✓	✓	✓	✓	✓	✓

				Brief characterization	Contact details
Pollution	Recycled content	Climate change	Source reduction		
	✓	✓	✓	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 CO2 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 CO2 emissions or water consumption.	Publisher's database for Responsible Environmental Paper Sourcing (PREPS) E-mail: info@prepsgroup.com http://prepsgroup.com/home.php
✓	✓	✓		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) 22 364 91 11 www.wwfno.panda.org

Table 16. Summary list of tools for both wood and paper-based products

SCOPE	Focus in supply chain				Geographical areas of interest	Main issues of concern						
	Forest production	Processing/manufacturing	Retail/use	Trade		Traceability	Monitoring and verification	Legality	SFM	Special forests	Forest conversion	Social issues
A Buyers' Guide to Canada's Sustainable Forest Products	✓	✓	✓	✓	Canada with global implications	✓	✓	✓	✓	✓	✓	✓
CEPI Legal Logging Code of Conduct	✓			✓	Europe	✓	✓	✓				
Danish Government Procurement Policy for Tropical Forests	✓	✓		✓		✓	✓	✓	✓			✓
Dutch Government Procurement Criteria for Timber	✓			✓	Global	✓	✓	✓	✓	✓	✓	✓
European Community Green Purchasing Policy	✓	✓		✓	Global	✓	✓	✓	✓			
Enhancing the Trade of Legally Produced Timber, a Guide to Initiatives	✓	✓	✓	✓	Global	✓	✓	✓				

				Brief characterization	Contact details
Pollution	Recycled content	Climate	Source reduction		
✓	✓	✓	✓	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.	Confederation of European Paper Industries (CEPI) Phone: +32 (2) 627 49 27 E-mail: mail@cepi.org www.cepi.org
				Guidelines for purchasing of tropical timber. Guidelines are currently under review.	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: mhaase@smk.nl www.tpac.smk.nl
✓	✓		✓	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 ec.europa.eu/environment/gpp/index_en.htm
				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/

Table 16. Summary list of tools for both wood and paper-based products

SCOPE	Focus in supply chain				Geographical areas of interest	Main issues of concern						
	Forest production	Processing/manufacturing	Retail/use	Trade		Traceability	Monitoring and verification	Legality	SFM	Special forests	Forest conversion	Social issues
European Union Action Plan for Forest Law Enforcement, Governance and Trade (FLEG), and Voluntary Partnership Agreements (VPAs)	✓			✓	Global	✓	✓	✓	✓			✓
Forest Certification Assessment Guide	✓				Global	✓	✓	✓	✓	✓	✓	✓
Forest Footprint Disclosure Project	✓				Global	✓	✓	✓	✓			
The Forest Governance Learning Group (FGLG)	✓			✓	Asia and Africa		✓	✓	✓			✓

				Brief characterization	Contact details
Pollution	Recycled content	Climate	Source reduction		
				<p>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.</p>	<p>European Forest Institute / EU FLEGT Facility Phone: +358 10 773 4300 Contact: http://www.euflegt.efi.int/contact.php www.euflegt.efi.int</p>
✓				<p>Framework for the evaluation of certification systems to assess compliance with World Bank and WWF policies.</p>	<p>World Bank / WWF International Phone: +41 (0) 22 364 91 11 or +1 202 473 10 00 www.forest-alliance.org</p>
				<p>The 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.</p>	<p>Global Canopy Programme Phone: 44 1865 724 333 E-mail: info@forestdisclosure.com www.forestdisclosure.com</p>
		✓		<p>The Forest Governance Learning Group is an informal network of national organizations in Africa and Asia focused on forest governance issues. The FGLG seeks to contribute to the improvement of the forest governance focusing on four themes: a) poverty reduction strategies and national forest and decentralization programs; b) illegal logging; c) forest enterprises and private sector; and, d) forest ownership and access rights. To achieve its goals, FGLG promotes exchanges and dissemination of pragmatic approaches to good forest governance, builds long-term capacities, and promotes materials, tools and guidance.</p> <p>FGLG was established in 2003, and it is coordinated by the International Institute for Environment and Development. FGLG is active in Cameroon, China, Ghana, India, Indonesia, Malawi, Mozambique, South Africa, Tanzania, Uganda and Vietnam.</p>	<p>International Institute for Environment and Development Phone: +44 (0)20 3463 7399 http://www.iied.org/forest-governance-learning-group</p>

Table 16. Summary list of tools for both wood and paper-based products

SCOPE	Focus in supply chain				Geographical areas of interest	Main issues of concern						
	Forest production	Processing/manufacturing	Retail/use	Trade		Traceability	Monitoring and verification	Legality	SFM	Special forests	Forest conversion	Social issues
Forest Industry Carbon Assessment Tool	✓	✓	✓		Global	✓			✓		✓	
Forest Legality Alliance	✓			✓	Global			✓				
French Policy on Public Procurement of Timber and Wood Products	✓			✓	Global	✓	✓	✓	✓			
FSC's Controlled Wood Standard	✓	✓		✓	Global	✓	✓	✓		✓	✓	✓
Global Forest Registry	✓			✓	Global			✓	✓	✓	✓	✓
Global Forest and Trade Network	✓	✓	✓	✓	Global	✓	✓	✓	✓	✓	✓	✓

				Brief characterization	Contact details
Pollution	Recycled content	Climate	Source reduction		
	✓	✓		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: info@forestlegality.org www.forestlegality.org
	✓			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 system, 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
				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
	✓	✓	✓	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

Table 16. Summary list of tools for both wood and paper-based products

SCOPE	Focus in supply chain				Geographical areas of interest	Main issues of concern						
	Forest production	Processing/manufacturing	Retail/use	Trade		Traceability	Monitoring and verification	Legality	SFM	Special forests	Forest conversion	Social issues
Green Purchasing Network		✓	✓		Japan		✓	✓	✓			
Illegal-logging.info	✓	✓	✓	✓	Global	✓	✓	✓	✓	✓	✓	✓
Japanese Government Procurement Policy	✓	✓			Japan/Global	✓		✓	✓			
Mexican Federal Government Procurement Policy	✓	✓			Mexico	✓	✓	✓	✓			
NEPCon LegalSource Programme	✓	✓		✓	Global	✓	✓	✓				✓
New Zealand Timber and Wood Products Procurement Policy	✓			✓	Global		✓	✓	✓			

				Brief characterization	Contact details
Pollution	Recycled content	Climate	Source reduction		
✓	✓	✓	✓	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
		✓		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 www.maff.go.jp/eindex.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.gov.mx
				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 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

Table 16. Summary list of tools for both wood and paper-based products

SCOPE	Focus in supply chain				Geographical areas of interest	Main issues of concern						
	Forest production	Processing/manufacturing	Retail/use	Trade		Traceability	Monitoring and verification	Legality	SFM	Special forests	Forest conversion	Social issues
PEFC Due Diligence System	✓	✓		✓	Global	✓	✓	✓		✓	✓	✓
Project LEAF	✓			✓	Global	✓	✓	✓				
Public Procurement Policies for Forest Products and Their Impacts	✓			✓	Europe, New Zealand, Japan		✓	✓	✓			✓
Sedex	✓	✓		✓	Global			✓				✓

				Brief characterization	Contact details
Pollution	Recycled content	Climate	Source reduction		
				The PEFC's Due Dilligence 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 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
		✓	✓	<p>«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.</p> <p>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.»</p>	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/

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SCOPE	Focus in supply chain				Geographical areas of interest	Main issues of concern						
	Forest production	Processing/manufacturing	Retail/use	Trade		Traceability	Monitoring and verification	Legality	SFM	Special forests	Forest conversion	Social issues
SmartSource	✓	✓		✓	Global	✓	✓	✓	✓	✓	✓	
Standard Practice for Categorizing Wood and Wood-Based Products According to Their Fiber Sources	✓				Global, but available data are initially limited to the U.S.	✓	✓	✓	✓			✓
String	✓	✓		✓		✓	✓	✓				

				Brief characterization	Contact details
Pollution	Recycled content	Climate	Source reduction		
				<p>A supply chain management resource that supports forest products purchasing programs by assisting companies to (a) trace the origin of products down the supply chain to forest source; (b) identify and evaluate risk of illegal logging, controversial and unsustainable forest management activity associated with their supply chain; and (c) develop and implement procedures and actions to address these risk. SmartSource also provides support to companies in educating their staff with communicating the policy and related expectations to suppliers and other stakeholders. With SmartSource360 (applicable to a and b above), 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 the forest of origin. Rainforest Alliance SmartSource program staff can review and validate claims made by suppliers regarding wood and/or fiber source and related attributes.</p>	<p>Rainforest Alliance, SmartSource Program Phone: (802) 434 5491 E-mail: smartsource@ra.org http://www.rainforest-alliance.org/forestry/sourcing</p>
				<p>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.</p>	<p>ASTM International Phone: +1 610 832 9500 www.astm.org</p>
				<p>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.</p>	<p>Historic Futures Phone: +44 (0) 1993 886420 Fax: +44 (0) 1993 886421 www.historicfutures.com/</p>

Table 16. Summary list of tools for both wood and paper-based products

SCOPE	Focus in supply chain				Geographical areas of interest	Main issues of concern						
	Forest production	Processing/manufacturing	Retail/use	Trade		Traceability	Monitoring and verification	Legality	SFM	Special forests	Forest conversion	Social issues
Sustainable Forest Finance Toolkit	✓	✓		✓	Global	✓	✓	✓	✓	✓	✓	✓
Sustainable Forestry Initiative Procurement Objective	✓	✓		✓	US and Canada	✓	✓	✓	✓	✓		✓
Swiss Declaration Duty for Timber	✓			✓	Switzerland, with global implications	✓	✓	✓				
Tropical Forest Trust	✓	✓	✓	✓	Global	✓	✓	✓	✓	✓	✓	✓
UK Government Central Point of Expertise on Timber Procurement	✓	✓		✓	Global	✓	✓	✓	✓	✓		✓

				Brief characterization	Contact details
Pollution	Recycled content	Climate	Source reduction		
✓	✓	✓		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: +1 703 875 9500 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/start/index.html?lang=fr
	✓	✓	✓	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.	Tropical Forest Trust Phone: +41 (0) 223 67 9449 E-mail: info@tropicalforesttrust.com www.tropicalforesttrust.org
				Guidance for compliance with UK central government purchasing requirements for sustainability and legality.	EFECA Phone: +44 (0) 1305 236 1000 E-mail: cpet@efeca.com www.cpet.org.uk



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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- WWF Forest conversion website – http://wwf.panda.org/what_we_do/footprint/agriculture/foresconversion.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).
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Forest certification

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Table 17. 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	<ul style="list-style-type: none"> • Origin • Information accuracy • Legality • Sustainability • Special forests • Recycled content • Use of resources 	Paper-based products	environment.bankofamerica.com
JP Morgan Chase	<ul style="list-style-type: none"> • Information accuracy • Sustainability • Recycled content • Use of resource 	Paper-based products	www.jpmorganchase.com
Royal Bank of Canada	<ul style="list-style-type: none"> • Information accuracy • Sustainability • Recycled content • Use of resources 	Paper-based products	www.rbc.com
Scotiabank	<ul style="list-style-type: none"> • Information accuracy • Legality • Sustainability • Special forests • Environmental protection • Use of resources • Communities • Local communities and indigenous peoples 	Paper-based products	www.scotiabank.comf
Construction/Developers			
Countryside Properties	<ul style="list-style-type: none"> • Origin • Information accuracy • Legality • Sustainability • Recycled content 	Wood products	www.countryside-properties-corporate.com
Skanska	<ul style="list-style-type: none"> • Information accuracy • Sustainability • Legality 	Wood-based products	www.skanska.com
Wates	<ul style="list-style-type: none"> • Origin • Information accuracy • Legality • Sustainability 	Wood products	www.wates.co.uk
Construction/Investment/Services			
Balfour Beatty Corporation	<ul style="list-style-type: none"> • Origin • Information accuracy • Sustainability 	Wood-based products	www.balfourbeatty.co.uk
Cosmetics/Beauty			
Avon Products Inc.	<ul style="list-style-type: none"> • Origin • Information accuracy • Legality • Sustainability • Special forests • Climate change • Environmental Protection • Recycled content • Use of resources • Local communities and indigenous peoples 	Paper-based products	http://www.avoncompany.com

Forestry			
April	<ul style="list-style-type: none"> • Origin • Information accuracy • Legality • Special forests 	Wood products	www.aprilasia.com
DLH Group	<ul style="list-style-type: none"> • Origin • Information accuracy • Legality • Sustainability 	Wood products	www.dlh-group.com
Domtar	<ul style="list-style-type: none"> • Origin • Information accuracy • Legality • Sustainability 	Paper-based products	www.domtar.com
FinnForest	<ul style="list-style-type: none"> • Origin • Information accuracy • Legality • Sustainability • Special forests • Local and indigenous communities 	Wood products	www.finnforest.co.uk
Metsäliitto	<ul style="list-style-type: none"> • Origin • Legality • Information accuracy • Sustainability • Environmental protection • Use of resources • Climate change • Local and indigenous communities 	Wood and paper-based products	www.metsaliitto.com
Nippon Paper Group	<ul style="list-style-type: none"> • Origin • Information accuracy • Legality • Sustainability • Local and indigenous communities 	Wood products	www.np-g.com
Oji Paper Group	<ul style="list-style-type: none"> • Origin • Information accuracy • Legality • Sustainability • Special forests • Use of resources • Climate change • Environmental protection • Local and indigenous communities 	Wood and paper-based products	www.ojipaper.co.jp
Stora Enso	<ul style="list-style-type: none"> • Origin • Information accuracy • Legality • Sustainability • Special forests • Environmental protection • Local and indigenous communities 	Wood and paper-based products	www.storaenso.com
UPM	<ul style="list-style-type: none"> • Origin • Information accuracy • Legality • Sustainability • Environmental protection • Local and indigenous communities • Special forests 	Wood and paper-based products	w3.upm-kymmene.com
Furnishing			
IKEA Group	<ul style="list-style-type: none"> • Origin • Information accuracy • Legality • Sustainability • Special forests 	Wood products	www.ikea-group.ikea.com
Williams Sonoma	<ul style="list-style-type: none"> • Information accuracy • Legality • Sustainability • Special forests • Recycled content • Use of resources 	Paper-based products	www.williams-sonoma.com

Logistics and communications			
Deutsche Post World Net	<ul style="list-style-type: none"> • Information accuracy • Sustainability • Recycled content 	Paper-based products	www.dpwn.de
Media			
Bertelsmann AG	<ul style="list-style-type: none"> • Origin • Information accuracy • Legality • Sustainability • Environmental protection • Recycled content • Special forests • Use of resources 	Paper-based products	www.bertelsmann.de
Multiproducts			
Kimberly-Clark	<ul style="list-style-type: none"> • Information accuracy • Legality • Sustainability • Special forests • Environmental protection • Recycled content • Local and indigenous communities 	Paper-based products	www.kimberly-clark.com
Unilever	<ul style="list-style-type: none"> • Information accuracy • Sustainability • Recycled content • Use of resources 	Paper-based products	www.unilever.com
Outfitters			
Limited Brands	<ul style="list-style-type: none"> • Information accuracy • Legality • Sustainability • Special forests • Environmental protection • Recycled content • Use of resources • Local and indigenous peoples 	Paper-based products	www.limitedbrands.com
L.L. Bean	<ul style="list-style-type: none"> • Origin • Information accuracy • Legality • Sustainability • Special forests • Recycled content • Use of resources • Environmental protection • Local and indigenous communities 	Paper-based products	www.llbean.com
Norm Thompson	<ul style="list-style-type: none"> • Origin • Information accuracy • Sustainability • Special forests • Environmental protection • Use of resources • Recycled content 	Paper-based products	www.normthompson.com
REI	<ul style="list-style-type: none"> • Origin • Legality • Information accuracy • Sustainability • Special forests • Recycled content • Use of resources • Local and indigenous communities 	Paper-based products	www.rei.com
Packaging (specialty)			
Tetra Pak	<ul style="list-style-type: none"> • Origin • Information accuracy • Legality • Sustainability • Special forests 	Paper-based products	www.tetrapak.com

Printing/Publishing			
Axel Springer AG	<ul style="list-style-type: none"> • Origin • Information accuracy • Legality • Sustainability • Special forests • Environmental protection • Local and indigenous communities • Recycled content 	Paper-based products	www.axelspringer.de
New York Times	<ul style="list-style-type: none"> • Information accuracy • Sustainability • Recycled content • Environmental protection • Use of resources 	Paper-based products	www.nytco.com
Random House UK	<ul style="list-style-type: none"> • Origin • Information accuracy • Legality • Sustainability • Special forests • Recycled content • Environmental protection • Local and indigenous communities 	Paper-based products	www.randomhouse.co.uk
Time Warner	<ul style="list-style-type: none"> • Origin • Information accuracy • Legality • Sustainability • Recycled content • Local and indigenous communities 	Paper-based products	www.timewarner.com
Retail			
B&Q	<ul style="list-style-type: none"> • Origin • Information accuracy • Sustainability • Recycled content • Local and indigenous communities 	Wood products	www.diy.com
Carrefour	<ul style="list-style-type: none"> • Origin • Information accuracy • Legality • Sustainability • Recycled content 	Wood and paper-based products	www.carrefour.com
Hubert	<ul style="list-style-type: none"> • 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)	<ul style="list-style-type: none"> • Origin • Legality • Information accuracy • Sustainability 	Wood products	www.jewson.co.uk
Lowes	<ul style="list-style-type: none"> • Information accuracy • Sustainability • Special forests • Recycled content • Use of resources 	Wood products	www.lowes.com
Marks & Spencer	<ul style="list-style-type: none"> • Information accuracy • Sustainability • Recycled content • Use of resources 	Wood and paper-based products	plana.marksandspencer.com
Mondy	<ul style="list-style-type: none"> • Origin • Information accuracy • Legality • Sustainability • Special forests • Environmental protection • Local and indigenous communities 	Wood and paper-based products	www.mondigroup.com

OfficeMax	<ul style="list-style-type: none"> • Origin • Legality • Information accuracy • Sustainability • Special forests • Recycled content 	Paper-based products	about.officemax.com
RONA	<ul style="list-style-type: none"> • Origin • Information accuracy • Legality • Sustainability • Special forests • Climate change • Environmental protection • Use of resources • Indigenous and local peoples 	Wood products	www.rona.ca
Staples	<ul style="list-style-type: none"> • Information accuracy • Sustainability • Special forests • Recycled content 	Paper-based products	www.staples.com
The Home Depot	<ul style="list-style-type: none"> • Origin • Information accuracy • Legality • Sustainability • Special forests • Use of resources 	Wood products	corporate.homedepot.com
Technology			
Dell	<ul style="list-style-type: none"> • Origin • Recycled content • Special forests • Sustainability • Information accuracy • Use of resources 	Wood and paper-based products	www.dell.com
Epson	<ul style="list-style-type: none"> • Legality • Sustainability • Special forests • Environmental protection • Local and indigenous communities 	Paper-based products	www.epson.co.jp
Hewlett-Packard	<ul style="list-style-type: none"> • Legality • Sustainability • Recycled content • Use of resources • Climate change • Environmental protection • Local communities and indigenous peoples 	Paper-based products	www.hp.com
Kodak	<ul style="list-style-type: none"> • Information accuracy • Sustainability • Recycled content • Use of resources 	Wood and paper-based products	www.kodak.com
Xerox	<ul style="list-style-type: none"> • Origin • Information accuracy • Sustainability • Environmental protection • Recycled content • Use of resources 	Paper-based products	www.xerox.com



Terminology

Terminology

ACRONYMS

AFF	American Forest Foundation	IPM	Integrated Pest Management
AOX	Absorbable Organic Halogens	ISO	International Organization for Standardization
ASEAN	Association of Southeast Asian Nations	ITTO	International Tropical Timber Organization
ATFS	American Tree Farm System	IUCN	World Conservation Union, formerly International Union for Conservation of Nature and Natural Resources
ATO	African Timber Organization	IUFRO	International Union of Forest Research Organizations
AZE	Alliance for Zero Extinction	LAS	Legality Assurance System
BOD	Biological Oxygen Demand	LCA	Life Cycle Assessment
CBD	Convention on Biological Diversity	LEED	Leadership in Energy and Environmental Design
CEPI	Confederation of European Paper Industries	LEI	Lembaga Ekolabel Indonesia (Indonesian Ecolabeling Institute)
CIFOR	Center for International Forestry Research	MTCS	Malaysian Timber Certification Standard
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora	NCASI	National Council for Air and Stream Improvement, Inc.
CO ₂	Carbon Dioxide	NGO	Non-Governmental Organization
CoC	Chain of custody	PEFC	Programme for the Endorsement of Forest Certification
COD	Chemical Oxygen Demand	PEOLG	Pan-European Operational Level Guidelines
CPET	Central Point of Expertise on Timber Procurement (UK)	QACC	Questionnaire for Assessing the Comprehensiveness of Certification Schemes
CPI	Corruption Perception Index	SCS	Scientific Certification Systems
CSA	Canadian Standards Association	SFI, Inc.	Sustainable Forestry Initiative
ECF	Elemental Chlorine Free	SFM	Sustainable Forest Management
EECF	Enhanced Elemental Chlorine Free	SMS	Social Management System
EMS	Environmental Management System	TCF	Totally Chlorine Free
EPAT®	Environmental Paper Assessment Tool	TFT	Tropical Forest Trust
EPE	European Partners for the Environment	TI	Transparency International
FAO	Food and Agriculture Organization	TLTV	Timber Legality and Traceability
FCAG	Forest Certification Assessment Guide	TTAP	Timber Trade Action Plan
FECV	Forests with Exceptional Conservation Value	TTF	Timber Trade Federation
FICAT	Forest Industry Carbon Assessment Tool	UNEP	United Nations Environment Programme
FLEG	Forest Law Enforcement and Governance	VLC	Verification of Legal Compliance
FLEGT	Forest Law Enforcement, Governance and Trade	VLO	Verification of Legal Origin
FPAC	Forest Products Association of Canada	VOCs	Volatile Organic Compounds
FPIC	Free Prior and Informed Consent	VPA	Voluntary Partnership Agreement
FSC	Forest Stewardship Council	WB	World Bank
GBI	The Green Building Initiative	WBCSD	World Business Council for Sustainable Development
GFTN	Global Forest and Trade Network	WCMC	World Conservation Monitoring Centre
GHG	Green House Gases	WRI	World Resources Institute
GMOs	Genetically Modified Organisms (also Genetically Modified – GM)	WWF	World Wide Fund for Nature
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		

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 10.

critically endangered species

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

endangered forests

See Table 10.

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 iffliana*) (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 10.

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 10.

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 10.

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 10.

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 10.

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 10.

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.

special forests

For the purpose of this guide, the term special forests is used as a generic term to mean areas in the forest landscape that have unique qualities and need special attention and treatment.

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 special forests; 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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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.

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