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 6. Recovered paper in the world

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

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

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

***** North America only.***

A constant flow of virgin fiber into the fiber network is needed because wood fibers cannot be recycled indefinitely. Depending on the origin of the virgin fiber and the type of products, fiber is typically degraded and unusable after five to seven cycles. Thus, virgin fiber is constantly added to the fiber network to compensate for the retirement of degraded fiber, archival storage of paper, and loss of fiber through normal use and disposal of certain paper products such as personal care and tissue products. A recent study suggests that the paper supply in Canada and the United States would develop serious problems in a matter of days if the input of fresh fiber was eliminated (Metafore, 2006).[5]

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

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

SELECTED RESOURCES: RECYCLED CONTENT

Procurement requirements

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.
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.

Resources to assess requirements

Paper Profile	Includes a summary of recycled content.
GPN	Prefers products that are easily recycled and contain high percentages of recycled content.
wood for good	Promotes recycling of wood products.
EPAT®	Rates the percentage of use of pre- and post-consumer fiber, as well as the total fiber input in the product.
WWF GFTN	Provides advice on defining levels of recycled content and systems to certify recycled materials.
WWF Tissue Scoring	Rates companies' specific commitments to maximize the use of post-consumer recycled content and optimize the use of virgin fiber.
WWF Paper Scorecard	Rates and promotes the use of post-consumer recycled fiber.
WWF Guide to buying paper	Provides background information and advice about increasing use of recycled fiber. Showcases examples of companies using recycled fiber.

Box 10. 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 11. Recycling and environmental impacts

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

	VIRGIN FIBER PRODUCT	RECYCLED FIBER PRODUCT
Raw material acquisition	**Trees grown, harvested, transported and chipped.**	**Used products collected, transported, and sorted. There might be cases, where paper with high content of recycled fiber generates more fossil fuel-based CO_2 emissions because of transportation.**
Raw material processing	**Water, energy, and chemicals used to extract fibers from wood chips.**	**Water, energy, and chemicals used to clean and re-pulp used products, remove fillers, and de-ink fibers.**
Processing by-products	**Air emissions, water effluent, non-hazardous waste (wastewater treatment residuals). Some solid waste used as soil nutrients.**	**Fewer air emissions, similar water effluent, significantly more wastewater treatment residuals.**
Product manufacturing	**Water and energy used to make paper from pulp.**	**Water and energy used to make paper from pulp. Recycled fibers can increase the amount of energy (including fossil fuel energy) needed in paper-making because they dry less efficiently. Fibers that shorten/break during recycling process can end up as solid waste.**
Product use	**The amount of fiber or product needed to perform a given task (i.e., make 100 copies, absorb 2 grams of fluid).**	**Recycling process breaks and stiffens fibers, resulting in reduced performance in some types of products. More fiber per sheet may be needed or more product used to adjust for poorer performance.**
Product disposal	**Paper products typically recycled or disposed as solid waste or in wastewater. When products are no longer recyclable they can be burned to generate energy.**	**Similar disposal routes for products made from recycled fibers. When products are no longer recyclable they can be burned to generate energy.**