



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

**Guide and resource kit**

Version 2 Update June 2011



## 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 places

Have special places, including sensitive ecosystems, 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.SustainableForestProds.org](http://www.SustainableForestProds.org).

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A lush forest scene with tall trees and a stream flowing through the undergrowth. The image is a vertical composition. The top half shows a dense forest of tall, thin trees with green foliage. The bottom half shows a stream flowing through a forest, with rocks and ferns in the foreground. The text is overlaid on a green rectangular background in the center-right.

# Sustainable Procurement of Wood and Paper-based Products

Guide and resource kit





## Foreword

Decisions regarding the purchase and use of wood and paper-based products can have far reaching, long-term impacts. Consumers, retailers, investors, and communities are taking an increased interest in how their buying decisions affect the environment. Will their purchase today help or hurt the availability of similar products or important natural resources for future generations? These decisions are also expanding rapidly as forests are being recognized as important renewable resources for addressing global warming and for renewable energy.

A variety of tools, initiatives, and labels has been developed to guide consumers of wood and paper-based products. But many organizations that want to implement a sustainable procurement policy may not have the necessary resources and familiarity with the issues to efficiently sort through the myriad choices available. The purpose of this publication is to help them.

This report was created to help procurement managers make informed choices. Specifically it:

- Identifies and explains the central issues around sustainable procurement of wood and paper-based products;
- Provides an overview of the key tools, initiatives, programs and labels currently available – a “Guide to the Guides”; and
- Surveys the maze of slang, jargon and “techno-speak” that often stands in the way of effective understanding and communication.

For the reader who wants more information, a companion website is available at [www.SustainableForestProds.org](http://www.SustainableForestProds.org). This website contains additional information about the resources available to procurement managers that are described within this report. The website will be continuously updated to reflect the latest developments in this rapidly changing field.

For the reader who would rather have less information, a brief introductory report is available: *Sustainable Procurement of Wood and Paper-based Products: An introduction*.

We believe that these resources will stimulate and help organizations of all sizes and types to find their place in the critical process of sustainable procurement. It is important that those decisions be based on the best available information.

We welcome your comments, questions and opinions.

Sincerely,



Jonathan Lash  
President  
WRI



Björn Stigson  
President  
WBCSD

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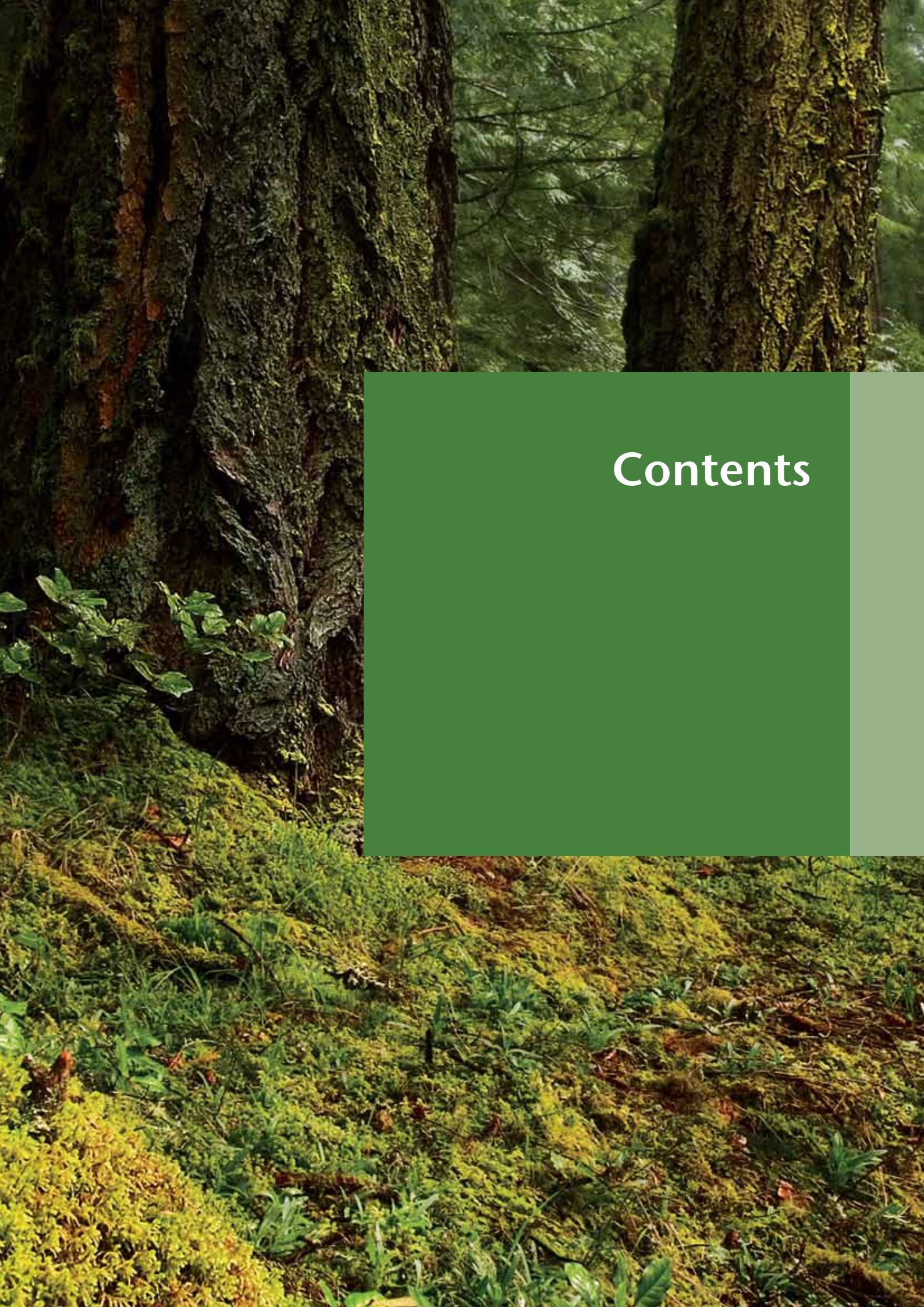
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# Contents



# Contents

<b>Introduction</b>	1.1
<b>10 things you should know</b>	2.1
1. Where do the products come from?	2.3
2. Is information about the products credible?	2.11
3. Have the products been legally produced?	2.19
4. Have forests been sustainably managed?	2.45
5. Have special places, including sensitive ecosystems, been protected?	2.57
6. Have climate issues been addressed?	2.65
7. Have appropriate environmental controls been applied?	2.71
8. Has recycled fiber been used appropriately?	2.77
9. Have other resources been used appropriately?	2.83
10. Have the needs of local communities or indigenous peoples been addressed?	2.87
<b>Selected tools</b>	3.1
<b>Additional resources</b>	4.1
<b>Terminology</b>	5.1
<b>References</b>	6.1



## TABLES

Table 1. Tools highlighted in this guide	1.3
Table 2. General characteristics of the two major systems for forest certification	2.16
Table 3. Selected public procurement policies	2.22
Table 4. Selected legality requirements in the private sector	2.24
Table 5. Voluntary legality verification systems	2.36
Table 6. How major international certification schemes address selected aspects of SFM	2.47
Table 7. Factors underlying forest land-use change and conversion in the tropics	2.51
Table 8. Definitions related to special places	2.60
Table 9. Recovered paper in the world	2.77
Table 10. Key international commitments and standards on social issues and forests	2.91
Table 11. Summary list of tools exclusively for either wood or paper-based products	3.2
Table 12. Summary list of tools for both wood and paper-based products	3.8
Table 13. Publicly available corporate procurement policies	4.6

## BOXES

Box 1. The wood supply chain	2.9
Box 2. Areas of high and low risk of encountering unacceptable practices	2.10
Box 3. Ecolabels (other than forest certification system)	2.18
Box 4. Examples of illegal forestry activities	2.21
Box 5. The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)	2.26
Box 6. The U.S. Lacey Act, the EU Illegal Timber Regulation (EUTR)	2.32
Box 7. The European Union Forest Law Enforcement, Governance and Trade (FLEGT) Process and the Voluntary Partnership Agreements	2.34
Box 8. Plantations	2.48
Box 9. What constitutes a special place?	2.59
Box 10. Pollutants	2.73
Box 11. Bleaching of wood pulp	2.76
Box 12. Alternative fibers	2.81
Box 13. Recycling and environmental impacts	2.82
Box 14. Life cycle assessment	2.85
Box 15. Forests and people	2.92

## FIGURES

Figure 1. Ecosystems goods and services of sustainably managed forests	1.1
Figure 2. Wood and paper-based products have many inputs	2.3
Figure 3. Example of a company's portfolio of wood or paper-based products	2.4
Figure 4. Corruption and illegal logging activity (2004)	2.20
Figure 5. Conceptual trade-offs between economic and ecological values	2.46
Figure 6. Forest extent in 1990 and 2005	2.50
Figure 7. Carbon pools and exchanges between pools	2.65
Figure 8. Uptake and emissions from land-use change between 1850 and 2000	2.66
Figure 9. Examples of emissions in paper-based products	2.71
Figure 10. Examples of emissions in solid wood products	2.72







# 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).

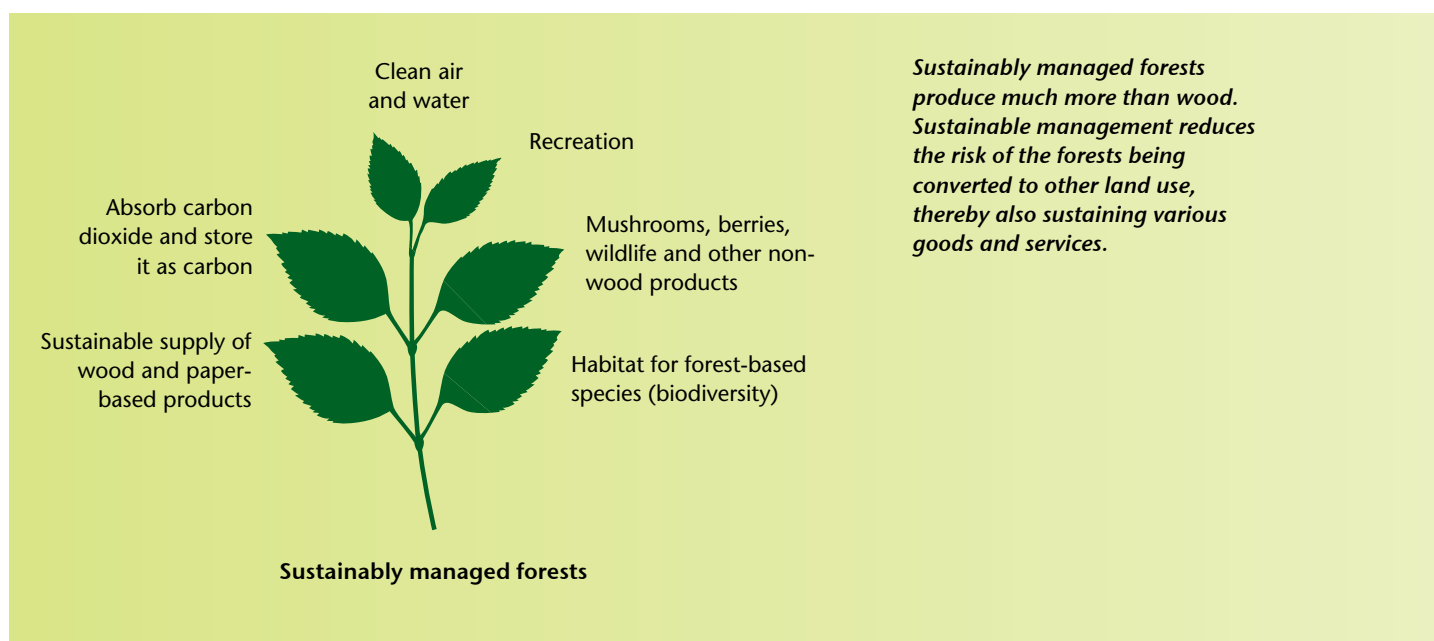
Interest in procurement of wood and paper-based goods produced in a sustainable manner is growing. Concerned consumers, retailers, investors, communities, governments, and other groups increasingly want to know that in buying and consuming these products they are making positive social and environmental 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 products<sup>1</sup> 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 will help purchasers to define requirements for their procurement policies, engage in dialogue with stakeholders, seek resources to meet procurement policy requirements, and assess suppliers.

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.sustainableforestprods.org](http://www.sustainableforestprods.org).

More information, commonly cited instruments, tools and processes, and updates, are also available at [www.sustainableforestprods.org](http://www.sustainableforestprods.org)



<sup>1</sup> 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><b>Private sector initiatives</b></p> <ul style="list-style-type: none"> <li>Confederation of European Paper Industries' (CEPI) Legal Logging Code of Conduct (<a href="http://www.cepiprint.ch/environment">www.cepiprint.ch/environment</a>)</li> <li>Timber Trade Federation Responsible Purchasing Policy (<a href="http://www.ttfpp.co.uk">www.ttfpp.co.uk</a>)</li> </ul> <p><b>Public sector</b></p> <ul style="list-style-type: none"> <li>Belgian Government Procurement Policy</li> <li>Danish Government Procurement Policy for Tropical Forests (<a href="http://www.2.skovognatur.dk/udgivelser/2003/tropical/">www.2.skovognatur.dk/udgivelser/2003/tropical/</a>)</li> <li>Dutch Government Procurement Criteria for Timber.</li> <li>European Union Action Plan for Forest Law Enforcement, Governance and Trade (FLEG), and Voluntary Partnership Agreements (VPAs)</li> <li>European Community Green Purchasing Policy (<a href="http://ec.europa.eu/environment/gpp/index_en.htm">ec.europa.eu/environment/gpp/index_en.htm</a>)</li> <li>French Policy on Public Procurement of Timber and Wood Products (<a href="http://www.ecoresponsabilite.environnement.gouv.fr">www.ecoresponsabilite.environnement.gouv.fr</a>)</li> <li>German Government Procurement Policy (<a href="http://www.bmelv.de">www.bmelv.de</a>)</li> <li>Japanese Government Procurement Policy (<a href="http://www.env.go.jp/en/">www.env.go.jp/en/</a>)</li> <li>Mexican Federal Government Procurement Policy</li> <li>New Zealand Timber and Wood Products Procurement Policy (<a href="http://www.mfe.govt.nz">www.mfe.govt.nz</a>)</li> <li>Swiss Declaration Duty for Timber</li> </ul> <p><b>Rating systems</b></p> <ul style="list-style-type: none"> <li>Green Building Initiative's Green Globes Rating System (<a href="http://www.thegbi.org">www.thegbi.org</a>)</li> <li>Leadership in Energy and Environmental Design (LEED)® Green Building Rating System (<a href="http://www.wsgbc.org/lead/">www.wsgbc.org/lead/</a>)</li> </ul> <p><b>Certification systems</b></p> <ul style="list-style-type: none"> <li>Forest Stewardship Council (FSC) Controlled-Wood Standard (<a href="http://www.fsc.org">www.fsc.org</a>)</li> <li>Programme for the Endorsement of Forest Certification (PEFC) Guide for the avoidance of controversial timber (<a href="http://www.pefc.org">www.pefc.org</a>)</li> <li>Sustainable Forestry Initiative (SFI) Procurement Objective (<a href="http://www.sfioprogram.org">www.sfioprogram.org</a>)</li> </ul>	<p><b>Private sector initiatives</b></p> <ul style="list-style-type: none"> <li>CEPI Carbon Footprint Framework</li> <li>FAO's Public procurement policies for forest products and their impacts (the report) (<a href="http://www.fao.org/forestry/site/trade/en/">www.fao.org/forestry/site/trade/en/</a>)</li> <li>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)."</li> <li>Forest Products Association of Canada (FPAC): A buyers' guide to Canada's sustainable forest products (the report) (<a href="http://www.fpac.ca">www.fpac.ca</a>)</li> <li>Paper Profile (<a href="http://www.paperprofile.com">www.paperprofile.com</a>)</li> <li>Sustainable Forest Finance Toolkit</li> <li>Timber Retail Coalition</li> <li>Timber Trade Action Plan (<a href="http://www.timbertradeactionplan.info">www.timbertradeactionplan.info</a>)</li> <li>Two Sides (<a href="http://www.twosides.info">www.twosides.info</a>)</li> </ul> <p><b>Public sector</b></p> <ul style="list-style-type: none"> <li>Central Point of Expertise on Timber Procurement (CPET) (<a href="http://www.proforest.net/cpet">www.proforest.net/cpet</a>). CPET is an initiative of the UK central government to assist in the implementation of its procurement policy</li> <li>New Zealand Government Paper Buyers guidance (<a href="http://www.mfe.govt.nz/issues/sustainable-industry/govt3/topic-areas/office-consumables/paper-products.html">www.mfe.govt.nz/issues/sustainable-industry/govt3/topic-areas/office-consumables/paper-products.html</a>)</li> </ul> <p><b>Rating systems</b></p> <ul style="list-style-type: none"> <li>Environmental Paper Assessment Tool (EPAT) (<a href="http://www.epat.org">www.epat.org</a>)</li> <li>WWF Paper Scorecard (<a href="http://www.panda.org">www.panda.org</a>)</li> <li>WWF Tissue Scoring (<a href="http://www.panda.org">www.panda.org</a>)</li> </ul> <p><b>NGO/Other initiatives</b></p> <ul style="list-style-type: none"> <li>Standard Practice for Categorizing Wood and Wood-based Products According to their Fiber Sources</li> <li>Environmental Defense Fund's Paper Calculator (<a href="http://www.papercalculator.org">www.papercalculator.org</a>)</li> <li>Environmental Footprint Comparison Tool (<a href="http://www.paperenvironment.org">www.paperenvironment.org</a>)</li> <li>Environmental Paper Network (<a href="http://www.environmentalpaper.org">www.environmentalpaper.org</a>)</li> <li>Forest Certification Assessment Guide (FCAG) (<a href="http://www.worldwildlife.org/alliance">www.worldwildlife.org/alliance</a>)</li> <li>Forest Footprint Disclosure Project (<a href="http://www.forestdisclosure.com/">www.forestdisclosure.com/</a>)</li> <li>Forest Legality Alliance (<a href="http://www.forestlegality.org">www.forestlegality.org</a>)</li> <li>Global Forest Registry (<a href="http://www.globalforestregistry.org">www.globalforestregistry.org</a>)</li> <li>Green Purchasing Network (GPN) (<a href="http://www.gpn.jp">www.gpn.jp</a>)</li> <li>Greenpeace's Responsible Procurement Guide</li> <li>Tropical Forest Trust (<a href="http://www.tropicalforesttrust.org">www.tropicalforesttrust.org</a>)</li> <li>Tropical Forest Trust's Good Wood. Good Business (<a href="http://www.tropicalforesttrust.com/reports.php">www.tropicalforesttrust.com/reports.php</a>) (the report)</li> <li>Wood for Good Campaign (<a href="http://www.woodforgood.com">www.woodforgood.com</a>)</li> <li>WWF's Guide to Buying Paper (companion to WWF's Paper Scorecard)</li> <li>WWF's Global Forest and Trade Network (GFTN)</li> </ul>

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 guide for controversial sources 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

### 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 places

Have special places, including sensitive ecosystems, been protected?

### Climate change

Have climate issues been addressed?

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Have appropriate environmental controls been applied?

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Has recycled fiber been used appropriately?

### Other resources

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## Social aspects

### Local communities and indigenous peoples

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





# 1. Where do the products come from?

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# 1. Where do the products come from?

Traceability is the ability to track sources of wood from final 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.

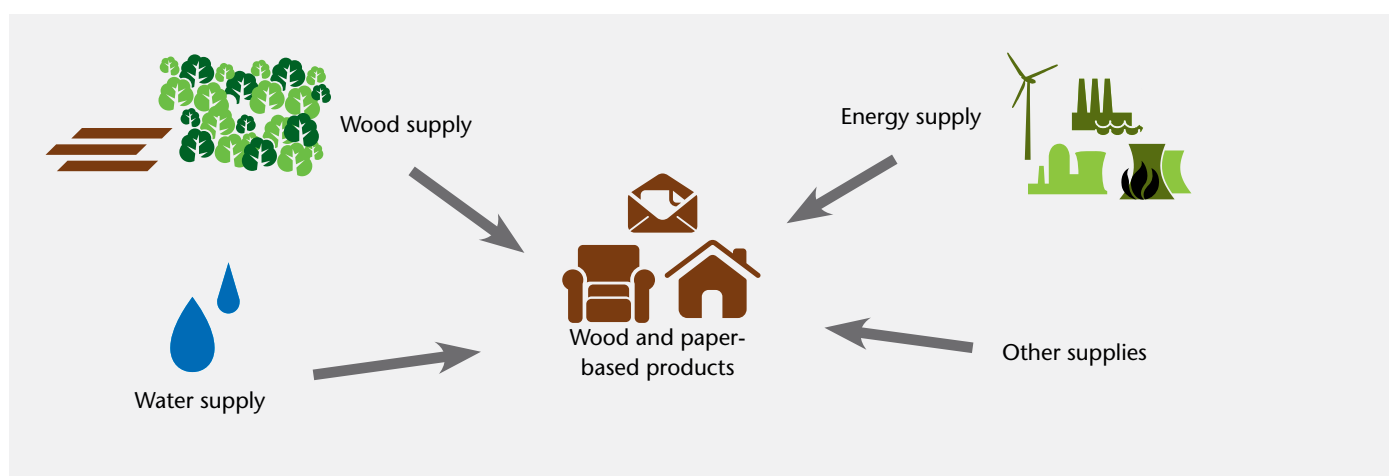
Tracing the origin of wood and paper-based products is not always straightforward. Supply chains can sometimes link many wood producers and dealers across several

countries, and procurement portfolios can be complex, with multiple supply chains (Figures 2 and 3).

It may be 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.

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.

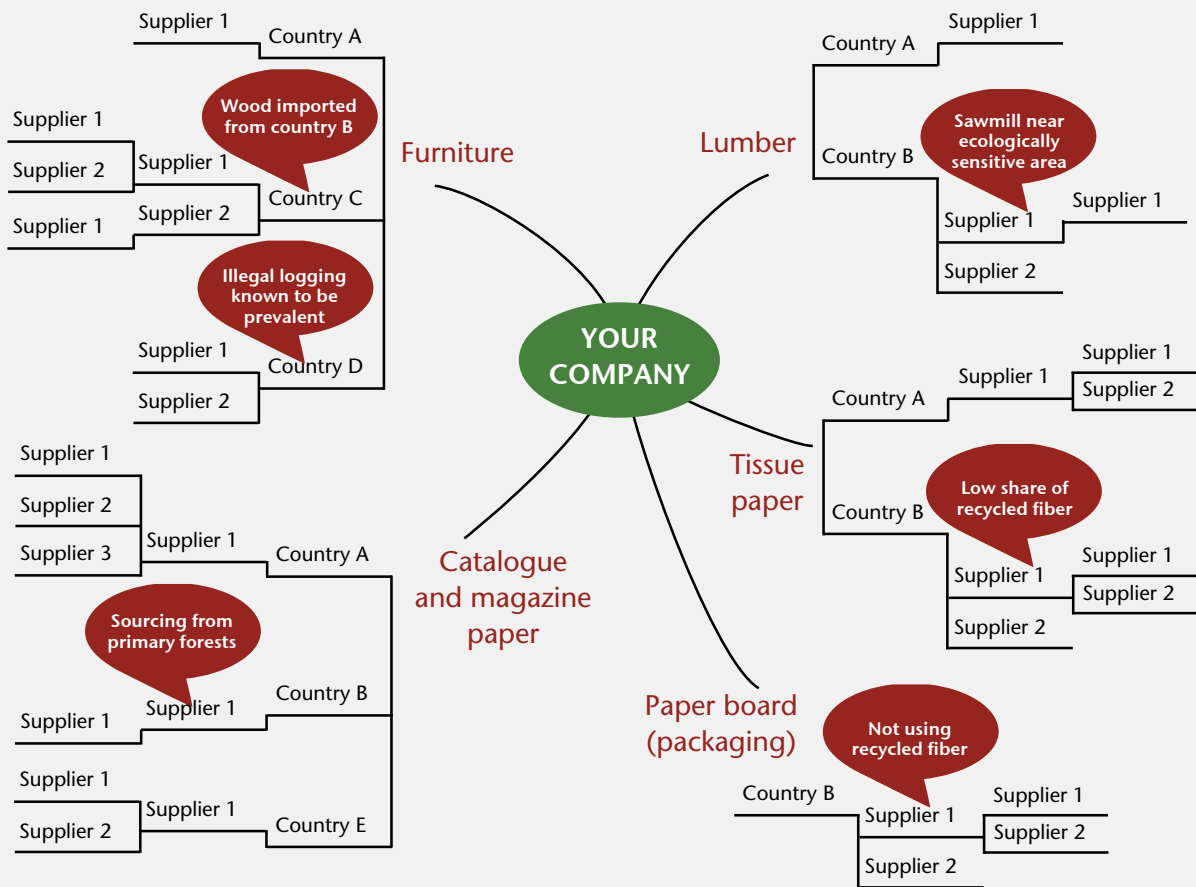
**Figure 2. Wood and paper-based products have many inputs**



*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.*

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

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

- Licensing permit(s) from the relevant authorities giving permission to harvest

- Certificate of a sustainable forest management standard
- Certificate of origin
- Chain-of-custody (CoC) certificate
- 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

<sup>2</sup> 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.

All of these documents should carry appropriate stamps and seals from the relevant governmental 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 (Question 1).

Working with those directly involved in the supply chain will help develop a better understanding of the challenges, costs and other impacts associated with implementing

additional tracking systems. Forest managers, forest owners, government agencies and certification bodies active in the area can provide useful information.

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



### Factors to consider regarding traceability

- Purchase contracts can be useful to trace the origin of the wood. They can also be used as safeguards to 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. More information and verification is typically needed for high-risk areas than for low-risk areas (Box 2). 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.
- 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.

## SELECTED RESOURCES: TRACEABILITY

### Procurement requirements

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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 Guide for Avoidance of Controversial Timber	Provides specifications to ensure traceability in chain-of-custody standard.
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.
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

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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.
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).
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.
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.
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.

## 10 things you should know | 1. Where do the products come from?

<a href="#">Sustainable Forest Finance Toolkit</a>	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.
<a href="#">Timber Trade Action Plan</a>	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.
<a href="#">Tropical Forest Trust</a>	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.
<a href="#">Two Sides</a>	The initiative provides general information about supply chains for printed products, from the forests to the final product.
<a href="#">WWF Guide to Buying Paper</a>	Promotes the use of Environmental Management Systems (EMS) and third-party verification; showcases a company tracking supply chain.
<a href="#">WWF Paper Scorecard</a>	Rates percentage of fiber from certified sources.
<a href="#">WWF Tissue Scoring</a>	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.

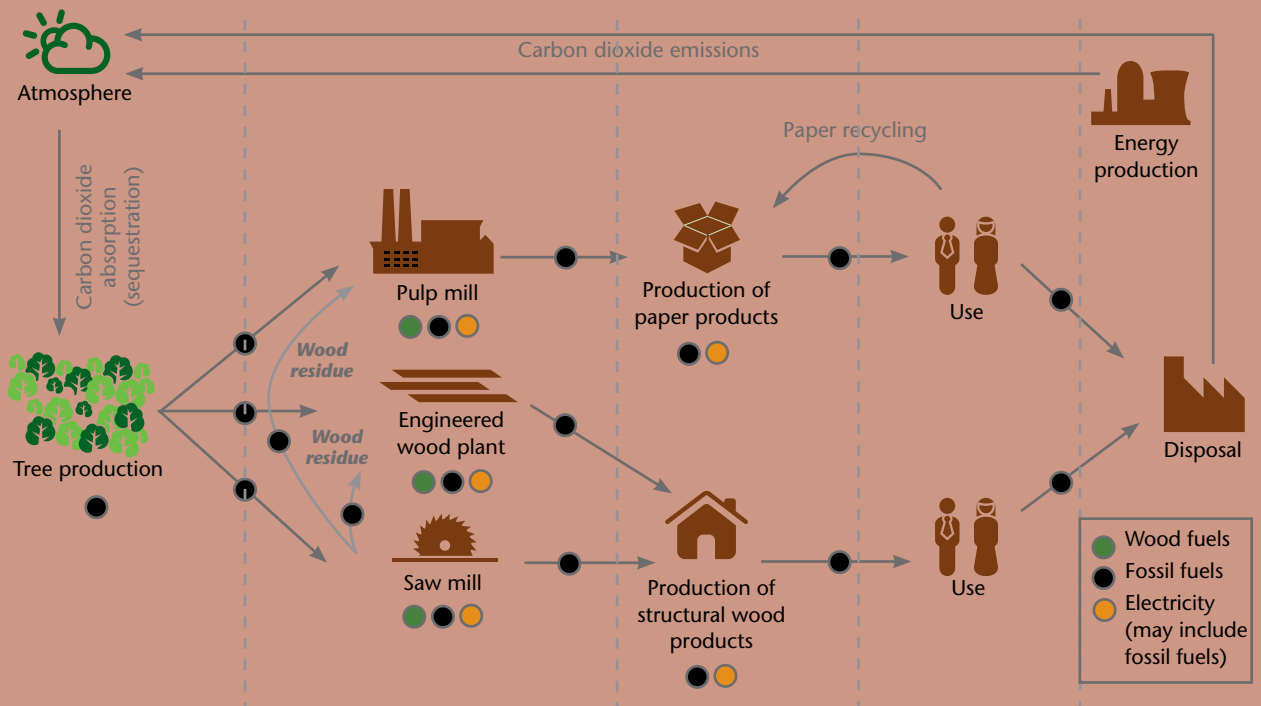
## Box 1. The wood supply chain

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

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

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

### 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"> <li>SFM; special places, conversion</li> <li>Climate effects</li> <li>Harvesting in traditional and community lands without proper permission</li> <li>Logging in sites important for traditional &amp; local populations</li> <li>Worker's health &amp; safety</li> <li>Fair wages</li> </ul>	<ul style="list-style-type: none"> <li>Efficiency</li> <li>Pollution</li> <li>Climate effects</li> <li>Source reduction</li> <li>Worker's health &amp; safety</li> <li>Fair wages</li> </ul>	<ul style="list-style-type: none"> <li>Efficiency</li> <li>Pollution</li> <li>Climate effects</li> <li>Recycling</li> <li>Worker's health &amp; safety</li> <li>Fair wages</li> </ul>	<ul style="list-style-type: none"> <li>Recycling</li> <li>Climate effects</li> <li>Efficiency</li> <li>Source reduction</li> </ul>	<ul style="list-style-type: none"> <li>Efficiency</li> <li>Pollution</li> <li>Climate effects</li> <li>Recycling</li> <li>Worker's health &amp; safety</li> <li>Fair wages</li> </ul>

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

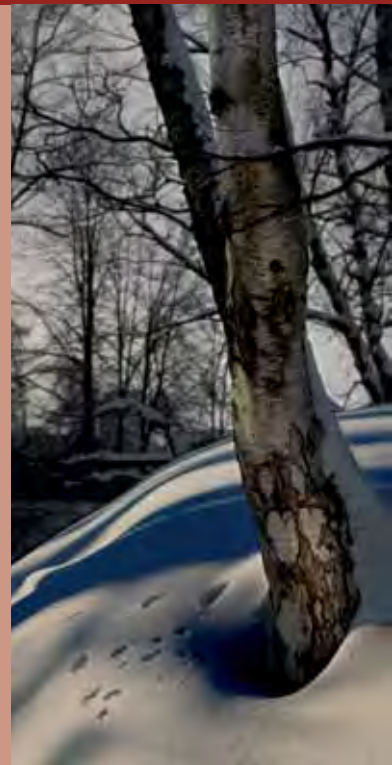
Areas with higher risk of encountering unacceptable practices require more due diligence and more detailed information than areas with lower risk.

High-risk source areas may include:

- Areas that have unique ecological and socio-cultural features (special places) (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.



## 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 places

Have special places, including sensitive ecosystems, 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 Certification Systems (PEFC). Both are used by community and family-owned forests and large landowners and/or industrial operations.<sup>3</sup> 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 2 provides an overview of the general characteristics of these two systems. Table 2 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.

<sup>3</sup> Although PEFC was established by the forest industry and trade and by forest owners' organizations, a considerable amount of areas certified by member schemes are industrial operations.

- **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 2) 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.



## SELECTED RESOURCES: MONITORING AND VERIFICATION

### Procurement requirements

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Belgian Government Procurement Policy	Requires that sustainably harvested timber is certified by an independent body on the basis of internationally recognized criteria. FSC, PEFC Belgium, and other PEFC certification schemes 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, TPAC has found the following systems comply with the Dutch Procurement Criteria for Timber: PEFC International, PEFC Austria, PEFC Belgium, PEFC Sweden, FSC International, PEFC Germany and PEFC Finland.
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 (MTCC), 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.



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

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 Guide for the avoidance of controversial timber	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.
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

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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.
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.
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.
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.
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.
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.
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 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.

**Table 2. General characteristics of the two major systems for forest certification**

Developed by		Forest Stewardship Council (FSC)	
<b>GENERAL</b>			
<b>Established</b>	Established in 1993 at the initiative of environmental organizations.		
<b>Basic principle</b>	<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"> <li>1- Compliance with laws and FSC principles</li> <li>2- Tenure and use rights and responsibilities</li> <li>3- Indigenous peoples' rights</li> <li>4- Community relations and workers' rights</li> <li>5- Benefits from the forests</li> <li>6- Environmental impact</li> <li>7- Management plans</li> <li>8- Monitoring and assessment</li> <li>9- Special sites – high conservation value forests (HCVF)</li> <li>10- Plantations</li> </ol>	<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).</p> <p>There is variation in regional standards and in interim standards adopted by auditing bodies.</p>	
<b>Components, members</b>	<p>All component standards carry the FSC brand. National initiatives currently exist in Argentina, Australia, Belgium, Bolivia, Brazil, Bulgaria, Burkina Faso, Cameroon, Canada, Chile, China, Colombia, Croatia, Czech Republic, Cote d'Ivoire, Denmark, Democratic Republic of Congo, Ethiopia, Ecuador, Estonia, Finland, Gabon, Germany, Ghana, Hungary, Ireland, Italy, Japan, Mexico, Mozambique, Netherlands, Papua New Guinea, Peru, Poland, Romania, Russia, Slovakia, South Africa, Spain, Sweden, Switzerland, United Kingdom, United States, Vietnam, and Zambia (FSC website).</p>		
<b>Stakeholder scope</b>	FSC is a multi-stakeholder owned system; national standards are set by a consultative process in which economic, social, and environmental interests have equal weight (FSC website).		
<b>Reach and extent</b>	More than 93 million ha have been certified under FSC (as of November 2007) (FSC,2007).		
<b>MONITORING AND VERIFICATION</b>			
<b>Chain-of-custody (CoC)</b>	<ul style="list-style-type: none"> <li>• The CoC standard is evaluated by a third-party body that is accredited by FSC and compliant with international standards.</li> <li>• CoC standard includes procedures for tracking wood origin.</li> <li>• 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.</li> </ul>	<ul style="list-style-type: none"> <li>• 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.</li> </ul> <p>(FSC policy on percentage-based claims, and various FSC guidelines for certification bodies)</p>	
<b>Inclusion of wood from non-certified sources</b>	<p>FSC's Controlled Wood Standard seeks to avoid:</p> <ol style="list-style-type: none"> <li>(a) Illegally harvested wood</li> <li>(b) Wood harvested in violation of traditional and civil rights</li> <li>(c) Wood harvested in forests where high conservation values are threatened by management activities</li> <li>(d) Wood harvested in forests being converted to plantations or non-forest use</li> </ol>	<p>(e) Wood from forests in which genetically modified trees are planted</p> <p>All certification holders are required to fully implement requirements by 1 January 2008. (FSC, 2004C) (Botriell, 2007).</p>	
<b>Verification</b>	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, 2004A, 2004B, and 2006; Cashore et al., 2004)*



**Programme for the Endorsement of Forest Certification Schemes (PEFC)**

**GENERAL**

Founded in 1999 in Europe, at the initiative of forest landowners as a certification system. PEFC later became an endorsement mechanism system. Many member certification systems predate PEFC.

PEFC is a mutual recognition mechanism for national and regional certification systems. Endorsed certification systems are to be consistent with internationally agreed environmental, social and economic requirements, such as the Pan-European Operational Level Guidelines (PEOLG), the African Timber Organization (ATO) and International Tropical Timber Organization's (ITTO) Guidelines, as well as intergovernmental processes on criteria and indicators for SFM. The elements of SFM covered by these requirements may vary to fit the circumstances of the areas for which they were developed. For instance, the Pan-European Operational Level Guidelines cover the following:

- 1- Maintenance and enhancements of forest resources and their contribution to global carbon cycles
- 2- Maintenance and enhancement of forest ecosystem health and vitality

- 3- Maintenance of productive functions of forests
- 4- Maintenance, conservation and enhancement of biodiversity
- 5- Maintenance and enhancement of protective functions in forest management
- 6- Maintenance of socioeconomic functions and conditions

Endorsed certification systems are expected 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.

There is variation among member certification standards with some standards exceeding PEFC requirements (PEFC, 2006A).

Component standards carry their own brand names, such as SFI in the US and the CSA in Canada. Recognized (endorsed) member country/systems include Australia, Austria, Belgium, Brazil (Cerflor), Canada (CSA), Chile (Certfor), Czech Republic, Denmark, Finland, France, Germany, Italy, Latvia, Luxembourg, Norway, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland, United Kingdom, and

United States (the American Tree Farm System (ATFS) and SFI). PEFC endorses certification systems once they have successfully gone through the external assessment process using independent assessors (PEFC website). Other members include schemes from Belarus, Cameroon, Estonia, Gabon, Ireland, Lithuania, Malaysia, Poland, Russia, and Uruguay.

Multi-stakeholder participation is required in the governance of national schemes as well as in the standard-setting process (PEFC, 2006C).

More than 197 million ha have been certified under the PEFC standards (as of November 2007) (PEFC website).

**MONITORING AND VERIFICATION**

CoC certificates are issued based on: (i) compliance with Annex 4 and with Appendix 1 of the TD, or alternative appendices approved by the PEFC council; (ii) member scheme's definition of origin that is compatible with Appendix 4 and Appendix 1 or alternative appendices; and (iii) member scheme's CoC standard that is compatible with Annex 4 and Appendix 1 or alternative appendices.

- 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.

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, 2006A, 2006C, D and F).

PEFC's mandatory Guide for the avoidance of wood from controversial sources seeks to avoid wood from illegal or unauthorized harvesting.

Illegal harvesting includes harvesting in areas which are either protected by law or where a plan for strict protection has been

officially published by the relevant government authorities, unless permission to harvest has been granted. This also implies issues such as workers' rights, health and safety, indigenous peoples' rights as protected by legislation (PEFC, 2006G).

Requires third-party verification.

### 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](http://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](http://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 ([www.environmentalchoice.com](http://www.environmentalchoice.com)) – owned by the Canadian government and administered by TerraChoice Environmental Marketing. Wood and paper-based materials covered include building raw materials, flooring, office furniture and various types of paper.
- Eco Mark ([www.ecomark.jp/english/nintei.html](http://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](http://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](http://ec.europa.eu/environment/ecolabel/index_en.htm)) – started in 1992 under the European Union Eco-labeling board. The EU Flower is active throughout the European Union and also in Norway, Liechtenstein and Iceland. Wood-based products covered include various types of paper and building materials.
- Green Seal ([www.greenseal.org/certification/environmental.cfm](http://www.greenseal.org/certification/environmental.cfm)) – 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 ([greenguard.org](http://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.aela.org.au/standardsregister.htm](http://www.aela.org.au/standardsregister.htm)) – 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/](http://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](http://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](http://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 ([www.greenerchoices.org/ecolabels/eco-homecfm](http://www.greenerchoices.org/ecolabels/eco-homecfm)) – provides guidance, scorecards and comparisons of ecolabels in the US.
- The Global Ecolabeling Network ([www.gen.gr.jp/eco.html](http://www.gen.gr.jp/eco.html)) – provides background information, links to national members, and so on.
- Ecolabel Index ([www.ecolabelindex.com](http://www.ecolabelindex.com)) – An online database that allows the user to research and compare selected ecolabels.
- The UK Government's Green Claims Code ([www.defra.gov.uk/environment/consumerprod/gcc/pdf/gcc.pdf](http://www.defra.gov.uk/environment/consumerprod/gcc/pdf/gcc.pdf)) – provides guidance on statements, symbols, descriptions and verification.

Sources: *Global Ecolabeling Network, 2007.*

# 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 places

Have special places, including sensitive ecosystems, 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 the 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. 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). Some examples of what have been considered illegal forestry activities are given in Box 4.

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 or weak governance. Poverty, limited education, financial issues, 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).

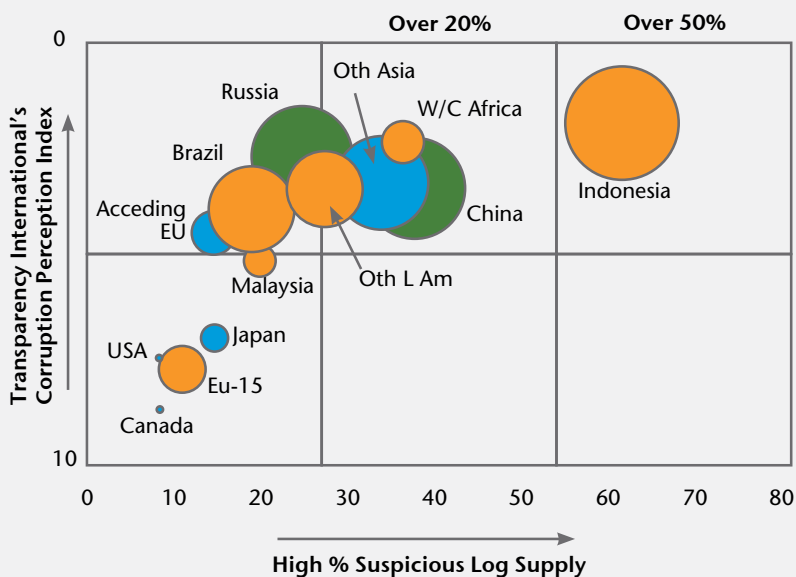
Illegal logging and illegal trade can create serious problems:

- Government revenue losses – the World Bank estimates about US\$ 5 billion per year is lost due to uncollected taxes and royalties due to corruption (World Bank, 2002A).
- 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).
- 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 researchers acknowledge the great uncertainty of 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 4).

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 4. Corruption and Illegal Logging Activity (2004)**



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

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

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

## EFFORTS TO ADDRESS ILLEGAL LOGGING AND ASSOCIATED TRADE

During the last five to ten years, addressing illegal logging and illegal trade has risen to the top of the international forestry agenda. Several international processes<sup>4</sup> 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 3 and 4).

Trade regulations such as the 2008 amendment of the U.S. Lacey Act, and the passing of the European Union Illegal Timber Regulation, have become the most recent instruments to address illegal logging (Box 6). In Switzerland, the Ordinance on Declaring Wood and Wood Products (*Ordonnance sur la Declaration Concernant*

*le Bois et les Produits en Bois*) from 2010, requires any party selling timber or timber products to consumers to disclose information about the species used in the product, including whether or not the species is listed in CITES, and the place of harvest. Timber and timber products covered include firewood, roundwood and wood in the rough, pickets and stakes of wood, railway sleepers, sawmill products, sheets for veneering, carpentry, joinery, furniture made entirely of solid wood, and other solid wood items (Federal Department of Economic Affairs, 2010; Schweizerische Eidgenossenschaft, 2010). In Australia, the Parliament is debating the Illegal Logging Prohibition Bill 2011 (Parliament of Australia, 2011).

<sup>4</sup> 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 activities 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, 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). Defining illegal logging is not only a technical issue, and it could have far-reaching implications (Contreras-Hermosilla et al., 2007). The definition 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; for example, in the zoning of forest land. One approach to addressing these issues is to conduct a national review that identifies and develops agreement between key stakeholders about which laws are most relevant and should be included in a definition, and which should not.

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 5). 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. 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 3. Selected public procurement policies

Country	Year passed	Definition of legality	Requirements and applicability	
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.	
United Kingdom	2000 (reviewed in 2009)	Timber and wood derived products that originate from forests that meet the following: a) forest owner/manager holds legal use rights to the 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.	
France	2005 (reviewed in 2008. Due to be reviewed in 2011).	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 (currently being reviewed)	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.	
Norway	2007	Not defined. Ban of tropical timber in public sector construction.	Central government.	

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



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

	Product scope	Means of verification for legality requirements	
		SFM certification systems <sup>1</sup>	Alternative instruments
	Wood and paper-based.	FSC, PEFC.	SGS's Timber Legality and Traceability Verification; SmartWood's Verification of Legal Compliance. FLEGT-licenses where available.
	Wood and paper-based products.	FSC, PEFC. Only PEFC endorsed schemes and labeled PEFC, and only SFI 70%.	Requires Legality and Sustainability, or FLEGT-licensed wood. However, where a particular type of product or timber species 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
	All wood and paper-based products.	FSC, PEFC, CSA, SFI, MTCC, LEI, Keurhout.	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. A decision on MTCS is pending.	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 Belgium and some PEFC certificates have been determined to meet sustainability requirements.	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, MTCC, 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.
	Wood and paper-based products.	None recognized.	N/A

Sources: Atanasova, 2010; Belgian Council of Ministers, 2005; Belgian Government, 2008; Chatham House, 2010; CPET, 2010; Danish Forest and Nature Agency, 2011; EFI, 2010 A; EFI, 2010B; European Commission, 2010; European Parliament, 2010; German Federal Ministry of Food, Agriculture and Consumer Protection, 2010; Gobierno de México, 2007; Japanese Ministry of the Environment, 2006; Japanese Ministry of the Environment, 2007; Lopez-Casero and Scheyvens, 2008; Ministère de l'Agriculture et de la Pêche, 2008; New Zealand Ministry of Forestry website; New Zealand Ministry of Forestry, 2006; Norwegian Ministry of the Environment, 2007; Schweizerische Eidgenossenschaft, 2010 A; Schweizerische Eidgenossenschaft, 2010 B; TPAC, 2008; TPAC website; Van der Berk, 2010.

**Table 4. 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	Scope	Legality requirements	
<b>IKEA (homefurnishing, worldwide, 2011)</b>	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.	
<b>Unilever (consumer products, worldwide, 2010)</b>	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.	
<b>B&amp;Q (home improvement and garden retailer, Europe, 1991)</b>	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.	
<b>Xerox (office products, worldwide, 2000)</b>	Paper products	Xerox paper suppliers worldwide must have a process to exclude illegally-harvested wood materials from papers sold to Xerox.	

Sources: *IKEA, 2006; Unilever, 2010; B&Q, 2010; Xerox, 2011.*

	Approach
	<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>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 the Programme for the Endorsement of Forest Certifications (PEFC) with full chain of custody in compliance with PEFC's "non-controversial" requirements.</p>
	<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>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 or socially sustainable 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 the 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.
- 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 the 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 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 October 2010, 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 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)
<b>Appendix I: Timber species that are threatened with extinction. Trade is permitted, but under very restricted circumstances.</b>				
<i>Abies guatemalensis</i>	All parts and derivatives, including manufactured and finished products <sup>1</sup> 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 <sup>2</sup> , from any country of origin. Logging ban in Chile since 1976.	Argentina, Chile	Monkey puzzle tree, apeboom, araucaria du Chile, Chilean pine, chilensk tall, Chili pine, Chili tall, Chilie pine, parana pine, pehuen, pilon, pin du Chili, pino, pino araucaria, pino de Chile, pino de Neuquén, pino de Paraná, piñonero, piñón, sapin du Chili, pehúen	Construction, pallets, engineered wood, flooring, doors and windows.
<i>Dalbergia nigra</i>	All parts and derivatives, including manufactured and finished products <sup>3</sup> , from any country of origin.	Brazil	Brazilian rosewood, bahia rosewood, caa-biuna, cabeuna, cabiuna, cabiuna do mato, cabiuna rajada, comore, camboriuna, caviuna, jacaranda, jacaranda cabiuna, jacaranda de Brasil, jacaranda wood, jacaranda-da-bahia, jacaranda-preto, jacaranda-rajado, jacaranda-roxo, jacarandaholz, jacarandanda 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 <sup>4</sup> . 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 <sup>5</sup> 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.
<i>Podocarpus parlatorei</i>	All parts and derivatives, including manufactured and finished products <sup>6</sup> from any country of origin.	Argentina, Bolivia, Peru	Parlatore's podocarp, Monteromero, pino blanco, pino del cerro, pino montano	Pencils.

<sup>1</sup> 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.

<sup>2</sup> Including construction material, flooring, furniture, joinery, plywood, pulp/paper products and railroad trails among other products.

<sup>3</sup> 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.

<sup>4</sup> 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.

<sup>5</sup> Including flooring, furniture, posts and timber.

<sup>6</sup> Including 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 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)
<b>Appendix II: trade of these species is controlled and regulated to ensure their survival.</b>				
<i>Aniba rosaeodora</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, Paraguayan-lignum-vitae, true gualac.	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, brasileiro, 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 <sup>7</sup> from any country of origin.	Colombia, Costa Rica, Panama, Venezuela	Ajo, ajillo, aji, almendrillo, almendro, almendron, cagui, firme, genené, manú, 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 <sup>8</sup> from any country of origin.	Brunei, Darussalam, Fiji, Indonesia, Malaysia, Singapore, Solomon Islands, the Philippines	Ramin, ampuuji, gaharu, gaheu, gara buaja, kaya garu, lanutnabagio, medang keran, melawis, ramin telur, sang su, seriangan	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>Guaiacum spp.</i>	All <i>Guaiacum</i> species, and to all parts and derivatives from any country of origin except finished products packaged and ready for retail trade. <sup>9</sup>	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.
<i>Oreomunnea pterocarpa</i>	All parts and derivatives, including manufactured and finished products <sup>10</sup> from any country of origin.	Costa Rica, possibly other Mesoamerican countries	Gavilan, campana, engelhardia pterocarpa, gavilán blanco	Construction, used in the past for cabinetmaking.

<sup>7</sup> Including railroad ties.

<sup>8</sup> 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.

<sup>9</sup> 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.

<sup>10</sup> Including a variety of 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>Pericopsis elata</i>	Logs, lumber and veneer.	Cameroon, Congo, Côte d'Ivoire, Democratic Republic of the Congo, Ghana, Nigeria	Afromosia, African teak, anyeran, asamela, assamela, awawai, ayin, baracara, benin satinwood, bohala, bohahaha, bonsamdau, devils tree, egbi, ejen, golden, kokriki, afrormosia, iatobahy do igapo, kokrodua, liguminosae, mekoe, mohole, obang, ole, ole pardo, peonto, 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. <sup>11</sup>	Costa Rica, El Salvador, Honduras, Nicaragua	Cristobal, granadillo, cachimbo, cristobal, ñambar, robe 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, Ceniser 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 <sup>6</sup> 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, maderas, mahogani, 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.

<sup>11</sup> 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 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)
<b>Appendix III: species subject to special management within a country</b>				
<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, cedar, 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 virgen	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, tiocuahuiliti, 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 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.



## 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>Dipteryx panamensis</i>	All parts and derivatives, including manufactured and finished products <sup>12</sup> from any country of origin.	Nicaragua, Costa Rica, Panama and Colombia	Almendo, 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 kórejská, channamu, hong song, Korea-Kiefer, Koreai fenyő, pin de Corée	Carving, pattermaking, paneling, construction, doors, high-class joinery, furniture, decorative veneers.
<i>Podocarpus nerifolius</i>	All parts and derivatives, including manufactured and finished products.	China, Nepal	Black pine podocarp, amanu, black pine, brown pine, bukiti, jati bukitt	General construction work, 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 qing shu	

<sup>12</sup> 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.

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

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

On 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	EUTR
<b>Definition of legality</b>	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.
<b>Requirements and applicability</b>	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 harvested illegally under the rules of the country of origin, and products derived from such timber. It also requires economic operators which first place timber on the EU market to employ a system to exercise due diligence to ensure that the timber they trade was harvested legally. Requires economic operators in their part of the supply chains to keep records of their suppliers and customers to facilitate the traceability of products.
<b>Product scope</b>	All plants and plant-derived products.	Products covered include the following: <ul style="list-style-type: none"> <li>• Fuel wood in logs, in billets, in twigs, or in similar forms; wood in chips or particles; sawdust and wood waste and scrap, whether or not agglomerated in logs, briquettes, pellets or similar forms.</li> <li>• Wood in the rough, whether or not stripped of bark or sapwood, or roughly squared.</li> <li>• Railway or tramway sleepers (cross-ties) of wood.</li> <li>• Wood sawn or chipped lengthwise, sliced or peeled, whether or not planed, sanded or end-jointed, of a thickness exceeding 6 mm.</li> <li>• Sheets for veneering, for plywood or for other similar laminated wood and other wood, sawn lengthwise, sliced or peeled, whether or not planed, sanded, spliced or end-jointed, of a thickness not exceeding 6 mm.</li> <li>• Wood (including strips and friezes for parquet flooring, not assembled) continuously shaped along any of its edges, ends or faces, whether or not planed, sanded or end-jointed.</li> <li>• Particle board, oriented strand board and similar board of wood or other ligneous materials, whether or not agglomerated with resins or other organic binding substances.</li> <li>• Fiberboard of wood or other ligneous materials, whether or not bonded with resins or other organic substances.</li> <li>• Plywood, veneered panels and similar laminated wood.</li> <li>• Densified wood, in blocks, plates, strips or profile shapes.</li> <li>• Wooden frames.</li> <li>• Packing cases, boxes, crates, drums and similar products; cable-drums of wood; pallets, box pallets and other load boards of wood.</li> <li>• Casks, barrels, vats, tubs and other coopers' products and parts of wood, including staves.</li> <li>• Builders' joinery and carpentry of wood, including cellular wood panels, assembled flooring panels, shingles and shakes.</li> <li>• Pulp and paper, with the exception of bamboo-based and recovered products.</li> <li>• Wooden furniture.</li> <li>• Prefabricated buildings.</li> </ul> <p>The Regulation does not cover timber products or components of timber or timber products that have completed their lifecycle and would otherwise be disposed of as waste. It also excludes material used exclusively as packaging to support, protect or carry another product being placed on the market.</p>

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

	U.S. Lacey Act	EUTR
<b>Compliance</b>	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.	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 products covered by FLEGT and CITES licenses are considered to be legally harvested.
<b>Penalties</b>	<p>Penalties vary depending on level of due care exercised, including forfeiture of goods and vessels, fines and prison terms.</p> <p>The severity of the penalties varies 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>	Penalties will be defined by member states.
<b>Implementation</b>	Prohibition in effect since May 2008. Declaration requirements are being implemented in a phased-schedule.	The legislation will apply from March 3, 2013 onwards.

Sources: EC website; Official Journal of the European Union, 2010; CPET, 2011; EIA, 2009.

### 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) Plan is the European Union (EU) response to concerns about illegal logging and deforestation. FLEGT originated in 2001, with a Ministerial Conference in Indonesia; the current Action Plan was completed in 2003.

The Plan recognizes that, through the demand for forest products, consumer countries contribute to the illegal logging problem. The Plan encompasses seven types of measures:

1. *Support timber 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 promoting 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 of existing or upcoming legal instruments* – to support the Plan, for example, the EU Timber Regulation.
7. *Work to define and address conflict timber.*

Overall, the 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 (Legality Assurance Systems - LASs) to ensure that only legally produced products enter the European Union. Establishing a Voluntary Partnership Agreement involves the following phases:

1. *Information and pre-negotiation phase* – exchange of information and materials between the EU and the producer country. Assessment, by country government and in consultation with stakeholders, of the appropriateness of a VPA for the country.
2. *Negotiations* – to reach agreement on the contents of the VPA, including the details of the Legality Assurance System (LAS), and a number of forest governance commitments to be included in the agreement. Stakeholder consultation is critical in this phase.
3. *Ratification of the agreement* by the parties and development of the control/licensing system.
4. *Full implementation* – that culminates with all timber products shipped from the producer country being FLEGT-licensed to enter the EU. The license states that this shipment is legal, according to the terms of the VPA.

As of February 2011, there were ten countries either in the pre-negotiation, negotiation phases, and/or had signed a VPA agreement and were developing the LAS. At the time of publishing, both Indonesia and Liberia had signed VPAs with the EU.

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 system 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.
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 system applies to all timber and timber products derived from industrial forest operations (concessions, plantations); artisanal and community-produced products might be covered in the future. A simplified LAS approach for plantations will be developed during the full implementation phase.	An independent auditor will periodically inspect the LAS implementation. Independent audits will occur four times per year in the first year, twice during the second and third years, and once a year from the fourth year onwards. For timber from operations that hold forest management and legality verification certificates, a process will be developed to ensure these voluntary systems meet the 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
<b>Ghana</b>	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 system 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 was expected to be operational at the end of 2010.
<b>Republic of Congo (Brazzaville)</b>	VPA signed; 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 system 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 expected to be operational by mid 2011.

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

Countries in information/pre-negotiation phase: Bolivia, Cambodia, Colombia, Côte d'Ivoire, Ecuador, Guatemala, Guyana, Honduras, Laos, Myanmar/Burma, Papua New Guinea, Perú, Sierra Leone, the Solomon Islands and Thailand.

In the context of global climate change, FLEGT 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 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, Republic of Congo, 2010; EC, Republic of Liberia, 2011; EC, 2003.



Table 5 – Voluntary Legality Verification Systems

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

**Commercial legality verification systems**

<b>Bureau Veritas</b>	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	
<b>CertiSource</b>	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	
<b>Keurhout</b>	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 <sup>4</sup>	Trade regulation <sup>5</sup>	Other criteria <sup>6</sup>				
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: <a href="http://www.certisource.co.uk/contact-us/">www.certisource.co.uk/contact-us/</a>	
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>	Kerhout Phone: +31 24-6454796 E-Mail: <a href="mailto:info@keurhout.nl">info@keurhout.nl</a>	

Organization	System/year	Overview	Scope				
			Geographic	Supply chain	Thematic		
					Legal right to harvest <sup>1</sup>	Compliance with laws <sup>2</sup>	Taxes/fees <sup>3</sup>
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
Société Générale du Surveillance (SGS)	Timber Legality & Traceability Verification (TLTV) (2005).	Provides independent verification that timber products have been legally produced and sold through the chain of custody. The program consists of two pieces: the legality of production (TLTV-LP) and the chain of custody (TLTV-CoC). The TLTV-LP can be applied in two phases: the Verification of Legal Origin (VLO), and the Verification of Legal Compliance (VLC). TLTV standards are available for Papua New Guinea, Sarawak (Malaysia), Indonesia and Gabon.	TLTV-VLO available in Indonesia, Malaysia, PNG, and the Republic of Congo.	Origin of timber and CoC	X	*	X
			TLTV-VLC is available in Cameroon, Republic of Congo, DRC, Tanzania, and PNG.		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 <sup>4</sup>	Trade regulation <sup>5</sup>	Other criteria <sup>6</sup>			
	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 E-Mail:
	X		X	Developed by SGS based on experience.	Audits are initiated on a desktop review of documentation and followed by field visits. Auditors consult with staff and concerned stakeholders. The VLO is valid for two years, at which point VLC is required.	SGS Phone: +41 22 739 9111 E-Mail: www.sgs.com/contact_us.htm
	X	X	X			
	X			Developed by the Soil Association and EcoSylva Ltd, based on the FSC definition of legal wood; supports FSC certification.	Evaluation includes stakeholder consultation to cross-check the standard, add credibility and 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 <sup>1</sup>	Compliance with laws <sup>2</sup>	Taxes/fees <sup>3</sup>

### Selected additional resources

<b>Association of South Eastern Asian Nations (ASEAN)</b>	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	
<b>WWF's Global Forest &amp; Trade Network</b>	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	
<b>WWF Russia, WWF Denmark with assistance from NepCon</b>	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		
<b>Timber Trade Action Plan (TTAP).</b>	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 available for Brazil, Cameroon, China, Congo-Brazzaville, Gabon, 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 <sup>4</sup>	Trade regulation <sup>5</sup>	Other criteria <sup>6</sup>			
			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; 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; SGS, 2010 B; SGS, 2010 C; EcoSylva, 2010; TFT website; GFTN Guide to Legal and Responsible Sourcing website.*

## SELECTED RESOURCES: LEGALITY

### Procurement requirements

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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, MTCC, 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 Guide for the avoidance of controversial timber	Introduces safeguard mechanisms against procuring illegally logged wood.
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

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CPET	Provides advice and guidance for compliance with UK central government procurement requirements for the legality of wood products. Accepts CSA, FSC, MTCC, PEFC, and SFI certification as evidence of legality.
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 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.
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).

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

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.
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.
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.
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.
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 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.
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 places

Have special places, including sensitive ecosystems, 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 5.



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:

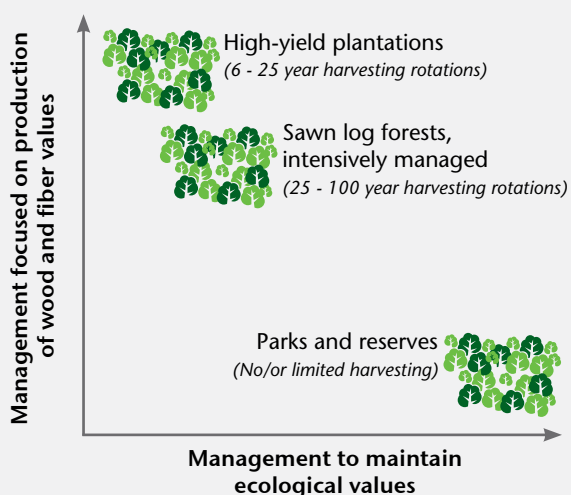
- **Clearcutting** – SFM standards, including CSA, FSC, PEFC and SFI, recognize clearcutting as consistent with SFM in the right forest ecosystems. Clearcutting can accomplish the following:
  - It mimics some of the natural disturbance dynamics of the forests (e.g., fire, wind blow downs, insects).
  - 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 3). All types of forests can be sustainably managed, from primary or natural forests to intensively managed forest plantations (Box 6).

**Figure 5. 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 1.

Table 6. How major international certification schemes address selected aspects of SFM

	Forest Stewardship Council (FSC)	Programme for the Endorsement of Forest Certification Schemes (PEFC)
<b>Social issues</b>	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.	Requires compliance with ILO core conventions. Pan-European Operational Level Guidelines (PEOLG) criteria and indicators address issues of occupational safety and health as well as accessibility to recreation and maintenance of sites with cultural or spiritual values. ATO/ITTO criteria and indicators for SFM require that legal and customary rights of local populations with respect to ownership, use and tenure are clearly defined, acknowledged and respected, as well as engagement with informed stakeholders (PEOLG, ATO/ITTO Principles, criteria and indicators for SFM of African natural tropical forests).
<b>Special places</b>	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"> <li>• Forests that contain globally, regionally, or nationally significant concentrations of biodiversity values</li> <li>• Globally, regionally, or nationally significant large landscape level forests</li> <li>• Rare, threatened or endangered ecosystems</li> <li>• Forest areas providing basic services of nature in critical situations</li> <li>• Forest areas fundamental to meeting basic needs of local communities</li> <li>• Forest areas critical to local communities' traditional cultural identity</li> </ul>	Forest management should maintain or enhance biodiversity, and protect soil and water. Sites of historical or spiritual significance should be respected and protected as specified by international guidelines and standards (PEFC, 2006 D).  Different requirements specified by international standards, criteria and indicators and requirements for SFM, for instance: PEOLG Criterion 4.2i – special key biotopes in the forest such as water sources, wetlands, rocky outcrops and ravines should be protected or, where appropriate, restored when damaged by forest practices.
<b>Forest plantations</b>	Principles 6 and 10 of the FSC principles address forest plantations. Certified forest plantations should meet a set of requirements concerning: <ul style="list-style-type: none"> <li>(i) representation on landscape;</li> <li>(ii) time of establishment; and,</li> <li>(iii) design of the management blocks (i.e., blocks promote biodiversity).</li> </ul> <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>	Management standards for forest plantations are to be compliant with the International Tropical Timber Organization and the PEOLG (PEFC, 2006D).
<b>Chemicals</b>	Principle 6 of FSC addresses chemicals. Chemicals should be minimized. Integrated Pest Management (IPM) is the preferred approach, i.e., to minimize chemical use through the use of alternative prevention and biological control techniques.  Documentation, monitoring, and control are required, and certain chemicals are banned.	Use of pesticides and herbicides should be minimized, used in controlled manner, and take into account appropriate silvicultural alternatives and other biological means. Compliance with PEOLG, ATO/ITTO criteria and indicators for SFM, as well as various ITTO guidelines for SFM (PEFC, 2007).
<b>Clearcuts</b>	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 (MCPFE, 1998).
<b>GMOs</b>	Use of GMOs is prohibited; addressed in Principle 6 of FSC.	GMOs cannot be considered as part of certified material (PEFC Council General Assembly held on October 2005).
<b>Exotic species</b>	Addressed in Principle 6. Exotic species are permitted, but not promoted. Careful monitoring is required to avoid adverse environmental impacts.	As required by PEOLG, native species and local provenances should be preferred where appropriate. Introduced species, provenances or varieties producing negative impacts on ecosystems and on the genetic integrity of native species and natural provenances should be avoided or minimized, as should those not thoroughly evaluated (MCPFE, 1998).

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.

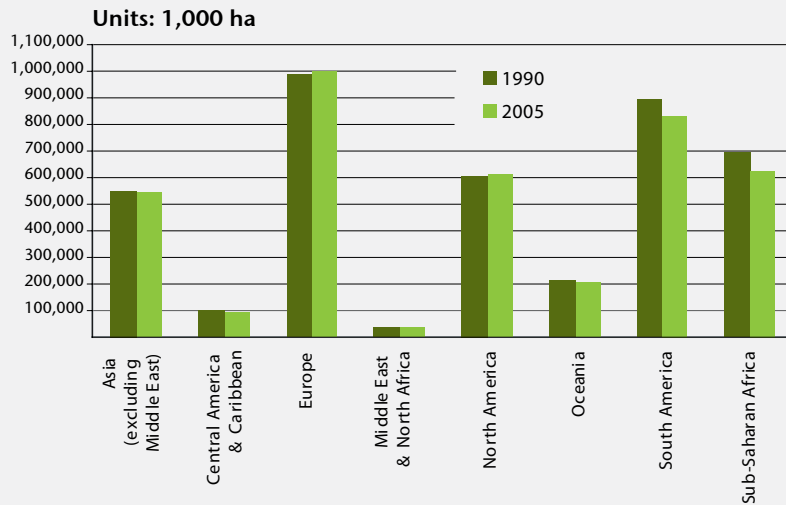
FAO's definition of deforestation specifically excludes areas where the forest is expected to regenerate naturally or with the aid of forest management measures following harvesting.

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 6).



**Figure 6. Forest extent in 1990 and 2005**



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

The causes of forest land use change vary by region, and even within a region. It is often a complex combination of intertwined factors and circumstances involving more than a single industry. Table 4 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 7. Factors underlying forest land-use change and conversion in the tropics

Factors	Underlying causes
<b>Economic</b>	<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>
<b>Policy and institutional</b>	<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>
<b>Technological</b>	Agro-technological changes, technological applications in the wood sector, and other production factors in agriculture.
<b>Social and cultural</b>	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.
<b>Demographic</b>	Population growth and increasing demand for products, food, space, etc.
<b>Other</b>	Soil quality, water availability, slope, topography, and vegetation types.

(Based on Geist and Lambin, 2001).



### Factors to consider regarding land-use change and forest conversion

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

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

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

### Procurement requirements

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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, PEFC Belgium and other PEFC schemes have been approved to 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 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 places (see Question 4), as well as protected and endangered species. The Criteria does not accept wood from converted areas, except when conversion occurs under justified exceptional circumstances such as a 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.

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, MTCC, 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.
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**

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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.



## 10 things you should know | 4. Have forests been sustainably managed?

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.
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.
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.
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.

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 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 places, including sensitive ecosystems, 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 places

Have special places, including sensitive ecosystems, 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 places, including sensitive ecosystems, been protected?

For the purposes of this guide, the term “special places” is used as a generic term for areas with unique qualities within the forest landscape (Box 7). 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 places exist, and they can be used to identify areas where a site-specific evaluation should be performed.

Some special places 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 places 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 place.

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 place. 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 places (Table 5). 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 places, 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 places 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 places. The lack of a universally agreed definition of special places is a major concern, and stakeholder support for each definition varies.



#### Factors to consider regarding special places

- Some special places 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 places:

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

## Box 9. What constitutes a special place?

There is no universally agreed definition of special places.

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 places have been:

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

Governmental action to identify special places (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](http://www.unep-wcmc.org/trees/trade/40_species_in_trade.htm)); Gordon et al., 2005.



**Table 8. Definitions related to special places**

A variety of definitions for special places has been proposed by different stakeholders in different places.

Developed by	Definition	Characteristics
<b>Alliance for Zero Extinction (AZE)</b>	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"> <li>• Endangerment – at least one endangered or critically endangered species listed by IUCN.</li> <li>• 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.</li> <li>• 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.</li> </ul>
<b>American Tree Farm System (ATFS)</b>	Special sites (AFF, 2004)	Sites of special interest because of their recreational, historical, biological, archaeological and geological features.
<b>Birdlife International, Conservation International, and Plantlife International</b>	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"> <li>• Globally threatened species</li> <li>• Restricted-range species</li> <li>• Congregations of species that concentrate at particular sites during some stage in their life cycle</li> <li>• Biome-restricted species assemblages</li> </ul> The first criterion addresses vulnerability of species, while the other three cover different aspects of irreplaceability. Key biodiversity areas can be within biodiversity hotspots.
<b>Conservation International</b>	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.
<b>Conservation International</b>	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.
<b>Finnish Forest Certification System</b>	Key biotopes (Mikkela et al., 2001; FFCS, 1999)	<ul style="list-style-type: none"> <li>• 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.</li> <li>• 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.</li> <li>• Additional habitats such as old-growth conifer forests, mixed forests and broad-leaved forests, and forest meadows in traditional landscapes.</li> <li>• Small water biotopes listed in the Finnish Water Act.</li> </ul>
<b>ForestEthics, Natural Resources Defense Council, Rainforest Action Network, Greenpeace</b>	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"> <li>• Wilderness forests and intact forest landscapes</li> <li>• Remnant forests and forests with restoration values</li> <li>• Forests ecologically critical for the protection of biological diversity, such as naturally rare forest types, high endemism, or the habitat of focal conservation species</li> </ul>
<b>FSC</b>	High conservation value forests (HCVF) (FSC, 1996)	<ul style="list-style-type: none"> <li>• Forests that contain globally, regionally, or nationally significant concentrations of biodiversity values</li> <li>• Globally, regionally, or nationally significant large landscape-level forests</li> <li>• Rare, threatened or endangered ecosystems</li> <li>• Forest areas providing basic services of nature in critical situations</li> <li>• Forest areas fundamental to meeting basic needs of local communities</li> <li>• Forest areas critical to local communities' traditional cultural identity</li> </ul>
<b>Greenpeace/WRI</b>	Intact Forest Landscapes (IFLs) (Greenpeace, 2006)	Intact Forest Landscapes are landscapes larger than 500 km <sup>2</sup> 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.
<b>Natura Networking Programme</b>	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"> <li>• Natural habitats in danger of disappearance in their natural range</li> <li>• Those having small natural range following their regression or by reason of their intrinsically restricted area</li> <li>• Those presenting outstanding examples of typical characteristics of more of the following biogeographical regions: Alpine, Atlantic, Continental, Macronesian and Mediterranean (European Union, 2007)</li> </ul>
<b>SFI</b>	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.
<b>Wildlife Conservation Society</b>	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.
<b>World Bank</b>	Critical forests (World Bank, 2002B)	Critical forest areas are the subset of natural forest lands that cover: <ul style="list-style-type: none"> <li>• 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.</li> <li>• 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.</li> </ul>
<b>WRI</b>	Frontier forests (Bryant et al., 1997)	Relatively undisturbed large tracts of forests are capable of sustaining viable populations of all native species.
<b>WWF</b>	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 should 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 <a href="http://www.plantlife.org.uk">www.plantlife.org.uk</a>
	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 <a href="http://www.biodiversityhotspots.org">www.biodiversityhotspots.org</a> .
	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 HCVCs 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 ( <a href="http://www.forestethics.org">www.forestethics.org</a> ).
	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"> <li>• a toolkit (<a href="http://www.proforest.net">www.proforest.net</a>)</li> <li>• a resource network (<a href="http://www.hcvf.org">www.hcvf.org</a>)</li> <li>• a sourcebook (<a href="http://www.proforest.net">www.proforest.net</a>)</li> </ul> There are various efforts to identify HCVCs in Indonesia, Russia, Romania and other countries.
	Management for conservation of biological diversity.	Maps of Intact Forest Landscapes for northern forests are available ( <a href="http://globalforestwatch.org">globalforestwatch.org</a> ), as well as draft maps for other forest biomes ( <a href="http://intactforests.org">intactforests.org</a> ).
	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 <a href="http://www.ec.europa.eu/environment/nature">www.ec.europa.eu/environment/nature</a>
	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 <a href="http://www.ciesin.columbia.edu/wild_areas/">www.ciesin.columbia.edu/wild_areas/</a>
	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 <a href="http://www.globalforestwatch.org">www.globalforestwatch.org</a>
	Primary objective is to promote their conservation.	Maps available at <a href="http://www.worldwildlife.org">www.worldwildlife.org</a> . WWF also uses the HCVC concept to define special places at a more local scale.



## SELECTED RESOURCES: SPECIAL PLACES

### Procurement requirements

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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 should not threaten high conservation value forests. Evidence of compliance is required.
PEFC Guide for the avoidance of controversial timber	Requires that wood harvesting should not occur in forest areas protected by law. Wood harvesting is also prohibited in forest areas designated by government authorities for future legal protection.
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.
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

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CPET	Addresses issues of special places 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.
Sustainable Forest Finance Toolkit	The Toolkit provides general background information about special places.
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 places

Have special places, including sensitive ecosystems, 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

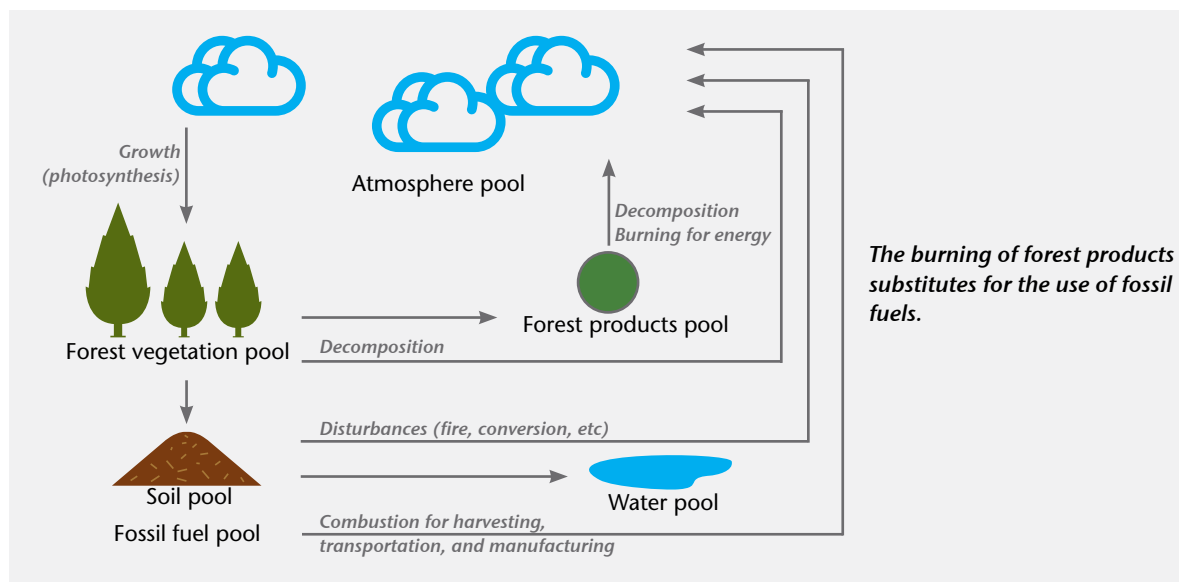
Forests remove carbon from the atmosphere (carbon sequestration) and store it as the biomass (wood and peat) that they produce and accumulate (Figure 7). Some carbon also remains stored in wood products through their lifetime, though this varies significantly between product types (on average, solid 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 CO<sub>2</sub> 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 CO<sub>2</sub>. 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 7. 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 8). 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.

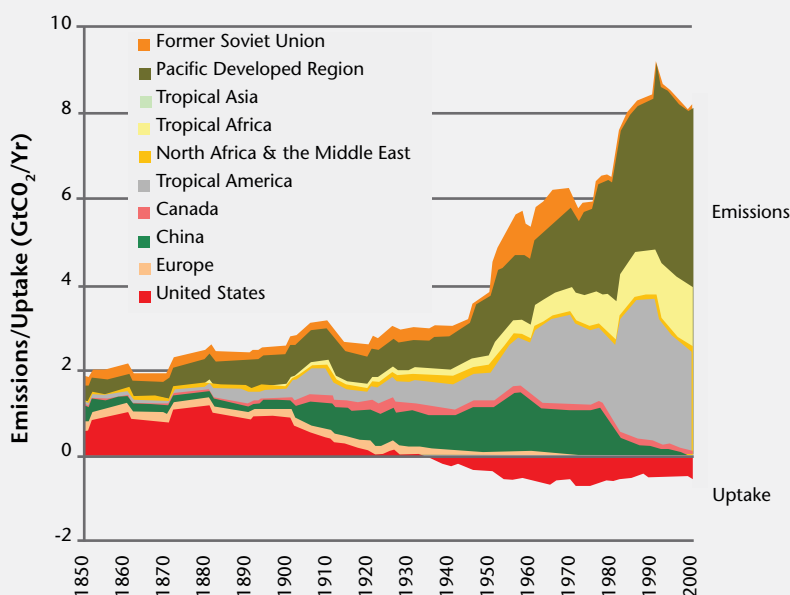
Logging of tropical hardwoods can sometimes be the critical first step, causing the deforestation process by providing other users with access roads. However, deforestation is generally not driven by the demand for

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 8. 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

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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 <sub>2</sub> 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.
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.
Paper Calculator	Estimates CO <sub>2</sub> 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 <sub>2</sub> emissions from burning fossil fuels and peat.

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 <sub>2</sub> 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 <sub>2</sub> emissions and showcases companies reducing CO <sub>2</sub> emissions.
WWF Paper Scorecard	Rates fossil fuels' contribution to climate change and global warming through emissions of CO <sub>2</sub> .
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 <sub>2</sub> 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 places

Have special places, including sensitive ecosystems, 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?



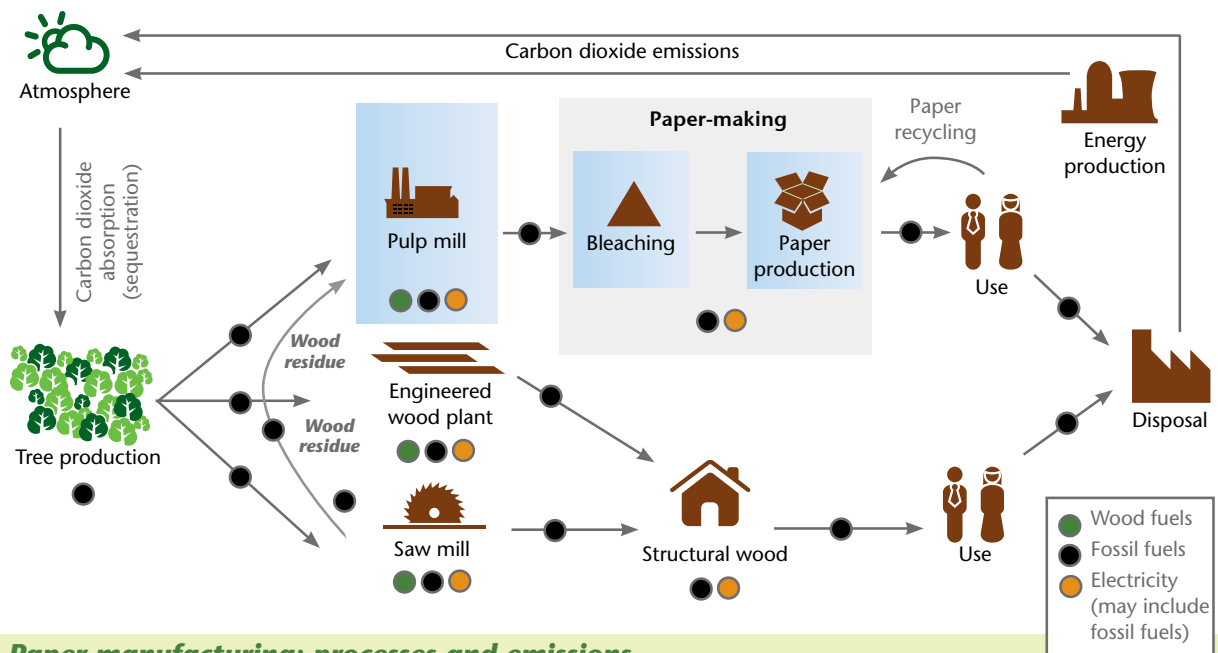


## 7. Have appropriate environmental controls been applied?

Different types of pollution can occur in many different places along the supply chain for wood and paper-based products (Figures 9 and 10). 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 9. 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:

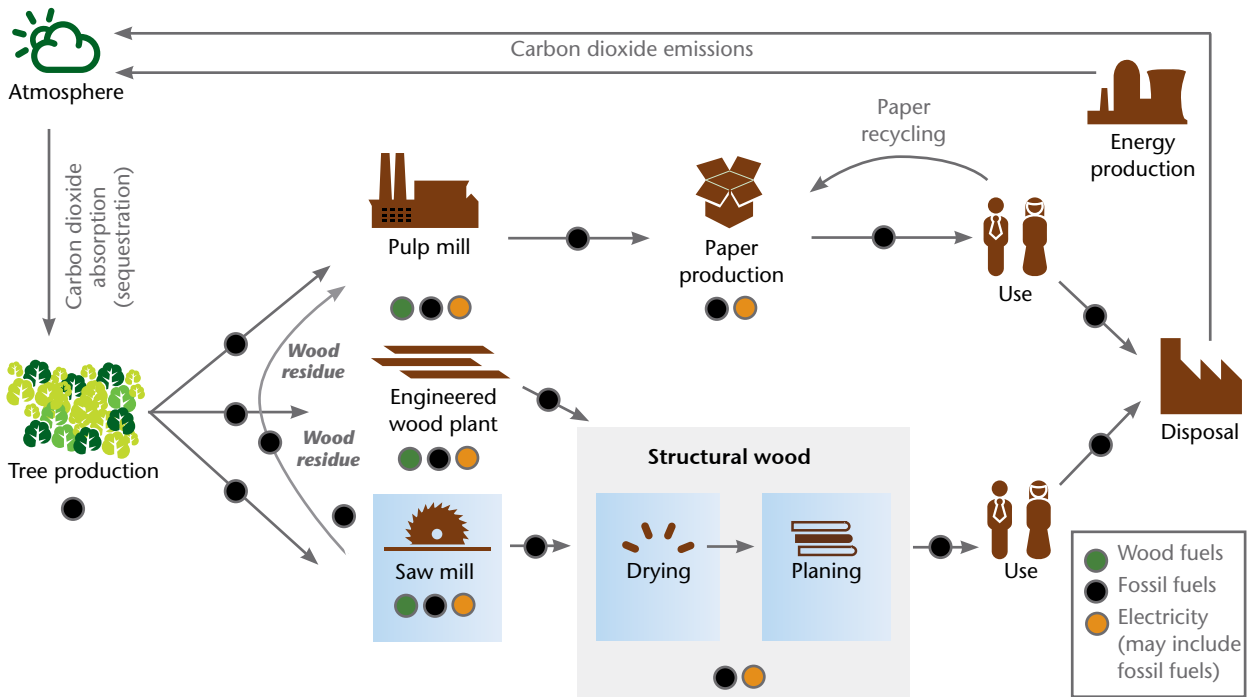
- Re-pulping: separating fibers from other substances (i.e., dirt, plastic, wax in specialty paper) and from each other. Sulfur, formaldehyde, naphthalene and sodium compounds are used to facilitate the process.
- De-inking: removing the ink from the paper and from the pulp mix by washing, flotation, 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 10. 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 8 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 8.

Bleaching can be a potentially major source of pollution (Box 9). 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).

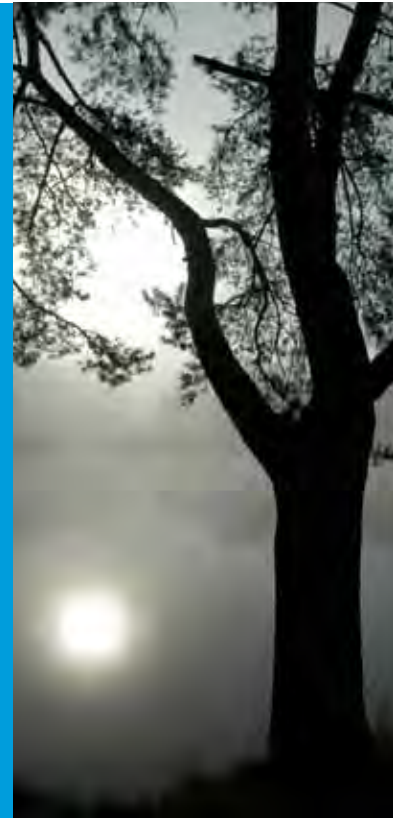
## Box 10. Pollutants

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.

### 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.



## SELECTED RESOURCES: ENVIRONMENTAL CONTROLS

### Procurement requirements

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#### 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

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CEPI's Carbon Footprint Framework	Provides guidance in the assessment of fossil fuel-derived CO <sub>2</sub> 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.
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.

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

### 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.

## 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](http://www.marketsinitiative.org)) (5/09/07).



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



*Traditional bleach*



# 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 places

Have special places, including sensitive ecosystems, 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 6) 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 9. 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](http://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).<sup>5</sup>

In addition to recycled fibers, non-wood crops such as bamboo, kenaf and bagasse can also be used to produce paper (Box 9).



#### 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 10).
- 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.

<sup>5</sup> 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.

## SELECTED RESOURCES: RECYCLED CONTENT

### Procurement requirements

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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

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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.

## 10 things you should know | 8. Has recycled fiber been used appropriately?

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.
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.



## 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*

## 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 <sub>2</sub> 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.

# 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 places

Have special places, including sensitive ecosystems, 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 11).

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.

### SELECTED RESOURCES: SOURCE REDUCTION

#### 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

## Procurement requirements

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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

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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.

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.

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.



## 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.





# 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 places

Have special places, including sensitive ecosystems, 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?

Protection of indigenous and workers' rights in the forest, as well as in manufacturing facilities, is an important part of sustainable procurement. Forests and forest-products manufacturing facilities are potentially dangerous work environments. Initial processing of the wood often occurs in remote and sparsely populated areas where job opportunities, social support systems, government supervision and adequate infrastructure may be limited. Forces and conditions beyond the control of government authorities can sometimes be found in forest areas.

The forest sector employs millions of workers throughout the various steps of the value chain (Box 13). Forest companies sometimes make up for governmental voids and take a leadership role in addressing social and governance issues. Values such as fair pay, employment benefits, training, health and safety, and interaction with local communities are a part the "social contract" between employers and the communities in which they operate. Violation of workers' rights can lead to unsafe work conditions, reduction of local benefits, discriminatory behavior, low wages, and an increase in migrant and informal work.

A number of international conventions, treaties and processes, including the International Labour Organization's core labor standards, incorporate considerations about social aspects of forest-based industries (Table 7). In some instances, compliance with the law can be sufficient to meet the demands of individuals and communities, but land tenure issues can present cases where legality does not equate with fairness.

Some of the most pressing social issues related to sustainable procurement include:

- **Violation of property rights, and the rights of local peoples (including indigenous groups).** Forestry operations (logging and processing) should consider, and be compatible with, the local land tenure rights regime, which may include community-based forest management systems. Subsistence use of the forest should be respected. Violations of the rights of local peoples may include bribery and access to large concessions through gifts to certain members of the community, without the consent of the full community.



### 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.
- Worker safety may be lacking, or underage labor may be used.
- Logging operations may be run by the military, and proceeds used to finance war-like activities.
- The issues above can arise in both natural forests and intensively managed forest plantations.
- Extremely low salaries and communities not receiving economic benefits they deserve from forest resources.
- Illegal labor may be used.

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

- **Participation and consultation.** Forest operations should include the meaningful participation of, and consultation with, local communities and indigenous peoples, appropriate to the nature and scale of the operation, the type of ownership (public vs. private), and local legal regimes and customs. Engagement that is based on information, inclusiveness, dialogue, legal recognition, monitoring, evaluation and capacity-building can benefit communities and businesses alike. The appropriate degree of consultation and consent can be controversial, especially where land tenure and traditional rights are uncertain. The principles of “free, prior and informed consent” (FPIC) are evolving through international debate to help define and require appropriate consultation and consent. ILO 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”. A full discussion of FPIC can be found in Herz et al., 2007.
  - **Capacity building.** Building the capacity of local peoples (including indigenous groups) to work in the industry sector and to understand, negotiate and participate in agreements regarding the management of their resources.
  - **Recognition and support of cultural identity.** This includes maintenance, use and promotion of traditional knowledge and practices of local communities and indigenous peoples.
- The differences in social performance between, and within, countries and regions are significant. It is important to know where the wood is coming from. Areas of concern include the following:
- Areas associated with armed conflict (in some cases logging and trade in wood-based products have been used to sponsor armed conflict).
  - Areas known to have flagrant violations and avoidance of workers’ and human rights.

## SELECTED RESOURCES: SOCIAL ISSUES

### Procurement requirements

<p><b>Belgian Government Procurement Policy</b></p>	<p>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.</p>
<p><b>Danish Government Procurement Policy for Tropical Forests (under review)</b></p>	<p>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.</p>
<p><b>Dutch Government Procurement Criteria for Timber</b></p>	<p>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.</p>
<p><b>FLEGT &amp; VPAs</b></p>	<p>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.</p>
<p><b>FSC Controlled-Wood Standard</b></p>	<p>Requires that wood should not be harvested in violation of traditional and civil rights, and in compliance with ILO labor rights declaration.</p>
<p><b>Illegal Timber Regulation</b></p>	<p>In its definition of legal timber products, the Regulation includes respect of third parties’ legal rights concerning use and tenure.</p>



PEFC Guide for the avoidance of controversial timber	Provides safeguards seeking to prevent sourcing from illegal harvesting, which covers social issues such as workers, indigenous and human 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.
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**

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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.
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.



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

Greenpeace's Responsible Procurement Guide

Recognizes FSC forest certification standard for covering social issues in the production of raw materials.

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.

Table 10. Key international commitments and standards on social issues and forests

ISSUES	AGREEMENTS					
	Agenda 21 – UN plan for sustainable development (UN, 2005).	Forest Principles – international, non-binding, consensus on the management, conservation and SFM of the forests.	IPF/IFF proposal for action – international non-binding proposals to address a variety of forest issues (Commonwealth of Australia, 2000).	Human rights instruments – International Covenant on Civil and Political Rights, International Covenant on Economic, Social and Cultural Rights.	Convention on Biological Diversity – international convention to promote sustainable development focusing on biodiversity (CBD, 2007A).	International Labour Organization – core conventions and Convention 169, to recognize, promote and protect indigenous and tribal peoples' rights (ILO, 2003).
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, and development and implementation of strategies for the full protection of forest values including cultural, social and spiritual.		✓			✓	✓
Formulate policies and laws aiming at securing 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			✓		✓	
Development of 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.	✓					

(Adapted from Forest Peoples Programme. 2004. [www.forestpeoples.org/documents/forest\\_issues/summary\\_stds\\_forests\\_dec04\\_eng.shtml](http://www.forestpeoples.org/documents/forest_issues/summary_stds_forests_dec04_eng.shtml)) (11/07/06). Over the past decade, a number of international agreements and commitments have been made to address some of the most pressing social issues around forests.

### Box 15. Forests and people

Forests are home to an estimated 800 million people around the world. To varying degrees, more than 1.6 billion people depend on forests for their livelihoods (e.g., fuel wood, medicinal plants and forest foods). About 60 million indigenous people are dependent on forests, and in developing countries about 1.2 billion people rely directly on agroforestry farming systems that help sustain agricultural productivity and generate income.

An estimated 13 million people were formally employed in the forestry sector worldwide in the year 2000. This represents about 0.4% of the total labor force, but is most likely an underestimation as it includes only the “visible” and “formal” activities. The International Labour Organization estimates that for every formal job in the forestry sector there are one or two informal jobs. The forestry sector could potentially contribute to an estimated 1.5% of global employment.

The gross value-added in the forestry sector in 2003 was US\$ 353 billion, while the global trade in wood products amounted to US\$ 150 billion.

Sources: FAO, 2007B, 2002B. Facts and figures are online at ([www.fao.org/forestry/site/28821/en](http://www.fao.org/forestry/site/28821/en)) (11/20/06).



Child from the forest tribe of Kurebahal Village, Orissa, India

# Selected tools

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 47 tools, by placing them in two overview tables (Tables 11 and 12). 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.sustainableforestprods.org](http://www.sustainableforestprods.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 11. 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 places	Forest conversion	Social issues
<b>SOLID WOOD</b>												
Belgian Government Procurement Policy	✓			✓	Europe, with global implications	✓	✓	✓	✓			✓
German Government Procurement Policy	✓			✓	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	✓			✓			
Timber Retail Coalition	✓		✓	✓	Europe, with global implications				✓	✓		

				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 Website: <a href="http://www.guidedesachatsdurables.be">http://www.guidedesachatsdurables.be</a>
				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 <a href="http://www.bmelv.de">www.bmelv.de</a>
	✓			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: <a href="mailto:greenpeace.china@cn.greenpeace.org">greenpeace.china@cn.greenpeace.org</a> <a href="http://www.greenpeace.org/china/en/">www.greenpeace.org/china/en/</a>
✓	✓		✓	Rating standards for commercial buildings.	The Green Building Initiative Phone: +1 877 424 4241 E-mail: <a href="mailto:info@thegbi.org">info@thegbi.org</a> <a href="http://www.thegbi.org">www.thegbi.org</a>
✓	✓		✓	Rating standards for various types of buildings.	Green Building Council Phone: + 1 800 795 1747 or +1 202 828 5110 E-mail: <a href="mailto:info@usgbc.org">info@usgbc.org</a> <a href="http://www.usgbc.org">www.usgbc.org</a>
		✓		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.	

Table 11. 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 places	Forest conversion	Social issues
Timber Trade Action Plan	✓		✓	✓	Global	✓	✓	✓				
Timber Trade Federation Responsible Purchasing Policy	✓	✓		✓	Global	✓	✓	✓	✓	✓	✓	✓
Tropical Forest Trust's Good Wood, Good Business Guide.	✓		✓	✓	Global/Tropics	✓	✓	✓	✓	✓	✓	✓
Wood for Good Campaign	✓		✓	✓					✓			
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	✓	✓	✓	✓	✓		✓

				Brief characterization	Contact details
Pollution	Recycled content	Climate change	Source reduction		
				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: <a href="mailto:ttap@tropicalforesttrust.com">ttap@tropicalforesttrust.com</a> <a href="http://www.timbertradeactionplan.info">www.timbertradeactionplan.info</a>
				Management system compliant with UK central government requirements for legality and sustainability.	Timber Trade Federation Phone: +44 (0) 20 78 39 18 91 E-mail: <a href="mailto:tft@tft.co.uk">tft@tft.co.uk</a> <a href="http://www.tft.co.uk">www.tft.co.uk</a>
				Practical guidance to develop and implement sustainable procurement.	Tropical Forest Trust Phone: +41 (0)22 367 94 40 E-mail: <a href="mailto:tft@tropicalforesttrust.com">tft@tropicalforesttrust.com</a> <a href="http://www.tropicalforesttrust.com">www.tropicalforesttrust.com</a>
✓	✓	✓		Brochures, fact sheets, education materials.	wood. for good Phone: +44 (0) 800 279 0016 E-Mail: <a href="mailto:contact@woodforgood.com">contact@woodforgood.com</a> <a href="http://www.woodforgood.com">www.woodforgood.com</a>
✓	✓	✓	✓	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: <a href="mailto:mail@cepi.org">mail@cepi.org</a> <a href="http://www.cepi.org">www.cepi.org</a>
✓	✓	✓		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: <a href="mailto:paperenvironment@ncasi.org">paperenvironment@ncasi.org</a> <a href="http://www.paperenvironment.org">www.paperenvironment.org</a>
✓	✓	✓	✓	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.	Metafore Phone: +1 503 224 2205 E-mail: <a href="mailto:info@metafore.org">info@metafore.org</a> <a href="http://www.epat.org">www.epat.org</a>

Table 11. 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 places	Forest conversion	Social issues
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	✓	✓		✓			
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 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: <a href="mailto:info@environmentalpaper.org">info@environmentalpaper.org</a> <a href="http://www.environmentalpaper.org">www.environmentalpaper.org</a>
✓	✓			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: <a href="mailto:govt3@mfe.govt.nz">govt3@mfe.govt.nz</a> <a href="http://www.mfe.govt.nz">www.mfe.govt.nz</a>
✓	✓	✓	✓	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 <a href="http://www.papercalculator.org">www.papercalculator.org</a>
✓	✓		✓	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: <a href="mailto:info@papereng.fi">info@papereng.fi</a> <a href="http://www.papereng.fi">www.papereng.fi</a>
✓	✓	✓		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: <a href="mailto:info@twosides.info">info@twosides.info</a> <a href="http://www.twosides.info">www.twosides.info</a>
✓	✓	✓	✓	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 <a href="http://www.panda.org/paper/toolbox">www.panda.org/paper/toolbox</a>
✓	✓	✓		Scoring system for paper.	WWF International Phone: +41 (0)22 364 91 11 <a href="http://www.panda.org/paper/toolbox">www.panda.org/paper/toolbox</a>
✓	✓		✓	Rating system to assess tissue paper sourcing.	WWF International Phone: +41 (0) 22 364 91 11 <a href="http://www.wwfno.panda.org">www.wwfno.panda.org</a>

Table 12. 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 places	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	✓	✓	✓	✓			

				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

Table 12. 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 places	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	✓	✓	✓	✓			
Forest Industry Carbon Assessment Tool	✓	✓	✓		Global	✓			✓		✓	
Forest Legality Alliance	✓			✓	Global			✓				

				Brief characterization	Contact details
Pollution	Recycled content	Climate	Source reduction		
				The Forest Law Enforcement, Governance and Trade (FLEGT) Plan is the European Union (EU) response to illegal logging and deforestation concerns. The Plan recognizes that consumer countries' demand for forest products contributes to forest loss. The Plan seeks to (i) develop markets for legal products in Europe; and (ii) establish bilateral partnerships (Voluntary Partnership Agreements, VPAs) with producing countries to build their capacity and support reforms in the governance of their forest sectors, in order to reduce the production of illegally harvested timber. The VPAs also seek to establish and implement tracking and licensing systems (Legality Assurance Systems - LASs) to ensure that only legally produced products enter the European Union.	European Forest Institute / EU FLEGT Facility Phone: +358-10-773-4300 Contact: <a href="http://www.euflegt.efi.int/contact.php">http://www.euflegt.efi.int/contact.php</a> <a href="http://www.euflegt.efi.int">www.euflegt.efi.int</a>
✓				Framework for the evaluation of certification systems to assess compliance with World Bank and WWF policies.	World Bank / WWF International Phone: +41 (0) 22 364 91 11 or +1 202 473 10 00 <a href="http://www.forest-alliance.org">www.forest-alliance.org</a>
				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.	Global Canopy Programme Phone: 44-1865-724-333 E-mail: <a href="mailto:info@forestdisclosure.com">info@forestdisclosure.com</a> <a href="http://www.forestdisclosure.com">www.forestdisclosure.com</a>
	✓	✓		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 <a href="http://www.FICATModel.org">www.FICATModel.org</a>
				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: <a href="mailto:info@forestlegality.org">info@forestlegality.org</a> <a href="http://www.forestlegality.org">www.forestlegality.org</a>

Table 12. 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 places	Forest conversion	Social issues
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	✓	✓	✓	✓	✓	✓	✓
Green Purchasing Network		✓	✓		Japan		✓	✓	✓			
Japanese Government Procurement Policy	✓	✓			Japan/Global	✓		✓	✓			
Mexican Federal Government Procurement Policy	✓	✓			Mexico	✓	✓	✓	✓			

				Brief characterization	Contact details
Pollution	Recycled content	Climate	Source reduction		
	✓			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
✓	✓	✓	✓	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
✓	✓	✓	✓	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



Table 12. 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 places	Forest conversion	Social issues
New Zealand Timber and Wood Products Procurement Policy	✓			✓	Global		✓	✓	✓			
PEFC guide for the avoidance of controversial timber	✓	✓		✓	Global	✓	✓	✓		✓		✓
Public Procurement Policies for Forest Products and Their Impacts	✓			✓	Europe, New Zealand, Japan		✓	✓	✓			✓
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.	✓	✓	✓	✓			✓
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		
				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 <a href="http://www.maf.govt.nz/forestry/twpp/index.htm">www.maf.govt.nz/forestry/twpp/index.htm</a>
				CoC requirements to prevent trading of timber harvested illegally.	PEFC Council Phone: +41 22 799 45 40 E-mail: <a href="mailto:info@pefc.org">info@pefc.org</a> <a href="http://www.pefc.org">www.pefc.org</a>
				Synthesis and comparative review of public timber procurement policies around the world.	Ardot Phone: +358 (0) 9 44 88 61 E-mail: <a href="mailto:ardot@ardot.fi">ardot@ardot.fi</a> <a href="http://www.ardot.fi">www.ardot.fi</a>
				A voluntary standard to communicate conformance of wood and paper-based products with requirements of different tracing systems, forest management certification programs, and voluntary and regulatory standards related to forest products.	ASTM International Phone: +1 -610- 832-9500 <a href="http://www.astm.org">www.astm.org</a>
✓	✓	✓		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 <a href="http://www.pwc.co.uk/sustainability">www.pwc.co.uk/sustainability</a>
		✓		Purchasing requirements for wood and fiber under SFI certification standard.	Sustainable Forestry Initiative Phone: +1 703 875 9500 <a href="http://www.sfiprogram.org">www.sfiprogram.org</a>
				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: <a href="http://www.konsum.admin.ch/holzdeklaration/start/index.html?lang=fr">www.konsum.admin.ch/holzdeklaration/start/index.html?lang=fr</a>
	✓	✓	✓	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: <a href="mailto:info@tropicalforesttrust.com">info@tropicalforesttrust.com</a> <a href="http://www.tropicalforesttrust.org">www.tropicalforesttrust.org</a>
				Guidance for compliance with UK central government purchasing requirements for sustainability and legality.	ProForest Phone: +44 (0) 1865 243 766 E-mail: <a href="mailto:cpet@proforest.net">cpet@proforest.net</a> <a href="http://www.proforest.net">www.proforest.net</a>





# Additional resources



# Additional resources

## CITES

- CITES website – [www.cites.org](http://www.cites.org).
- Environment Canada, USDA-Forest Service, CITES. 2002. CITES Identification guide of tropical woods protected under CITES. Ottawa: Environment Canada. Online at [www.cws-scf.ec.gc.ca/enforce/pdf/Wood/CITES\\_Wood\\_Guide.pdf](http://www.cws-scf.ec.gc.ca/enforce/pdf/Wood/CITES_Wood_Guide.pdf) (11/7/07).
- UNEP/WCMC. Tree Conservation Information Service website – [www.unep-wcmc.org/trees/trade/cites.htm](http://www.unep-wcmc.org/trees/trade/cites.htm) (11/7/07).
- US Fish and Wildlife Service. CITES and Timber website – [www.fws.gov/citestimber/index.html](http://www.fws.gov/citestimber/index.html) (11/7/07).
- USDA Forest Service. 2006. CITES I-II-III Timber species manual. First edition. Washington DC: US State Department. Online at [www.aphis.usda.gov/import\\_export/plants/manuals/ports/downloads/cites.pdf](http://www.aphis.usda.gov/import_export/plants/manuals/ports/downloads/cites.pdf) (11/7/07).

## Climate Change

- CIDA Forestry Advisers Network. 2004. *Forests, trees, and climate change: Recent experiences in Asia*. Ottawa: CIDA. Online at [www.rcfa-cfan.org/english/profile.19.htm](http://www.rcfa-cfan.org/english/profile.19.htm) (11/7/07).
- Global Issues, Climate change and global warming: carbon sinks, forests and climate change – [www.globalissues.org](http://www.globalissues.org).
- Miner, R. 2003. Characterizing carbon sequestration in forest products along the value chain. NCASI.
- Pew Center on Global Climate Change website – [www.pewclimate.org](http://www.pewclimate.org) (11/7/07).
- Putt del Pino, S. 2006. *Switching to green: A renewable energy guide for office and retail companies*. Washington DC: WRI. Online at [www.wri.org/climate/pubs\\_description.cfm?pid=4250](http://www.wri.org/climate/pubs_description.cfm?pid=4250) (11/7/07).
- Shugart, H., R. Sedjo and B. Sohngen. 2003. *Forests and global climate change: Potential impacts on forest resources*. Washington DC: Pew Center on Global Climate Change.
- TFD. 2008. TDF Publication: Beyond REDD – *The Role of Forests in Climate Change*. Online at [research.yale.edu/gis/tfd/pdf/fcc/TFD%20Forests%20and%20Climate%20Statement%20w%20Briefing%20Notes.pdf](http://research.yale.edu/gis/tfd/pdf/fcc/TFD%20Forests%20and%20Climate%20Statement%20w%20Briefing%20Notes.pdf) (3/4/09).
- The Forests Dialogue home page: [www.theforestsdialogue.org](http://www.theforestsdialogue.org)
- Union of Concerned Scientists. 2006. Recognizing forests' role in climate change website – [www.ucsusa.org/global\\_warming/solutions/recognizingi-forests-role-in-climate-change.html](http://www.ucsusa.org/global_warming/solutions/recognizingi-forests-role-in-climate-change.html) (11/7/07).
- WBCSD and WRI – GHG Protocol Initiative – [www.ghgprotocol.org](http://www.ghgprotocol.org) (11/7/07).

## Efficiency

- JAAKKO PÖYRY Consulting. 2003. Summary of international pulp and paper industry structure and best practice. Vantaa, Finland: Jaakko Pöyry Consulting Oy. Online at [www.wbcds.org](http://www.wbcds.org) (11/7/07).
- Mensik, M. 2006. Paper recycling and energy. IEA Workshop on energy efficiency. Paris, 9 October 2006. CEPI. IEA. Online at [www.iea.org](http://www.iea.org).
- US Department of Energy. Energy Information Administration. 2006. Forest products industry analysis brief: Technologies and equipment website – [www.eia.doe.gov/emeu/mecs/iab98/forest/index.html](http://www.eia.doe.gov/emeu/mecs/iab98/forest/index.html) (11/7/07).



## Deforestation and land-use conversion

- Center for International Forestry Research – [www.cifor.cgiar.org](http://www.cifor.cgiar.org) (11/7/07).
- Earth trends – [www.earthtrends.org](http://www.earthtrends.org) (11/7/07).
- FAO Forestry Department – [www.fao.org/forestry/index.jsp](http://www.fao.org/forestry/index.jsp).
- FAO. 2006. Responsible management of planted forests. Voluntary guidelines. Planted forests and trees working paper EP37E. Rome: FAO. Online at [www.fao.org/docrep/009/j9256e/j9256e00.htm](http://www.fao.org/docrep/009/j9256e/j9256e00.htm) (11/7/07).



## Additional resources

- Geist, H.J. and E.F. Lambin. 2001. *What drives tropical deforestation? A meta-analysis of proximate and underlying causes of deforestation based on subnational case study evidence*. LUCR Report Series No. 4. Louvain-la-Neuve, Belgium: International human dimensions programme on global environmental change, International geosphere-biosphere programme.
- NASA's Goddard Space Flight Center – Forest ecosystem dynamics website – [fedwww.gsfc.nasa.gov/](http://fedwww.gsfc.nasa.gov/) (11/7/07).
- The Forests Dialogue home page: [www.theforestsdialogue.org](http://www.theforestsdialogue.org)
- WWF Forest Conversion Initiative – [www.panda.org](http://www.panda.org) (11/7/07).
- WWF. 2002. Position paper on forest conversion. Online at [assets.panda.org/downloads/po8forestconversion.pdf](http://assets.panda.org/downloads/po8forestconversion.pdf) (11/7/07).

### Environmental management systems

- Australian Government – [www.environment.gov.au/settlements/industry/corporate/ems.html](http://www.environment.gov.au/settlements/industry/corporate/ems.html) (11/7/07).
- BSI Group – [www.bsi-global.com](http://www.bsi-global.com) (11/7/07).
- ISO Standard for Management Systems – ISO 14000 Series. Available for purchase at [www.iso.org](http://www.iso.org) (7/11/07).
- Environmental Management Systems Network – [www.emsnet.com](http://www.emsnet.com) (11/7/07).
- Envirowise – [www.envirowise.gov.uk/ems](http://www.envirowise.gov.uk/ems) (11/7/07).
- Institute of Environmental Management and Assessment – [www.iema.net](http://www.iema.net) (11/7/07).
- UK Department for Environment, Food and Rural Affairs Environmental Management Systems page – [www.defra.gov.uk/environment/business/scp/actions/ems.htm](http://www.defra.gov.uk/environment/business/scp/actions/ems.htm) (11/7/07).
- US Environmental Protection Agency – Overview information on environmental management systems website – [www.epa.gov/ems/info/index.htm](http://www.epa.gov/ems/info/index.htm) (7/11/07).

### Forest certification

- American Tree Farm System website – [www.treefarmssystem.org](http://www.treefarmssystem.org) (7/11/07).
- Brazilian Forest Certification System (CERFLOR) – [www.inmetro.gov.br/qualidade/cerflor.asp](http://www.inmetro.gov.br/qualidade/cerflor.asp) (11/7/07).
- CSA – National Standards for Sustainable Forest Management – [www.csa-international.org](http://www.csa-international.org) (11/7/07).
- Chilean Forest Certification System (CERTFOR) – [www.certfor.org](http://www.certfor.org) (11/7/07).

- FSC Council – [www.fsc.org](http://www.fsc.org) (11/7/07).
- FSC Watch – [www.fsc-watch.org](http://www.fsc-watch.org) (11/7/07).
- LEI – [www.lei.org.id/english](http://www.lei.org.id/english) (11/7/07).
- MTCC – [www.mtcc.com.my](http://www.mtcc.com.my) (11/7/07).
- Metafore's Forest Certification Resource Center – [www.metafore.org](http://www.metafore.org) (11/7/07).
- Nussbaum, R. and M. Simula. 2004. *Forest certification: A review of impacts and assessment frameworks*. Oxford: ProForest. Online at [research.yale.edu/gisf/tfd/ifacs.html](http://research.yale.edu/gisf/tfd/ifacs.html) (11/7/07).
- Programme for the Endorsement of Forest Certification – [www.pefc.org](http://www.pefc.org) (11/7/07).
- PEFC Watch – [www.pefcwatch.org](http://www.pefcwatch.org) (11/7/07).
- Sustainable Forestry Initiative, Inc. – [www.sfiprogram.org](http://www.sfiprogram.org) (11/7/07).
- The Forest Dialogue – [research.yale.edu/gisf/tfd/](http://research.yale.edu/gisf/tfd/) (11/7/07).
- The Forests Dialogue home page: [www.theforestsdialogue.org](http://www.theforestsdialogue.org)
- Yale Program on Forest Policy and Governance website – [www.yale.edu/forestcertification/](http://www.yale.edu/forestcertification/) (11/7/07).

### Forest certification comparisons

Selected list; certification standards and their requirements have changed over time, particularly schemes associated with PEFC. Thus, some comparisons might be outdated.

- Alliance for Credible Forest Certification website – [www.credibleforestcertification.org](http://www.credibleforestcertification.org) (11/7/07).
- Auld, G. and G. Q. Bull. 2003. "The institutional design of forest certification standards initiatives and its influence on the role of science: the case of forest genetics resources". *Journal of Environmental Management*, 69.
- Ecologic Institute for International and European Policy. 2006. *Public procurement and forest certification: assessment of the implications for policy, law, and international trade; comparison of major certification schemes: FSC, PEFC, CSA, MTCC and SFI*. Berlin: Ecologic. Online at [www.ecologic.de/download/briefe/2006/933\\_brief\\_procurement\\_forest.pdf](http://www.ecologic.de/download/briefe/2006/933_brief_procurement_forest.pdf) (11/7/07).





- Hinrichs, A., and A. Prasetyo. 2007. *Forest certification credibility assessment in Indonesia: Applying the Forest Certification Assessment Guide on National Level*. Online at [www.worldwildlife.org/what/globalmarkets/forests/WWFBinaryitem7333.pdf](http://www.worldwildlife.org/what/globalmarkets/forests/WWFBinaryitem7333.pdf) (2/17/09).
  - Meridian Institute. 2001. *Comparative analysis of the forest stewardship council and sustainable forestry initiative certification programs*. Washington DC: Meridian Institute. Online at [www.resourcesaver.org/file/toolmanager/O16F20919.pdf](http://www.resourcesaver.org/file/toolmanager/O16F20919.pdf) (11/7/07).
  - Ozinga, S. 2001. *Behind the logo, an environmental and social assessment of forest certification schemes*. Gloucestershire, UK: FERN. Online at [www.fern.org/pubs/reports/behind/btrep.pdf](http://www.fern.org/pubs/reports/behind/btrep.pdf) (11/7/07).
  - Ozinga, S. 2004. *Footprints in the forest. Current practice and future challenges in forest certification*. Gloucestershire, UK: FERN. Online at [www.fern.org/pubs/reports/footprints.pdf](http://www.fern.org/pubs/reports/footprints.pdf) (11/7/07).
  - Purbawiyatna, A. and M. Simula. 2007. *Comparability and acceptance of forest certification systems*. Draft report for the ITTO. Helsinki: Ardot. Online at [www.ardot.fi](http://www.ardot.fi) (10/30/07).
  - Rana, N. 2005. *A comparison of guidelines for the FSC and other standards of SFM*. Washington DC: Pinchot Institute. Online at [www.pinchot.org/pubs/?catid=78](http://www.pinchot.org/pubs/?catid=78) (9/17/07).
  - The Forests Dialogue home page: [www.theforestsdialogue.org](http://www.theforestsdialogue.org)
  - UPM and WWF. 2005. *Parallel fields testing of forest certification standards*. Finland: UPM. Online at [w3.upm-kymmene.com/upm/infocus/sustainableforestry/downloadables/Parallel\\_test\\_report.pdf](http://w3.upm-kymmene.com/upm/infocus/sustainableforestry/downloadables/Parallel_test_report.pdf) (11/7/07).
  - Walter., M. 2008. *An analysis of the FSC and PEFC systems for forest management certification, using the Forest Certification Assessment Guide (FCAG)*. Online at [assets.panda.org/downloads/2008\\_11\\_17\\_final\\_fcag\\_assessment\\_.pdf](http://assets.panda.org/downloads/2008_11_17_final_fcag_assessment_.pdf) (2/17/09).
  - Wingate, K.G. and P. N. McFarlane. 2005. "Chain-of-custody and ecolabelling of forest products: A review of the requirements of the major forest certification schemes". *International forestry review* 7(4).
- ### Forest Plantations
- The Forest Dialogue (TDF). 2008. *TDF Review – Intensively Managed Planted Forests: Towards best practice: Summary and recommendations from TFD's IMPF Initiative June 2005-June 2008*. Published October 2008. Online at [research.yale.edu/gisf/tfd/pdf/impf/TFD%20IMPF%20Review.pdf](http://research.yale.edu/gisf/tfd/pdf/impf/TFD%20IMPF%20Review.pdf) (3/4/09).
- ### Legality
- Australian Government. Department of Agriculture, Fisheries and Forestry. 2006. *Bringing down the axe on illegal logging: A practical approach*. Australian government discussion paper. Online at [www.daff.gov.au/illegallogging](http://www.daff.gov.au/illegallogging) (10/29/07).
  - Forest Law Enforcement and Governance (FLEG) – [go.worldbank.org/84WOF2600](http://go.worldbank.org/84WOF2600) (11/7/07).
  - Institute of International Affairs at Chatham House, London. Illegal logging website – [www.illegal-logging.info](http://www.illegal-logging.info) (11/7/07).
  - GFTN. Standard for tracking wood legality to the source in Indonesia. Online at [www.forestandtradeasia.org/files/Legality%20Standard%20-%20Final%20version.doc](http://www.forestandtradeasia.org/files/Legality%20Standard%20-%20Final%20version.doc) (11/7/07).
  - Kramme, L.A. and S. P. Price (eds). 2005. "Practical actions to combat illegal logging: A summary of a multi-stakeholder dialogue on best practices for business and civil society". A TDF review; 7–10 March 2005, Hong Kong, P.R., China. The Forest Dialogue Publication Number 2. New Haven, CT: TDF. Online at [research.yale.edu/gisf/assets/pdf/tdf/logging/TDF%20Illegal%logging.pdf](http://research.yale.edu/gisf/assets/pdf/tdf/logging/TDF%20Illegal%logging.pdf) (11/7/07).
  - SmartWood. 2007. *SmartWood Generic Standard for Verification of Legal Origin (VLO) Version 2*. Second draft for public consultation. New York: Rainforest Alliance. Online at [www.rainforest-alliance.org/forestry/documents/vlo\\_standard.pdf](http://www.rainforest-alliance.org/forestry/documents/vlo_standard.pdf) (11/7/07).
  - SmartWood. 2007. *SmartWood Generic Standard for Verification of Legal Compliance (VLC) Version 2*. Second draft for public consultation. New York: Rainforest Alliance. Online at [www.rainforest-alliance.org/forestry/documents/vlc\\_standard.pdf](http://www.rainforest-alliance.org/forestry/documents/vlc_standard.pdf) (11/7/07).
  - The Forest Dialogue – [research.yale.edu/gisf/tfd/](http://research.yale.edu/gisf/tfd/) (11/7/07).
  - The Forests Dialogue home page: [www.theforestsdialogue.org](http://www.theforestsdialogue.org)
  - The Forest Integrity Network – [www.transparency.org/global\\_priorities/fin](http://www.transparency.org/global_priorities/fin) (11/7/07).
  - The VERIFOR project – [www.verifor.org](http://www.verifor.org) (11/7/07).
  - Van Dam, J., and H. Savenije. 2011. *Enhancing the trade of legally produced timber: A guide to initiatives*. Tropenbos International. Online at <http://www.tropenbos.org/index.php/en/publications/new-publications/publication-guide-initiatives> (6/1/11)
  - Wells, A. 2006. *The legal basis for verification systems – Standard setting for legal compliance*. VERIFOR. Online at [www.verifor.org/meetings/Legality%20Standards07.06.doc](http://www.verifor.org/meetings/Legality%20Standards07.06.doc) (11/7/07).

## Additional resources

- World Bank. 2006. *Strengthening forest law enforcement and governance: Addressing a systemic constraint to sustainable development*. Report no. 36638-GLB. Washington DC: The World Bank. Online at [www.illegal-logging.info/uploads/forest\\_law\\_final\\_hi\\_res\\_9\\_27\\_06\\_final\\_web.pdf](http://www.illegal-logging.info/uploads/forest_law_final_hi_res_9_27_06_final_web.pdf) (11/12/07).
- US Federal Trade Commission – *Guides for the use of environmental marketing claims*. Online at [www.ftc.gov/bcp/grnrule/guides980427.htm](http://www.ftc.gov/bcp/grnrule/guides980427.htm) (9/17/07).
- US Federal Trade Commission – *A users' guide to the language of recycling*. Online at [www.ftc.gov/bcp/online/pubs/alerts/ecoalrt.shtm](http://www.ftc.gov/bcp/online/pubs/alerts/ecoalrt.shtm) (9/17/07)

## Life Cycle Assessment

- PriceWaterhouseCoopers, FPAC. 2010. Life cycle assessment and forest products: A white paper. Online at <http://www.pwc.com/gx/en/forest-paper-packaging/publications/life-cycle-assessment.jhtml> (4/28/11).

## Recycled content

- Bourke, I.J. 1995. *International trade in forest products and the environment*. Unasilva No. 183. Rome: FAO. Online at [www.fao.org](http://www.fao.org)
- CEPI. 2006. Responsible management of recovered paper: Guidelines on responsible sourcing and quality control. Online at [www.cepi.org](http://www.cepi.org).
- Center for a New American Dream, Conservatree, Co-op America, Dogwood Alliance, Environmental Defense, ForestEthics, the Green Press Initiative, the Markets Initiative, Natural Resources Defense Council, the Recycled Products Purchasing Cooperative. November 20<sup>th</sup>, 2002. "A common vision for transforming the paper industry: Striving for environmental and social sustainability". Online at [www.greenpressinitiative.org/documents/CommonVision.pdf](http://www.greenpressinitiative.org/documents/CommonVision.pdf) (9/17/07).
- European Recovered Paper Association's European declaration on paper recycling. Online at [www.erpa.info](http://www.erpa.info)
- FPAC information on recycling – [www.fpac.ca](http://www.fpac.ca)
- Ince, P.J. and D.B. McKeever. 1995. *Recovery of paper and wood for recycling: actual and potential*. Gen. Tech. Rep. FPL–GTR–88. Madison, WI: U.S. Department of Agriculture, Forest Service. Online at [www.fpl.fs.fed.us](http://www.fpl.fs.fed.us)
- Metafore's Fiber Cycle Project – [www.metafore.org](http://www.metafore.org)
- Ona, T. 2004. *Improvement of forest resources for recyclable forest products*. Springer.
- Recycler's World website – [www.recycle.net/pub/rs000314.html](http://www.recycle.net/pub/rs000314.html) .
- US Forest service – Forest Products Laboratory – [www.fpl.fs.fed.us/tmu/publications.html](http://www.fpl.fs.fed.us/tmu/publications.html).

## Social issues

- Forest Peoples Programme – [www.forestpeoples.org](http://www.forestpeoples.org)
- Global Witness – [www.globalwitness.org](http://www.globalwitness.org)
- International Labour Organization – [www.ilo.org](http://www.ilo.org)
- ISO's Standard on social responsibility (upcoming) – more information at [isotc.iso.org](http://isotc.iso.org)
- Rights and Resources Program– [www.rightsandresources.org](http://www.rightsandresources.org)
- The Forest Dialogue – Forest and poverty reduction – [research.yale.edu/gisf/tfd/](http://research.yale.edu/gisf/tfd/)
- The Forests Dialogue home page: [www.theforestdialogue.org](http://www.theforestdialogue.org)
- Transparency International – [www.transparency.org](http://www.transparency.org)
- USAID. 2003. *Conflict timber: dimensions of the problem in Asia and Africa*. Volume I. Synthesis report. Online at [www.usaid.gov/](http://www.usaid.gov/)
- World Rainforest Movement – [www.wrm.org.uy/](http://www.wrm.org.uy/)

## Source reduction and life cycle analysis

- American Center for LCA – [www.lcacenter.org](http://www.lcacenter.org).
- CORRIM – [www.corrim.org](http://www.corrim.org).
- CSIRO. 2006. Furniture life cycle assessment report. Australian National Association of Forest Industries. Online at [www.nafi.com.au](http://www.nafi.com.au)
- Franklin Associates – [www.fal.com](http://www.fal.com)
- Gower, S.T., A. McKeon-Ruediger, A. Reitter, M. Bradley, D.J. Refkin, T. Rollefson, F.J. Souba Jr., A. Taup, L. Embury-Williams, S. Schavone, J. Weinbauer, A.C. Janetos and R. Jarvis. 2006. *Following the paper trail: The impact of magazine and dimensional lumber production on greenhouse gas emissions: A Case Study*. Online at [www.heinzctr.org/NEW\\_WEB/PDF/08014\\_Time\\_1to51.pdf](http://www.heinzctr.org/NEW_WEB/PDF/08014_Time_1to51.pdf) (9/17/07)
- INFORM – [www.informinc.org](http://www.informinc.org)
- ISO Standards on LCA (14040, 14041, 14042, 14043, and 14048) – [www.iso.org](http://www.iso.org). International Journal of LCA – [www.scientificjournals.com/sj/lca/](http://www.scientificjournals.com/sj/lca/)
- LeVan, S.L. 1995. *Life cycle assessment: Measuring environmental impact*. USDA Forest Services. Online at [www.fpl.fs.fed.us](http://www.fpl.fs.fed.us)

- Metafore. The fiber cycle. Online at [www.metafore.org](http://www.metafore.org)
- National Renewable Energy Laboratory; U.S. Life-cycle Inventory Database – [www.nrel.gov/lci](http://www.nrel.gov/lci).
- Society for Promotion of LCA – [lca-net.com](http://lca-net.com).
- US Department of Energy – Industrial assessment centers – [iac.rutgers.edu](http://iac.rutgers.edu)

### Special places

- Biodiversity Hotspots website – [www.biodiversityhotspots.org](http://www.biodiversityhotspots.org)
- FSC's High Conservation Value Forests – [www.fsc.org](http://www.fsc.org).
- Global Forest Watch's maps of Intact Forest Landscapes for Russia, Canada and Alaska – [www.globalforestwatch.org](http://www.globalforestwatch.org)
- HCVF Resource Network – [hcvnetwork.org](http://hcvnetwork.org).
- Hilbert, J. and A. Wiensczyk. 2007. "Old-growth definitions and management: A literature review". *BC Journal of ecosystems and management*. 8(1)15:31. Forest Research extension partnership. Online at [www.forrex.org/jem/ISS39/vol8\\_no1\\_art2.pdf](http://www.forrex.org/jem/ISS39/vol8_no1_art2.pdf) (10/29/07).
- The Human Footprint Map – [wcs.org/humanfootprint](http://wcs.org/humanfootprint)
- InfoNatura - [www.natureserve.org/infonatura](http://www.natureserve.org/infonatura)
- IUCN Species Survival Commission website – [www.iucn.org/themes/ssc/index.htm](http://www.iucn.org/themes/ssc/index.htm).
- Lund, G. 2007. *Definitions of forest, deforestation, afforestation, and reforestation*. Gainesville, VA: Forest Information Services.
- NatureServe's Explorer – [www.natureserve.org/explorer](http://www.natureserve.org/explorer).
- RAMSAR Sites Information Service – [www.wetlands.org/rsis/](http://www.wetlands.org/rsis/)
- The Forests Dialogue home page: [www.theforestsdialogue.org](http://www.theforestsdialogue.org)
- TNC Ecorregional Planning website – [gis.tnc.org/gisattnc.php#Eco](http://gis.tnc.org/gisattnc.php#Eco).



- World Heritage Sites – [whc.unesco.org/](http://whc.unesco.org/)
- WWF Ecoregions – [www.worldwildlife.org/science/ecoregions/landscapes.cfm#2](http://www.worldwildlife.org/science/ecoregions/landscapes.cfm#2)

### Sustainable forest management

- Canadian Standard for Sustainable Forest Management – [www.csa-international.org](http://www.csa-international.org)
- Castañeda, F., C. Palmberg-Lerche and P. Vourinen. 2001. *Criteria and indicators for SFM: A compendium*. Forest Management Working Papers. Working Paper 5. Forest Resources Development Service, FAO. Online at [www.fao.org](http://www.fao.org)
- FAO's Sustainable Forest Management website – [www.fao.org](http://www.fao.org)
- ITTO Criteria and Indicators for the Sustainable Forest Management of Tropical Forests – [www.itto.or.jp](http://www.itto.or.jp)
- Ministerial Conference on the Protection of Forests in Europe (MCPFE). 1998 – [www.mcpfe.org/system/files/u1lisbon\\_resolution12a1.pdf](http://www.mcpfe.org/system/files/u1lisbon_resolution12a1.pdf) (12/18/07).
- The Forests Dialogue home page: [www.theforestsdialogue.org](http://www.theforestsdialogue.org)
- The Montreal Process – [www.mpci.org/evolution\\_e.html](http://www.mpci.org/evolution_e.html)
- Roundtable on Sustainable Forests – [www.sustainableforests.net](http://www.sustainableforests.net)
- Rural Development Forestry Network – [www.odi.org.uk](http://www.odi.org.uk) .
- The SFM Indicator Database – [www.sfmindicators.org/home](http://www.sfmindicators.org/home) .
- UN Forum on Forests – [www.un.org/esa/forests](http://www.un.org/esa/forests)

### Traceability

- Finnish Forest Industry Federation. 2005. "Finnish forest industry companies know where the wood they use comes from". Online at [www.forestindustries.fi](http://www.forestindustries.fi)
- ISO Standard for Environmental Management Systems 14001. Standards are available for purchase at [www.iso.org/](http://www.iso.org/).
- WBCSD/WWF. 2005. *Developing best wood tracking practices to verify legality of wood origin in Latvia*. 2005. Online at [www.sustainable-finance.org](http://www.sustainable-finance.org)

Table 13. 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
<b>Banking</b>			
Bank of America	<ul style="list-style-type: none"> <li>• Origin</li> <li>• Information accuracy</li> <li>• Legality</li> <li>• Sustainability</li> <li>• Special places</li> <li>• Recycled content</li> <li>• Use of resources</li> </ul>	Paper-based products	<a href="http://environment.bankofamerica.com">environment.bankofamerica.com</a>
JP Morgan Chase	<ul style="list-style-type: none"> <li>• Information accuracy</li> <li>• Sustainability</li> <li>• Recycled content</li> <li>• Use of resource</li> </ul>	Paper-based products	<a href="http://www.jpmorganchase.com">www.jpmorganchase.com</a>
Royal Bank of Canada	<ul style="list-style-type: none"> <li>• Information accuracy</li> <li>• Sustainability</li> <li>• Recycled content</li> <li>• Use of resources</li> </ul>	Paper-based products	<a href="http://www.rbc.com">www.rbc.com</a>
Scotiabank	<ul style="list-style-type: none"> <li>• Information accuracy</li> <li>• Legality</li> <li>• Sustainability</li> <li>• Special places</li> <li>• Environmental protection</li> <li>• Use of resources</li> <li>• Communities</li> <li>• Local communities and indigenous peoples</li> </ul>	Paper-based products	<a href="http://www.scotiabank.comf">www.scotiabank.comf</a>
<b>Construction/Developers</b>			
Countryside Properties	<ul style="list-style-type: none"> <li>• Origin</li> <li>• Information accuracy</li> <li>• Legality</li> <li>• Sustainability</li> <li>• Recycled content</li> </ul>	Wood products	<a href="http://www.countryside-properties-corporate.com">www.countryside-properties-corporate.com</a>
Skanska	<ul style="list-style-type: none"> <li>• Information accuracy</li> <li>• Sustainability</li> <li>• Legality</li> </ul>	Wood-based products	<a href="http://www.skanska.com">www.skanska.com</a>
Wates	<ul style="list-style-type: none"> <li>• Origin</li> <li>• Information accuracy</li> <li>• Legality</li> <li>• Sustainability</li> </ul>	Wood products	<a href="http://www.wates.co.uk">www.wates.co.uk</a>
<b>Construction/Investment/Services</b>			
Balfour Beatty Corporation	<ul style="list-style-type: none"> <li>• Origin</li> <li>• Information accuracy</li> <li>• Sustainability</li> </ul>	Wood-based products	<a href="http://www.balfourbeatty.co.uk">www.balfourbeatty.co.uk</a>
<b>Cosmetics/Beauty</b>			
Avon Products Inc.	<ul style="list-style-type: none"> <li>• Origin</li> <li>• Information accuracy</li> <li>• Legality</li> <li>• Sustainability</li> <li>• Special places</li> <li>• Climate change</li> <li>• Environmental Protection</li> <li>• Recycled content</li> <li>• Use of resources</li> <li>• Local communities and indigenous peoples</li> </ul>	Paper-based products	<a href="http://www.avoncompany.com">http://www.avoncompany.com</a>

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

Williams Sonoma	<ul style="list-style-type: none"> <li>• Information accuracy</li> <li>• Legality</li> <li>• Sustainability</li> <li>• Special places</li> <li>• Recycled content</li> <li>• Use of resources</li> </ul>	Paper-based products	<a href="http://www.williams-sonomainc.com">www.williams-sonomainc.com</a>
Logistics and communications			
Deutsche Post World Net	<ul style="list-style-type: none"> <li>• Information accuracy</li> <li>• Sustainability</li> <li>• Recycled content</li> </ul>	Paper-based products	<a href="http://www.dpwn.de">www.dpwn.de</a>
Media			
Bertelsmann AG	<ul style="list-style-type: none"> <li>• Origin</li> <li>• Information accuracy</li> <li>• Legality</li> <li>• Sustainability</li> <li>• Environmental protection</li> <li>• Recycled content</li> <li>• Special places</li> <li>• Use of resources</li> </ul>	Paper-based products	<a href="http://www.bertelsmann.de">www.bertelsmann.de</a>
Multiproducts			
Kimberly-Clark	<ul style="list-style-type: none"> <li>• Information accuracy</li> <li>• Legality</li> <li>• Sustainability</li> <li>• Special places</li> <li>• Environmental protection</li> <li>• Recycled content</li> <li>• Local and indigenous communities</li> </ul>	Paper-based products	<a href="http://www.kimberly-clark.com">www.kimberly-clark.com</a>
Unilever	<ul style="list-style-type: none"> <li>• Information accuracy</li> <li>• Sustainability</li> <li>• Recycled content</li> <li>• Use of resources</li> </ul>	Paper-based products	<a href="http://www.unilever.com">www.unilever.com</a>
Outfitters			
Limited Brands	<ul style="list-style-type: none"> <li>• Information accuracy</li> <li>• Legality</li> <li>• Sustainability</li> <li>• Special places</li> <li>• Environmental protection</li> <li>• Recycled content</li> <li>• Use of resources</li> <li>• Local and indigenous peoples</li> </ul>	Paper-based products	<a href="http://www.limitedbrands.com">www.limitedbrands.com</a>
L.L. Bean	<ul style="list-style-type: none"> <li>• Origin</li> <li>• Information accuracy</li> <li>• Legality</li> <li>• Sustainability</li> <li>• Special places</li> <li>• Recycled content</li> <li>• Use of resources</li> <li>• Environmental protection</li> <li>• Local and indigenous communities</li> </ul>	Paper-based products	<a href="http://www.llbean.com">www.llbean.com</a>
Norm Thompson	<ul style="list-style-type: none"> <li>• Origin</li> <li>• Information accuracy</li> <li>• Sustainability</li> <li>• Special places</li> <li>• Environmental protection</li> <li>• Use of resources</li> <li>• Recycled content</li> </ul>	Paper-based products	<a href="http://www.normthompson.com">www.normthompson.com</a>
REI	<ul style="list-style-type: none"> <li>• Origin</li> <li>• Legality</li> <li>• Information accuracy</li> <li>• Sustainability</li> <li>• Special places</li> <li>• Recycled content</li> <li>• Use of resources</li> <li>• Local and indigenous communities</li> </ul>	Paper-based products	<a href="http://www.rei.com">www.rei.com</a>

Packaging (specialty)			
Tetra Pak	<ul style="list-style-type: none"> <li>• Origin</li> <li>• Information accuracy</li> <li>• Legality</li> <li>• Sustainability</li> <li>• Special places</li> </ul>	Paper-based products	<a href="http://www.tetrapak.com">www.tetrapak.com</a>
Printing/Publishing			
Axel Springer AG	<ul style="list-style-type: none"> <li>• Origin</li> <li>• Information accuracy</li> <li>• Legality</li> <li>• Sustainability</li> <li>• Special places</li> <li>• Environmental protection</li> <li>• Local and indigenous communities</li> <li>• Recycled content</li> </ul>	Paper-based products	<a href="http://www.axelspringer.de">www.axelspringer.de</a>
New York Times	<ul style="list-style-type: none"> <li>• Information accuracy</li> <li>• Sustainability</li> <li>• Recycled content</li> <li>• Environmental protection</li> <li>• Use of resources</li> </ul>	Paper-based products	<a href="http://www.nytc.com">www.nytc.com</a>
Random House UK	<ul style="list-style-type: none"> <li>• Origin</li> <li>• Information accuracy</li> <li>• Legality</li> <li>• Sustainability</li> <li>• Special places</li> <li>• Recycled content</li> <li>• Environmental protection</li> <li>• Local and indigenous communities</li> </ul>	Paper-based products	<a href="http://www.randomhouse.co.uk">www.randomhouse.co.uk</a>
Time Warner	<ul style="list-style-type: none"> <li>• Origin</li> <li>• Information accuracy</li> <li>• Legality</li> <li>• Sustainability</li> <li>• Recycled content</li> <li>• Local and indigenous communities</li> </ul>	Paper-based products	<a href="http://www.timewarner.com">www.timewarner.com</a>
Retail			
B&Q	<ul style="list-style-type: none"> <li>• Origin</li> <li>• Information accuracy</li> <li>• Sustainability</li> <li>• Recycled content</li> <li>• Local and indigenous communities</li> </ul>	Wood products	<a href="http://www.diy.com">www.diy.com</a>
Carrefour	<ul style="list-style-type: none"> <li>• Origin</li> <li>• Information accuracy</li> <li>• Legality</li> <li>• Sustainability</li> <li>• Recycled content</li> </ul>	Wood and paper-based products	<a href="http://www.carrefour.com">www.carrefour.com</a>
Hubert	<ul style="list-style-type: none"> <li>• Information accuracy</li> <li>• Legality</li> <li>• Sustainability</li> <li>• Environmental protection</li> <li>• Recycling</li> <li>• Local and indigenous communities</li> </ul>	Wood and paper-based products	<a href="http://www.hubert.com/comp/responsibility.asp">www.hubert.com/comp/responsibility.asp</a>
Jewson (Saint-Gobain Building Distribution in the UK and Ireland)	<ul style="list-style-type: none"> <li>• Origin</li> <li>• Legality</li> <li>• Information accuracy</li> <li>• Sustainability</li> </ul>	Wood products	<a href="http://www.jewson.co.uk">www.jewson.co.uk</a>
Lowes	<ul style="list-style-type: none"> <li>• Information accuracy</li> <li>• Sustainability</li> <li>• Special places</li> <li>• Recycled content</li> <li>• Use of resources</li> </ul>	Wood products	<a href="http://www.lowes.com">www.lowes.com</a>
Marks & Spencer	<ul style="list-style-type: none"> <li>• Information accuracy</li> <li>• Sustainability</li> <li>• Recycled content</li> <li>• Use of resources</li> </ul>	Wood and paper-based products	<a href="http://plana.marksandspencer.com">plana.marksandspencer.com</a>



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

# 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	MTCC	Malaysian Timber Certification Council
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora	NCASI	National Council for Air and Stream Improvement, Inc.
CO <sub>2</sub>	Carbon Dioxide	NGO	Non-Governmental Organization
CoC	Chain-of-Custody	PEFC	Programme for the Endorsement of Forest Certification schemes
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, 2007B).



### 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 3.

### critically endangered species

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

### endangered forests

See Table 3.

### endangered species

Any species facing a very high risk of extinction in the wild.

Examples of endangered commercial tree species include Cerjeira or roble del país (*Amburana cearensis*), Palissandre (*Dalbergia davidii*), and Australian hickory (*Flindersia ifflaiana*) (IUCN, 2006).

### endemic species

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

### engineered wood

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

### environmental management systems (EMS)

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

### exotic species

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

### fiberboard

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

### flagship species

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

### forest concession

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

### forest conversion

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



**forest land-use change**

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

**forests with exceptional conservation value (FECV)**

See Table 3.

**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 3.

**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 3.

**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 3.

**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 3.

**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 3.

**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 places

For the purpose of this guide, the term special places 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 places; 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.







# References



# References

- Alberta Forest Genetic Resources Council. 2007. Glossary forest genetics and tree improvement webpage. Online at [abtreegene.com/glossary.html](http://abtreegene.com/glossary.html) (11/2/07).
- Alliance for Zero Extinction website – [www.birdlife.org/action/science/aze/index.html](http://www.birdlife.org/action/science/aze/index.html) (9/17/07).
- American Forest Foundation. 2004. American Tree Farm System, National Interpretations Committee. Washington DC: ATFS. Online at [65.109.144.60/certification/Interpretation%20Document%202.pdf](http://65.109.144.60/certification/Interpretation%20Document%202.pdf) (12/15/07).
- APHIS. 2006. *CITES I-II-III Timber species manual* (2010 update). U.S. Department of Agriculture. Online at [http://www.aphis.usda.gov/import\\_export/plants/manuals/ports/downloads/cites.pdf](http://www.aphis.usda.gov/import_export/plants/manuals/ports/downloads/cites.pdf) (12/29/10).
- Association of Consulting Foresters of America, Inc (ACF). 2006. *Clearcutting* – position paper. Alexandria VA: ACF.
- Atanasova, S. 2010. EU “Illegal timber” regulation. Presentation at the international timber trade federation day. Geneva, October 6, 2010. Online at [http://www.tft-forests.org/downloads/Oct\\_10\\_ITTFD\\_S\\_Atanasova.pdf](http://www.tft-forests.org/downloads/Oct_10_ITTFD_S_Atanasova.pdf) (4/26/11).
- Baumert., K., T. Herzog and J. Pershing. 2005. *Navigating the numbers: Greenhouse gas data and international climate policy*. Washington DC: World Resources Institute. Online at [www.wri.org/climate/pubs\\_description.cfm?pid=4093](http://www.wri.org/climate/pubs_description.cfm?pid=4093) (11/2 Luxembourg: PEFC. /07).
- Belgian Council of Ministers. 2005. *Circular Letter P&O/DO/2: Public procurement policy aimed at promoting the use of timber and wood from sustainably managed forests*. Council of Ministers. Belgium. Online at <http://www.cpet.org.uk/files/Circulairesustainabletimberen2.pdf> (3/22/11).
- Belgian Government. Federal Public Planning Service for Sustainable Development. 2008. *Guide for sustainable procurement*. Online at <http://www.guidedesachatsdurables.be/en?q=en/node/18> (3/22/11).
- Botriël, K. 2007. Personal communication.
- Bowyer, J.L. 2006. “Forest plantations, threatening or saving natural forests?” *Arborvitae* September 2006. IUCN/WWF Forest Conservation Newsletter. Online at [www.iucn.org/themes/fcp/publications/arborvitae/avnewsletter/arborvitae31.pdf](http://www.iucn.org/themes/fcp/publications/arborvitae/avnewsletter/arborvitae31.pdf) (11/2/07).
- Bryant, D., D. Nielsen and L. Tanglely. 1997. *Last frontier forests: economies and ecosystems on the edge*. Washington DC: World Resources Institute. Online at [http://df.wri.org/lastfrontierforests\\_bw.pdf](http://df.wri.org/lastfrontierforests_bw.pdf) (11/2/07).
- Bureau Veritas Group (BVG). *OLB Certification, the guarantee for legality your customers are asking for*. Online at <http://www.bureauveritas.com/wps/wcm/DownloadServiceSheetFile?p=U1NBX2ZpbGVOYW11PVVwNDQ4M1xPTElucGRm> (3/22/11).
- BVG. 2004. *OLB Verification scheme: standard for forestry companies*. Bureau Veritas Group. Online at <http://www.bureauveritas.com/wps/wcm/connect/c2a31f80420e896fbd1cbfad7c722e0c/RF03+OLB+Forestry+Companies+v33+10+12+09+10.pdf?MOD=AJPERES&CACHEID=c2a31f80420e896fbd1cbfad7c722e0c> (3/22/11).
- BVG. 2009. *Programs/certification schemes accepted by OLB*. Bureau Veritas Group. Online at <http://www.bureauveritas.com/wps/wcm/connect/0fcfee80420e8b34bd4ebfad7c722e0c/DO100901+Scheme+approved+by+OLB+%5B18+08+09%5D.pdf?MOD=AJPERES&CACHEID=0fcfee80420e8b34bd4ebfad7c722e0c> (3/22/11).
- BVG. 2010. *OLB Certification process for forestry companies GP01*. Bureau Veritas Group. Online at <http://www.bureauveritas.com/wps/wcm/connect/211eaf80420e8843bd17bfad7c722e0c/GP01+OLB+FC+v11+10+12+10.pdf?MOD=AJPERES&CACHEID=211eaf80420e8843bd17bfad7c722e0c> (3/22/11).
- BVG. 2011. OBL Certification website – [http://www.bureauveritas.com/wps/wcm/connect/bv\\_com/Group/Home/bv\\_com\\_serviceSheetDetails?serviceSheetId=14483&serviceSheetName=OLB+Certification](http://www.bureauveritas.com/wps/wcm/connect/bv_com/Group/Home/bv_com_serviceSheetDetails?serviceSheetId=14483&serviceSheetName=OLB+Certification) (3/22/11).
- B&Q. 2010. *B&Q Timber and paper policy and buying standards*. <http://feel-good.ca/library/publications-buying/timber.pdf> (3/15/11).

## References

- Canadian Organization for tropical Education and Rainforest Conservation. *FLORA FAQ Sheets: Almendro tree*. Online at <http://www.coterc.org/documents/InfoSheetAlmendroTree.pdf> (12/27/10).
- Cashore, B., D. Auld and D. Newsome. 2004. *Governing through markets: Forest certification and the emergence of non-state authority*. New Haven: Yale University Press.
- CBD. 2007B. Article 2. Use of terms. Online at [www.biodiv.org/convention/articles.shtml?a=cbd-02](http://www.biodiv.org/convention/articles.shtml?a=cbd-02) (11/2/07).
- CertiSource website ([www.certisource.co.uk](http://www.certisource.co.uk)) (2/27/11).
- CertiSource. 2010. *Legality assessment criteria v.3.02*. CertiSource. Online at <http://www.certisource.co.uk/wp-content/uploads/2011/02/CS-Legality-Assessment-Criteria-v3-02.pdf> (2/27/11).
- CertiSource. 2011. *Legality verification. Policy 04 v2.02*. CertiSource. Online at <http://www.certisource.co.uk/wp-content/uploads/2011/02/Policy-04-v2.02-Legality-Verification.pdf> (2/27/11).
- Chatham House. 2010. EU FLEGT: Timber regulation website – [www.illegal-logging.info/approach.php?a\\_id=120](http://www.illegal-logging.info/approach.php?a_id=120) (11/29/10).
- Chen, H. K. 2006. *The Role of CITES in combating illegal logging: current and potential*. TRAFFIC International. Online at [http://www.profor.info/profor/sites/profor.info/files/docs/traffic\\_pub\\_forestry.pdf](http://www.profor.info/profor/sites/profor.info/files/docs/traffic_pub_forestry.pdf) (12/29/10).
- Chilebosque.com. 2010. *Araucaria aurancana*. Online at <http://www.chilebosque.cl/tree/aarau.html> (12/22/10).
- Commonwealth of Australia. 2000. The intergovernmental panel on forests and the intergovernmental forum on forests: summary of proposals for action. Canberra: Commonwealth of Australia. Online at [www.fs.fed.us/global/aboutus/policy/multi/reports/ipf\\_iff\\_summary\\_Australia\\_2001.doc](http://www.fs.fed.us/global/aboutus/policy/multi/reports/ipf_iff_summary_Australia_2001.doc) (11/2/07).
- Composite Panel Association. 2007. Particleboard, medium density fiberboard and hardboard. Gaithersburg MD: Composite Panel Association. Online at [www.pbmdf.com/index.asp?sid=4](http://www.pbmdf.com/index.asp?sid=4) (11/2/07).
- Confederation of European Paper Industries (CEPI). 2006. Special recycling 2005 statistics. Brussels: CEPI.
- Conservation International. 2007. Hotspots defined. Washington DC: Conservation International. Online at [www.biodiversityhotspots.org/xp/hotspots/hotspotsscience/Pages/hotspots\\_defined.aspx](http://www.biodiversityhotspots.org/xp/hotspots/hotspotsscience/Pages/hotspots_defined.aspx) (11/2/07).
- Contreras-Hermosilla, A. 2002. *Law compliance in the forestry sector: an overview*. World Bank Institute Working Papers. Washington: The World Bank. Online at [illegal-logging.info/uploads/law\\_and\\_compliance.pdf](http://illegal-logging.info/uploads/law_and_compliance.pdf) (11/2/07).
- Contreras-Hermosilla, A. R. Doornbosch and M. Lodge. 2007. *The economics of illegal logging and associated trade*. SG/SD/RT(2007)1/REV. Paris: Organization for Economic Cooperation and Development. Online at [www.illegal-logging.info/uploads/OECD\\_background\\_paper\\_on\\_illegal\\_logging.pdf](http://www.illegal-logging.info/uploads/OECD_background_paper_on_illegal_logging.pdf) (11/2/07).
- Convention on Biological Diversity (CBD). 2007A.
- Convention on Biological Diversity website – [www.biodiv.org/convention/default.shtml](http://www.biodiv.org/convention/default.shtml) (11/2/07).
- Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) website – [www.cites.org](http://www.cites.org).
- CITES 2003. *Review of significant trade of Aquilaria malaccensis*. Online at <http://www.cites.org/eng/com/pc/14/e-pc14-09-02-02-a2.pdf> (12/21/10).
- CPET. 2010. International context/national policies website <http://www.cpet.org.uk/international-context/international-policies-1>. (12/20/10).
- CPET. Timber and timber products website (<http://www.cpet.org.uk/timber-and-timber-products>) (4/11/11).
- CPET. Legality verification systems website – <http://www.cpet.org.uk/evidence-of-compliance/other-evidence-assurance/verification-systems> (3/22/11).
- Danish Forest and Nature Agency. 2011. Guidance on procurement of wood website – <http://www.naturstyrelsen.dk/Naturbeskyttelse/Skov/Miljoet/vejledning/> (3/24/11).
- Department for Environment, Food and Rural Affairs (DEFRA). 2010. CITES Guidance: additional guidance for timber importers and traders webpage – <http://www.defra.gov.uk/animalhealth/cym/cites/applications/annexes/annex-timber.html> (12/29/10).

- Donovan, R. Z. 2010. *Private sector forest legality initiatives as a complement to public action*. Rainforest Alliance. Online at [http://rainforest-alliance.org/sites/default/files/publication/pdf/forest\\_products\\_legality\\_by\\_r\\_donovan\\_march\\_2010.pdf](http://rainforest-alliance.org/sites/default/files/publication/pdf/forest_products_legality_by_r_donovan_march_2010.pdf) (2/27/11).
- Dyck, B. 2003. *Benefits of planted forests: social, ecological and economic*. UNFF Intersessional experts meeting on the role of planted forests in SFM. 24-30 March 2003. Online at [www.fsanz.govt.nz/mafnet/unff-planted-forestry-meeting/conference-papers/benefits-of-planted-forests.pdf](http://www.fsanz.govt.nz/mafnet/unff-planted-forestry-meeting/conference-papers/benefits-of-planted-forests.pdf) (11/2/07).
- EFI. EU FLEGT Facility website (<http://www.euflegt.efi.int/portal/>) (2/23/11).
- Eken, G., L. Bennun, T.M. Brooks, W. Darwall, L.D.C. Fishpool, M. Foster, D. Knox, P. Langhammer, P. Matiku, E. Radford, P. Salaman, W. Sechrest, M.L. Smith, S. Spector and A. Tordoff. 2004. "Key biodiversity areas as site conservation targets". *BioScience* 54:12.
- Environmental Investigation Agency (EIA). 2009. *The U.S. Lacey Act: Frequently asked questions*. EIA. Online at <http://www.eia-global.org/PDF/EIA.LaceyReport.English.pdf> (3/15/11).
- Environmental Protection Agency (EPA). 2002. *Profile of the pulp and paper industry*, 2<sup>nd</sup> edition. Washington DC: US EPA. Online at [www.epa.gov/compliance/resources/publications/assistance/sectors/notebooks/pulppasn.pdf](http://www.epa.gov/compliance/resources/publications/assistance/sectors/notebooks/pulppasn.pdf) (11/2/07).
- EPA. 2007. Environmental Management Systems website – [www.epa.gov/ems/](http://www.epa.gov/ems/) (11/2/07).
- Environmentally and Socially Responsible Procurement Working Group. 2007. *What is sustainable procurement?* Online at [www.sustainableprocurement.net/home2.html](http://www.sustainableprocurement.net/home2.html) (11/2/07).
- European Commission (EC). *Timber Regulation website* – [http://ec.europa.eu/environment/forests/timber\\_regulation.htm#diligence](http://ec.europa.eu/environment/forests/timber_regulation.htm#diligence) (3/15/11).
- EC. 2003. *Forest Law Enforcement, Governance and Trade (FLEGT): Proposal for an EU action plan*. Communication from the Commission to the Council and the European Parliament. European Commission. Online at <http://www.illegal-logging.info/uploads/flegt.pdf> (2/27/11).
- EC. Development and Relations with African, Caribbean and Pacific States website – [http://ec.europa.eu/development/policies/9interventionareas/environment/forest/forestry\\_intro\\_en.cfm](http://ec.europa.eu/development/policies/9interventionareas/environment/forest/forestry_intro_en.cfm) (11/29/10).
- European Commission, Directorate-General for the Environment, Nature and Biodiversity Unit, and Forests and Agriculture Unit. 2003. *Natura 2000 and forest: challenges and opportunities*. Interpretation guide. Italy: European Communities. Online at [www.forest-trends.org/biodiversityoffsetprogram/BBop%20library%20Europe/Printed/Natura%202000%20Forest%20Challenges,%20Opportunities.pdf](http://www.forest-trends.org/biodiversityoffsetprogram/BBop%20library%20Europe/Printed/Natura%202000%20Forest%20Challenges,%20Opportunities.pdf) (11/2/07).
- EC, Ghana Forestry Commission. 2009. *FLEGT Voluntary Partnership Agreement between Ghana and the European Union*. Briefing note. Available online at <http://www.euflegt.efi.int/files/attachments/euflegt/ghanabriefingnoteen.pdf> (2/23/11).
- EC, Central African Republic Government. 2010. *Accord de Partenariat Volontaire FLEGT entre la République Centrafricaine et l'Union Européenne*. Note d'information. Available online at [http://www.euflegt.efi.int/files/attachments/euflegt/subaw3835\\_efi\\_carbriefingnote\\_french\\_online.pdf](http://www.euflegt.efi.int/files/attachments/euflegt/subaw3835_efi_carbriefingnote_french_online.pdf) (2/23/11).
- EC, Ministry for Sustainable Development, Forestry and the Environment, Republic of Congo. 2010. *FLEGT Voluntary Partnership Agreement between the Republic of Congo and the European Union*. Briefing note. Available online at <http://www.euflegt.efi.int/files/attachments/euflegt/congobriefingnoteenglish.pdf> (2/23/11).
- EC, Ministry of Forests and Wildlife of Cameroon. 2010. *FLEGT Voluntary Partnership Agreement between Cameroon and the European Union*. Briefing note. Available online at <http://www.euflegt.efi.int/files/attachments/euflegt/cameroonbriefingnoteeng.pdf> (2/23/11).
- EcoSylva Ltd. 2010. *Woodmark International. Forest and chain of custody verification of origin, legal tenure, and FSC controlled wood*. Online at [http://92.52.112.178/web/sa/saweb.nsf/380dc689811ca7eb80256e97004eb2bf71d5bcf7b440b292802574c0004d6251/\\$FILE/IP-GEN-006-05%20Legal%20&%20Modular%20Verification.pdf](http://92.52.112.178/web/sa/saweb.nsf/380dc689811ca7eb80256e97004eb2bf71d5bcf7b440b292802574c0004d6251/$FILE/IP-GEN-006-05%20Legal%20&%20Modular%20Verification.pdf) (3/22/11).
- European Forest Institute (EFI). 2010 A. *The new EU Timber Legislation*. EFI, FLEGT Asia Regional Office.

## References

- EFI. 2010 B. *Swiss declaration duty for timber*. In: *EFI EU FLEGT News*. October/November 2010. Online at [news.efi.int/newsletter/.../efi-eu-flegt-news-october-november-2010](http://news.efi.int/newsletter/.../efi-eu-flegt-news-october-november-2010) (11/30/10).
- European Parliament. 2010. *Regulation (EU) No. 995/2010 of the European Parliament and of the Council. October 20, 2010. Laying down the obligations of operators who place timber and timber products on the market*. Official Journal of the European Union. Online at <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2010:295:0023:0034:EN:PDF> (11/29/10).
- European Partners for the Environment (EPE). 2007. *EMAs workbook*. Brussels: EPE. Online at [www.epe.be/workbooks/index.html](http://www.epe.be/workbooks/index.html) (11/2/07).
- European Union. 2006. Conservation of wild birds, directive 1979. European Union. Online at [europa.eu/scadplus/leg/en/lvb/l28046.htm](http://europa.eu/scadplus/leg/en/lvb/l28046.htm) (11/2/07).
- European Union. 2007. 31992L0043: Council directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora. Online at [wc.europa.eu/environment/nature/legislation/habitatsdirective/index\\_en.htm](http://wc.europa.eu/environment/nature/legislation/habitatsdirective/index_en.htm) (11/2/07).
- Federal Department of Economic Affairs (DFE) *Ordinance on declaring wood and wood products July 2010*. Online at [http://app.tisi.go.th/warning/fulltext/fulltext\\_CHE120.pdf](http://app.tisi.go.th/warning/fulltext/fulltext_CHE120.pdf) (4/7/11).
- Finnish Forest Certification System (FFCS). 1999. Draft Finnish forest certification standards. Helsinki: Finnish Forest Certification Project.
- Food and Agriculture Organization (FAO). 2001. *Global forest resources assessment – FRA 2000*. Rome: FAO. Online at [www.fao.org/forestry/site/24691/en/](http://www.fao.org/forestry/site/24691/en/) (11/2/07).
- FAO. 2002A. Expert meeting on harmonizing forest-related definitions for use. Proceedings. Rome: FAO, WMO, UNEP, CIFOR and IUFRO. Online at [www.fao.org/clim/docs/44\\_fodef.pdf](http://www.fao.org/clim/docs/44_fodef.pdf) (11/2/07).
- FAO. 2002B. *Trends and current status of the contribution of the forestry sector to national economies*. Rome: FAO. Online at [www.fao.org/docrep/007/ad493e/ad493e00.htm](http://www.fao.org/docrep/007/ad493e/ad493e00.htm) (11/2/06).
- FAO. 2006. *Global planted forests thematic study: results and analysis*. By A. Del Lungo, J. Ball and J. Carle. *Planted Forests and Trees Working Paper 38*. Rome: FAO. Online at [www.fao.org/forestry/webview/media?mediald=12139&langld=1](http://www.fao.org/forestry/webview/media?mediald=12139&langld=1) (11/2/07).
- FAO. 2007A. *What are non-wood forest products?* Rome: FAO. Online at [www.fao.org/forestry/site/nwfp/en/](http://www.fao.org/forestry/site/nwfp/en/) (11/2/07).
- FAO. 2007B. *Forest resources assessment 2005*. Rome: FAO. Online at <http://www.fao.org/forestry/site/sofo/en/> (11/2/07).
- Forest Ethics, Natural Resources Defense Council, Rainforest Action Network, Greenpeace US. 2006. *Ecological components of endangered forests*. San Francisco: Forest Ethics. Online at [forestethics.org/downloads/EFDefinitions\\_April\\_2006\\_2.pdf](http://forestethics.org/downloads/EFDefinitions_April_2006_2.pdf) (11/2/07).
- Forests Peoples Program. 2004. *Summary of Some Key Existing Political Commitments and International Standards on the Social and Cultural Aspects of Forests*. Online at [www.forestpeoples.org/documents/forest\\_issues/summary\\_stds\\_forests\\_dec04\\_eng.shtml](http://www.forestpeoples.org/documents/forest_issues/summary_stds_forests_dec04_eng.shtml) (12/18/07).
- Forest Stewardship Council (FSC). 1996. *FSC Principles and criteria for forest stewardship*. FSC-STD-01-001 (version 4-0) EN. Bonn, Germany: FSC. Online at [www.fsc.org/keepout/en/content\\_areas/77/134/files/FSC\\_STD\\_01\\_001\\_V4\\_0\\_EN\\_FSC\\_Principles\\_and\\_Criteria.pdf](http://www.fsc.org/keepout/en/content_areas/77/134/files/FSC_STD_01_001_V4_0_EN_FSC_Principles_and_Criteria.pdf) (11/2/07).
- FSC. 2004A. *FSC Chain-of-custody standard for companies supplying and manufacturing FSC-certified products*. FSC-STD-40-004 (Version 1-0) EN. Bonn, Germany: FSC. Online at [www.fsc.org/keepout/en/content\\_areas/77/134/files/FSC\\_STD\\_40\\_004\\_V1\\_0\\_EN\\_CoC\\_for\\_Suppliers\\_and\\_Manufacturers.pdf](http://www.fsc.org/keepout/en/content_areas/77/134/files/FSC_STD_40_004_V1_0_EN_CoC_for_Suppliers_and_Manufacturers.pdf) (11/2/07).
- FSC. 2004B. *Chain-of-custody certification reports*. FSC-STD-20-010 (Version 2-1) EN. Bonn, Germany: FSC. Online at [www.fsc.org/keepout/en/content\\_areas/77/98/files/FSC\\_STD\\_20\\_010\\_V2\\_1\\_EN\\_CoC\\_certification\\_reports.pdf](http://www.fsc.org/keepout/en/content_areas/77/98/files/FSC_STD_20_010_V2_1_EN_CoC_certification_reports.pdf) (11/2 Luxembourg: PEFC. /07).
- FSC. 2004C. *FSC Standard for non FSC-certified controlled wood*. FSC-STD-40-005 (Version 1-0) EN. Online at [www.fsc.org/keepout/en/content\\_areas/77/134/files/FSC\\_STD\\_40\\_005\\_V1\\_0\\_EN\\_Controlled\\_wood.pdf](http://www.fsc.org/keepout/en/content_areas/77/134/files/FSC_STD_40_005_V1_0_EN_Controlled_wood.pdf) (11/2/07).



- FSC. 2006. *FSC Chain-of-custody standard for project certification*. FSC-STD-40-006 (Version 1-0) EN. Bonn, FSC. 2007. *FSC certified forests*. Bonn, Germany: FSC. Online at [www.fsc.org/keepout/en/content\\_areas/92/1/files/2007\\_11\\_23\\_FSC\\_Certified\\_Forests.pdf](http://www.fsc.org/keepout/en/content_areas/92/1/files/2007_11_23_FSC_Certified_Forests.pdf) (1/7/08).
- German Federal Ministry of Food, Agriculture and Consumer Protection. 2010. *Joint instructions on the procurement of wood products*. Online at [http://www.bmelv.de/eln\\_181/SharedDocs/Rechtsgrundlagen/EN/H/ProcurementOfWoodProducts.html](http://www.bmelv.de/eln_181/SharedDocs/Rechtsgrundlagen/EN/H/ProcurementOfWoodProducts.html) (3/22/11).
- German Federal Ministry of Food, Agriculture and Consumer Protection. 2010. *Explanatory notes regarding the procurement of wood products as of 2 December 2010*. Online at [http://www.bmelv.de/SharedDocs/Standardartikel/EN/Agriculture/forestTimberHunting/ProcurementOfWoodProductsAttachment.html;jsessionid=877D7FADF04DE643634A9CB1CDD6EF91.2\\_cid163](http://www.bmelv.de/SharedDocs/Standardartikel/EN/Agriculture/forestTimberHunting/ProcurementOfWoodProductsAttachment.html;jsessionid=877D7FADF04DE643634A9CB1CDD6EF91.2_cid163) (3/22/11).
- Germany: FSC. Online at [www.fsc.org/keepout/en/content\\_areas/77/134/files/FSC\\_STD\\_40\\_006\\_V1\\_0\\_EN\\_Project\\_Certification.pdf](http://www.fsc.org/keepout/en/content_areas/77/134/files/FSC_STD_40_006_V1_0_EN_Project_Certification.pdf) (11/2/07).
- Germoplasm Resources Information Network (GRIN) website – [www.ars-grin.gov](http://www.ars-grin.gov) (4/11/11).
- Geist, H.J. and E.F. Lambin. 2001. *What drives tropical deforestation?* LUCC Report Series No. 4. Brussels: LUCC, IHDP, Global Change.
- GFTN. Guide to legal and responsible sourcing website - [http://sourcing.gftn.panda.org/index.php?id=82#Common Legality Framework](http://sourcing.gftn.panda.org/index.php?id=82#Common_Legality_Framework) (3/22/11).
- GHG Protocol. 2009. General technical accounting questions: what is the difference between direct and indirect emissions?. GHG Protocol website, available online at <http://www.ghgprotocol.org/calculation-tools/faq#directindirect> (5/11/09).
- Global Ecolabeling Network. 2007. *What is ecolabeling?* Online at [www.gen.gr.jp/eco.html](http://www.gen.gr.jp/eco.html) (11/2/07).
- Global Forest and Trade Network (GFTN). 2005. *Building a better business through responsible purchasing: Developing and implementing a wood and paper purchasing policy*. WWF, GFTN-North America. Online at [www.worldwildlife.org/forests/pubs/NAFTN\\_purchasing.pdf](http://www.worldwildlife.org/forests/pubs/NAFTN_purchasing.pdf)
- Gobierno de México. Presidencia de la República. 2007. *DECRETO por el que se establecen diversas medidas en materia de adquisiciones, uso de papel y de la certificación de manejo sustentable de bosques por la administración pública federal*. Diario Oficial de la Federación, 5 de Septiembre de 2007. Online at [http://dof.gob.mx/nota\\_detalle.php?codigo=4999881&fecha=05/09/2007](http://dof.gob.mx/nota_detalle.php?codigo=4999881&fecha=05/09/2007) (12/20/10).
- Gordon, E.A., O.E. Franco and M. L. Tyrrell. 2005. *Protecting biodiversity: A guide to criteria used by global conservation organizations*. New Haven, CT: Yale School of Forestry and Environmental Studies. Online at [environment.yale.edu/documents/downloads/o-u/report\\_6\\_protecting\\_biodiversity.pdf](http://environment.yale.edu/documents/downloads/o-u/report_6_protecting_biodiversity.pdf) (9/17/07).
- Gray, J.A. 2002. *Forest concession policies and revenue systems*. Washington DC: World Bank. Online at [inweb18.worldbank.org/ESSD/ardext.nsf/14ByDocName/ForestConcessionPoliciesandRevenueSystemsbyJohnAGray35MB/\\$FILE/forest.pdf](http://inweb18.worldbank.org/ESSD/ardext.nsf/14ByDocName/ForestConcessionPoliciesandRevenueSystemsbyJohnAGray35MB/$FILE/forest.pdf) (11/3/07).
- Greenpeace. 2006. World Intact Forest Landscapes website ([intactforests.org](http://intactforests.org)) (11/2/07).
- Herz, S., J. Sohn and A. La Viña. 2007. *Development without conflict: The business case for community consent*. Sohn, J. (ed). Washington DC: World Resources Institute. Online at [www.wri.org/governance/pubs\\_content.cfm?pid=4105#pdf\\_files](http://www.wri.org/governance/pubs_content.cfm?pid=4105#pdf_files) (11/7/07).
- Holik, H (ed). 2007. *Handbook of paper and board*. Ravensburg, Germany: Wiley-VCH Verlag GmbH & Co. KgaA, Weinheim.
- IKEA. 2006. *IKEA's position on forestry*. IKEA. Online at [http://www.ikea.com/ms/de\\_AT/about\\_ikea/pdf/ikea\\_position\\_forestry.pdf](http://www.ikea.com/ms/de_AT/about_ikea/pdf/ikea_position_forestry.pdf) (3/7/11).
- International Labour Organization (ILO). 1989. Convention No.169. Geneva, Switzerland: ILO.
- International Labour Organization (ILO). 2003. *ILO Convention on indigenous and tribal peoples 1988 (No. 169): A manual*. Geneva: ILO. Online at [www.ilo.org/public/english/standards/norm/egalite/itpp/convention/introduction.pdf](http://www.ilo.org/public/english/standards/norm/egalite/itpp/convention/introduction.pdf) (11/2/07).



## References

Japanese Ministry of the Environment. 2006. *Law concerning the promotion of procurement of eco-friendly goods and services by the state and other entities*.

Japanese Ministry of the Environment. 2007. *Japan's green purchasing policy: Tackling illegal logging*.

Kemp, V. 2001. *To who's profit? Building a business case for sustainability*. London: WWF-UK. Online at [www.wwf.org.uk/filelibrary/pdf/towwhoseprofit.pdf](http://www.wwf.org.uk/filelibrary/pdf/towwhoseprofit.pdf) (11/2/07).

Kennard, M. 2006. Sustainable procurement. XXII FIG Congress Proceedings. Munich, Germany: International Federation of Surveyors. Online at [www.fig.net/pub/fig2006/papers/ts08/ts08\\_03\\_kennard\\_0843.pdf](http://www.fig.net/pub/fig2006/papers/ts08/ts08_03_kennard_0843.pdf) (11/2/07).

Keurhout Management Authority. Netherlands Timber Trade Association. 2009. *Keurhout protocol for validating legality certificates and systems, and sustainable forest management certificates and systems*. Keurhout. Online at [http://www.keurhout.nl/pdf/keurhout\\_protocol\\_15mei2009.pdf](http://www.keurhout.nl/pdf/keurhout_protocol_15mei2009.pdf) (2/27/11).

Keurhout Management Authority. Netherlands Timber Trade Association. 2010. *Keurhout protocol for the validation of claims of legal timber, with a view on legal origin*. Keurhout. Online at <http://www.keurhout.nl/pdf/Keurhout%20Protocol%20legal%20timber.pdf> (4/11/11).

Korpela, L. 2004. "The importance of forested mire margin plant communities for the diversity of managed boreal forests in Finland". Academic Dissertation. Helsinki: Finnish Forest Research Institute, University of Helsinki. Online at [ethesis.helsinki.fi/julkaisut/bio/bioja/vk/korpela/theimpor.pdf](http://ethesis.helsinki.fi/julkaisut/bio/bioja/vk/korpela/theimpor.pdf) (11/2/07).

Lawson, S., and L. McFaul. 2010. *Illegal logging and related trade: indicators of the global response*. Chatham House. Online at <http://www.chathamhouse.org.uk/publications/papers/view/-/id/911/> (4/7/11).

Lawson, S., and L. McFaul. 2010. *Illegal logging and related trade: indicators of the global response. Country report cards*. Chatham House. Online at [http://www.chathamhouse.org.uk/files/16980\\_0710crc\\_illegallogging.pdf](http://www.chathamhouse.org.uk/files/16980_0710crc_illegallogging.pdf) (4/7/11).

Lopez-Casero, F., and H. Scheyvens. 2008. *Public procurement policies for legal and sustainable timber: How to strengthen Japan's policy*. IGES Policy Brief #7. Online at [http://www.google.com/url?sa=t&source=web&cd=1&ved=0CBMQFjAA&url=http%3A%2F%2Fkms1.isn.ethz.ch%2Fserviceengine%2Ffiles%2FISN%2F57156%2Fipublicationdocument\\_singledocument%2Fbd84270c-dc26-45b9-8ec7-daf4c47ec9fd%2Fen%2F007.pdf&ei=JXobTaS8E4-u8AaZolyDg&usq=AFQjCNFGect96U1CRD5PoknjJaDjhL3S2Q](http://www.google.com/url?sa=t&source=web&cd=1&ved=0CBMQFjAA&url=http%3A%2F%2Fkms1.isn.ethz.ch%2Fserviceengine%2Ffiles%2FISN%2F57156%2Fipublicationdocument_singledocument%2Fbd84270c-dc26-45b9-8ec7-daf4c47ec9fd%2Fen%2F007.pdf&ei=JXobTaS8E4-u8AaZolyDg&usq=AFQjCNFGect96U1CRD5PoknjJaDjhL3S2Q) (12/20/10).

Lund, H.G. 2007. *Definitions of old growth, pristine, climax, ancient forests, degradation, desertification, forest fragmentation, and similar terms*. Gainesville, VA: Forest Information Services. Online at [home.comcast.net/~gyde/pristine.htm](http://home.comcast.net/~gyde/pristine.htm) (11/2/07).

Metafore. 2006. *The fiber cycle technical document: Summary report*. Portland: Metafore. Online at [www.metafore.org/downloads/fiber\\_cycle\\_technical\\_report\\_final.pdf](http://www.metafore.org/downloads/fiber_cycle_technical_report_final.pdf) (11/2/07).

Mikkelä, H., S. Sampo and J. Kaipainen (eds). 2001. *The state of forestry in Finland 2000. Criteria and indicators for sustainable forest management in Finland*. Helsinki: Ministry of Agriculture and Forestry. Online at [www.efi.fi/projects/icpfor\\_fi/CIFin.pdf](http://www.efi.fi/projects/icpfor_fi/CIFin.pdf) (11/2/07).

Miller, F., R. Taylor and G. White. 2006. *Keep it legal*. Gland, Switzerland: Global Forest and Trade Network, World Wide Fund for Nature. Online at [assets.panda.org/downloads/keep\\_it\\_legal\\_final\\_no\\_fsc.pdf](http://assets.panda.org/downloads/keep_it_legal_final_no_fsc.pdf) (11/2/07)



- Milota, M.R., C.D. West and I. D. Hartley. 2005. *Gate-to-gate life-cycle inventory of softwood lumber production*. Wood and Fiber Sciences, 37 CORRIM Special Issue. Society of Wood Science and Technology. Online at [www.corrim.org/reports/2005/swst/47.pdf](http://www.corrim.org/reports/2005/swst/47.pdf) (11/2/07).
- Ministère de l'Agriculture et de la Pêche. 2008. *Circulaire du 8 décembre 2008: Exemplarité de l'État au regard du développement durable dans le fonctionnement de ses services et de ses établissements publics*. Online at [http://www.fonction-publique.gouv.fr/IMG/20081203\\_Circulaire\\_5351\\_SG.pdf](http://www.fonction-publique.gouv.fr/IMG/20081203_Circulaire_5351_SG.pdf) (3/22/11).
- Ministerial Conference on the Protection of Forests in Europe. 1998. Pan-European operational level guidelines for sustainable forest management. Third Ministerial Conference on the Protection of Forests in Europe. Lisbon, Portugal. Online at [www.pefc.org/internet/resources/5\\_1177\\_289\\_file.136.pdf](http://www.pefc.org/internet/resources/5_1177_289_file.136.pdf) (11/2/07).
- Mittermeier, R., C. Mittermeier and C.F. Kormos. 2001. *Setting priorities for saving life on earth: Megadiversity countries, hotspots and wilderness areas*. Essay. Commendation Program Blue Planet Prize. The Asahi Glass Foundation. Online at [www.af-info.or.jp/eng/honor/essays/1997\\_2.html](http://www.af-info.or.jp/eng/honor/essays/1997_2.html) (11/2/07).
- Nair, K.S.S. 2001. *Pest outbreaks in tropical forest plantations: Is there a greater risk for exotic tree species?* Jakarta: CIFOR. Online at [www.cifor.cgiar.org/publications/pdf\\_files/Books/Nair.pdf](http://www.cifor.cgiar.org/publications/pdf_files/Books/Nair.pdf) (11/3/07).
- National Council for Air and Stream Improvement, Inc. (NCASI). 2007. *The greenhouse gas and carbon profile of the global forest products industry*. NCASI Special report 07-02. Research Triangle Park, NC: NCASI. Online at [www.ncasi.org/Publications/Detail.aspx?id=2952](http://www.ncasi.org/Publications/Detail.aspx?id=2952) (11/2/07).
- National Invasive Species Information Center (NISIC). 2007. National Invasive Species Information Center website. Online at [www.invasivespeciesinfo.gov](http://www.invasivespeciesinfo.gov) (11/2/07).
- Natura Networking Programme. 2007. Natura 2000 website. Online at [www.natura.org](http://www.natura.org) (11/2/07).
- New Zealand Ministry of Forestry website - <http://www.maf.govt.nz/forestry/forestry-in-nz/illegal-logging> (3/22/11).
- New Zealand Ministry of Forestry. 2006. *New Zealand timber and wood products procurement policy (TWPP)*. Ministry of Forestry. Online at <http://www.maf.govt.nz/portals/0/documents/forestry/forestry-nz/illegal-log/twpp.pdf> (3/22/11).
- New Zealand Ministry of Forestry. 2006. *New Zealand policy to address illegal logging and associated trade*. Ministry of Forestry. Online at <http://www.maf.govt.nz/portals/0/documents/forestry/forestry-nz/illegal-log/illegal-logging-policy.pdf> (3/22/11).
- Norwegian Ministry of the Environment, Norwegian Ministry of Government Administration and Reform, Norwegian Ministry of Children and Equality. 2007. *Environmental and social responsibility in public procurement*. Online at [http://www.regjeringen.no/upload/MD/Vedlegg/Planer/T-1467\\_eng.pdf](http://www.regjeringen.no/upload/MD/Vedlegg/Planer/T-1467_eng.pdf) (3/22/11).
- Nussbaum, R. and M. Simula. 2005. *The Forest Certification Handbook*. London: Earthscan Publications.
- Official Journal of the European Union. *Regulation (EU) No. 995/2010 of the European Parliament and of the Council of 20 October 2010*. Online at <http://www.illegal-logging.info/uploads/l29520101112en00230034.pdf> (4/11/11).
- Parliament of Australia, Senate. 2011. *Exposure draft and explanatory memorandum of the illegal logging prohibition bill 2011*. Parliament of Australia. Online at [http://www.aph.gov.au/senate/committee/rat\\_ctte/logging\\_bill\\_2011/index.htm](http://www.aph.gov.au/senate/committee/rat_ctte/logging_bill_2011/index.htm) (4/11/11).
- Paper Task Force. 1995. Paper task force recommendations for purchasing and using environmentally preferable paper. Duke University, Environmental Defense Fund, Johnson and Johnson, McDonald's, the Prudential Insurance Company of America, Time Inc.; StoraEnso 2005. Sustainability Facts. StoraEnso. Online at [www.environmentaldefense.org/documents/813\\_PTFcomplete.pdf](http://www.environmentaldefense.org/documents/813_PTFcomplete.pdf) (11/2/07).
- Programme for the Endorsement of Certification Systems (PEFC). 2006A. PEFC Council Technical Document. Luxembourg: PEFC. Online at [www.pefc.org/internet/html/documentation/4\\_1311\\_400.htm](http://www.pefc.org/internet/html/documentation/4_1311_400.htm) (11/3/07).
- PEFC. 2006B. PEFC Terms and Definitions. Appendix 1 of PEFC Technical Document. Luxembourg: PEFC. Online at [www.pefc.org/internet/resources/5\\_1177\\_286\\_file.1669.pdf](http://www.pefc.org/internet/resources/5_1177_286_file.1669.pdf) (7/13/07).

## References

- PEFC. 2006C. Rules for Standard Setting. Annex 2 of the PEFC Technical Document. Luxembourg: PEFC. Online at [www.pefc.org/internet/html/documentation/4\\_1311\\_400.htm](http://www.pefc.org/internet/html/documentation/4_1311_400.htm) (11/3/07).
- PEFC. 2006D. Basis for Certification Schemes and their Implementation. Annex 3 of the PEFC Technical Document. Luxembourg: PEFC. Online at [www.pefc.org/internet/html/documentation/4\\_1311\\_400.htm](http://www.pefc.org/internet/html/documentation/4_1311_400.htm) (11/3/07).
- PEFC. 2006E. Chain-of-Custody of Forest Based Products – Requirements. Annex 4 of the PEFC Technical Document. Luxembourg: PEFC. Online at [www.pefc.org/internet/html/documentation/4\\_1311\\_400.htm](http://www.pefc.org/internet/html/documentation/4_1311_400.htm) (11/3/07).
- PEFC. 2006F. PEFC Council Specification for the Origin for the Purposes of PEFC Label and Declarations. Appendix 1; Annex 4 of the PEFC Technical Document. Luxembourg: PEFC. Online at [www.pefc.org/internet/html/documentation/4\\_1311\\_400.htm](http://www.pefc.org/internet/html/documentation/4_1311_400.htm) (11/3/07).
- PEFC. 2006G. Implementation of Requirements for the Avoidance of the Procurement of Raw Materials from Controversial Sources. Appendix 7; Annex 4 of the PEFC Technical Document. Luxembourg: PEFC. Online at [www.pefc.org/internet/html/documentation/4\\_1311\\_400.htm](http://www.pefc.org/internet/html/documentation/4_1311_400.htm) (11/3/07).
- PEFC. 2007. PEFC Council Minimum Requirements Checklist. Luxembourg: PEFC. Online at [www.pefc.org/internet/html/documentation/4\\_1311\\_400.htm](http://www.pefc.org/internet/html/documentation/4_1311_400.htm) (11/3/07) [www.ilo.org/public/english/standards/norm/egalite/itpp/convention/introduction.pdf](http://www.ilo.org/public/english/standards/norm/egalite/itpp/convention/introduction.pdf).
- Putz, H.J. 2007. "Recovered Paper, Recycled Fibers". In: Holik, H. (ed). *Handbook of paper and board*. Ravensburg, Germany: Wiley-VCH Verlag GmbH & Co. KgaA, Weinheim.
- Rainforest Alliance website (<http://rainforest-alliance.org/forestry/verification>) (2/27/11).
- Rainforest Alliance. Timber legality verification webpage (<http://rainforest-alliance.org/forestry/verification/legal>) (2/27/11).
- Rainforest Alliance. 2010 A. *SmartWood generic standard for verification of legal origin (VLO)*. Ver-03. Rainforest Alliance. Online at <http://rainforest-alliance.org/forestry/verification/legal> (2/27/11).
- Rainforest Alliance. 2010 B. *SmartWood generic standard for verification of legal compliance (VLC)*. Ver-04. Rainforest Alliance. Online at [http://rainforest-alliance.org/sites/default/files/site-documents/forestry/documents/vlc\\_standard.pdf](http://rainforest-alliance.org/sites/default/files/site-documents/forestry/documents/vlc_standard.pdf) (2/27/11).
- Rosenbaum, K.L. 2004. Item 6: Illegal acts in forestry-definition process: Clarifying the definition of illegal logging. In: FAO Advisory Committee on paper and wood products – Forty-fifth session proceedings, Canberra, Australia, 16-17 April 2004. Rome: FAO. Online at [www.fao.org/docrep/007/j3609e/j3609e10.htm#P1654\\_114057](http://www.fao.org/docrep/007/j3609e/j3609e10.htm#P1654_114057) (11/2/07).
- Sanderson, E. W., J. Malading, M.A. Levy, K.H. Redford, A.V. Wannebo and G. Woolmer. 2002. "The human footprint and the last of the wild". *BioScience* 52:10. Online at [www.wcs.org/media/file/human\\_footprint2.pdf](http://www.wcs.org/media/file/human_footprint2.pdf) (11/2/07).
- Schweizerische Eidgenossenschaft. 2010 A. *Déclaration du Bois*. Online at <https://www.konsum.admin.ch/holzdeklaration/start/index.html?lang=fr> (11/30/10).
- Schweizerische Eidgenossenschaft. 2010 B. *Ordonnance sur la Déclaration Concernant le Bois et les Produits en Bois*. Online at <http://www.admin.ch/ch/f/as/2010/2873.pdf> (11/30/10).
- SCS. 2010 A. LegalHarvest™ *Verification: Demonstrating due care*. Online at [http://www.scs-certified.com/docs/LH\\_legalharvestinfosheet\\_v1.pdf](http://www.scs-certified.com/docs/LH_legalharvestinfosheet_v1.pdf) (2/27/11).
- SCS. 2010 B. SCS LegalHarvest™ *Verification (LHV). Standard for the assessment of forests*. Version 1.0. Online at [http://www.scs-certified.com/docs/SCS\\_LHV\\_STN\\_Generic\\_Forests\\_V1-0\\_071910.pdf](http://www.scs-certified.com/docs/SCS_LHV_STN_Generic_Forests_V1-0_071910.pdf) (2/27/11).
- SCS. 2010 C. SCS LegalHarvest™ *Verification (LHV). Chain of custody standard*. Version 1.0. Online at [http://www.scs-certified.com/docs/SCS\\_LHV\\_STN\\_COC\\_V1-0\\_071910.pdf](http://www.scs-certified.com/docs/SCS_LHV_STN_COC_V1-0_071910.pdf) (2/27/11).
- Seneca Creek Associates and Wood Resources International. 2004. "Illegal" logging and global wood markets: *The competitive impacts on the U.S. wood products industry*. Assessment prepared for the American Forest and Paper Association. Online at [www.afandpa.org/Content/NavigationMenu/About\\_AFandPA/Public\\_Calendar\\_and\\_Industry\\_Events/Events\\_Calendar/AFPAllLegalLoggingReportFINAL2.pdf](http://www.afandpa.org/Content/NavigationMenu/About_AFandPA/Public_Calendar_and_Industry_Events/Events_Calendar/AFPAllLegalLoggingReportFINAL2.pdf) (11/2/07).

- SGS. Timber legality and traceability verification (TLTV) website - <http://www.forestry.sgs.com/timber-legality-traceability-verification-tltv.htm> (3/22/11).
- SGS. 2010 A. *Timber legality and traceability verification (TLTV) generic standard*. SGS. Online at <http://www.forestry.sgs.com/documents/sgs-tltv-vlc-generic-standard-en-10.pdf> (3/22/11).
- SGS. 2010 B. *Timber legality and traceability verification (TLTV) verification of legal origin (VLO) – Generic standard*. Online at <http://www.forestry.sgs.com/documents/sgs-tltv-vlo-generic-standard-en-10.pdf> (3/22/11).
- SGS. 2010 C. *Timber legality and traceability verification (TLTV) chain-of-custody verification*. Online at <http://www.forestry.sgs.com/documents/sgs-tltv-coc-standard-en-10.pdf> (3/22/11).
- Simberloff, D. 1998. "Flagships, umbrellas, and keystones: Is single-species management passé in the landscape era?" *Biological Conservation* 83(3).
- Social Management Systems (SMS). 2007. Social Management Systems website. Online at [www.socialmanagement.ch/index.php?id=37&L=1](http://www.socialmanagement.ch/index.php?id=37&L=1) (11/2/07).
- Stern, N. 2007. *Stern review on the economics of climate change*. London: HM Treasury. Online at [www.hm-treasury.gov.uk/independent\\_reviews/stern\\_review\\_economics\\_climate\\_change/stern\\_review\\_report.cfm](http://www.hm-treasury.gov.uk/independent_reviews/stern_review_economics_climate_change/stern_review_report.cfm) (11/2/07).
- Sustainable Forestry Board. 2004 (SFB). *The 2003-2004 Annual Report of the Sustainable Forestry Board, Inc.* Arlington, VA: SFB, Inc. Online at [www.sfipprogram.org/miscPDFs/H-SFB%20Annual%20Report%2003-04.pdf](http://www.sfipprogram.org/miscPDFs/H-SFB%20Annual%20Report%2003-04.pdf) (11/2/07).
- System-Wide Program on Integrated Pest Management (SPIPM). 2007. *SP-IPM in Brief; IPM Definition*. Washington DC: Consultative Group on International Agricultural Research (CGIAR). Online at [www.spipm.cgiar.org/brief/spIPMbrif.htm](http://www.spipm.cgiar.org/brief/spIPMbrif.htm) (11/2/07).
- Taconi, L., K. Obidzinski, and F. Agung. 2004. *Learning lessons to promote forest certification and control illegal logging in Indonesia*. CIFOR. Online at [http://www.cifor.cgiar.org/publications/pdf\\_files/Books/BTaconi0401.pdf](http://www.cifor.cgiar.org/publications/pdf_files/Books/BTaconi0401.pdf) (4/18/11).
- Teck Wyn, L., T. Soehartono, C.H. Keong. 2004. *Framing the picture: An assessment of ramin trade in Indonesia, Malaysia and Singapore*. Traffic. Online at [www.traffic.org/forestry-reports/traffic\\_pub\\_forestry6.pdf](http://www.traffic.org/forestry-reports/traffic_pub_forestry6.pdf) (12/27/10).
- TFT. Timber Trade Action Plan Legality Checklist website - <http://www.tft-forests.org/ttap/page.asp?p=6229> (3/22/11).
- Thomson, J. and R. Kanaan. 2004. *Conflict timber: dimensions of the problem in Asia and Africa*. Synthesis report. ARD. Inc., and USAID. Online at [http://www.usaid.gov/our\\_work/cross-cutting\\_programs/transition\\_initiatives/pubs/vol1synth.pdf](http://www.usaid.gov/our_work/cross-cutting_programs/transition_initiatives/pubs/vol1synth.pdf) (4/18/11).
- Timber Procurement Assessment Committee (TPAC) website – <http://www.tpac.smk.nl/nl/s518/c410-TPAC-home> (3/22/11).
- TPAC. 2010. *Dutch timber procurement policy: Framework for evaluating evidence of compliance with timber requirements*. Online at [http://www.tpac.smk.nl/webadmin/files/pdf/system%20documents/Dutch%20Framework%20for%20Evaluating%20Evidence%20of%20Compliance%20with%20Timber%20Procurement%20Requirements\\_Feb%202010%20\(3\).pdf](http://www.tpac.smk.nl/webadmin/files/pdf/system%20documents/Dutch%20Framework%20for%20Evaluating%20Evidence%20of%20Compliance%20with%20Timber%20Procurement%20Requirements_Feb%202010%20(3).pdf) (3/22/11).
- TPAC. 2008. *Dutch procurement criteria for timber. Principles and criteria for: Sustainable forest management, chain of custody and logo use, development, application and management of certification systems, procedure on endorsement of certification systems by a meta-system*. Online at [http://www.tpac.smk.nl/webadmin/files/pdf/system%20documents/Procurement%20Criteria%20+%20PEM%20oct%202008%20\(2\).pdf](http://www.tpac.smk.nl/webadmin/files/pdf/system%20documents/Procurement%20Criteria%20+%20PEM%20oct%202008%20(2).pdf) (3/22/11).
- United Nations (UN) 1992. *Forest principles*. United Nations Conference on Environment and Development. Rio de Janeiro: United Nations General Assembly. Online at [www.un.org/documents/ga/conf151/aconf15126-3annex3.htm](http://www.un.org/documents/ga/conf151/aconf15126-3annex3.htm) (11/2/07).
- UN. 2005. Agenda 21. Online at [www.un.org/esa/sustdev/documents/agenda21/english/agenda21toc.htm](http://www.un.org/esa/sustdev/documents/agenda21/english/agenda21toc.htm) (11/2/07).
- UNEP/WCMC's Tree conservation information service website ([www.unep-wcmc.org/trees/trade/cites.htm](http://www.unep-wcmc.org/trees/trade/cites.htm)).

## References

- UNEP/WCMC. 2000. *Contribution to an evaluation of tree species using the new CITES listing criteria*. Online at [http://www.unep-wcmc.org/species/tree\\_study/](http://www.unep-wcmc.org/species/tree_study/) (12/29/10).
- Unilever. 2010. *Implementation guidelines to the Unilever sustainable paper and board packaging sourcing policy*. Online at [http://www.unilever.com/images/Implementation%20Guidelines%20Unilever%20Paper%20Sourcing%20Policy%20-%20final%20June%2030%202010\\_tcm13-222259.pdf](http://www.unilever.com/images/Implementation%20Guidelines%20Unilever%20Paper%20Sourcing%20Policy%20-%20final%20June%2030%202010_tcm13-222259.pdf) (3/15/11).
- U.S. Fish and Wildlife Service, Management and Scientific Authorities. *CITES tree species website* - [http://www.fws.gov/international/dma\\_dsa/cites/timber/CITES\\_tree\\_species.html](http://www.fws.gov/international/dma_dsa/cites/timber/CITES_tree_species.html) (12/27/10).
- Van der Berk, V. 2010. *EU timber regulation, FLEGT VPAs, and new market requirements*. Online at <http://www.mtc.com.my/issues/images/stories/pdf/vincent-ven-den-berk.pdf> (11/29/10).
- Vision Paper. 2007. Vision Paper website – [www.visionpaper.com](http://www.visionpaper.com) (11/2/07).
- White, G. and D. Sarshar. 2006. *Responsible purchasing of forest products*. Second edition. WWF/GFTN. Online at [assets.panda.org/downloads/rpg\\_nopapercredit12sept2006.pdf](http://assets.panda.org/downloads/rpg_nopapercredit12sept2006.pdf) (11/2/07).
- World Bank. 2002A. *Sustaining forests: A World Bank strategy*. Washington DC: World Bank. Online at [siteresources.worldbank.org/INTFORESTS/214573-1113990657527/20632625/Forest\\_Strategy\\_Booklet.pdf](http://siteresources.worldbank.org/INTFORESTS/214573-1113990657527/20632625/Forest_Strategy_Booklet.pdf) (11/2/07).
- World Bank. 2002B. *Operational Policies – Definitions. Operational Policy 4.36 – Annex A*. Washington DC: World Bank. Online at [wbIn0018.worldbank.org/Institutional/Manuals/OpManual.nsf/58AA50B14B6BC071852565A30061BEB67736EDD823ECFBC8525672C007D07C3?OpenDocument](http://wbIn0018.worldbank.org/Institutional/Manuals/OpManual.nsf/58AA50B14B6BC071852565A30061BEB67736EDD823ECFBC8525672C007D07C3?OpenDocument) (2/27/07).
- World Bank. 2006. *Strengthening forest law enforcement and governance*. Washington DC: World Bank. Online at [www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2006/09/05/000160016\\_20060905125450/Rendered/PDF/366380REVISED010Forest0Law01PUBLIC1.pdf](http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2006/09/05/000160016_20060905125450/Rendered/PDF/366380REVISED010Forest0Law01PUBLIC1.pdf) (11/2/07).
- World Conservation Union (IUCN). 2006; *IUCN Red List of Threatened Species*. Gland, Switzerland: IUCN, Species Survival Commission. Online at [www.iucnredlist.org/](http://www.iucnredlist.org/) (11/2/07).
- IUCN. 2007A. *Glossary of Biodiversity Terms*. Gland, Switzerland: IUCN/WCMC. Online at [www.unep-wcmc.org/reception/glossaryA-E.htm](http://www.unep-wcmc.org/reception/glossaryA-E.htm) (11/2/07).
- IUCN. 2007B. World Commission on Protected Areas website – [www.iucn.org/themes/wcpa/](http://www.iucn.org/themes/wcpa/) (11/2/07).
- World Wide Fund for Nature (WWF). 1999. *GM Technology in the forest sector*. Gland: WWF International. Online at [assets.panda.org/downloads/gm\\_technology\\_in\\_the\\_forest\\_sector.doc](http://assets.panda.org/downloads/gm_technology_in_the_forest_sector.doc) (11/2/07).
- WWF. 2007B. Global 200 Ecoregions website – [www.worldwildlife.org/science/ecoregions/g200.cfm](http://www.worldwildlife.org/science/ecoregions/g200.cfm) (11/2/07).
- WWF Russia. WWF Denmark. NepCon. 2007. *Verifying the legal origin of Russian timber: A checklist for companies trading in Russian timber*. Online at <http://www.wwf.dk/dk/Service/Bibliotek/Skov/Rapporter+mv./verifying+the+legal+origin+of+russian+timber.pdf> (2/27/11).
- Xerox. 2011. *Paper sourcing and requirements for suppliers*. Online at <http://www.xerox.com/about-xerox/environment/paper/suppliers/enus.html> (3/15/11).

## KEY SOURCES OF INFORMATION ON HIGHLIGHTED TOOLS

### Belgian Federal Government Procurement Policy

Central Point of Expertise on Timber Procurement Website–Belgian Government Procurement Policy– (<http://www.cpet.org.uk/international-context/international-policies-1/belgium>) (11/17/10).

Federal Public Planning Service, Belgian Federal Government. 2010. Sustainable Procurement Guide website (<http://www.guidedesachatsdurables.be/?q=en/node/18>) (11/17/10)

Service Public Federal Personnel et Organisation. 2005. Circulaire P&O/DD/2 Comportant la politique d'achat d l'autorité fédérale stimulant l'utilisation de bois provenant de forêts exploitées durablement. Belgian Federal Government. Online at <http://www.guidedesachatsdurables.be/?q=en/node/106> (11/17/10).

### CEPI's Carbon Footprint Framework

Confederation of European Paper Industries (CEPI) 2007. *Framework for the Development of Carbon Footprints for Paper and Board Products*. CEPI.

CEPI. 2007. Appendices. *Framework for the development of Carbon footprints for paper and board products*. CEPI.

### CEPI Legal Logging Code of Conduct

CEPI. 2002. Legal logging code of conduct for the paper industry. Brussels:CEPI. Online at [www.cepiprint.com/doc/environ\\_issues/illegal\\_logging.pdf](http://www.cepiprint.com/doc/environ_issues/illegal_logging.pdf) (7/2/07).

### CPET

Central Point of Expertise on Timber Procurement (CPET) website – [www.proforest.net/cpet](http://www.proforest.net/cpet) (11/02/07).

CPET. 2006. *Criteria for evaluating certification schemes (Category A evidence)*. Second edition. Oxford: CPET. Online at [www.proforest.net/cpet/cpet-s-assessment-of-evidence/assessment-of-certification-schemes-category-a/](http://www.proforest.net/cpet/cpet-s-assessment-of-evidence/assessment-of-certification-schemes-category-a/) (11/2/07).

CPET. 2006. *Framework for evaluating Category B evidence*. First edition development draft 2. Oxford: CPET. Online at [www.proforest.net/cpet/cpet-s-assessment-of-evidence/assessment-of-all-other-types-of-evidence-category-b/](http://www.proforest.net/cpet/cpet-s-assessment-of-evidence/assessment-of-all-other-types-of-evidence-category-b/) (11/2/07).

CPET. 2006. *Review of forest certification schemes – results*. Oxford: CPET. Online at [www.proforest.net/cpet/documents](http://www.proforest.net/cpet/documents) (11/2/07).

### Danish Government Procurement Policy

CPET. 2007. International Policies website: Denmark – [www.proforest.net/cpet/international-policies-1/denmark](http://www.proforest.net/cpet/international-policies-1/denmark) (11/2/07).

Danish Ministry of the Environment website – [www.skovognatur.dk/Udgivelser/Tidligere/2003/Tropical\\_timber.htm](http://www.skovognatur.dk/Udgivelser/Tidligere/2003/Tropical_timber.htm) (7/14/07).

### Dutch Government Procurement Criteria for Timber

Timber Procurement Assessment Committee (TPAC). 2008. Dutch Procurement Criteria for Timber. Principles and Criteria. The Hague, Netherlands: TPAC. Online at [http://www.tpac.smk.nl/webadmin/files/pdf/system%20documents/Procurement%20Criteria%20+%20PEM%20oct%202008%20\(2\).pdf](http://www.tpac.smk.nl/webadmin/files/pdf/system%20documents/Procurement%20Criteria%20+%20PEM%20oct%202008%20(2).pdf) (11/03/10).

CPET. 2010. Government Procurement of Timber in the Netherlands. Oxford, UK: CPET. Online at <http://www.cpet.org.uk/international-context/international-policies-1/the-netherlands> (11/1/2010).

Timber Procurement Assessment System Website – <http://www.tpac.smk.nl/nl/s518/c410-TPAC-home> (11/22/10)

### Environmental Footprint Comparison Tool

Environmental Footprint Comparison tool website – [www.paperenvironment.org](http://www.paperenvironment.org)

### Environmental Paper Network

Environmental paper network website: [www.environmentalpaper.org](http://www.environmentalpaper.org)

Center for a New American Dream, Conservatree, Co-op America, Dogwood Alliance, Environmental Defense Fund, ForestEthics, the Green Press Initiative, the Markets Initiative, Natural Resources Defense Council, the Recycled Products Purchasing Cooperative. 2002. *A common vision for transforming the paper industry: striving for environmental and social sustainability*. Online at [www.environmentalpaper.org/documents/CommonVision-treatise.pdf](http://www.environmentalpaper.org/documents/CommonVision-treatise.pdf) (2/17/09)

Environmental Paper Network. 2002. *Environmentally preferable paper purchasing guidance*. Online at [www.environmentalpaper.org/documents/CommonVision-guidance.pdf](http://www.environmentalpaper.org/documents/CommonVision-guidance.pdf) (2/17/09)

## References

Environmental Paper Network. 2008. *Product fiber usage and bleaching verification; pulp tracking form*. Online at [environmentalpaper.org/pulp-tracking.html](http://environmentalpaper.org/pulp-tracking.html) (2/17/09)

Environmental Paper Network. 2007. *Social impacts of the paper industry*. Online at [environmentalpaper.org/documents/socialimpactsfactsheet.pdf](http://environmentalpaper.org/documents/socialimpactsfactsheet.pdf) (2/17/09)

Environmental Paper Network. 2007. *Understanding recycled fiber*. Online at [environmentalpaper.org/documents/recycledfiberfactsheet2.pdf](http://environmentalpaper.org/documents/recycledfiberfactsheet2.pdf) (2/17/09)

Environmental Paper Network. 2008. *Increasing paper efficiency*. Online at [environmentalpaper.org/documents/paperefficiencyfactsheet.pdf](http://environmentalpaper.org/documents/paperefficiencyfactsheet.pdf) (2/17/09)

### EPAT

Environmental Paper Assessment Tool (EPAT) website – [www.epat.org](http://www.epat.org) (11/02/07).

Metafore, Paper Working Group. *Environmentally preferable paper defined*. Portland, Oregon: Metafore. Online at [www.metafore.org/downloads/epat\\_define\\_environmental\\_preferable\\_paper.pdf](http://www.metafore.org/downloads/epat_define_environmental_preferable_paper.pdf) (11/2/07).

Metafore, Paper Working Group. *Environmental Paper Assessment Tool*. Portland, Oregon: Metafore. Online at [www.metafore.org/downloads/epat\\_description.pdf](http://www.metafore.org/downloads/epat_description.pdf) (11/2/07).

Metafore. *EPAT Indicators*. Portland, Oregon: Metafore. Online at [www.metafore.org/downloads/epat\\_1.0\\_indicators.pdf](http://www.metafore.org/downloads/epat_1.0_indicators.pdf) (11/2/07).

Metafore. *EPAT Indicators and Protocols – A detailed guide*. Portland, Oregon: Metafore. Online at [www.metafore.org/downloads/epat\\_indicators\\_and\\_protocols\\_guide1.0.pdf](http://www.metafore.org/downloads/epat_indicators_and_protocols_guide1.0.pdf) (11/2/07).

Metafore. Paper Working Group. 2008. *EPAT® 2.0. New features*. Metafore. Online at [www.metafore.org/downloads/epat\\_2.0\\_new\\_features.pdf](http://www.metafore.org/downloads/epat_2.0_new_features.pdf) (2/17/09)

Metafore. Paper Working Group. 2008. *EPAT® 2.0. Frequently asked questions*. Metafore. Online at [www.metafore.org/index.php?p=Metafore\\_Downloadable\\_Documents&s=567](http://www.metafore.org/index.php?p=Metafore_Downloadable_Documents&s=567) (2/17/09).

Metafore. Paper Working Group. 2008. *EPAT® 2.0 Indicators*. Metafore. Online at [www.metafore.org/index.php?p=Metafore\\_Downloadable\\_Documents&s=567](http://www.metafore.org/index.php?p=Metafore_Downloadable_Documents&s=567) (2/17/09).

### European Community Green Public Procurement

European Commission (EC). 2008. *Green public procurement training toolkit*. Online at [ec.europa.eu/environment/gpp/toolkit\\_en.htm](http://ec.europa.eu/environment/gpp/toolkit_en.htm) (2/17/09).

EC. 2004. *Buying green! A handbook on environmental public procurement*. Online at [ec.europa.eu/environment/gpp/pdf/buying\\_green\\_handbook\\_en.pdf](http://ec.europa.eu/environment/gpp/pdf/buying_green_handbook_en.pdf) (2/17/09).

EC. 2008. *Green public procurement product sheet: copying and graphic paper*. Online at [ec.europa.eu/environment/gpp/pdf/toolkit/paper\\_GPP\\_product\\_sheet.pdf](http://ec.europa.eu/environment/gpp/pdf/toolkit/paper_GPP_product_sheet.pdf) (2/17/09).

EC. 2008. *Green public procurement product sheet: furniture*.

EC. 2008. *Green public procurement product sheet: Construction*.

### European Union Action Plan for Forest Law

Enforcement, Governance and Trade (FLEG), and Voluntary Partnership Agreements (VPA)

European Union. 2005. Council Regulation (EC) No. 2173/2005 on the Establishment of a FLEGT Licensing Scheme for Imports of Timber into the European Community. Available online at [http://eur-lex.europa.eu/smartapi/cgi/sga\\_doc?smartapi!celexplus!prod!DocNumber&lg=en&type\\_doc=Regulation&an\\_doc=2005&nu\\_doc=2173](http://eur-lex.europa.eu/smartapi/cgi/sga_doc?smartapi!celexplus!prod!DocNumber&lg=en&type_doc=Regulation&an_doc=2005&nu_doc=2173) (11/22/10).

European Commission. 2010. Forest Law Enforcement, Governance and Trade (FLEGT) website. Online at <http://ec.europa.eu/environment/forests/flegt.htm> (11/22/10).

Commission of the European Communities. 2003. Communication from the Commission to the Council and the European Parliament. Forest Law Enforcement, Governance and Trade (FLEGT) Proposal for an EU Action Plan. European Commission. Online at [ec.europa.eu/development/center/repository/com2003\\_0251en01\\_en.pdf](http://ec.europa.eu/development/center/repository/com2003_0251en01_en.pdf) (11/29/10).

Chatham House. 2010. EU FLEGT Overview. Website. Online at [http://www.illegal-logging.info/approach.php?a\\_id=119](http://www.illegal-logging.info/approach.php?a_id=119) (11/22/10).



Chatham House. 2010. EU FLEGT: Voluntary Partnership Agreements. Website. Online at [http://www.illegal-logging.info/approach.php?a\\_id=121](http://www.illegal-logging.info/approach.php?a_id=121) (11/22/10).

European Forest Institute. 2008. Forest Law Enforcement, Governance and Trade: the European Union Approach. EFI Policy Brief 2. EFI Online at [http://www.efi.int/files/attachments/publications/efi\\_policy\\_brief\\_2\\_eng\\_net.pdf](http://www.efi.int/files/attachments/publications/efi_policy_brief_2_eng_net.pdf) (11/29/10).

EFI. 2010. EFI FLEGT Facility website – <http://www.efi.int/portal/projects/flegt/> (11/29/10).

### FCAG

WWF/World Bank Alliance. 2006. *Forest certification assessment guide*. Washington: WWF/WB. Online at [www.worldwildlife.org/alliance/pdfs/fcag.pdf](http://www.worldwildlife.org/alliance/pdfs/fcag.pdf) (11/2/07).

World Bank – WWF. Global Forest Alliance website. Online at [www.worldwildlife.org/alliance/2006jul-fca.cfm](http://www.worldwildlife.org/alliance/2006jul-fca.cfm) (11/2/07).

### FICAT

Forest Industry Carbon Assessment Tool (FICAT). Online at [www.FICATModel.org](http://www.FICATModel.org) (registration required).

NCASI. IFC. 2008. User guide and documentation for the Forest Products Sector Carbon (FPSC) Model Beta Release. NCASI. IFC. Online at [http://www.ncasi.org/FPSCmodel/FPSC\\_Model\\_User\\_Guide.pdf](http://www.ncasi.org/FPSCmodel/FPSC_Model_User_Guide.pdf).

NCASI. 2008. Overview of information needed to use the FPSC Model. NCASI. Online at <http://www.ncasi.org/FPSCmodel/overview.pdf>.



### Forest Footprint Disclosure Project

Forest Footprint Disclosure Project website – [www.forestfootprint.com](http://www.forestfootprint.com) (11/22/10)

Campbell, K.T., L. Crosbie, R. Howard, A. Mitchell, and S. Ripley. 2010. *The Forest Footprint Disclosure Annual Review 2009*. Global Canopy Program. Oxford. Online at <http://www.forestdisclosure.com/page.asp?p=4714> (11/22/10).

Forest Footprint Disclosure Project. Forest Footprint Disclosure Request. Online at <http://www.forestdisclosure.com/page.asp?p=5342> (11/22/10).

### Forest Legality Alliance

Forest Legality Alliance website - [www.forestlegality.org](http://www.forestlegality.org) (11/22/10)

WRI, USAID, EIA. 2010. *The Forest Legality Alliance: An International Initiative to Support Trade in Legal Forest Products*. WRI, USAID, EIA. Online at <http://www.wri.org/fla/documents/FLAdescription.pdf> (11/29/10).

### Forest Products Association of Canada: A Buyers' Guide to Canada's Sustainable Forest Products

Forest Products Association of Canada (FPAC). PricewaterhouseCoopers Canada. 2008. *A buyers' guide to Canada's sustainable forest products*. Online at [www.fpac.ca/documents/buyers\\_guides/FPAC\\_BuyerGuide-EN08.pdf](http://www.fpac.ca/documents/buyers_guides/FPAC_BuyerGuide-EN08.pdf). (2/10/09)

FPAC. PricewaterhouseCoopers Canada. 2008. *Look before you buy: A buyers' guide to Canada's sustainable forest products*. Media backgrounder. Online at [www.fpac.ca/documents/media\\_kits/MEDIA\\_BACKGROUNDER\\_Buyers\\_Guide\\_e.pdf](http://www.fpac.ca/documents/media_kits/MEDIA_BACKGROUNDER_Buyers_Guide_e.pdf). (2/10/09).

### French Government Procurement Policy

ProForest. 2007. Comparison of EU public timber procurement policies. Online at [www.illegal-logging.info/uploads/EU\\_PPP\\_summaries.pdf](http://www.illegal-logging.info/uploads/EU_PPP_summaries.pdf) (2/17/09).

Joucla, V., and R. Risser. 2005. French policy on public procurement of timber and wood products. Presentation at the meeting: Public procurement and forest certification: Assessing the implications for policy, law and international trade. Berlin. French Ministry of Agriculture, Food, Fisheries and Rural Affairs; French Ministry of Ecology and Sustainable Development. Online at [www.ecologic.de/download/projekte/900-949/933/8\\_risser.pdf](http://www.ecologic.de/download/projekte/900-949/933/8_risser.pdf) (10/28/08)



Groupe Permanent d'Etude des Marchés, Développement Durable, Environnement (GPEM/DDEN). 2005. *Notice d'information sur les outils permettant de promouvoir la gestion durable des forêts dans les marchés de bois et produits dérivés*. Ministère de l'Economie, des Finances et de l'Industrie. Online at [www.illegal-logging.info/uploads/GPEM-DDEN\\_document\\_on\\_French\\_PPP\\_\(In\\_French\).pdf](http://www.illegal-logging.info/uploads/GPEM-DDEN_document_on_French_PPP_(In_French).pdf) (2/17/09).

Journal Officiel de la République Française. 2005. Circulaire du 5 avril 2005 portant sur les moyens à mettre en oeuvre dans les marchés publics de bois et produits dérivés pour promouvoir la gestion durable des forêts. Online at [www.illegal-logging.info/uploads/Advice\\_note\\_on\\_French\\_PPP\\_\(In\\_French\).pdf](http://www.illegal-logging.info/uploads/Advice_note_on_French_PPP_(In_French).pdf) (2/17/09).

Simula, M. 2007. *Public procurement policies for forest products and their impacts*. Food and Agriculture Organization of the United Nations. Online at [www.fao.org/forestry/media/11153/1/0/](http://www.fao.org/forestry/media/11153/1/0/) (2/17/09).

### FSC's Controlled-Wood Standard

Controlled Wood website - [www.fsc.org/controlled\\_wood/](http://www.fsc.org/controlled_wood/) (11/2/07).

FSC. 2004. *FSC Standard for non FSC-certified controlled wood*. FSC-STD-40-005 (Version 1-0) EN. Bonn: FSC. Online at [www.fsc.org/en/about/documents/Docs\\_cent/2,37](http://www.fsc.org/en/about/documents/Docs_cent/2,37) (11/2/07).

FSC. 2004. *FSC Standard for forest management enterprises supplying non FSC certified controlled wood*. FSC-STD-30-010 (Version1-0) EN. Bonn: FSC. Online at [www.fsc.org/en/about/documents/Docs\\_cent/2,37](http://www.fsc.org/en/about/documents/Docs_cent/2,37) (11/2/07).

FSC. 2006. *FSC-STD-40-005 FSC Standard for company evaluation of controlled wood (Version 2-1)*. Bonn: FSC. Online at [www.fsc.org/en/about/documents/Docs\\_cent/2,37](http://www.fsc.org/en/about/documents/Docs_cent/2,37) (11/2/07).

FSC. 2006. *Controlled wood – A guide for avoiding environmentally and socially damaging wood*. Bonn: FSC. Online at [www.fsc.org/keepout/en/content\\_areas/29/35/files/4\\_Requirements\\_for\\_C\\_LR.pdf](http://www.fsc.org/keepout/en/content_areas/29/35/files/4_Requirements_for_C_LR.pdf) (11/2/07).

### GBI's Green Globes Rating System

Green Building Initiative (GBI) website: [www.thegbi.org](http://www.thegbi.org) (11/2/07).

GBI. Green building initiative presentation. Online at [wisconsinforestry.org/pdf/GreenGlobes.pdf](http://wisconsinforestry.org/pdf/GreenGlobes.pdf) (11/2/07).

GBI. 2005. *Green globes assessment and rating system*. Online at [www.thegbi.org/commercial/about-green-globes/rating-and-evaluation-process.asp](http://www.thegbi.org/commercial/about-green-globes/rating-and-evaluation-process.asp) (11/2/07).

GBI. 2005. *Green globes assessment and rating system – Program summary and users guide*. Online at [acuitybrandslighting.com/sustainability/Documents/GreenGlobes/US\\_Summary\\_Final.pdf](http://acuitybrandslighting.com/sustainability/Documents/GreenGlobes/US_Summary_Final.pdf) (11/2/07).

### German Government Procurement Policy

CPET. 2007. International Policies website: Germany – [www.proforest.net/cpet/international-policies-1/germany](http://www.proforest.net/cpet/international-policies-1/germany) (11/2/07).

German Federal Ministry of Economics and Technology, German Federal Ministry of Consumer Protection, Food and Agriculture, German Federal Minister of the Environment, Nature Conservation and Nuclear Safety, and the German Federal Ministry of Transport, Building and Urban Affairs. 2007. Joint instruction on the procurement of wood products and explanatory notes.

### Global Forest Registry

Global Forest Registry website – [www.globalforestregistry.org](http://www.globalforestregistry.org)

FSC. 2007. Controlled Wood. Forest Stewardship Council. Available online at [http://www.globalforestrisk.org/files/Controlled\\_Wood\\_user\\_friendly\\_guide\\_2007.pdf](http://www.globalforestrisk.org/files/Controlled_Wood_user_friendly_guide_2007.pdf) (11/16/10)

FSC. 2010. List of Approved National and Regional Controlled Wood Risk Assessments. Forest Stewardship Council. Available online at [http://www.fsc.org/fileadmin/web-data/public/document\\_center/international\\_FSC\\_policies/procedures/FSC-PRO-60-002a\\_List\\_Approved\\_CW\\_Risk\\_Assessments\\_2010\\_08\\_17.pdf](http://www.fsc.org/fileadmin/web-data/public/document_center/international_FSC_policies/procedures/FSC-PRO-60-002a_List_Approved_CW_Risk_Assessments_2010_08_17.pdf) (11/16/10).

### GPN

Green Purchasing Network (GPN) website: [www.gpn.jp/English/](http://www.gpn.jp/English/) (11/2/07).

Sato, H. 2002. "Demand side approach and GPN in Japan". DFE Vol 4 No. 20. Japan environmental management association newsletter. Online at [www.jemai.or.jp/english/dfe/pdf/20\\_1.pdf](http://www.jemai.or.jp/english/dfe/pdf/20_1.pdf) (11/2/07).

Nakahara, H. 2005. Green Purchasing Network and its Activities. Third Expert Meeting on Sustainable Public Procurement. New York, USA 15-17 June 2005. UN Department of Economic and Social Affairs. Division for Sustainable Development. Online at [www.un.org/esa/sustdev/sdissues/consumption/procurement/nakaharasan.pdf](http://www.un.org/esa/sustdev/sdissues/consumption/procurement/nakaharasan.pdf) (7/17/16).

### Greenpeace's Timber Standard

Greenpeace China. 2008. *Responsible purchasing policy: A solution to practice of corporate social responsibility and global forest conservation*. Greenpeace China: Beijing. Online at [www.greenpeace.org/rpp-english.pdf](http://www.greenpeace.org/rpp-english.pdf) (brief English version) (2/17/09).

### Japanese Government Procurement Policy

CPET. 2007. International Policies website: Japan – [www.proforest.net/cpet/international-policies-1/japan](http://www.proforest.net/cpet/international-policies-1/japan) (11/2/07).

Japanese Ministry of the Environment. 2006. Law concerning the promotion of procurement of eco-friendly goods and services by the state and other entities. Online at [www.env.go.jp/en/laws/policy/green/index.html](http://www.env.go.jp/en/laws/policy/green/index.html) (11/2/07).

Japanese Ministry of the Environment. 2007. Japan's green purchasing policy: Tackling illegal logging. Online at [www.env.go.jp/en/earth/forest/pamph\\_jgpp.pdf](http://www.env.go.jp/en/earth/forest/pamph_jgpp.pdf) (11/2/07).

### LEED's Green Building Rating System

US Green Building Council. Leadership in Energy and Environmental Design (LEED) Rating Systems website – [www.usgbc.org](http://www.usgbc.org) (11/2/07).

US Green Building Council. 2005. Green building rating system for new construction and major renovations (with revisions on environment and atmosphere in 2007). Washington DC: US Green building council. Online at [www.usgbc.org/ShowFile.aspx?DocumentID=1095](http://www.usgbc.org/ShowFile.aspx?DocumentID=1095) (11/2/07).

### Mexican Federal Government Procurement Policy

Secretaria de Medio Ambiente y Recursos Naturales (SEMARNAT) website – [www.semarnat.gov.mx](http://www.semarnat.gov.mx) (11/30/10).

Cámara de Diputados. 2009. Ley de Adquisiciones, Arrendamientos y Servicios del Sector Público. Available online at [www.diputados.gob.mx/LeyesBiblio/pdf/14.pdf](http://www.diputados.gob.mx/LeyesBiblio/pdf/14.pdf) (11/30/10).

SEMARNAT. 2007. Circular que contiene los lineamientos generales relativos a los aspectos de sostenibilidad ambiental para las adquisiciones, arrendamientos y servicios del sector público. Diario Oficial. Online at <http://www.semarnat.gob.mx/leyesyformas/Acuerdos/LINEAMIENTOS%20SUSTENTABILIDAD%20AMBIENTAL%20SECTOR%20P%3%9ABLICO%2031%20OCT%202007.pdf> (11/30/10).

Cabrera, A. 2008. PAS: Programa de Administración Sustentable (Presentation). SEMARNAT.

### New Zealand Government Paper Buyers Guide

New Zealand Ministry for the Environment. 2008. *Paper buyers guide*. Online at [www.mfe.govt.nz/issues/sustainable-industry/govt3/topic-areas/office-consumables/paper-buyers-guide.pdf](http://www.mfe.govt.nz/issues/sustainable-industry/govt3/topic-areas/office-consumables/paper-buyers-guide.pdf) (2/17/09).

New Zealand Ministry for the Environment. 2008. *Paper buyers guide - Verification methodology*.

New Zealand Ministry for the Environment. 2008. Office paper products website. Online at [www.mfe.govt.nz/issues/sustainable-industry/govt3/topic-areas/office-consumables/paper-products.html](http://www.mfe.govt.nz/issues/sustainable-industry/govt3/topic-areas/office-consumables/paper-products.html) (2/17/09).

### New Zealand Timber and Wood Products Procurement Policy

Ministry of Agriculture and Forestry, forestry website – [www.maf.govt.nz/forestry/twpp/index.htm](http://www.maf.govt.nz/forestry/twpp/index.htm)

Ministry of Agriculture and Forestry. 2008. New Zealand timber and wood products procurement policy website: [www.maf.govt.nz/forestry/twpp/index.htm](http://www.maf.govt.nz/forestry/twpp/index.htm) (2/17/09).

Central Point of Expertise on Timber Procurement (CPET). 2008. International policies: New Zealand. Online at [www.proforest.net/cpet/international-policies-1/new-zealand](http://www.proforest.net/cpet/international-policies-1/new-zealand) (10/29/08)

### Paper Calculator

Paper Calculator website: [www.papercalculator.org](http://www.papercalculator.org)

Environmental Defense Fund. 2008. Paper Calculator frequently asked questions. Online at [www.edf.org/page.cfm?tagid=24437](http://www.edf.org/page.cfm?tagid=24437) (2/17/09).

Paper Task Force. 1995. *Paper Task Force recommendations for purchasing and using environmentally preferable paper*. Final report. Duke University, Environmental Defense Fund, Johnson & Johnson, the Prudential Insurance Company of America, Time, Inc. Online at [www.edf.org/documents/1679\\_beginning.pdf](http://www.edf.org/documents/1679_beginning.pdf) (2/17/09).

### Paper Profile

Paper Profile website – [www.paperprofile.com](http://www.paperprofile.com) (11/2/07).

Paper Profile Secretariat. 2005. *Manual for an environmental product declaration for the pulp and paper industry – paper profile*. Online at [www.paperprofile.com/download/manual.pdf](http://www.paperprofile.com/download/manual.pdf) (11/02/07).

### PEFC's Guide for the Avoidance of Controversial Timber

PEFC. 2006E. *Chain-of-Custody of Forest Based Products – Requirements*. Annex 4 of the PEFC Technical Document. Online at [www.pefc.org/internet/html/documentation/4\\_1311\\_400.htm](http://www.pefc.org/internet/html/documentation/4_1311_400.htm) (11/3/07).

PEFC. 2006G. *Implementation of Requirements for the Avoidance of the Procurement of Raw Materials from Controversial Sources*. Appendix 7; Annex 4 of the PEFC Technical Document. Online at [www.pefc.org/internet/html/documentation/4\\_1311\\_400.htm](http://www.pefc.org/internet/html/documentation/4_1311_400.htm) (11/3/07).

### Public Procurement Policies for Forest Products and their Impacts

Simula, M. 2006. *Public procurement policies for forest products and their impacts*. FAO Forest Products and Economics Division. Online at [www.fao.org/forestry/webview/media?mediaId=11153&langId=1](http://www.fao.org/forestry/webview/media?mediaId=11153&langId=1) (11/2/07).

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

American Society for Testing and Materials Standard D7612-10. 2010. Standard Practice for Categorizing Wood and Wood-based Products According to their Fiber Sources. ASTM International. Online at [www.astm.org](http://www.astm.org) (available for purchase) (11/30/10).

ASTM International website – [www.astm.org](http://www.astm.org) (11/30/10).

### Sustainable Finance Toolkit

PriceWaterhouseCoopers. 2010. Sustainable Forest Finance Toolkit website – [http://www.pwc.co.uk/eng/issues/forest\\_finance\\_home.html](http://www.pwc.co.uk/eng/issues/forest_finance_home.html) (11/22/10).

PriceWaterhouseCoopers. World Business Council for Sustainable Development. 2010. Sustainable Forest Finance Toolkit. PwC and WBCSD.

### Sustainable Forestry Initiative (SFI) Procurement Objective

Sustainable Forestry Board. 2005. SFI interpretations, questions and answers for the 2005-2009 SFI Standard. Online at [www.aboutsfb.org/generalPDFs/2005-09%20SFIS%20Interpretations.pdf](http://www.aboutsfb.org/generalPDFs/2005-09%20SFIS%20Interpretations.pdf) (7/19/06).

Sustainable Forestry Board. 2005. SFI Guidance Document 2005-2009. Online at [www.aboutsfb.org/generalPDFs/2005-09SFISGuidance.pdf](http://www.aboutsfb.org/generalPDFs/2005-09SFISGuidance.pdf) (7/19/06).

Sustainable Forestry Board. 2005. SFI Program: Overview, Governance, and Historical Information. Online at [www.aboutsfb.org/generalPDFs/2005-09SFISOverviewDocument.pdf](http://www.aboutsfb.org/generalPDFs/2005-09SFISOverviewDocument.pdf) (7/19/06).

Sustainable Forestry Board. 2005. SFI Standard 2005-2006. Online at [www.aboutsfb.org/generalPDFs/SFBStandard2005-2009.pdf](http://www.aboutsfb.org/generalPDFs/SFBStandard2005-2009.pdf) (7/19/06).

### Swiss Declaration Duty for Timber

EFI. 2010. Swiss Declaration Duty for Timber. In: EFI EU FLEGT News. October/November 2010. Online at [news.efi.int/newsletter/.../efi-eu-flegt-news-october-november-2010](http://news.efi.int/newsletter/.../efi-eu-flegt-news-october-november-2010) (11/30/10).

Schweizerische Eidgenossenschaft. 2010. Déclaration du bois. Online at <https://www.konsum.admin.ch/holzdeklaration/start/index.html?lang=fr> (11/30/10).



Schweizerische Eidgenossenschaft. 2010. Ordonnance sur la déclaration concernant le bois et les produits en bois. Online at <http://www.admin.ch/ch/f/as/2010/2873.pdf> (11/30/10).

### Timber Retail Coalition

Timber Retail Coalition. 2010. Terms of Reference. Online at <http://www.errt.org/uploads/TRC/TRC%20ToRs%20July%202010%20-%20final.pdf> (11/17/10)

European Retail Roundtable website – [www.errt.org/timber-retail-coalition](http://www.errt.org/timber-retail-coalition) (11/17/10)

European Retail Roundtable. Timber Retail Coalition Launched. Press Release. ERRT. Online at <http://www.errt.org/uploads/TRC/Timber%20Coalition%20launched%206%20Apr%202010.pdf> (11/17/10)

### Timber Trade Action Plan

TTAP Website - [www.timbertradeactionplan.info/Default.aspx](http://www.timbertradeactionplan.info/Default.aspx)

Timber Trade Action Plan (TTAP). 2008. *TTAP 1 & 2 Progress report*. Online at [www.timbertradeactionplan.info/images/TTAP\\_Update\\_Report\\_-\\_May\\_2008.pdf](http://www.timbertradeactionplan.info/images/TTAP_Update_Report_-_May_2008.pdf) (2/17/09)

TTAP. 2007. *TTAP requirements for chain of custody: requirements for the control of TTAP supply chains*. Online at [www.timbertradeactionplan.info/images/1\\_TTAP\\_Requirements\\_for\\_CO\\_C\\_Final.pdf](http://www.timbertradeactionplan.info/images/1_TTAP_Requirements_for_CO_C_Final.pdf) (2/17/09)

TTAP. 2006. *Key stages for TTAP Companies: the step by step approaches to gap assessments and chain of custody systems for TTAP companies*. Online at [www.timbertradeactionplan.info/images/Key\\_stages\\_in\\_TTAP.pdf](http://www.timbertradeactionplan.info/images/Key_stages_in_TTAP.pdf) (2/17/09)

TTAP. 2006. TTAP Quarterly Report. December 2005-March 2006. London: TTF. Online at [www.timbertradeactionplan.info/uploads/Qtrly\\_Report\\_Dec-Mar06\\_External.pdf](http://www.timbertradeactionplan.info/uploads/Qtrly_Report_Dec-Mar06_External.pdf) (11/2/07).

TTAP. 2008. *Good Wood. Good Business*. Timber Trade Action Plan leaflet. Online at [www.timbertradeactionplan.info/images/1\\_ttap\\_leaflet.pdf](http://www.timbertradeactionplan.info/images/1_ttap_leaflet.pdf) (3/4/09)

### Timber Trade Federation (TTF) Responsible Purchasing Policy

TTF website – [www.ttf.co.uk](http://www.ttf.co.uk) (11/2/07).

TTF Responsible Purchasing Policy website – [www.ttfrrp.co.uk](http://www.ttfrrp.co.uk) (11/2/07).

TTF. 2004. Responsible Purchasing Policy - Background Document. London: TTF. Online at [www.ttf.co.uk/forests/responsible/Microsoft\\_Word\\_-\\_Document4v1Background041101.pdf](http://www.ttf.co.uk/forests/responsible/Microsoft_Word_-_Document4v1Background041101.pdf) (11/2/07).

TTF. 2004. Responsible Purchasing Policy. Summary. London: TTF. Online at [www.ttf.co.uk/forests/responsible/Summary\\_of\\_RPP\\_for\\_Launch\\_15th\\_November\\_2004.doc](http://www.ttf.co.uk/forests/responsible/Summary_of_RPP_for_Launch_15th_November_2004.doc) (11/2/07).

TTF. 2006. Responsible Purchasing Policy. Annual Management Report (RPP-T7). London: TTF.

TTF. 2006. Responsible Purchasing Policy. Frequently Asked Questions. London: TTF. Online at [www.ttf.co.uk/forests/responsible/RPP\\_FAQ\\_Final\\_Copy.doc](http://www.ttf.co.uk/forests/responsible/RPP_FAQ_Final_Copy.doc) (11/2/07).

TTF. 2006. Responsible Purchasing Policy. Supplier Questionnaire (RPP-T4). London: TTF. Online at [www.ttfrrp.co.uk/members/questionnaires/template\\_T4\\_9v2\)\\_Questionnaire\\_PRINT\\_05June06.xls.pdf](http://www.ttfrrp.co.uk/members/questionnaires/template_T4_9v2)_Questionnaire_PRINT_05June06.xls.pdf) (11/2/07).

TTF. 2006. Responsible Purchasing Policy – Supplier Risk Assessment (RPP-T5). London: TTF.

TTF. 2006. Responsible Purchasing Policy – Preliminary Screening Matrix (RPP-T2). London: TTF.

### Tropical Forest Trust

Tropical Forest Trust (TFT) website: [www.tropicalforesttrust.com](http://www.tropicalforesttrust.com)

TFT. 2008. TFT Members' handbook. Crassier, Switzerland: TFT. Online at [www.tropicalforesttrust.com/media/uploaded/TFT\\_Member\\_Handbook\\_June\\_2008.pdf](http://www.tropicalforesttrust.com/media/uploaded/TFT_Member_Handbook_June_2008.pdf) (2/12/09)

TFT. *TFT: Linking business with responsible forest management*. Brochure. Crassier, Switzerland: TFT. Online at [www.tropicalforesttrust.com/media/uploaded/TFT\\_Leaflet\\_LRfinal0908version\\_cropped.pdf](http://www.tropicalforesttrust.com/media/uploaded/TFT_Leaflet_LRfinal0908version_cropped.pdf) (3/4/09)

The Climate Tree Initiative website: [www.theclimatetree.org](http://www.theclimatetree.org) (3/4/09).

TFT. 2008. Sourcing reclaimed timber. Member guidance note 2. TFT. Online at [www.tropicalforesttrust.org/media/uploaded/TFT\\_Guidance\\_Note\\_2\\_-\\_Sourcing\\_Reclaimed\\_Timber\\_-\\_August\\_2008.pdf](http://www.tropicalforesttrust.org/media/uploaded/TFT_Guidance_Note_2_-_Sourcing_Reclaimed_Timber_-_August_2008.pdf) (3/4/09).

### **Tropical Forest Trust's (TFT). Good Wood. Good Business guide**

Poynton, S. 1996. *Good Wood. Good Business*. Gland, Switzerland: Tropical Forest Trust. Online at [www.tropicalforesttrust.com](http://www.tropicalforesttrust.com) (11/2/07).

### **Two Sides**

Two Sides website – [www.twosides.info](http://www.twosides.info) (11/17/10)

### **wood for good campaign**

wood for good campaign website – [www.woodforgood.com](http://www.woodforgood.com) (11/02/07).

wood for good. *How to reduce climate change*. Online at [www.woodforgood.com/environment/resource/environment\\_factsheet.pdf](http://www.woodforgood.com/environment/resource/environment_factsheet.pdf) (11/2/07).

wood for good. Fact Cards – Online at [www.woodforgood.com/publications/fact\\_behind\\_the\\_ads.html](http://www.woodforgood.com/publications/fact_behind_the_ads.html) (11/2/07).

### **WWF GFTN**

WWF/Australia Forest and Trade Network (AFTN). 2006. Bulletin. Issue 1. Online at: [wwf.org.au/publications/aftn-newsletter-0206/](http://wwf.org.au/publications/aftn-newsletter-0206/) (07/05/6).

WWF/GFTN. 2006. GFTN Quarterly. February 2006. Online at [assets.panda.org/downloads/gftnquarterly\\_issue1\\_2006.pdf](http://assets.panda.org/downloads/gftnquarterly_issue1_2006.pdf) (07/05/06).

ProForest. 2005. *A Review of Responsible Purchasing Initiatives in the Wood and Paper Sector*.

White G. and D. Sarshar. 2004. *Responsible Purchasing of Forest Products*. World Wide Fund for Nature. Global Forest and Trade Network. Online at: [assets.panda.org/downloads/finalrpg.pdf](http://assets.panda.org/downloads/finalrpg.pdf) (4/26/06)

WWF/GFTN. 2005. Bulletin. Online at [assets.panda.org/downloads/marchbulletin.pdf](http://assets.panda.org/downloads/marchbulletin.pdf) (4/26/06).

WWF/GFTN website: [www.panda.org/about\\_wwf/what\\_we\\_do/forests/our\\_solutions/responsible\\_forestry/certification/gftn/index.cfm](http://www.panda.org/about_wwf/what_we_do/forests/our_solutions/responsible_forestry/certification/gftn/index.cfm) (6/29/06).

### **WWF's Guide to Buying Paper**

WWF. 2007. *The WWF Guide to Buying Paper*. WWF International. Online at [assets.panda.org/downloads/wwf\\_paper\\_guide.pdf](http://assets.panda.org/downloads/wwf_paper_guide.pdf) (12/10/07)

### **WWF's Paper Scorecard**

WWF. 2007. *The WWF Paper Scorecard Manual*. Online at [assets.panda.org/downloads/wwf\\_paper\\_scorecard\\_manual.pdf](http://assets.panda.org/downloads/wwf_paper_scorecard_manual.pdf) (7/13/07).

### **WWF's Tissue Scoring**

WWF/GFTN. 2005. Bulletin. Online at [assets.panda.org/downloads/marchbulletin.pdf](http://assets.panda.org/downloads/marchbulletin.pdf) (4/26/06).

WWF. 2005. WWF European Forest Programme: Tissue success criteria. World Wild Fund for Nature. Online at [assets.panda.org/downloads/tissuesuccesscriteria2005.doc](http://assets.panda.org/downloads/tissuesuccesscriteria2005.doc) (4/26/06).

WWF. 2006. *Second Scoring of the Tissue Giants*. WWF International. Online at [assets.panda.org/downloads/final\\_audited\\_scoring\\_report\\_2006.pdf](http://assets.panda.org/downloads/final_audited_scoring_report_2006.pdf) (10/30/07).

## ABOUT THE WORLD BUSINESS COUNCIL FOR SUSTAINABLE DEVELOPMENT (WBCSD)

The WBCSD is a CEO-led, global coalition of some 200 companies advocating for progress on sustainable development. Its mission is to be a catalyst for innovation and sustainable growth in a world where resources are increasingly limited. The Council provides a platform for companies to share experiences and best practices on sustainable development issues and advocate for their implementation, working with governments, non-governmental and intergovernmental organizations. The membership has annual revenues of USD 7 trillion, spans more than 35 countries and represents 20 major industrial sectors. 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.

Our **mission** is to provide business leadership as a catalyst for change toward sustainable development, and to support the business license to operate, innovate and grow in a world increasingly shaped by sustainable development issues.

Our **objectives** include:

### **Business Leadership**

to be a leading business advocate on sustainable development;

### **Policy Development**

to help develop policies that create framework conditions for the business contribution to sustainable development;

### **The Business Case**

to develop and promote the business case for sustainable development;

### **Best Practice**

to demonstrate the business contribution to sustainable development and share best practices among members;

### **Global Outreach**

to contribute to a sustainable future for developing nations and nations in transition.

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The World Resources Institute (WRI) is an environmental think tank that goes beyond research to find practical ways to protect the earth and improve people's lives.

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