

Paper Task Force  
Recommendations for  
Purchasing and Using  
Environmentally  
Preferable Paper

Project Synopsis

The  
Paper  
Task  
Force

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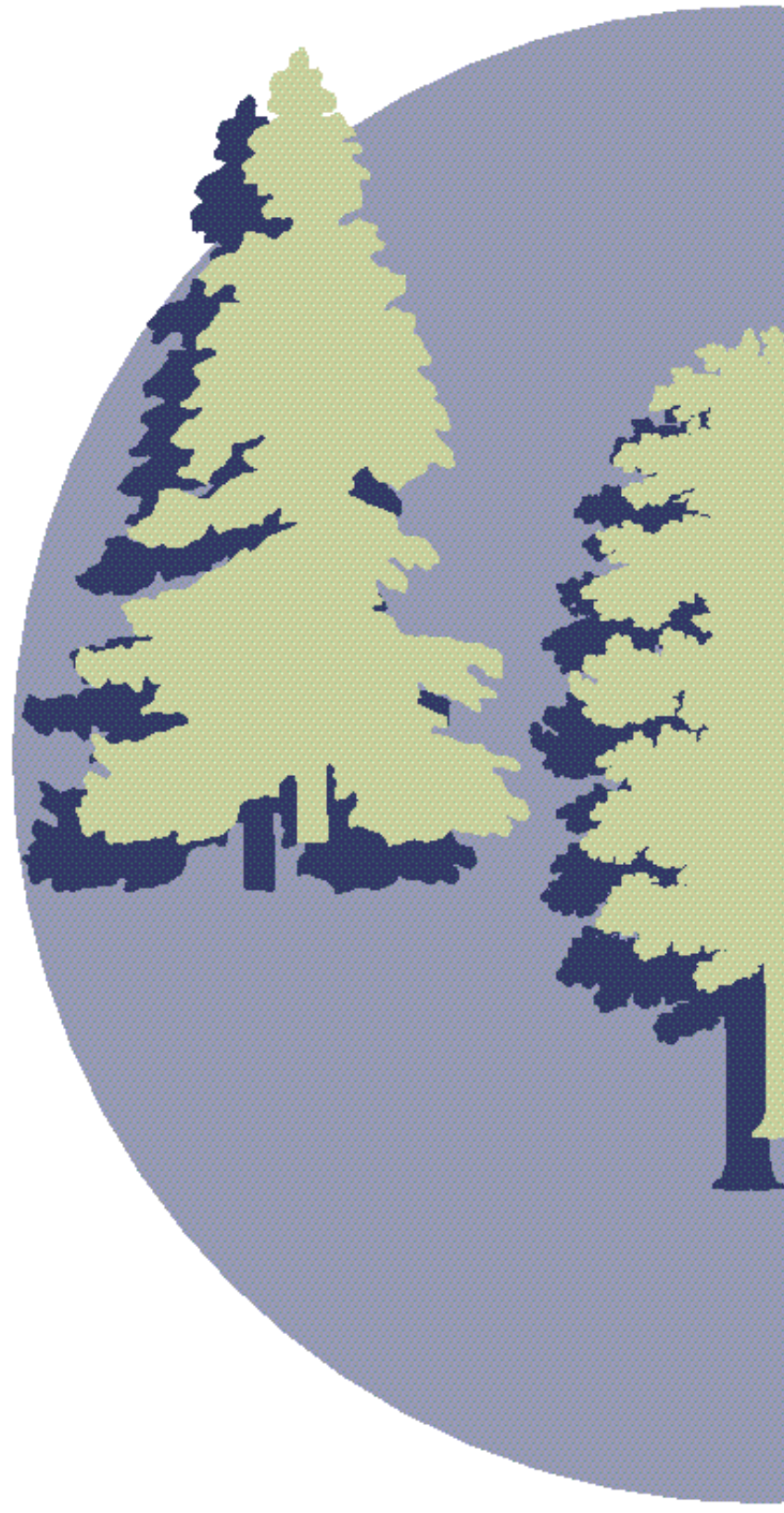
## Introduction

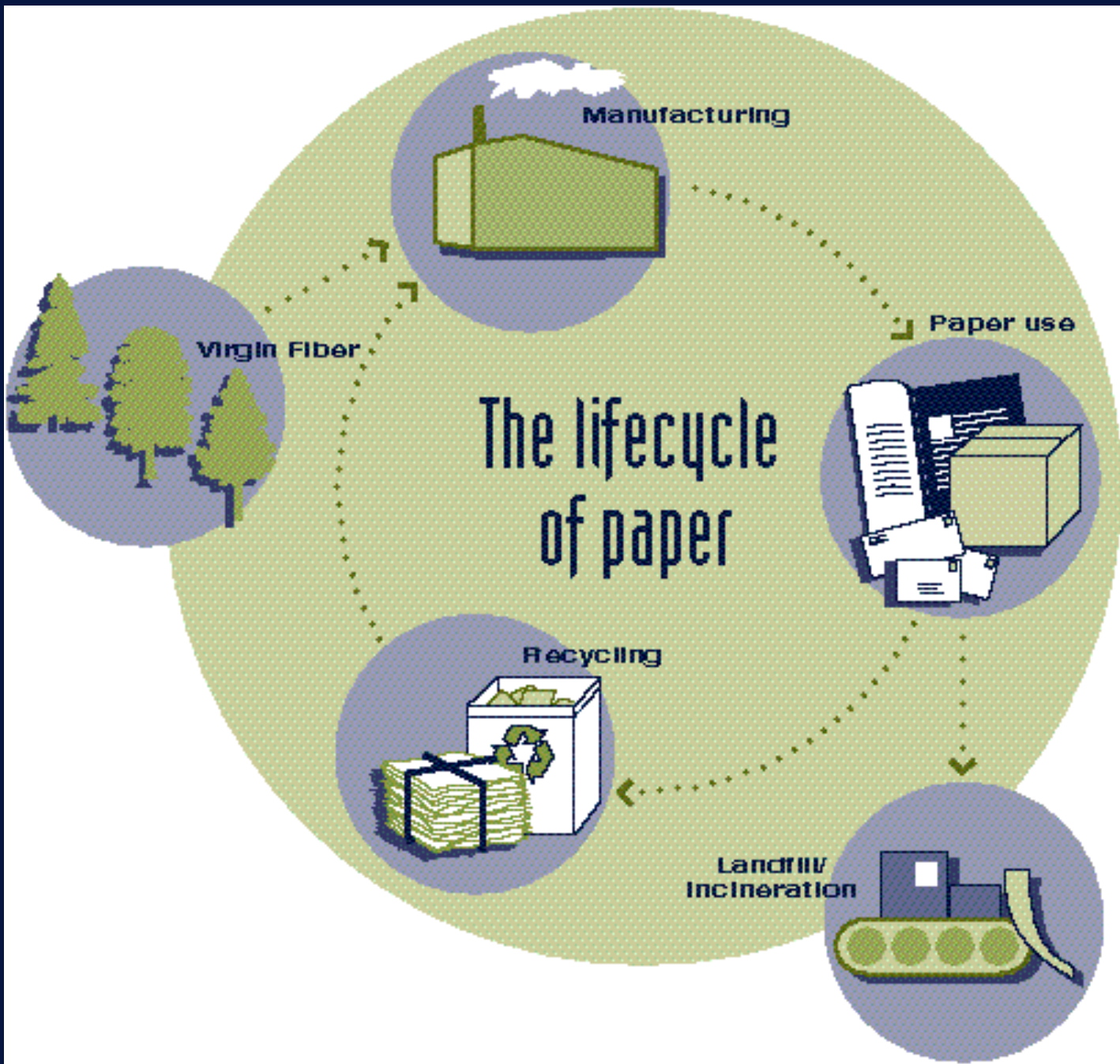
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# Introduction

## 1

Why paper? What's at stake?

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We all use paper — lots of it. The average American now uses nearly 700 pounds of paper each year — a doubling in per-capita consumption since 1960. And further growth in consumption is projected both in the United States and worldwide.

As with other materials, the use of all this paper carries with it a considerable impact on the environment. The members of the Paper Task Force came together to find ways to reduce these impacts. We comprise an unusual mix of partners: four of America's premier corporations from various sectors of the economy, a major university and a leading environmental advocacy organization. Each of our organizations purchases and uses large amounts of paper. We also share the common purpose of finding ways to increase the purchase and use of environmentally preferable paper. We've worked cooperatively to craft a voluntary, cost-effective initiative for environmental improvement.

By adopting a market-based approach grounded in the purchaser-supplier relationship, we seek to create demand for *environmentally preferable paper*, defined as *paper that reduces environmental impacts while meeting business needs*. This definition explicitly acknowledges that economic and performance considerations are central to purchasing decisions. It also defined the course of our more than two years of extensive research, during which we:

- developed a thorough understanding of *key performance characteristics* of various grades and uses of paper, and how such functional properties can be affected by changes in the fiber source or processes used to make the paper;
- reviewed available studies and developed our own analyses and models to elucidate the *economics* of paper production and use; and
- explored *environmental impacts* associated with the production and use of paper.

Through this approach, the Task Force met its goal: to identify ways to integrate environmental criteria into paper purchasing decisions on a par with traditional purchasing criteria, such as cost, availability and functionality. By so doing, we ensure that the right environmental choice also makes good business sense. Many of the Task Force's recommendations can cut costs and offer longer-term strategic advantages for purchasers, and, if adopted broadly, can positively reshape the overall economics of

paper production and use. Our recommendations also can enhance emerging purchasing practices, such as strategic alliances, that are being adopted by successful business organizations.

Rather than considering only a single or a few attributes of paper — its recycled content, for example, or how it is bleached — the Task Force chose to examine the *entire lifecycle of paper*, literally from the forest to the landfill. We developed a basis for judging the available options that considers: how the fiber used in paper is *acquired*, whether from a forest or a recycling collection program; how that fiber is *manufactured* into a range of paper products; and how those products are *managed after use*, whether in landfills or incinerators or through collection for recycling.

We reviewed the published literature, analyzed data and had scores of internal meetings, but we also got away from the library, our offices and meeting rooms:

- We made more than 50 site visits to forests, pulp and paper mills, research facilities and recycling centers.
- We conducted more than 400 meetings and discussions with experts from the forest products industry, academia, environmental organizations, consulting firms and related businesses such as makers of office equipment.
- We subjected our research to extensive review by a range of experts.

## Why Paper? What's at Stake?

Paper is an essential part of our lives and our work. At the same time, its use has major environmental and economic consequences.

Environmental impacts can arise across all stages of the lifecycle of paper:

***Fiber Acquisition:*** Obtaining the fiber used to make paper products entails a range of environmental impacts. Collection and processing of recovered paper requires energy and can release pollutants to the environment, but these impacts need to be viewed from a larger perspective: by displacing some of the need for virgin fiber and extending the overall fiber supply, recycling can offset the environmental impacts of acquiring virgin fiber, making virgin paper and disposing of paper after use.

Acquiring virgin fiber from trees can significantly alter the eco-

logical values or functions of forests. Because specific forest management activities, such as how trees are harvested or where roads are placed, can have immediate, localized effects on water quality, a number of steps, both regulatory and voluntary, have been taken to lessen their impact. However, the most significant impacts of forest management arise on a larger or longer scale, and these have been less effectively addressed by existing safeguards. These cumulative effects can include impairment of the integrity of natural ecosystems and the health and diversity of plant and animal species — and economic resources such as fisheries and recreation — dependent on them.

***Pulp and Paper Manufacturing:*** Whether from recovered or virgin fiber, the process of making paper consumes large quantities of fresh water, chemicals and energy; pulp and paper is the fourth most energy-intensive manufacturing industry in the United States. Outputs from paper manufacturing processes include conventional and hazardous air and water pollutants released to the atmosphere and to bodies of water, as well as a variety of solid wastes.

The Task Force's research has shown that manufacturing processes based on recycled fiber, while still using resources and generating releases to the environment, generally require fewer inputs and generate fewer outputs than do virgin fiber manufacturing processes. We've also identified environmental preferences among the technologies and practices used to make virgin paper.

***Used Paper Management:*** Managing used paper is also a source of environmental impacts. Waste collection, landfilling and incineration each generate releases of air and water pollutants (and, in the case of incineration, an ash residue that itself requires landfilling). Rapid increases in recycling have occurred over the last several years, yet paper still makes up one-third of all waste Americans send to landfills and incinerators. In fact, in 1994, approximately 20% of all paper produced *worldwide* was discarded in the United States. While not all such paper is capable of being recovered for recycling, an increase in the recovery rate from 40% (the 1994 level) to 50% would increase fiber supply worldwide by 3.3%.

***The Cost of Paper to Business:*** Paper entails a considerable cost to businesses that use it in large volumes. The value of total

shipments of paper from U.S. manufacturers in 1994 was \$138 billion. This figure includes \$55 billion for market pulp and paper in its basic form (large rolls) and \$83 billion in value added from converting rolls of paper into products like corrugated boxes, paperboard cartons, envelopes, writing tablets, etc.<sup>1</sup> Paper is also a cost factor for — and the material that makes possible — entire business sectors such as publishing, catalog and direct mail retailing and commercial printing.

## What is the Pulp and Paper Industry Doing about All This?

The environmental concerns described above are by no means new to the pulp and paper industry; indeed, many companies and the industry as a whole have been proactive in addressing them. Some examples are provided below.

**Recycled Fiber Acquisition:** The last decade has witnessed an unprecedented rise in the collection of used paper products for recycling, from about 27% in 1985 to just over 40% in 1994 (including both postconsumer finished paper products and pre-consumer manufacturing scrap). Continued increases in the paper recovery rate are expected through the rest of the decade; the pulp and paper industry has set a goal of 50% recovery for the year 2000.<sup>2</sup> In the late 1980's paper manufacturers began installing significant additional deinking and recovered fiber processing capacity, projected to amount to an investment of more than \$10 billion over a decade.

The Task Force's recommendations directly bolster this investment in recycling by calling for action by organizations that purchase and use paper on both the supply and demand sides of the recycling equation.

**Virgin Fiber Acquisition Through Forest Management:** The American Forest & Paper Association (AF&PA) recently issued a Sustainable Forestry Initiative (SFI) that sets out guiding principles for changing how forests are managed so as to sustain, not only the output of forest products, but also non-timber values provided by forests, such as soil, air and water quality, wildlife and fish habitat, and aesthetics. The initiative is the most comprehensive expression of the industry's collective effort to improve forest manage-

ment on its lands. It also commits AF&PA member companies to encourage similarly sustainable practices on the part of others, such as loggers and other landowners from whom they purchase wood. As expected for an initiative developed by the industry's trade association, the guidelines do not contain specific performance standards in most areas, leaving the administration and execution of the stated objectives up to individual companies.

The SFI provides a useful point of reference for the recommendations of the Paper Task Force, many of which reinforce the principles articulated in the industry's guidelines. Because our recommendations are intended to be implemented by purchasers working with individual forest products companies, they set out more specific performance measures that purchasers can use to assess or compare individual suppliers' practices and other activities.

Other private-sector initiatives toward sustainable forestry that involve or potentially affect the pulp and paper industry have been developed recently. A 1993 report entitled "Sustaining Long-term Forest Health and Productivity," was issued by the Society of American Foresters (SAF), the professional organization representing the forestry profession as a whole; it represents a recognition by much of the profession of the need for new approaches to forest management. In 1994, the Forest Stewardship Council (FSC), an independent, international body being set up to accredit organizations to certify forest management practices, issued its "Principles and Criteria for Natural Forest Management," which embody a set of environmental objectives remarkably similar to those articulated in the AF&PA and SAF initiatives just described: conservation of "biological diversity and its associated values, water resources, soils and unique and fragile ecosystems and landscapes." The SFI, SAF and FSC initiatives are all discussed in Chapter 4 of the Task Force's main report.

**Pulp and Paper Manufacturing:** Over the last several decades, the nation's environmental laws and industry efforts have produced substantial reductions in pollution from pulp and paper manufacturing. Since 1970, the industry has invested over \$10

Our recommendations bolster investments in recycled paper manufacturing by calling for action by organizations that purchase and use paper on both the supply and demand sides of the recycling equation.

billion to install *pollution-control* systems and practices at pulp and paper mills to reduce releases of pollutants to the environment. As a result, releases of conventional air and water pollutants have declined by 80-90% over the last 25 years. More recently, the industry has spent additional capital to install *pollution-prevention* technologies. For example, by reducing their use of elemental chlorine, bleached kraft pulp mills have reduced releases of dioxin by over 90% since 1988, and further substantial reductions in chlorine use are underway. In addition, several paper companies have installed or made commitments to install more advanced technologies at bleached kraft pulp mills that can significantly reduce the quantity as well as improve the quality of their discharges to air and water. Finally, the American Forest & Paper Association has identified additional research directions for new pulping, bleaching and recovery systems as part of its *Agenda 2020*.

The Task Force recommendations build on these industry initiatives, by informing purchasers of these technological advances. This will allow purchasers to buy paper made with environmentally preferable systems and processes that further reduce natural resource consumption and releases to the environment.

The Task Force believes that organizations that purchase and use paper have a vital role to play in realizing further environmental improvements in each of the areas we have studied. The purchaser-supplier relationship is an appropriate and powerful vehicle for developing and implementing cost-effective, market-based solutions to the environmental challenges in these areas. Our recommendations are intended to facilitate this process.

## The Results

The Task Force has produced a variety of tools for organizations that use paper:

- A set of actionable *recommendations* (a summary of which is provided in the Appendix), each accompanied by a menu of *implementation options*, with which paper purchasers and users can systematically integrate environmental considerations into their operating procedures and purchasing decisions, alongside cost, performance, service and other traditional purchasing criteria.<sup>3</sup>
- Environmental, economic, and product performance *rationale* for the recommendations, as well as *answers to key questions* likely to arise in the course of their implementation.
- A decision framework with specific *action steps* (see below) that organizations that purchase and use paper can employ in examining their overall paper use and in applying the Task Force's recommendations to identify opportunities to effect positive environmental change.
- A set of detailed, fully documented *White Papers* that present all of the Task Force's technical research.

Together, these Task Force products comprise a *purchasing model* for organizations that buy and use paper and that seek to lessen the environmental impact of their paper use.

## Types of Paper Examined

The recommendations of the Paper Task Force focus on three major categories of paper products:

- printing and writing papers, including those used in publications as well as in business and office applications
  - corrugated shipping containers
  - folding cartons used to package consumer goods for retail sale
- These categories together represent approximately 70% of all paper used in the United States.

# What Can a Purchaser Do?

## 2

Approaches to implementing  
the recommendations

Five steps for direct action

## Approaches to Implementing the Recommendations

The Task Force's recommendations provide actionable steps that organizations that purchase and use paper can take to reduce paper use and address forest management, manufacturing and recycling.

Purchasers buy paper through a variety of entities. Those who buy directly from specific mills or paper companies can implement the Task Force's recommendations using these established relationships. Environmental factors can be introduced as purchasing considerations in the same manner as product quality, price, availability and service.

Other purchasers buy from office supply stores, printers, packaging converters, or paper brokers who in turn buy from manufacturers or other intermediaries. These purchasers can directly request of their vendors paper products with certain environmental attributes, such as recycled content. More generally, they can express their preferences to these vendors, and request that they pass such information back up *their* supply chain. Intermediary suppliers can be encouraged or requested to adopt these recommendations in their capacity as paper purchasers. Proactive purchasers may wish to link their volume of business with such vendors to the extent to which they offer papers made using fiber produced in accordance with these recommendations.

Depending on the specific nature of the purchasing relationship, purchasers can take several basic approaches to apply the recommendations:

- **Work with existing suppliers.** Paper purchasers can use the recommendations to communicate their preferences to existing suppliers or vendors, and work with them to modify existing products, practices or technologies or introduce new ones.
- **Comparison shop.** Paper purchasers can evaluate and preferentially buy from existing and prospective suppliers based on the degree to which suppliers offer products or employ practices that are consistent with the recommendations (and the purchasers' economic and paper performance needs).
- **Measure progress.** Purchasers can use the recommendations to establish criteria by which they will evaluate a current supplier's progress and continuous improvement over time. Estab-

## Direct Action

### Five steps for direct action

- Step 1: Understand your paper use.
- Step 2: Look for opportunities to reduce paper use.
- Step 3: Look for opportunities to recycle your paper and work with others to do the same, and to buy paper with postconsumer recycled content.
- Step 4: Look for opportunities to buy paper made by suppliers that employ environmentally preferable forest management practices to produce virgin fiber.
- Step 5: Look for opportunities to buy paper made by suppliers that employ environmentally preferable pulp and paper manufacturing technologies and practices.

ng milestones and reporting mechanisms for tracking progress can be used to ensure accountability and results.

- **Send a signal.** Purchasers can use the recommendations to send signals to existing and prospective suppliers that, functional and economic needs being met, they “shift their paper purchases over time to suppliers who adopt preferred practices and develop preferred products.

As these approaches to the Task Force recommendations are put to use at each step of the decision framework described below, environmental priorities and functional and economic needs specific to a given organization will need to be considered in deciding the extent to which that step can be applied to the organization’s paper use.

### Five Steps for Direct Action

The following decision framework can aid a purchaser in evaluating his or her organization’s overall paper use and in identifying opportunities to apply environmental preferences. The steps laid out below lead the purchaser through a logical progression of decision points to apply to an organization’s paper use. They provide a systematic way to apply the various sets of Task Force recommendations, in order to conduct a full assessment of improvement opportunities.

*Only the basic steps of the decision framework and a brief rationale are provided below, as an overview. When using the framework, purchasers should refer to the recommendations contained in the Task Force’s main report.*

Step 1. Understand your paper use.

The logical starting point is to develop a baseline “inventory” of your paper use. Identify the major uses, approximate ties used, mode of purchase and amounts distributed by business activities, disposed of and recycled.

Step 2. Look for opportunities to reduce paper use.

Reducing paper use (a form of *source reduction*) can take the form of eliminating a given use of paper altogether. For example, business forms can be consolidated or a layer of packaging can be eliminated. Or less paper can be used in a given application. For example, printing and copying can be done on both sides of a page or the basis weight of paper used in a publication can be reduced. When carried out in a manner consistent with functional and other constraints, source reduction offers major environmental and economic benefits. By reducing the amount of paper that is used in the first place, environmental impacts resulting from all stages of the lifecycle of paper are entirely avoided. Using less paper can also save money — less paper to purchase, less storage or filing space needed, and less used paper to manage. While cost savings may seem to provide ample incentive to reduce paper use, many studies have identified significant opportunities for further reductions in even the most efficient business operations.

In Chapter 2 of the Task Force’s main report, we offer recommendations and implementation options for reducing the use of paper in different settings, as well as references to other resources available to the purchaser.

*Of course, no matter how much source reduction you achieve, most businesses will still purchase and use plenty of paper. For the paper you do use, along with considering availability, functional performance and price:*

Step 3: Look for opportunities to recycle your paper and work with others to do the same, and to buy paper with postconsumer recycled content.

Paper recycling is good for the environment. The Task Force’s extensive research shows that, compared to virgin paper production and disposal, recycled paper production and recovery generally result in significantly lower environmental releases of numerous air and water pollutants, less solid waste and lower consumption of energy and forest resources.

For paper users acting in the aggregate, increasing the collection of paper for recycling while expressing a preference for paper with recycled content is a *strategic approach to containing prices* for new paper products. Increased collection of paper for recycling makes more raw materials available for paper manu-

facturers and can also reduce solid waste disposal costs and earn paper users revenues from selling the recovered paper. Maximizing the purchase of recycled paper consistent with economic and functional requirements encourages manufacturers to invest further in recycling-based manufacturing capacity and research and development. Within this context, it should be noted that the comparative cost of manufacturing virgin and recycled paper varies among different grades and among mills.

Recycling ultimately provides paper manufacturers with an important means of adding productive capacity, and provides purchasers with greater choices among paper products. Growth in recycling-based paper manufacturing capacity is now outpacing growth in virgin paper production capacity. Between 1984 and 1994, total production of pulp from wood grew by 10.2 million tons, while total consumption of recovered paper by U.S. manufacturers grew by 13.3 million tons.<sup>4</sup> At least in some pulp and paper grades, the advent of this recycling capacity is already creating lower prices for paper purchasers.<sup>5</sup>

Purchasers should also identify steps that will enhance the ability to collect paper within their business operations, whether in-house or in the products they distribute. Options to consider include:

- Developing in-house recycling collection programs, and expanding such programs to include used paper generated in employees' homes.
- Initiating or participating in efforts to spur greater paper recovery in the communities in which the purchaser's business operates, by working with other companies that generate used paper, business organizations, local government and recycling and waste management companies.
- Identifying items that can be redesigned to increase the ease with which they can be recycled (for example, by eliminating coatings on boxes, eliminating or switching adhesives on labels or bindings, or eliminating windows in envelopes).

Step 4. Look for opportunities to buy paper made by suppliers that employ environmentally preferable forest management practices to produce virgin fiber.

No matter how successful you are at recycling and buying recycled paper, a large part of the paper you purchase will likely still contain virgin fiber. An input of virgin fiber is necessary to sustain a balance with used paper that is recycled, and to maintain

the physical properties of paper products. When buying paper containing virgin fiber, consider how impacts arising from acquiring it can be reduced.

The Task Force has identified a number of recommendations to address the major environmental impacts of forest management practices used for fiber production. The recommendations serve three key objectives:

- Lands owned by forest products companies should be managed in a manner that preserves and enhances the full range of environmental values forestlands provide.
- Sound environmental management practices should be extended to non-industry lands from which forest products companies buy wood.
- Sound forest management should be promoted at a landscape level and across ownership boundaries, including increased support for natural and less intensive forms of management on public and non-industry private lands.

Because forest products companies have direct control over practices used on their own lands, purchasers can work with their existing suppliers to implement preferred practices or identify new suppliers that use such practices on their own lands already. However, the majority of pulpwood is harvested from lands not owned by forest products companies. Here the purchaser's role is to encourage his or her suppliers to exert influence over their wood suppliers, through their own purchasing relationships as well as other available means.

Finally, to address the most serious and large-scale impacts of forest management on entire ecosystems and plant and animal diversity, it is essential that forest management planning cross ownership boundaries to ensure the integrity and functioning of these communities and ecosystems. Purchasers can make clear their intention to evaluate and compare their suppliers based on the leadership, commitment and cooperation they display in the areas in which they operate.

As a starting point, purchasers may wish to survey their suppliers' practices relating to one or more of the Task Force's recommendations, and to set minimum requirements for all their

No matter how successful you are at buying recycled paper, you will likely purchase a lot of paper containing virgin fiber. When buying such paper, consider how impacts arising from fiber acquisition and manufacturing can be reduced.

suppliers, including, for example, full compliance with Best Management Practices. Purchasers can then identify specific Task Force forestry recommendations that they will introduce in their discussions with existing and prospective suppliers.

Step 5. Look for opportunities to buy paper made by suppliers that employ environmentally preferable pulp and paper manufacturing technologies and practices.

Within the manufacturing area, each of the following evaluative steps can be followed:

- *Consider the manufacturing processes used at the mills owned by your suppliers. For example, give preference to paper made by suppliers who:*
  - articulate a vision of a *minimum-impact* mill.<sup>6</sup> Suppliers should be able to provide a definition of the minimum-impact mill that includes their long-term goals for environmental performance.
  - implement sound environmental management approaches in the daily operations of their mills and comply with environmental regulations.
  - demonstrate continuous environmental improvement by installing pollution-prevention technologies at their mills. For bleached kraft pulp mills, purchasers should consider assessing and comparing pulping and bleaching technologies, including the following:
    - (a) The replacement of elemental chlorine with chlorine dioxide in the bleaching process reduces the discharge of chlorinated organic compounds, including dioxins.
    - (b) Oxygen delignification and extended delignification are two available, proven and cost-effective manufacturing technologies that form a foundation for progress towards the minimum-impact mill. These technologies allow mills to increase their recovery of organic waste and reduce chemical consumption in the bleach plant.
    - (c) Technologies that allow for the reduction or elimination of process water discharge from the bleach plant represent additional progress towards the goal of the minimum-impact mill and are the most advanced processes currently available. These technologies, which include ozone-based elemental chlorine-free and totally chlorine-free bleaching systems, recirculate most of the process water within the

mill instead of treating and discharging it to the environment. In the process, such mills burn more organic wastes to produce energy and recover more chemicals for reuse.

(d) New technologies may emerge that offer other ways to achieve the goal of the minimum-impact mill. For example, a mill-scale demonstration has begun for a process that removes chlorides from mill process water to facilitate the recirculation of bleach plant filtrates.

- *Consider the types of pulps used to make the products you purchase. For example:*
  - Identify opportunities to incorporate alternatives to bleached pulps, including high-yield pulps (which make the most efficient use of wood, chemicals and water) and unbleached pulps (which reduce chemical use in the manufacturing process).

It is in purchasers' economic interest to send a long-term signal of support for pollution prevention in pulp and paper manufacturing. By using pollution-prevention approaches, suppliers can design environmental improvement into manufacturing processes. Michael Porter, an expert on competitive strategy at the Harvard Business School, observes that "[l]ike defects, pollution often reveals flaws in the product design or production process. Efforts to eliminate pollution can therefore follow the same basic principles widely used in quality programs: Use inputs more efficiently, eliminate the need for hazardous, hard-to-handle materials and eliminate unneeded activities."<sup>7</sup>

A study of 50 manufacturers of white pulp and paper in six countries found that the longer a firm had invested in pollution-prevention technologies in its bleaching process, the better its economic performance.<sup>8</sup> Over the long term, paper users are better served by suppliers that use practices or technologies that lessen the likelihood of unwanted environmental surprises. Suppliers with lower manufacturing costs will gain a competitive edge in the global paper market and will be best prepared to meet the needs of paper purchasers and users.

# A Preview of the Task Force's Report

## 3

The full report of the Paper Task Force comprises two volumes.

*Volume I*, the main report, consists of five chapters. Chapter 1, "Setting the Stage for Buying Environmentally Preferable Paper," presents the context for understanding and acting on the Task Force's recommendations. It describes:

- The origin, scope and process of the Task Force project
- The Task Force's research process and our approach to assessing paper performance, economics and environmental impacts
- The key functional requirements for the grades of paper we examined
- The basic activities involved in forest management, pulp and paper manufacturing, paper recycling and waste disposal, and their environmental impacts
- The basic economics of paper production and purchasing

Chapters 2-5 set out the Task Force's recommendations, a summary of the supporting rationales, and implementation options for purchasers, in each of four areas:

- Source reduction
- Paper recycling and buying recycled paper
- Forest management
- Pulp and paper manufacturing

*Volume II*, the technical supplement, provides the underlying technical research supporting the Task Force's recommendations, in the form of 16 fully documented and externally reviewed White Papers that cover functional, economic and environmental aspects of each major issue examined by the Task Force.

Copies of the Task Force's report can be ordered using the form at the back of this synopsis. Or contact: Public Information, Environmental Defense Fund, 257 Park Avenue South, New York, NY 10010; (212) 505-2100; or use EDF's home page on the World Wide Web: [www.edf.org](http://www.edf.org)

## APPENDIX

### Paper Task Force Recommendations

The Task Force has developed recommendations in each of four areas:

- Source Reduction
- Recycling and Buying Recycled Paper
- Forest Management
- Pulp and Paper Manufacturing

These recommendations are summarized below. The Task Force's main report contains the full version of these recommendations, including important contextual information, the economic, performance and environmental rationale for the recommendations and implementation options for purchasers. The full versions should be reviewed as a basis for acting on the recommendations.

*These recommendations were developed and intended for implementation primarily in the context of pulp and paper production and purchasing within North America, with a particular focus on the United States. While we examined technologies and practices used to produce pulp and paper in other areas of the world, our recommendations are directed toward purchasers of paper produced in the United States.*

#### Source Reduction

**Recommendation.** Systematically identify opportunities and take action to reduce the use of paper, and the amount of fiber used in specific paper products, both within your organization and in paper products related to your business, where consistent with functional considerations.

#### Recycling and Buying Recycled Paper

**Recommendation 1.** Paper users should actively expand and optimize paper recycling collection programs. Paper users also should promote recycling activities and assist efforts to develop the paper recycling infrastructure in the following areas, as appropriate to the capabilities of your organization:

- within the premises of your business
- for the products distributed by your company or your industry

- in the communities in which your business operates
  - among the broader business community and general public
- Recommendation 2.** Paper purchasers should maximize their overall use of paper with postconsumer recycled content, consistent with functional and economic considerations.

**Recommendation 3.** Paper users and purchasers should design or purchase paper products that can be recycled readily after their use.

### Forest Management

***Recommendations to advance management of lands owned by forest products companies in a manner that preserves and enhances the full range of environmental values forestlands provide.***

**Recommendation 1.** Purchasers should demonstrate a preference for paper made by suppliers who — at a minimum — operate in compliance with the principles and implementation guidelines for sustainable forestry as published by the American Forest & Paper Association (AF&PA), collectively known as the Sustainable Forestry Initiative (SFI), and should buy only from suppliers in compliance with all applicable environmental laws and regulations.

**Recommendation 2.** Purchasers should demonstrate a preference for paper made by suppliers that manage their lands in a manner that protects on- and off-site water quality and conserves soil productivity. Such management includes operating in full compliance with all applicable mandatory or voluntary Best Management Practices (BMPs) and other applicable laws and regulations related to water quality, as well as any additional steps needed to meet the objective.

**Recommendation 3.** Purchasers should demonstrate a preference for paper made by suppliers who develop and implement an adaptive management approach, through actively engaging in and keeping abreast of research on the environmental impacts of forest management practices, coupled with a commitment to modify their practices as needed in response to research results.

**Recommendation 4.** Purchasers should demonstrate a preference for paper made by suppliers who actively seek outside assistance, advice and perspective from the full range of other stakeholders and interested parties in issues surrounding forest management.

Recommendation 5. Purchasers should demonstrate a preference for paper made by suppliers who manage their lands in a manner that contributes to the conservation of biodiversity by maintaining or enhancing habitat for a broad array of plants and animals, with an emphasis on rare and endangered species.

Recommendation 6. Purchasers should demonstrate a preference for paper made by suppliers who manage their lands in a manner that preserves ecologically important, rare or declining natural communities. Intensive management on lands representing such community types should be avoided; where necessary for preservation, management for wood production should not take place. Intensive management should be concentrated on lands of lower ecological value.

Recommendation 7. Purchasers should demonstrate a preference for paper made by suppliers who employ harvesting methods that minimize the ecological impacts of harvesting, both at the level of individual stands of trees and across the landscape.

***Recommendation to extend environmentally sound management practices to non-industry lands from which forest products companies buy wood for their products.***

Recommendation 8. Purchasers should demonstrate a preference for paper made by suppliers who use available means to ensure that environmentally sound practices are applied to the management of all lands from which the supplier buys wood. These requirements should extend to wood bought on the open market, commonly known as “gatewood.”

***Recommendations to promote environmentally sound forest management at a landscape level and across ownership boundaries, including increased support for natural and less intensive management on public and non-industry private lands.***

Recommendation 9. Purchasers should demonstrate a preference for paper made by suppliers who encourage and participate in the development of environmentally responsible management on a landscape level, including the implementation of management approaches that are applied across ownership boundaries.

Recommendation 10. Purchasers should demonstrate a preference for paper made by suppliers who show environmental leadership by actively promoting efforts to manage non-industry lands (both public and private) so as to maintain and

enhance the extent and environmental value of the nation’s forestlands. Suppliers should actively support and encourage management of such lands using non-intensive approaches so as to provide and preserve ecological values that are more limited or difficult to provide on more intensively managed industry lands.

## Pulp and Paper Manufacturing

### *Minimum-impact Mills*

Recommendation 1. Purchasers should give preference to paper manufactured by suppliers who have a vision of and a commitment to minimum-impact mills – the goal of which is to minimize natural resource consumption (wood, water, energy) and minimize the quantity and maximize the quality of releases to air, water and land. The minimum-impact mill is a holistic manufacturing concept that encompasses environmental management systems, compliance with environmental laws and regulations and process technologies.

Recommendation 2. Purchasers should give preference to paper products manufactured by suppliers who demonstrate a commitment to implementing sound environmental management of their mills. Suppliers should demonstrate progress in the following areas:

- improved spill-prevention and control systems based on the installation of available technologies;
- preventive maintenance programs;
- emergency preparedness and response programs;
- improving the energy efficiency of mill operations through the installation of energy-conservation technologies;
- on-going training for mill staff in process control and their role in improving environmental performance; and
- internal auditing procedures that include qualitative and quantitative measures of performance.

Purchasers should consider their suppliers’ compliance records as one indicator of an effective environmental management system.

Recommendation 3. Purchasers should give preference to paper manufactured by suppliers who demonstrate continuous environmental improvement toward minimum-impact mills by

installing pollution-prevention technologies.

- The substitution of chlorine dioxide for elemental chlorine in the first stage of the bleaching process reduces the discharge of chlorinated organic compounds.
- The installation of oxygen delignification and extended cooking, two available and proven cost-effective manufacturing technologies that maximize lignin removal in the pulping process, forms a foundation for further progress toward the minimum-impact mill.
- Mills that recirculate the filtrates from the first bleaching and extraction stages of the bleach plant make additional progress toward the minimum-impact mill. These low-effluent processes represent the most advanced current technologies.
- Future technologies may emerge that make additional progress toward the minimum-impact mill.

***Product reformulation by changing the types of pulps used in paper products.***

Recommendation 4. Purchasers of paper packaging, such as corrugated boxes and folding cartons, should seek to purchase paper products made of unbleached kraft paperboard rather than bleached kraft paperboard in cases where the packaging meets functional and economic requirements.

Recommendation 5. Purchasers of coated printing and writing papers should express their preference for paper that increases the substitution of mechanical pulp for bleached kraft pulp in cases where the paper meets functional and economic requirements.

Recommendation 6. Purchasers of printing and writing papers should express their preference for paper that substitutes bleached kraft for bleached sulfite pulps in cases where the paper meets functional and economic requirements.

Recommendation 7. Purchasers of coated and uncoated freesheet paper should consider paper products that contain bleached chemithermomechanical pulp (BCTMP) as a partial substitute for hardwood kraft pulp in cases where the paper is available and meets functional and economic requirements.

Recommendation 8. Purchasers should be open to considering paper products that contain non-wood agricultural residue fiber in cases where the products are available and meet functional and economic requirements.

## ENDNOTES

- <sup>1</sup> American Forest & Paper Association, *Paper, Paperboard & Wood Pulp, 1995 Statistics*, Washington, DC: AF&PA, September, 1995, p. 76. Based on data from the U.S. Department of Commerce, Bureau of the Census.
- <sup>2</sup> The 1994 recovery rate of 40% and the industry's 50% goal (announced in 1994 by the American Forest & Paper Association), in addition to including preconsumer paper, are calculated in a manner that: (1) excludes paper imported into the U.S. as packaging (e.g., corrugated boxes and cartons for Canadian products); and (2) includes the weight of moisture and contaminants present in collected used paper. These factors tend to inflate the apparent "recovery rate."
- <sup>3</sup> A summary version of the Task Force's recommendations is attached in the Appendix. The full versions of the recommendations and implementation options appear in Chapters 2-5 of the main report.
- <sup>4</sup> American Forest & Paper Association, *Paper, Paperboard & Wood Pulp, 1995 Statistics*, Washington, DC: AF&PA, September, 1995, p. 56.
- <sup>5</sup> The case where this is most evident is linerboard and corrugating medium used to make corrugated boxes. Between 1990 and 1995, total U.S. paper and paperboard production capacity is projected to grow from 84.4 to 94.9 million tons per year (12.4%). Total containerboard capacity is projected to grow from 28.4 to 33.0 million tons per year over the same period (16%). Of the 4.6 million tons of containerboard capacity growth, 3.0 million tons will be 100% recycled containerboard and an additional increment will be a recycled/virgin mix. American Forest & Paper Association, *Paper, Paperboard & Wood Pulp, 1995 Statistics*, Washington, DC: AF&PA, September, 1995, p. 33. When prices for old corrugated containers and mixed paper are within their historical range, capital and operating costs are generally lower for recycling-based expansions compared to new virgin containerboard capacity. Paper Task Force, White Paper No. 9. The new containerboard capacity is moderating potential price increases. "Containerboard market awash in production as new capacity ramps up better than expected," *Pulp & Paper Week*, October 9, 1995, pp. 1-3. A similar case could be made that deinked market pulp is affecting prices for its functional competition, virgin hardwood market pulp, in comparison to virgin softwood market pulp. Deinked market pulp now makes up roughly 10% of U.S. market pulp production. Increased BCTMP pulp and Indonesian hardwood market pulp also affect the global hardwood pulp pricing equation, however.
- <sup>6</sup> The goal of a minimum-impact mill, as defined by the Task Force, is to minimize natural resource consumption (wood, water, energy) and minimize the quantity and maximize the quality of releases to air, water and land.
- <sup>7</sup> Michael Porter and Claas van der Linde, "Green and Competitive: Ending the Stalemate," *Harvard Business Review*, September-October 1995, pp.120-34.
- <sup>8</sup> Chad Nerht, "Spend more to show rivals a clean pair of heels," *Pulp & Paper International*, 37(6): 81-82 (1995).

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