

Ten ways to "green" your paper

by Phil Riebel

Every year, more organizations are evaluating the environmental performance and social responsibility of their paper suppliers. The use of policies or guidelines for sustainable paper procurement has become more common for large paper buyers like Time Inc, JC Penney, Unilever, McGraw-Hill (1,2,3,4). Several guidance documents on environmentally-responsible paper purchasing are also available (5,6,7,8).

A systematic approach to sustainable paper procurement can help paper buyers minimize risks such as buying paper with fiber from illegal logging activities, impacts on forest biodiversity, to name a few. Sustainable procurement can also create business opportunities for paper producers who have made efforts to lower the environmental footprint of their products.

Here are 10 tips to "green" your paper:

1. Remind people of the sustainability features of paper

The World Wildlife Fund (9) states:

"WWF believes that Paper is a valuable product that has been an integral part of our cultural development. Paper is made from mostly renewable resources and is an essential part of modern life, helping to increase levels of literacy and democracy worldwide."

Also:

- The main raw material for papermaking, wood fibre, comes from a renewable and natural resource - trees (the product of sunlight, soil, nutrients and water) (5).
- Paper is recyclable and over 40% of paper fibre used in the world today comes from recovered paper (10).
- The pulp and paper industry globally only contributes 1% of greenhouse gases (11) and paper is often manufactured using a high percentage of renewable energy such as biomass (12).
- Sustainably managed forests have numerous social and environmental benefits (Fig. 1), including mitigating climate change by taking up carbon (5).

Few products that surround us today have these unique features. Many are more dependent on non-renewable resources and have lower recycling rates.

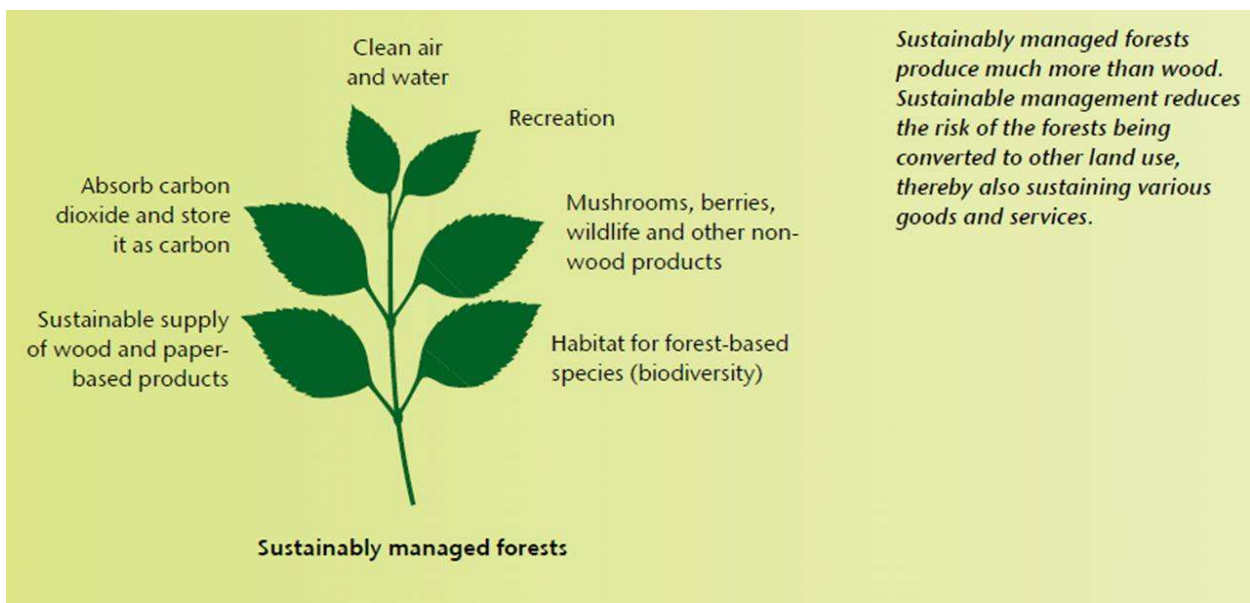


Figure 1: Ecosystem goods and services of sustainably managed forests. Source (5).

2. Reduce impacts over the life cycle of your products

As all products, paper has environmental impacts at all stages of its life cycle: raw material procurement including forest management, manufacturing of pulp and paper, paper distribution, transportation, recovery and disposal (Fig. 2). The goal of sustainable production should be to lower the environmental impact, or the overall environmental footprint, of paper products over their life cycle. Paper buyers are gradually becoming more systematic at integrating this life cycle environmental performance into purchasing decisions by using product scorecards or environmental product declarations such as these:

- Environmental Paper Assessment Tool (EPAT) (13)
- Paper Profile (14)
- Proctor & Gamble, Environmental Sustainability Scorecard (15)
- WWF Paper Scorecard (16)
- Walmart Supplier Sustainability Scorecard (17)

These reporting tools assess product performance across a wide range of indicators such as percentage of certified fibre from sustainable managed forests, recycled fibre use, water and energy use, emissions to air and water, solid waste to landfill, greenhouse gas emissions, social responsibility, certifications and reporting.

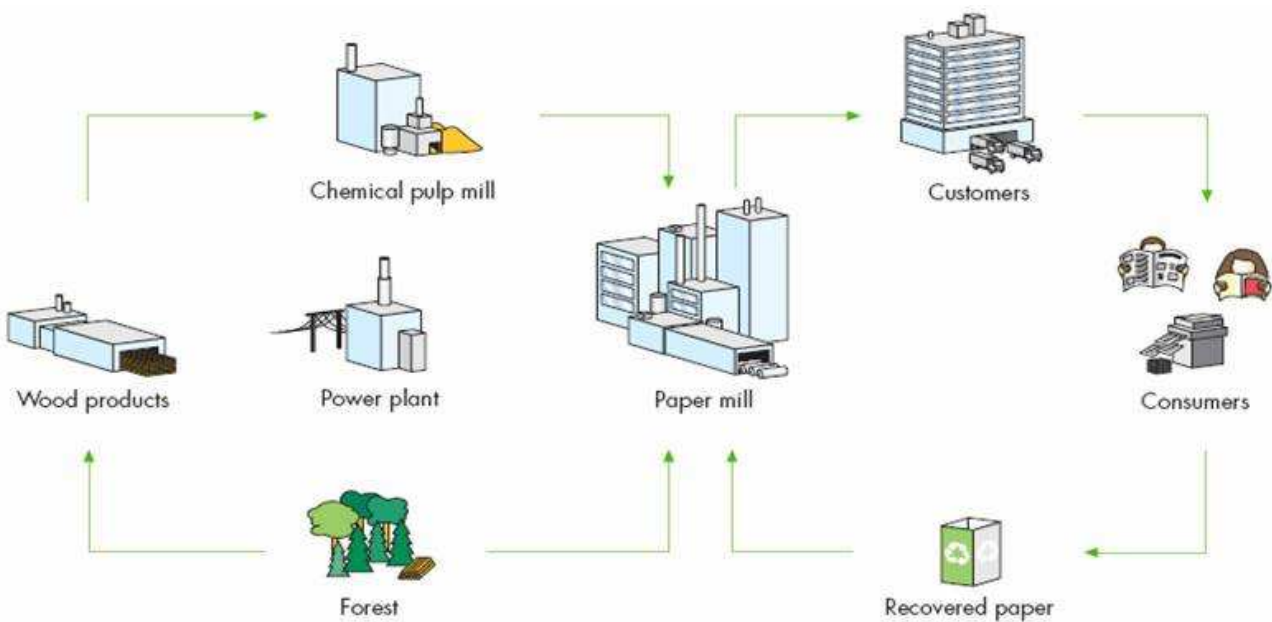


Figure 2: The life-cycle of paper. Courtesy: UPM-Kymmene Group.

Differing Views

In recent years, environmental groups have strongly promoted the use of recycled fibre or fibre from FSC-certified forests and claimed that other fiber types (e.g. PEFC and SFI certified) are of lower environmental quality (18,19). On the other hand, many producers and paper buyers have adopted a more inclusive approach that accepts all the key forest certification schemes (e.g. PEFC, FSC, SFI, CSA) and overall promotion of forest certification. Furthermore, some are committed to increasing recycled content overall, and others state that recycled paper will be used only in grades where it is economical and available. There are many reasons for these differing views, one of them being the importance given to single elements of the paper life-cycle, rather than the overall footprint.

Although recycled or FSC-certified fiber are key elements of sustainable paper procurement, it should not be assumed that paper with these fibers will have a lower environmental load than a similar wood-based grade. It may in some cases, but not others. The environmental impact of paper depends on many measured indicators across the product life cycle, and it is also very site-specific (forestry practices, mill performance, carbon footprint, chemicals used, etc...). Life-cycle-analysis (LCA) experts typically weigh the importance of environmental impacts in the following order of importance: 1) global warming 2) eco-toxicity 3) acidification 4) ozone depletion 5) carcinogens 6) particulates, and so on (20). By focusing on reducing these impacts more sustainable paper products can be developed. Switching fiber type may not be the most cost-effective way to reduce the overall environmental load of certain paper products, especially in the case of graphic paper.

Regardless of the different views about the environmental impacts of paper, environmental impacts are best known when they are measured. Stated facts should always be backed by sound science.

3. Show regulatory compliance

Most customers expect full compliance with environmental regulations. It is best to be open and clear about any regulatory problems as soon as possible rather than your customers hearing it via a news release or a competitor. When problems happen, show how you reacted and how you will prevent re-occurrence. Openness and transparency maintains good business relationships.

If performance is good and there is a wide gap between your emission levels and the regulatory requirements, then that is key message to send to customers.

4. Promote sustainable fibre use and biodiversity

Sustainably managed forest and recovered paper are expected to continue being the main sources of raw material for an increasing global need in paper products (10). Alternative fibers (non-wood based) made up only 4% of the global fiber supply in 2008, and this is forecasted to decrease to 2.8% by 2025, although volumes used will increase. As a result, non-wood fibers are not readily available for most papermaking. At a global scale, the use of more recovered paper will not result in a decrease in forest management. In fact, the opposite is true due to the forecasted growth in paper consumption. Hence, more paper recovery is needed in many regions of the globe, as well as more sustainable forest management.

Sustainable Forest Management

The simplest way for paper producers to prove sustainable forest management is to certify their forest land and their fiber tracing system using standards published by the following organizations:

- The Program for the Endorsement of Forest Certification (PEFC), in most European countries as well as growing in other regions of the world (21).
- The Sustainable Forestry Initiative (SFI) and Canadian Standard Association (CSA), used in North America and also endorsed by PEFC (22,23).
- The Forest Stewardship Council (FSC) (24).

Compliance with the Lacey Act in the United States is another measure to avoid illegal logging (25). This Act, amended in 2008, makes it unlawful in the US to import, trade or possess trees, or products derived from trees, that have been illegally harvested.

Pulp and paper companies can also demonstrate sustainable forest management by implementing a biodiversity strategy (Fig. 3), or having policies against forest conversion and use of genetically modified organisms, to name a few examples.



Figure 3: The abundance and diversity of bird species is a good indicator of sustainable forest management and attention to biodiversity. Photo: Pileated woodpecker building nest (Copyright Phil Riebel).

Recycling and Use of Recovered Paper

Recycling paper is very good practice, but sustainable use of recycled fibre means using it at the right locations and in the right paper grades, based on economic and environmental considerations.

In 2007, most recovered paper (about 82%) was used as a raw material in packaging grades such as carton board and paper board (10) because the manufacture of these grades does not typically involve de-inking and / or bleaching. Hence, the processing is generally less costly and may also have less environmental impacts than when de-inking and bleaching are required. Other factors to consider are transportation distance of the recovered paper (i.e. usually near areas of large population density) and paper quality

needs. In many cases, wood fiber may be a more sustainable choice, i.e. a better balance between economic and environmental considerations. About 6% of the global supply of recovered paper in 2007 was used in printing and writing grades, and this is expected to stay stable or decrease slightly by 2025, although the total volume of recovered paper used will increase significantly (10).

In the papermaking process, wood fiber can be recycled an estimated 4 to 7 times, after which the fiber breaks down and becomes waste. In other words, recovered paper is not an infinite source of raw material. To make the global fiber cycle work, a continual input of 35 to 65% of fresh wood fiber is needed depending on the grade of paper manufactured. If no wood fibre were used then degradation through recycling would result in the World running out of paper in within a period 6 to 18 months depending on the paper grade (26).

Whether your customers purchase wood based or recycled paper, engagement in recycling of all paper products should be promoted and communicated.

5. Clean production will help your score

Paper scorecards typically include the following environmental indicators that relate to the performance of pulp and paper mill sites:

- Air emissions (e.g. SO₂, NO_x, TRS)
- Energy use
- Wastewater emissions (e.g. COD, BOD₅, TSS, nitrogen, phosphorus)
- Solid waste to landfill
- Greenhouse gas emissions (e.g. CO₂ from use of fossil fuels, methane emissions from landfills)

Depending on how these indicators are weighted within a scorecard, they can significantly influence the final score. Therefore, good performance of pulp and paper mill facilities can help obtain more business if other product features are also competitive.

6. Have a strategy to lower your carbon footprint

The carbon footprint of paper can be defined as greenhouse gas emissions emitted to the atmosphere during the entire life-cycle of paper production and distribution. The most common methods used for greenhouse gas inventories in the pulp and paper industry are those of the World Resources Institute (27), the British Standards Institute (28), and CEPI (29).

Based on results of recent carbon footprint and life-cycle assessment studies (30,31), it is clear that pulp and paper mill sites using a high percentage of renewable energy such as biomass and "green" electricity from the grid can significantly reduce the carbon footprint of their paper products, up to 80% in some cases (Fig. 4). Reducing organic waste to landfill avoids methane production (a powerful greenhouse gas). Landfilling paper products can contribute up to 15% or more of the carbon footprint over the life cycle of the final product.

In summary, a good climate change strategy can include:

- Promoting sustainable forestry is a good way of ensuring that forests continue taking up carbon to help mitigate climate change.
- Making efficient use of wood raw material, for products and energy from biomass (a renewable and carbon-neutral fuel).
- Improving energy efficiency of operations and logistics.
- Reducing landfill waste and recycle.

Finally, be aware of the growing importance of water footprint and the fact that many leading companies are now engaged in product water footprint studies (32).



Figure 4: Efficient use of forest biomass for energy can help reduce the carbon footprint of paper products. Photo: Roadside thinned wood in Finland (Copyright Phil Riebel).

7. Show social responsibility

Social responsibility is also a key element of sustainability, and social indicators are included in some paper scorecards like the EPAT (14). Certain voluntary reporting initiatives like the Dow Jones Sustainability Index also rank companies based on their social, environmental and financial performance (33). A good standing on the DJSI can help companies demonstrate sustainability leadership. Certification to the SA8000 International standard for social accountability is another way to show good management of social issues (34). Given that health and safety issues are a top priority in the industry, many companies have certified their occupational health & safety management system under the OHSAS 18001 standard (35).

More detail on social responsibility indicators can be obtained by consulting key resource documents (36,37)

8. Promote certification and eco-labels

The use of third-party verified certification systems and eco-labels is a sign of environmental commitment and performance. The most well know of these labels is the Mobius Loop indicating recycled fiber content or recyclability of products (38). Although there are many standards and labels in use globally, the most common ones are included below.

- Sustainable forest management based on standards from:
 - Program for the Endorsement of Forest Certification (PEFC) and its affiliate programs throughout the world (e.g. SFI in North America) (21,22).
 - Forest Stewardship Council (FSC) (24)
- Chain-of-custody and use of eco-labels for fibre use (standards from same organizations as above)
- Environmental management system (ISO 14001 standard, Eco-management Audit Scheme or EMAS) (38,39)
- Eco-labels for overall environmental performance (EU Eco-label, Ecologo - Canada, Green Seal - USA) (41,42,43)
- Reporting standard (Global Reporting Initiative) (36)

The eco-labels listed above can be applied to the final products and in other cases claims can be made as long as they are factual and verifiable (44). For example: "This paper was manufactured at a mill facility that has an ISO 14001 certified environmental management system". Claiming that single elements (like recycled fiber use) lower the footprint of the product can be seen as a form of "greenwashing" and can be avoided by following recommendations for environmental marketing (45).

Paper scorecards will often award points for being certified under some of the above schemes.

9. Be open and transparent in sustainability reporting

Open and transparent environmental reporting is a sign of sustainability leadership. Annual environmental or sustainability reports are produced by many companies, either at the facility level, corporate level, or both. Guidelines of the GRI (Global Reporting Initiative) are often cited as a standard for sustainability and environmental reporting (40). Third party independent verification of reports can add credibility to reporting initiatives, as done under the EU Eco-management Scheme (EMAS) or GRI (36,40).

In addition to annual reports, sustainability information can also be reported on a voluntary basis to outside organizations (e.g. DJSI, Carbon Disclosure Project) that will rank companies based on their sustainability performance and/or reporting (46,47,48)

10. Provide top environmental service

Providing expert environmental support to customers can add value to certain business relationships. Services offered can include: answering inquiries, training on key environmental topics, assistance in developing sustainable paper procurement policies, developing environmental partnership projects.

Finally, the above suggestions will only generate marketplace benefits with effective environmental marketing and a visible presence. Ensuring that your employees are knowledgeable and environmentally aware is a great way to demonstrate sustainability of your company and products.

References

11. <http://www.timeinc.com/assets/Time%20Inc.SustainabilityReport2009-2010.pdf>
12. http://www.jcpenney.net/PDFs/Catalog_Paper_Policy.pdf

13. <http://www.unilever.com/sustainability/environment/packaging/sustainable-paper-board-sourcing/index.aspx>
14. <http://www.mcgraw-hill.com/Content/cr/paper-procurement-policy.pdf>
15. World Business Council for Sustainable Development and World Resources Institute. 2009. Sustainable Procurement of Wood and Paper-based Products: Guide and Resource kit, Version 1.1. <http://www.wri.org/publication/sustainable-procurement-wood-and-paper-based-products>
16. Forest Products Association of Canada, Pricewaterhouse Coopers. 2008. A buyer's guide to sustainable forest products, 2008. http://www.fpac.ca/publications/FPAC_BuyerGuide-Eng08.pdf
17. The DMA Green 15 Toolkit. <http://www.the-dma.org/Green15Toolkit/>
18. European Commission Green Public Procurement (GPP) Training Toolkit - Module 3: Purchasing Recommendations. Copying and Graphic Paper: Background Product report. 2008. http://ec.europa.eu/environment/gpp/pdf/toolkit/paper_GPP_background_report.pdf
19. The WWF Guide to Buying Paper, WWF International 2007. http://wwf.panda.org/how_you_can_help/greenliving/at_the_office/reducing_paper/paper_toolbox/tools_for_paper_buyers/the_wwf_guide_to_buying_paper/
20. Jaakko Poyry. 2009. World Fibre Outlook up to 2025, 2009 edition, Volume 1, Executive Report (Confidential Report).
21. World Resources Institute. 2005. World greenhouse gas emissions in 2005. <http://www.wri.org/chart/world-greenhouse-gas-emissions-2005>
22. American Forest & Paper Association, <http://www.afandpa.org/default.aspx>
23. EPAT Indicators Protocols: a detailed guide, Metafore - EPAT Version 2.0. <https://www.epat.org/EPATHome.aspx?request=119>
24. Manual for an environmental product declaration for the pulp and paper industry - Paper Profile, Valid from January 2008. <http://www.paperprofile.com/>
25. Procter&Gamble, Supplier Sustainability Scorecard. <http://www.pgsupplier.com/environmental-sustainability-scorecard>
26. WWF Paper Scorecard 2010. http://wwf.panda.org/how_you_can_help/at_the_office/reducing_paper/paper_toolbox/tools_for_paper_buyers/wwf_paper_scorecard/
27. Walmart Supplier Sustainability Scorecard. <http://www.walmartstores.com/download/4055.pdf>
28. Environmental Paper Network, www.environmentalpaper.org
29. Forest Ethics, www.forestethics.org
30. Cornejo, F., Janssen, M.J.M., Gaudreault, C., Samson, R., Stuart, P.R. (2005). Using Life Cycle Assessment (LCA) As a Tool to Enhance Environmental Impact Assessments (EIA). *8th Conference on Process Integration Modeling and Optimization for Energy Saving and Pollution Reduction - PRES'05*, v. 7, p. 521-528.
31. Program for the Endorsement of Forest Certification (PEFC). <http://www.pefc.org/standards/overview>
32. Sustainable Forestry Initiative (SFI). http://www.sfiprogram.org/sustainable_forestry_initiative_standard.php
33. Canadian Standard Association (CSA), Guide CAN/CSA-Z809. http://www.csa-international.org/product_areas/forest_products_marking/program_documents/CAN_CSA_Z809-02O_English.pdf, http://www.csa-international.org/product_areas/forest_products_marking/program_documents/
34. Forest Stewardship Council (FSC). <http://www.fsc.org/resourcescenter.html>
35. Lacey Act . http://www.aphis.usda.gov/plant_health/lacey_act/index.shtml , <http://www.eia-global.org/lacey/P6.EIA.LaceyReport.pdf> ,
36. Metafore. 2006. The Fibre Cycle Technical Document. Summary Report, March 2006. 14 p.
37. The greenhouse gas protocol initiative - pulp and paper sector toolset. <http://www.ghgprotocol.org/calculation-tools/pulp-and-paper>
38. PAS 2050 - Assessing the life cycle greenhouse gas emissions of goods and services. <http://www.bsigroup.com/Standards-and-Publications/How-we-can-help-you/Professional-Standards-Service/PAS-2050>

39. CEPI - Confederation of European Paper Industries - Framework for the development of carbon footprints for paper & board products, Appendices, September 2007.
<http://62.102.106.97/Objects/1/Files/Carbon%20Footprint%20appendices.pdf>
40. Gower, S.T. 2006. Following the paper trail - The impact of magazine and dimensional lumber production on greenhouse gas emissions: a case study. The H. John Heinz III Center for Science, Economics and the Environment, Washington, DC. 102 p.
http://www.heinzctr.org/publications/PDF/08014_Time_1to51.pdf ,
http://www.heinzctr.org/publications/PDF/08014_Time_52to102.pdf
41. National Council for Air and Stream Improvement (NCASI). 2010. Life cycle assessment of North American printing and writing paper products. Final report prepared for American Forest and Paper Association (AF&PA), Forest Products Association of Canada (FPAC). June 18, 2010. 292 p.
42. Hoekstra, A.Y. et al. 2009. Water footprint manual, State of the art 2009. Water Footprint Network, Enschede, The Netherlands. 127 p.
<http://www.waterfootprint.org/downloads/WaterFootprintManual2009.pdf><http://www.waterfootprint.org/?page=files/productgallery&product=paper>
43. SAM Research. 2009. DJSI Corporate Sustainability Assessment Questionnaire, 2009. 1730 Forestry & Paper. Available to applicants only. http://www.sustainability-index.com/07_html/assessment/infosources.html , http://www.sustainability-index.com/07_html/assessment/overview.html
44. Social Accountability International. SA8000: 2008 Standard. <http://www.sa-intl.org/index.cfm?fuseaction=Page.ViewPage&PageID=937>
45. OHSAS 18001. <http://www.ohsas-18001-occupational-health-and-safety.com/>
46. Global Reporting Initiative guidelines. <http://www.globalreporting.org/Home>
47. AA1000 AccountAbility Principles Standard (2008). <http://www.accountability.org/aa1000series>
48. American Forest & Paper Association. 2001. Paper recycling symbol guidelines & environmental marketing claims. 6 p. <http://www.afandpa.org/PaperRecycling.aspx>
49. ISO standards. <http://www.iso.org/iso/home.htm>
50. EU Eco-Management and Audit Scheme (EMAS). http://ec.europa.eu/environment/emas/index_en.htm
51. The Commission of the European Communities. 2002. Commission decision of 4 September 2002 - establishing revised ecological criteria for the award of the Community eco-label to copying and graphic paper and amending decision 1999/554/EC. 10 p. <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2002:237:0006:0015:EN:PDF>
52. Ecologo program. http://www.ecologo.org/en/seeourcriteria/category.asp?category_id=28
53. Green Seal standards and certifications for paper products.
http://www.greenseal.org/certification/paper_products.cfm
54. US Federal Trade Commission. Guidelines for the use of environmental marketing claims.
<http://www.ftc.gov/bcp/grnrule/guides980427.htm>,
<http://www.ftc.gov/os/fedreg/2010/october/101006greenguidesfrn.pdf>
55. Terrachoice environmental marketing. 2009. The seven sins of greenwashing - environmental claims in consumer markets. Summary report: North America, April 2009.
<http://sinsofgreenwashing.org/findings/greenwashing-report-2009/>
56. Carbon Disclosure Project. <https://www.cdproject.net/en-US/Pages/HomePage.aspx>
57. Forest Footprint Disclosure Project. <http://www.forestdisclosure.com/>
58. FTSE4good Index Series. http://www.ftse.com/Indices/FTSE4Good_Index_Series/index.jsp

Phil Riebel is a senior sustainability advisor to the forest, paper and print sector. He has 23 years of international experience acquired in senior management positions in industry and consulting. He can be reached at philriebel@bellaliant.net