

# **The State of Paper**

Project Assessment Criteria for the Alliance for Environmental  
Innovation and Research on the Paper and Packaging Industry to  
Inform its New Paper Strategy

By

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## Abstract

This paper: 1) identifies project assessment criteria designed to help the Alliance for Environmental Innovation assess the strategic fit of its initiatives; 2) describes the U.S. pulp and paper industry's market and non-market environment; and 3) investigates, using the assessment criteria, whether the Alliance should pursue pulp and paper industry transformation using its business partnership model. Research included industry data sets, articles, government reports, and interviews.

Eight assessment criteria discussed include environmental results, organizational goals, business case, and funding potential. Market research demonstrates that the U.S. pulp and paper industry employs about 1.1 million people, ranks third in air emissions, and is responsible for over 25 percent of municipal solid waste. Opportunities to reduce environmental impacts, such as responsible fiber sourcing, are discussed. The period 1995-2005 is described as the most challenging decade for the U.S. paper industry due to soft domestic demand and competition from low-cost producers. Corporate response is described including consolidation and timberland sales. Short-term modest improvements are predicted but slow domestic demand growth and difficult competition from an increasingly global market indicate increasing challenges in the long term.

Circumstances when organizations might develop explicit project evaluation criteria are discussed, such as when resources must be carefully allocated. Paper and packaging is used as an example of how such criteria might be used for evaluation and assessment. Based on this research, the Alliance should continue focusing on paper and packaging due its in-house expertise and significant climate-related impacts of those industries.

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# Chapter One

## Introduction

This paper is the culmination of a practicum conducted with the Alliance for Environmental Innovation (the Alliance), the business-partnerships arm of Environmental Defense. The Alliance partners with companies in various industries with the intent of facilitating industry transformation related to reducing the environmental impact of the operations of those companies and their supply chains. After many years of work related to paper and packaging, the Alliance initiated this project to help it determine if and how the organization should continue in that arena. Recognizing its unique position among environmental groups working on paper-related issues, the Alliance initiated the strategic review with the understanding that the research would likely become a valuable resource for other organizations such as advocacy groups, companies, and foundations interested in paper and packaging issues.

The effort to determine if and how the Alliance should continue working on paper and packaging required that the organization also look more broadly at how it makes strategic decisions about pursuing projects and allocating resources. That more expansive review resulted in an organization-wide effort to develop explicit criteria designed to support more systematic decision-making processes.

This paper describes the criteria and industry research, and makes observations based on application of the criteria to the research.

### *1.1. Objectives*

The research for this project was conducted in the latter half of 2004 and early 2005 with two objectives:

- 1) The first objective was to begin developing criteria that staff from the Alliance could use to help them identify new and existing high-potential projects and partnerships.

- 2) The second objective was to conduct background research and analysis on the global paper industry and market dynamics. The Alliance and other Environmental Defense staff intended to use this research for internal strategy development and as a resource for potential partners, related non-profit organizations, and funders.

Following completion of this work, the Alliance plans to apply the draft criteria and the industry and market research to facilitate internal discussions about developing a new strategy for the Alliance's work related to reducing the environmental impacts of paper and packaging.

### ***1.2. Background***

This section will provide a brief overview of Environmental Defense, focusing specifically on its work with business partnerships. An introduction to the Alliance will then be provided followed by a discussion of the Alliance's and Environmental Defense's work to reduce the environmental impacts of paper and packaging.

*Environmental Defense.* Since its foundation in 1967, Environmental Defense has sought to “[link] science, economics, and law to create innovative, equitable, and cost-effective solutions to society's most urgent environmental problems (Environmental Defense website “About Environmental Defense”).” Early on, advocacy and litigation were the methods Environmental Defense used most successfully to meet its goals. More recently, however, along with a new tagline “finding the ways that work,” business partnerships have played a significant role in achieving the organization's environmental goals. The role of business partnerships fits well within Environmental Defense's mission, which reads as follows.

**Our Mission**

“Environmental Defense is dedicated to protecting the environmental rights of all people, including future generations. Among these rights are clean air, clean water, healthy food and flourishing ecosystems.

We are guided by scientific evaluation of environmental problems, and the solutions we advocate will be based on science, even when it leads in unfamiliar directions.

We work to create solutions that win lasting economic and social support because they are nonpartisan, cost-effective and fair.

We recognize that low-income communities and communities of color have been disproportionately exposed to many environmental threats, and we seek answers that are equitable and just for all.

As an organization based in the United States, we pay special attention to U.S. environmental problems and to America’s role in causing and solving global problems, and we aim to share our approaches internationally (Environmental Defense website “About Environmental Defense”).”

With over 400,000 members and a well-regarded staff of Ph.D. scientists, economists, lawyers, and others, Environmental Defense is well suited to take a rigorous approach to tackling difficult environmental problems. “To ensure its independence and public credibility,” (Environmental Defense website “What We Do”) Environmental Defense receives less than one percent of its total financial support from corporate donors and, perhaps most importantly to the Alliance, the organization does not accept money from its corporate partners. Rather, the Alliance funds its work through grants made by individuals and foundations.

Environmental Defense focuses on seven program areas based on what it considers to be the most urgent environmental needs and where its expertise can produce the greatest impact: 1) Climate and Air, 2) Ecosystem Restoration, 3) Environmental Alliances, 4) Environmental Health, 5) International, 6) Living Cities, and 7) Oceans.

*The Alliance for Environmental Innovation:* One of those program areas, Environmental Alliances, is where the Alliance fits within Environmental Defense. The Alliance “partners with leading U.S. companies to reduce the environmental footprint of their products and services. By working with

businesses to incorporate environmental considerations into their purchasing standards and product designs, [the Alliance helps] them create solutions that make both environmental and business sense. Multidisciplinary staff in Boston, Oakland, New York, and Washington, D.C. work with top corporations that have the purchasing power to demand green products and the industry influence to create long-term change (Environmental Defense website “Corporate Partnerships”).”

The Alliance categorizes its work into focus areas, projects, and partnerships. There are currently five focus areas: consumer products; food and agriculture; nanotechnology; paper and packaging; and vehicles. The focus areas may be broken into distinct projects such as, in the food and agriculture focus area, sustainable seafood and antibiotics. Ultimately, the Alliance does its work through partnerships with specific companies or groups of companies such as Citigroup, DuPont, FedEx, and Starbucks.

In the Alliance’s partnership model, a multi-disciplinary team from the Alliance works closely with a multi-disciplinary team from the partner organization. During their initial work together, the team negotiates for senior management to effectively pre-approve the recommendations of their joint work, within certain parameters. That pre-approval, or approval in concept, allows the Alliance the degree of certainty it needs to invest heavily in its partnership projects, even though it does not directly control the final corporate actions and outcomes.

To date, the Alliance has engaged in partnerships almost exclusively with large buyers on the assumption that powerful companies in this stage of the product cycle can and will exert pressure back through their supply chains. Historically, the Alliance has focused on developing partnerships with companies that are likely to inspire change within their industry. For example, through its work with the Alliance, McDonalds switched sandwich packaging from the polystyrene “clamshell” to paper wrappers. Soon afterward, all of the other major fast food chains followed suit. Inspiring and facilitating industry change is at the heart of the Alliance’s partnership model.

*Background of the Paper and Packaging Focus Area:* The Alliance has extensive expertise in the environmental impacts of paper and packaging. That expertise is grounded in the work of the Paper Task Force, a three-year, multi-stakeholder research project convened by Environmental Defense that published its conclusions and recommendations in 1995. (ED, Paper Task Force Report, 1995). The Paper Task Force is a peer-reviewed report that rigorously analyzed the environmental impacts of the paper and packaging lifecycle and recommended ways to minimize those impacts. The Alliance has subsequently drawn upon that expertise in its partnerships with McDonalds, UPS, Starbucks, SC Johnson, Norm Thompson Outfitters, Citigroup, and others. An overview and list of goals and results for each of these partnerships is located on the Environmental Defense website (Environmental Defense website; “Paper and Packaging: Trimming Paper Weight”).

In 1999, the Alliance undertook a research and planning process to identify the market segments in which improved paper practices were likely to be most feasible and most likely to result in significant environmental benefits. That process led to a focus on the catalog and office paper segments of the paper market and on establishing recycled paper as the highest-priority action item for companies in those segments.

At the Environmental Paper Summit in November 2002, Environmental Defense was one of ten organizations to ratify “A Common Vision for Transforming the Paper Industry: Striving for Environmental and Social Sustainability” (Common Vision) (Environmental Paper Network, 2002). In that document, the signatory organizations:

- Outlined the negative environmental and social impacts of “[p]ulp and paper production, consumption, and wasting;”
- Established the following four overarching goals: “minimize paper consumption, clean production, responsible fiber sourcing, and maximize recycled content;”

- “Call[ed] upon pulp and paper manufacturers, suppliers, and purchasers, as well as governments to accomplish these goals in pursuit of an environmentally and socially sustainable paper production and consumption system;” and
- Pledged to “work together and with manufacturers, governments, suppliers, and purchasers to accomplish the above goals for creating a more environmentally and socially responsible system of paper production and consumption (Environmental Paper Network, 2002).”

Each of the signatories was a founding member of the Environmental Paper Network, a “diverse group of environmental organizations joined together to support socially and environmentally sustainable transformations within the pulp and paper industry.” Since 2002, the Environmental Paper Network has grown to include 64 members and Environmental Defense, through the Alliance, is still a member of its steering committee.

Environmental Defense is highly valued by the Environmental Paper Network members for the high-quality research it conducts and makes available to other, often less well funded, non-profit organizations working on paper-related issues. In addition to developing its own projects, the Alliance is committed to working with other organizations in the Environmental Paper Network to “advance the Common Vision for Transforming the Pulp and Paper Industry through:

- Identifying priorities for action
- Facilitating communication and collaboration among interested groups
- Creating a platform for dialogue and increased awareness with industry, other stakeholders, and the public
- Furthering research, analysis, momentum, and innovation (Environmental Paper Network).”

In early 2004, the Alliance’s paper and packaging work was coming to the end of a funding cycle and several paper-related partnerships were wrapping up. Based on those realities and changes in the paper market and non-profit environment,

Alliance staff and leadership determined that it was time to reassess how the Alliance should focus its paper and packaging strategy going forward. That decision led to the research discussed in this paper.

**Table 1: Significant Events in the Alliance's Work with Paper and Packaging**

<b>Year</b>	<b>Significant Events in the Alliance's Work with Paper and Packaging</b>
1990	Formed agreement with McDonalds to work together to reduce waste and improve environmental performance.
1995	Published the Paper Task Force Report, a peer-reviewed study of the lifecycle environmental impacts of paper production and disposal.
1998	Announced an action plan with UPS for “practical packaging improvements that conserve energy, cut pollution, and reduce solid waste, while delivering better products for the customer and saving money (Environmental Defense website; “UPS & Alliance for Environmental Innovation Deliver Greener Packaging”).
1999	Began focusing on the catalog and office paper segments of the paper market and on establishing recycled paper as the highest-priority for companies in those segments.
2001	Announced that Norm Thompson Outfitters, in partnership with the Alliance, had switched to recycled-content paper in all of its catalogues.
2002	Ratified “A Common Vision for Transforming the Paper Industry: Striving for Environmental and Social Sustainability” and became a founding member of the Environmental Paper Network.
2003	Announced that, through a partnership with the Alliance, all of Citigroup's Citibank, Global Corporate and Investment Bank, and Global Investment Management locations in the United States have adopted 30% postconsumer recycled copy paper.
2004	Initiated project to develop a new strategy for the Alliance's work to reduce the environmental impacts of paper and packaging (including the research described in this paper).
2005	The Alliance updated the Paper Calculator (based on research done by the Paper Task Force) and made it widely available through the Environmental Defense website. <sup>1</sup>

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<sup>1</sup> The paper calculator is available on the Environmental Defense website at <http://www.environmentaldefense.org/papercalculator/>; The Paper Calculator is based on research done by the Paper Task Force, a peer-reviewed study of the lifecycle environmental

Year	Significant Events in the Alliance's Work with Paper and Packaging
2006	Ten years after initiating a project with Environmental Defense, Starbucks introduces a new disposable cup containing ten percent recycled content; the first FDA-approved recycled paper content food packaging.

### 1.3. Approach

This project includes two main substantive areas as well as analysis and conclusions based on the research. The first study area is project and partnership evaluation criteria and the second is detailed research into the history and economic intricacies of the global paper market. The analysis and recommendations include a review, in part using the evaluation criteria, of how the Alliance might revise its strategy to effectively reduce the environmental impacts of paper and packaging while continuing to meet its organizational goals and objectives.

*Project and Partnership Evaluation Criteria (Chapter 2).* Chapter 2 outlines decision-making criteria designed to help assess whether the Alliance's business partnerships model has high potential for use in minimizing the environmental impact of a business sector or industry. Following a staff retreat in May 2004, staff from the Alliance formed a team to develop criteria for evaluating whether particular focus areas, projects, or partners are of high potential value for Environmental Defense's partnership work. The team consisted of Victoria Mills, Tracey Godfrey, Elizabeth Sturcken, Bruce Hammond, and Shelly Rudner (intern and author of this paper). Through a series of meetings and drafting exercises, this team used its knowledge of Environmental Defense's and the Alliance's history, decision-making methods, and project portfolio to develop draft recommended criteria that would be evaluated and refined by the Executive Director and other staff members, in part by using the paper industry as a test case.

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impacts of paper production and disposal. The underlying data is updated regularly. (Last retrieved March 9, 2007)



*Paper Industry Research (Chapter 3)*. The primary means of research into the pulp and paper industries were Paperloop/Research Information Systems, Inc. (RISI) data sets, government publications, popular press articles, internet-based financial research, and industry publications. Experts from Environmental Defense also contributed a great deal of knowledge through personal interviews with staff members. Eight Alliance staff members participated in a mid-course review of the research and suggested additional areas of investigation. The products of this research, contained in Chapter 3 of this paper, were designed to support the Alliance's paper strategy development, provide up-to-date data for use by Environmental Defense's Environmental Paper Network partners and other non-profit organizations, and enable detailed reporting and proposals to existing and potential funders. The paper industry research provides an overview of:

- Environmental issues, regulations, and opportunities for improvement relevant to the pulp and paper industry lifecycle, with a focus on the United States;
- Market and economic characteristics of the industry;
- Trends in global production and consumption; and
- Recent challenges faced by the United States pulp and paper industry.

## Chapter Two

### Project Assessment Criteria

#### 2.1. Impetus

In early 2004 the Alliance began developing a new strategy for its work in the paper industry. The organization wanted a strategy that would reflect the current realities of the marketplace, take advantage of collaborations among environmental groups, encompass the lessons it has learned about partnering with major corporations, and support the organization's ability to reach for even bigger environmental results in the years ahead. This endeavor began with seven seemingly straightforward, questions, the answers to which Alliance staff believed would help them define the next generation paper strategy:

- Why should we work on paper?
- What changes do we seek?
- How should we work on paper?
- What resources do we bring?
- Where should we focus our efforts?
- How will we know if the strategy is working?
- How will we know when to stop working on paper?

Through early work to develop answers to these questions, two things quickly became clear. First, there was a broadly held assumption that the Alliance would continue to work on paper projects in some capacity at least for the time being. Second, without explicit criteria by which to assess the project against other existing and potential projects, there would be no clear way of determining if paper and packaging was the best place for the Alliance to focus its resources. In other words, without criteria by which the Alliance judged all of its projects, it would be difficult to determine whether paper and packaging projects have as much, or more, potential than other projects in progress or under consideration.

Over the years, the Alliance has investigated various strategies for developing a pipeline of projects. Several times in the past, the organization has analyzed industry-leading consumer products and retail companies for the potential of working with them to determine the most cost effective and environmentally protective changes that could be made across all business units regardless of Environmental Defense's strategic goals and environmental protection priorities. In recent years, to pursue industry change, the Alliance has focused on finding relevant projects and partnerships within relatively broad focus areas that are consistent with Environmental Defense's and the Alliance's organizational goals and strategies. At the time of this report, the focus areas include: consumer products; food and agriculture; nanotechnology; paper and packaging; and vehicles. Even with the broadly defined focus areas, the decision to begin work on a specific project or develop a partnership on a specific project is determined based on a combination of data and research evaluated using implicit criteria; circumstances; and opportunity.

Based on experience and research, project managers from the Alliance already made careful and reasoned decisions about the types of projects and the specific partners they believe have the potential to drive the most industry change. In 2004, several things culminated in the pressing need and organizational will for the Alliance to develop a more explicit process for identifying potential, and evaluating existing, issue areas, projects, and partnerships.

- Environmental Defense and the Alliance had over ten years of experience working on business partnerships.
- The Alliance began as a joint project of the Pew Charitable Trust and Environmental Defense but the organizations decided, over time, to strengthen the Alliance's identity as part of Environmental Defense. This meant that the Alliance had to incorporate Environmental Defense's organizational goals and strategic plan when identifying and pursuing new projects.

- There was a relatively new director at the Alliance and a growing project management and research staff, many of whom have consulting or business backgrounds.
- There was no project pipeline or explicit project or partnership development assessment and evaluation process in place, but staff members had identified having one as a priority.
- Alliance staff members understand that economic conditions and market incentives often drive environmentally-related business decisions. A strong business case is usually required before potential partners will take the steps necessary to get projects off the ground but some companies are more receptive to environmental initiatives than they have been in the past.
- A major focus area (paper and packaging) was coming to the end of a funding cycle and few hot prospects had been approached for significant new project funding.

## **2.2. Development Process**

During the winter of 2004, a team of project managers from the Alliance gathered lessons from current and past projects. In the spring of that year they shared these lessons during an all-staff retreat organized to discuss lessons learned over time and determine how best to develop a new project pipeline. A team formed to further develop the ideas and, for reasons stated above, re-defined their goal as developing assessment and evaluation criteria for the Alliance's focus areas, projects, and partnerships.

The Alliance has historically used somewhat ad-hoc criteria for determining whether a focus area was one that should be developed into projects for which partners could be identified and propositioned. Upon reflection, Alliance staff agreed that explicit criteria would be helpful in assessing projects in terms of their intrinsic value and potential for success as well as their comparative value among other potential and existing projects. The group recognized that without a set of explicit criteria, the organization has no consistent and measurable way to

determine: which projects have the most merit when different project managers are assessing their potential; which partners make sense to work with; and how projects should change over time to capture the most value.

The criteria evolved from a three phase process. The first was a complete analysis of Environmental Defense's and the Alliance's strategic plans to identify what the organizations already had defined as strategically important to them. The second phase included discussions with experienced Alliance and Environmental Defense staff about how focus areas, projects, and partnerships were actually selected and evaluated within the organization. And the third phase included working iteratively with the team to develop criteria and supporting questions that captured the essential elements from the first two phases without being cumbersome or prohibitively time-consuming to use.

Through this iterative work, the group developed eight criteria as the backbone of a process for determining if a new focus area, project, or partnership is ripe for work by the Alliance, and also for evaluating the success of existing focus areas, projects, and partnerships. For new projects, utilizing these criteria might be a relatively simple process of answering a set of questions and looking across the existing portfolio to determine if the new idea fit well within the mix. For existing projects, such as paper and packaging, the criteria would need to serve as an assessment and evaluation tool to determine if the project had ongoing potential in line with the investment and resources that it required.

For use in the criteria development process, the terms "focus area," "project," and "partnership" were defined as follows. These definitions are intended to help the Alliance staff articulate the levels and types of work in which they engage and for which they need clear strategic direction.

- A **Focus Area** is an issue, industry, or general topic of environmental concern, within which one or more projects may develop. Paper and Packaging, Seafood, Antibiotics, Nanotechnology, and Vehicles are all focus areas.

- A **Project** is an Alliance initiative developed to address a specific environmental concern within a Focus Area. For example, within the Seafood focus area there is a project to work with a major seafood purchaser to demand improvements to salmon farming. Catalogs, Financial Services, and Fleets are other examples of projects.
- A **Partnership** is an agreement with a specific company (or companies) to advance one or more projects.

### 2.3. Assessment Criteria and Supporting Questions

In use, each of the following criteria are accompanied by specific questions, the answers to which will give the organization a picture of how the topic aligns with and supports the Alliance’s and Environmental Defense’s strategic goals. The team developed the criteria (Table 3) as a framework around which to organize and discuss information, and with the understanding that the Alliance would also need a decision-making process in which to use the criteria effectively.

**Table 2: Assessment and Evaluation Criteria**

<i>1. Environmental Results</i>	Success will result in substantive, lasting, and measurable environmental benefits.
<i>2. Fit with Environmental Defense Goals and Expertise</i>	Work in this area significantly advances one or more Environmental Defense goals (stabilizing climate, restoring ecosystems, protecting health, safeguarding oceans).
<i>3. Industry Transformation</i>	Success will result in widespread industry impact.
<i>4. Business Case</i>	Work in this area has potential for measurable business benefits.
<i>5. Added Value</i>	Others are not dealing with the problem sufficiently.
<i>6. Skills</i>	Alliance staff members’ experience, skills, and resources match the task, or the organization will commit to getting what it lacks.
<i>7. Visible Results</i>	The related issues and/or potential partners can facilitate visible results.
<i>8. Funding</i>	Work in this area allows the Alliance to optimize funding opportunities.

Table 3 lists the eight evaluation criteria along with two sets of specific questions, one for focus areas and one for projects (similar questions could be developed

for partnerships). The questions are designed to help staff and leadership of the Alliance determine whether the organization should focus its efforts in a particular direction. Researching the answers to these questions is likely to have additional benefits for ongoing focus areas or projects that are under review, such as increasing project manager knowledge about: recent current press coverage; new industry initiatives; new environmental and market statistics; and so on. The research also could act as a motivation for the project manager to reach out and build relationships with others within the non-profit community and companies with whom they have worked with in the past or are considering working with in the future.

**Table 3: Focus Area- and Project-Related Questions for Each Criterion**

Focus Area Questions	Project Questions
<b>1. Success will result in substantive, lasting, and measurable environmental benefits</b>	
a. What are our potential environmental goals? b. What would need to change for those goals to be met?	a. What are the environmental goals of this project? b. What will this project do to achieve them?
<b>2. Work in this area significantly advances one or more Environmental Defense organizational goals (stabilizing climate, restoring ecosystems, protecting health, safeguarding oceans)</b>	
a. How does the focus area intersect with Environmental Defense’s organizational goals, relative to other potential focus areas?	a. How does this project advance the Environmental Defense goal? b. How big of an improvement is this relative to the problem?

Focus Area Questions	Project Questions
<b>3. Work in this area has the potential for widespread industry impact</b>	
<p>a. What industries are involved throughout the supply chain?</p> <p>b. Where do the biggest environmental impacts occur and who is best able to influence them?</p>	<p>a. How would the project create broad change in the industry given the existing business context?</p> <ul style="list-style-type: none"> <li>▪ Industry structure?</li> <li>▪ Key players?</li> <li>▪ Decision drivers?</li> <li>▪ Potential partners?</li> <li>▪ Typical partner’s primary concerns and related business issues?</li> <li>▪ External pressures on potential partners (advocacy campaigns, consumer, media, regulatory)?</li> <li>▪ Rate of capital investment and innovation?</li> </ul> <p>b. How might advocacy, lobbying, and partnership each contribute to the success of this project?</p>
<b>4. Work in this area has the potential for measurable business benefits</b>	
<p>a. What are the business implications of making the changes that we seek and who bears the cost and gets the benefit?</p>	<p>a. What are the business benefits and costs of this project? How significant would the costs and benefits be to a typical potential partner?</p>
<b>5. Others are not dealing with the problem sufficiently.</b>	
<p>a. What is Environmental Defense already doing in this focus area?</p> <p>b. What are other NGOs doing in this focus area?</p> <p>c. What is government doing in this focus area?</p> <p>d. What are companies or industry groups doing in this area?</p> <p>e. How would our unique contribution address the gap?</p>	<p>a. What are Environmental Defense and the Alliance already doing related to this project?</p> <p>b. What are other NGOs doing related to this project?</p> <p>c. What is government doing related to this project?</p> <p>d. What are companies or industry groups doing related to this project?</p> <p>e. Based on research and discussions with at least three industry experts, what could we do that Environmental Defense and others aren't already doing?</p> <p>f. Why isn't anyone else doing what we might do?</p>



Focus Area Questions	Project Questions
<b>6. Our experience, skills, and resources match the task, or we will commit ourselves to get what we lack.</b>	
<ul style="list-style-type: none"> <li>a. What expertise and resources exists within Environmental Defense in this focus area?</li> <li>b. What is lacking or unavailable?</li> <li>c. How would we fill the gaps?</li> </ul>	<ul style="list-style-type: none"> <li>a. What expertise/resources within Environmental Defense would we tap for this project?</li> <li>b. What expertise is lacking or unavailable?</li> <li>c. How might we fill the gaps?</li> </ul>
<b>7. The related issues and/or potential partners can facilitate visible results.</b>	
<ul style="list-style-type: none"> <li>a. What media coverage has the focus area received (how much and what type)?</li> <li>b. Is the focus area something consumers and businesspeople can see and understand?</li> <li>c. What environmental problems are associated with the focus area and are they correct about the big problems?</li> <li>d. What else might contribute to this focus area being ripe for work by the Alliance?</li> </ul>	<ul style="list-style-type: none"> <li>a. What media coverage has the project or related issues received (how much and what type)?</li> <li>b. Does the project address something consumers and businesses can see and understand?</li> <li>c. What environmental problems do consumers associate with the project idea? Are they the right ones?</li> <li>d. What else might contribute to this project being ripe for work by the Alliance?</li> </ul>
<b>8. Working in this area allows the Alliance to optimize fundraising opportunities</b>	
<ul style="list-style-type: none"> <li>a. Who is funding work in this focus area?</li> <li>b. What are they funding related to this area (e.g., research, advocacy campaigns, lobbying) and for how much?</li> </ul>	<ul style="list-style-type: none"> <li>a. Who is funding work related to this project?</li> <li>b. Who might we approach and how good is the fit?</li> </ul>
<b>Additional Questions</b>	
<ul style="list-style-type: none"> <li>a. Should the Alliance continue research into this focus area and explore potential projects?</li> <li>b. If yes, list some promising potential projects and initial measures of success for each.</li> </ul>	<ul style="list-style-type: none"> <li>a. Should the Alliance continue research into this project and begin discussions with high-potential partners?</li> <li>b. If yes, list some promising potential partners and reasons for considering them.</li> </ul>

As part of a decision-making process, questions such as those in Table 3 could be used to guide initial research when the Alliance is considering entering into a focus area or project as well as for periodic evaluations of each. Each partnership

is decidedly different and the evaluation currently is done on a relatively ad-hoc manner. However, explicit evaluation is essential for developing institutional knowledge, continued improvement in partner selection and partnership design, and identifying when an area of work is no longer strategic for the organization and it is time to move on to other things. In many cases, the eight criteria could be discussed explicitly with potential partners as well as with project staff within the Alliance.

The Alliance team working on this set of evaluation criteria recognized that the answers would be used in a broader discussion about next steps. At some point in that discussion a “go”/“no go” decision would be made. The following parameters are designed to facilitate those discussions. A “go” decision for a:

- **Focus area** requires that it be consistent with forwarding Environmental Defense’s program goals and demonstrate a strong potential for encompassing successful, goal-specific, projects and partnerships.
- **Project** requires that it demonstrate a strong business case and potential for specific industry impact. The project must have specific environmental and industry change goals and must be presented along with an initial project plan that lays out how and in what time frame each goal is to be met.
- **Partnership** requires that there are specific goals for environmental improvement and organizational change within the partner organization and that those goals have been explicitly agreed upon by both partners in writing. In addition, the partner organization must have agreed to a periodic review of the substantive and process goals and there must be an explicit exit strategy in place. The partnership goals should be accompanied by a specific project plan that outlines how and in what time frame each goal is to be met.

## Chapter Three

### Paper Industry Market and Environmental Research

As described in the introduction to this paper, the information about the U.S. and global pulp and paper industries presented in this chapter is intended for use by the Alliance as it considers next steps for its work with those industries. It also is designed for the Alliance to make available in various capacities to other environmental organizations, companies, and funders who are interested in the market and non-market environment in which the pulp, paper, packaging, and other related industries work.

#### *3.1. General Characteristics of the Paper Industry*

*Paper is big business.* Global paper production in 2003 exceeded 339 million tons (RISI, 2004). Net sales for the top 100 global forest products companies totaled \$319 billion (PricewaterhouseCoopers, 2004). In the United States, the paper industry ranks ninth among manufacturing industries according to value of shipments (see Table 4) and twelfth in number of employees (U.S. Census Bureau, 2003).<sup>2</sup> According to the economic consulting firm Global Insight, the broad paper and forest products industry employed about 1.1 million people during the first quarter of 2004 (Korutz, 2004).

**Table 4: Value of Manufacturing Industry Groups (U.S. Census Bureau, 2005)**

Rank	NAICS Code	Manufacturing Industry Group	2003 Total Value of Shipments (\$1,000)
1	336	Transportation equipment manufacturing	\$653,489,430
2	311	Food	\$482,815,049
3	325	Chemical manufacturing	\$477,360,035
4	334	Ventilation, heating, AC, & commercial refrigeration equip manufacturing	\$353,665,450
5	333	Machinery manufacturing	\$253,673,036

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<sup>2</sup> This only includes people directly employed in pulp or paper manufacturing and converting. Estimates generally agree that indirect employment (e.g., forestry, printing, transportation) is approximately two times (or about 2.2 million employees) direct employment in this industry.

6	332	Fabricated metal product manufacturing	\$244,662,353
7	324	Petroleum & coal products manufacturing	\$237,010,657
8	326	Plastics & rubber products manufacturing	\$176,344,190
<b>9</b>	<b>322</b>	<b>Paper manufacturing</b>	<b>\$149,270,288</b>
10	331	Primary metal manufacturing	\$136,838,586

In the United States, papermaking is concentrated in the Southeast, the Pacific Northwest, the Great Lakes states, and the Northeast. In 2003, the paper industry accounted for 16 percent of the manufacturing jobs in Maine, eight percent in Wisconsin, and six percent in Arkansas (U.S. Department of Labor, 2003). For that reason and others, the paper industry can be a powerful force in regional politics in states where logging and manufacturing is concentrated.

*Paper is capital-intensive.* The pulp and paper industry is highly capital-intensive, with large investments required to build new pulp and paper mills. According to the United States Department of Agriculture (USDA), pulp and paper is the most capital-intensive manufacturing sector in the U.S. economy (Ince, 1999). A large paper machine can cost between \$300 million and \$500 million, and a large integrated pulp and paper facility can cost more than one billion U.S. dollars (Korutz, 2004). As a result, most paper companies carry a long-term debt load in the range of 30 to 50 percent of capitalization, which reduces their financial leverage (Jaffe, 2001). The capital intensity of the paper industry also requires mills to operate at the highest possible levels in order to reduce their cost per ton of production.

*Paper is cyclical.* The financial health of the paper industry has generally tracked the United States economy. As the economy grows, consumer demand for paper rises. As demand approaches existing capacity, scarcity drives prices up. Paper companies use the additional revenue from price increases to plan capacity expansions that come with high price tags and long lead times. When the new capacity comes on line (often from several producers at once), manufacturers tend to produce ahead of demand to try to recover their fixed costs. Supply then outpaces demand again and prices drop. Manufacturers are then left paying for

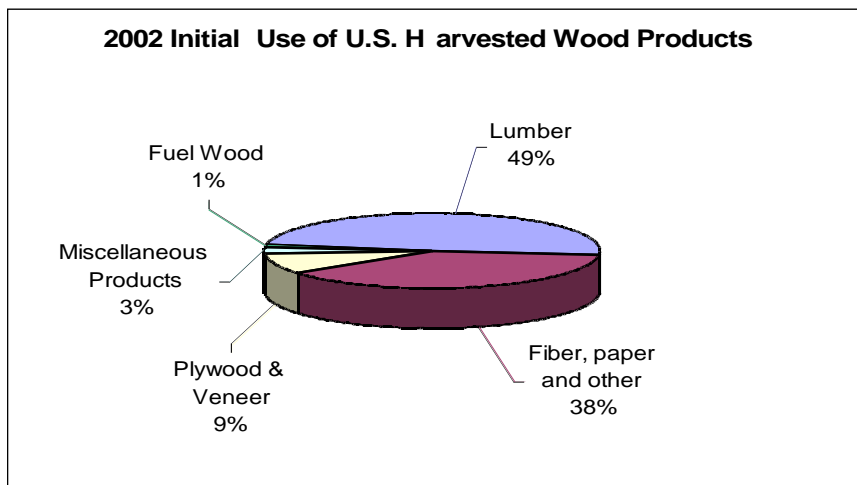
expansion projects with shrinking revenues from low-priced paper. Over time, as paper use steadily increases, demand approaches supply again and the cycle starts over. Paper companies struggle to increase their profit margins because they have little influence over the market price of raw fiber or energy, or domestic or international demand. Without the ability to control these factors, managing production levels becomes a critical tool for achieving profitability.

### 3.2. *Environmental Implications and Solutions*

Pulp and paper production ranks among the most resource-intensive and highly polluting of all manufacturing industries. The industry's impacts on the environment are notable not only for their magnitude, but also for their breadth, ranging from damage to forests, air and water pollution, solid waste, and greenhouse gas emissions. They occur at all phases of the paper lifecycle: fiber acquisition, manufacturing, and disposal.

*Impacts on Forest Ecosystems.* Even with advances in recycling over the past two decades, the primary fiber input into papermaking is still trees. Worldwide, paper production is responsible for nearly a fifth of the total wood harvest (Tilford, 2004). In the United States, more than a third (38 percent) of all wood harvested, or 228 million tons, is used to make paper (see Figure 1) (Paperloop, 2004).

Figure 1: Use of U.S. Harvested Wood Products (Paperloop, 2004, p.83)



How can an industry that relies on a “renewable” resource (trees) be so damaging? The answer lies in understanding the full range of values that forests

provide. In addition to being a source of timber, forests play a critical role as a habitat for plant and animal species. They help to maintain water quality, and stabilize the climate by absorbing greenhouse gases from the atmosphere. There is also the inestimable value that forests provide for recreation and aesthetics, and spiritual value for many native peoples. All of these values can be diminished when forests are intensively managed for timber production.

According to paper industry reports, it plants more trees every year than it cuts down, and that there are more trees alive in the United States now than 100 years ago. Regardless of the accuracy of this statement, the biodiversity and environmental services provided by our forests is not measured merely in numbers of trees. For example, many virgin forests, with relatively few large trees per acre, have been replaced by young forests or tree farms with more but smaller trees per acre and that harbor less biodiversity than their forest predecessors.

To support the growing demand for timber in the United States and around the world, there is an increasing trend in the conversion of natural forests to monoculture tree plantations. In the southern United States, where a large percentage of the trees used to make paper are grown, pine plantations grew from two million acres in 1952 to 32 million acres in 1999. The amount of southern land devoted to pine plantations will increase 67 percent to 54 million acres (an area the size of Utah) by 2040, predicts a report by the U.S. Forest Service (Wear and Greis, 2002). Meanwhile, natural forests of all types will decline 17 percent, with the most dramatic conversion occurring in Tennessee (Schoch, 2002). Many southeastern forests are wetlands, and the U.S. Fish & Wildlife Service recently found that 90 percent of the country's forested wetland loss was occurring in the region (Dahl, 2000). In fact, the Service found that nationwide, forestry had matched agriculture as a leading source of wetland loss (Dahl, 2000).

*Impacts from pulp and paper manufacturing.* Aside from fiber, the primary inputs into the papermaking process are energy, water, and chemicals. The paper industry is the largest user (per ton of product) of industrial process water in the United

States. A typical mill producing virgin bleached chemical pulp uses over 16,000 gallons of water per ton of pulp produced (United States-Asia Environmental Partnership, 2001).

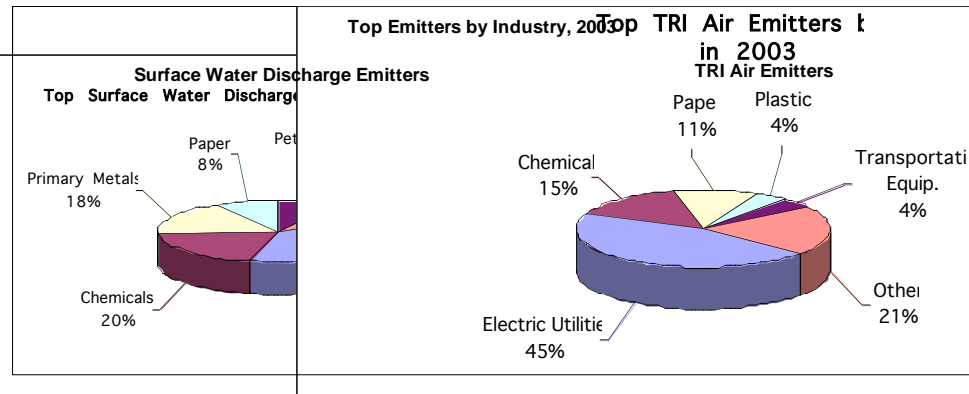
In addition to water, it takes a tremendous amount of energy to turn a tree into paper. According to the Department of Energy (2005), the broader forest products industry is the third largest consumer of energy in the United States, accounting for over 18 percent of the total U.S. manufacturing energy use. The paper industry alone accounts for about ten percent of total energy use (see Figure 2) (Lorenz, 2005).

**Figure 2: Top Energy-Using Industry Sectors in the United States in 2002 (Lorenz, 2005)**



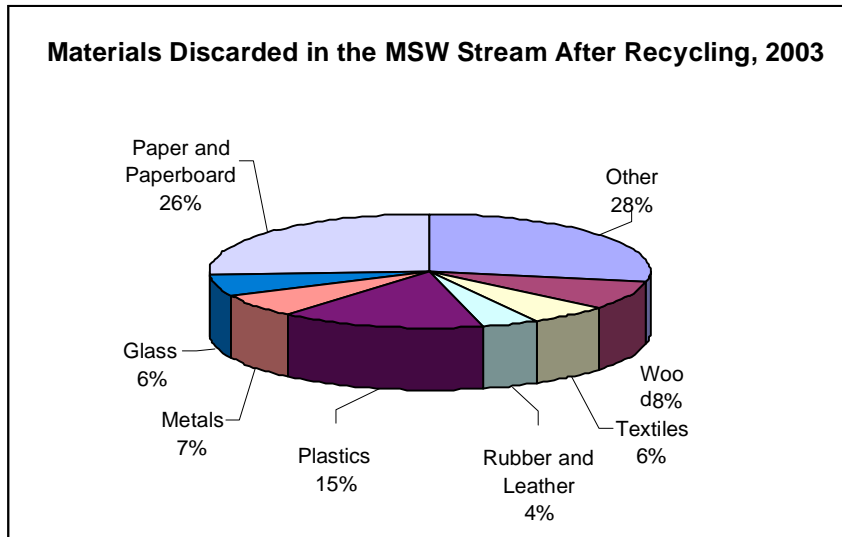
Outputs from paper manufacturing reflect the chemical intensity of the pulping and bleaching process. The pulp and paper industry ranks third among industrial sectors in air emissions of Toxics Release Inventory chemicals and fifth in such releases to water (see Figure 3) (U.S. EPA, *Total Release Inventory*, 2005).

Figure 3: Top Toxics Release Inventory (TRI) Emitters to Air and Water by Industry (U.S. EPA, *Total Release Inventory, 2005*)



*Impacts from disposal.* Paper’s impact on the environment continues even after it has been thrown away. Paper and paperboard account for the largest portion (36 percent) of the municipal waste stream, and 26 percent of discards after recycling (see Figure 4) (U.S. EPA, *Municipal Solid Waste Generation, 2005*).

Figure 4: Discards in the Municipal Solid Waste (MSW) Stream After Recycling, by Material, in 2003 (U.S. EPA, *Municipal Solid Waste Generation, 2005*)<sup>3</sup>



The problem with the amount of paper being thrown away is not just about landfill space. Once in a landfill, paper decomposes and produces methane, a greenhouse gas with 23 times the heat-trapping power of carbon dioxide (IPCC, 2001). The U.S. Environmental Protection Agency cites municipal landfills as the

<sup>3</sup> Other includes other materials and other wastes, which are food scraps, yard trimmings and miscellaneous inorganic wastes.



single largest source of methane emissions to the atmosphere and has identified the decomposition of paper as among the most significant sources of landfill methane (U.S. EPA, 2003).

Finally, transportation throughout the system also has significant environmental impacts. For a more detailed discussion of how transportation in the pulp and paper industry appears to impact the environment, please see chapter nine of “Toward a Sustainable Paper Cycle” (International Institute for Environment and Development, 1996).

### *Environmental Regulation of the Paper Industry*

Because of its extensive releases to air, water, and land, the paper industry is subject to a variety of federal, state, and local pollution control laws and regulations. The following are the major Federal environmental regulations affecting forest products companies.

The *Clean Air Act* regulates air emissions from area, stationary, and mobile sources. Passed in 1970 and amended in 1977 and 1990, the act permits the Environmental Protection Agency to establish National Ambient Air Quality Standards, which set limits on how much of a given pollutant may be in the air in the United States. In 1990, the act was amended to address problems related to acid rain, ground-level ozone, stratospheric ozone depletion, and air toxins. The pulp and paper industry is required to use what is known as maximum achievable control technology (MACT), or the best available technology, to control their air emissions. The regulations apply to bleached and unbleached chemical pulp mills (Paperloop, 2002). In March 2007, the U.S. Supreme Court ruled that EPA has jurisdiction for regulating carbon dioxide under the clean air act. Although the specific ramifications of this ruling are not yet clear, it could have significant impact on the industry due to its intense energy requirements.

The *Clean Water Act* is a 1977 amendment to the Federal Water Pollution Control Act of 1972, which focuses on toxic pollutants, makes it illegal to release a pollutant from a point source into navigable waters unless a permit is obtained under the act. These regulations apply to bleached and unbleached chemical pulp

mills, as well as to mills that produce mechanical, recycled (deinked or non-deinked), and other pulp and paper mills (Paperloop, 2002).

The *Endangered Species Act* was initially passed in December 1973 and later amended in 1988. The act focuses on the conservation of threatened and endangered animals and plants, as well as their habitats. The listing of particular species as endangered has prevented the pulp, paper, and forest products industries from logging in areas where endangered species are known to live, unless specific protections are established for those species on such lands (Paperloop, 2002).

The *Cluster Rule* set new limits for the level of toxins and non-conventional pollutants that can be released into the air and water. The EPA originally proposed the Cluster Rule in December 1993; but heavy resistance from the American Forest & Paper Association led the EPA to agree to less rigorous wastewater controls than originally proposed. Finally published in the Federal Register in 1998, the Cluster Rule, a regulation coordinated under the Clean Air Act and the Clean Water Act, effectively led to the elimination of bleaching with elemental chlorine, though not (as environmental groups had hoped) to the establishment of chlorine-free bleaching technologies as the “maximum achievable control technology” (MACT) (Paperloop, 2002).

Because of its environmental impacts and broad regulation, the pulp and paper industries must factor in large environmental compliance costs. Between the years 1990 and 2001, environmental spending accounted for about ten percent of all new capital expenditures made by the U.S. paper industry (Paperloop, 2004).

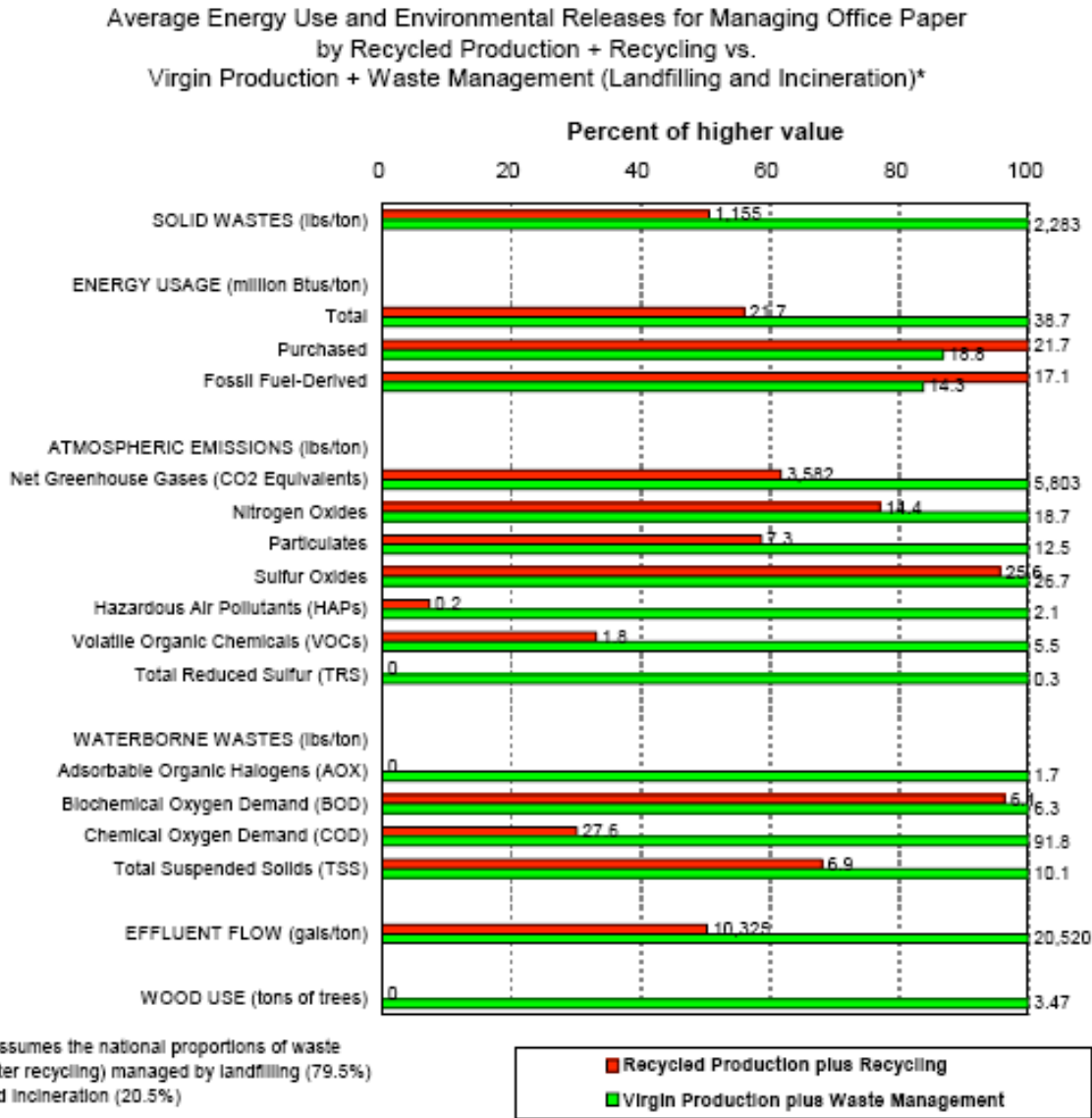
### ***Opportunities for environmental improvement***

The *Common Vision for Transforming the Paper Industry*, developed in 2002 by a dozen environmental groups and since signed by over sixty more, lays out four key goals to achieve an environmentally and socially sustainable paper production and consumption system (Environmental Paper Network, 2002). These include minimizing paper consumption, maximizing recycled content, responsible fiber sourcing, and clean production.

*Minimizing Paper Consumption.* The most effective step one can take to reduce the environmental impacts of paper production is to use less paper, so that fewer trees are cut down; less energy, water, and chemicals are needed; fewer pollutants are released during manufacturing; and less paper goes into the landfill. As an example, the United States consumed almost 5.4 million tons of office paper in 2003. Reducing that consumption by just ten percent, around 540,000 tons, would have saved nearly 21 trillion BTUs of total energy, 1.6 million tons of greenhouse gas emissions, 11 billion gallons of wastewater, 600,000 tons of solid waste and 13 million typical trees. (Environmental Defense, paper calculator)

*Maximizing recycled content.* Increasing recycled content in paper has benefits throughout the lifecycle. It reduces the demand for wood, thus reducing the intensity of forest management needed to meet a given demand for paper, and the pressure to convert natural forests and ecologically sensitive areas like wetlands into tree plantations. Making paper from used paper is generally a cleaner and more efficient manufacturing process than making paper from trees, since much of the work of extracting and bleaching the fibers has already been done. And because it diverts usable paper from the waste stream, recycling cuts both solid waste and greenhouse gas emissions from disposing of paper in landfills. Figure 5 shows significantly lower environmental impacts of 100 percent postconsumer recycled content office paper compared to virgin copy paper. (ED, Update to Paper Task Force Report, 2002)

Figure 5: Relative Environmental Impacts of 100% Virgin and 100% Postconsumer Recycled Office Paper (ED, Update to Paper Task Force Report, 2002)



*Responsible Fiber Sourcing.* Some virgin fiber will always be necessary to produce paper, whether to replace recovered fibers lost in the deinking process,<sup>4</sup> to maintain performance characteristics, such as strength and brightness, in specific paper grades, or because the distance of many mills from urban areas makes using recovered fiber cost-prohibitive. It is important to understand where the virgin fiber originates so the use of fiber that threatens endangered forests can be

<sup>4</sup> According to industry estimates, fiber can be recycled five to seven times in the papermaking process before they become too short and wash away in the deinking process. See [http://www.tappi.org/paperu/all\\_about\\_paper/faq.htm](http://www.tappi.org/paperu/all_about_paper/faq.htm).

eliminated<sup>5</sup>, and to ensure that the forest is managed in a way that protects both its timber- and non-timber values.

Environmental groups have had success in recent years working with large paper purchasers to develop procurement policies that include the following elements:

- Requiring suppliers to establish a credible *chain of custody* tracking system to reliably identify the origin of their fiber;
- Requiring suppliers to certify that their paper is free of fiber that threatens endangered forests, that comes from illegal logging operations, or that results from the conversion of natural forest ecosystems to plantations;
- Requiring suppliers to obtain independent third-party certification of the forest management practices used to produce their fiber. Currently, the standard employed by the Forest Stewardship Council ([www.fsc.org](http://www.fsc.org)) has the widest acceptance among environmental groups.

*Clean Production.* Depending on their age, efficiency, and how they are run, paper mills can vary widely in their environmental performance. The cleanest mills are those that minimize resource inputs (wood, water, energy, and chemicals), and minimize the quantity and maximize the quality of releases to air, water, and land. Paper mills can optimize their environmental performance by implementing pollution prevention and control technologies and environmental management systems, and by demonstrating continuous improvement over time. A particularly important choice for certain mills is the bleaching process used for virgin chemical pulp. The more chlorine compounds can be replaced by oxygen-based compounds, the more wastewater can be recovered and reused, and the higher the quality of the wastewater that is ultimately released. Advanced bleaching processes make it is possible for mills to become essentially closed-

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<sup>5</sup> The Wye River Coalition's definition of Endangered Forests includes intact forests, naturally rare forest types, anthropogenically rare forest types, and other forests that are critical for protecting biodiversity. (See <http://www.environmentalpaper.org/documents/EF-Report.pdf>). For more information about mapping of such forests, visit [www.globalforestwatch.org](http://www.globalforestwatch.org).

loop systems for water use. See Table 5 for the hierarchy of bleaching processes for virgin bleached chemical pulp.

**Table 5 Hierarchy of Bleaching Processes for Virgin Bleached Chemical Pulp (Environmental Paper Network, 2002)**

Process	How It Works
Process Chlorine Free (PCF) Totally Chlorine Free (TCF)	Completely substitutes oxygen-based for chlorine compounds.
Enhanced ECF with ozone or hydrogen peroxide	Uses ozone or hydrogen peroxide as brightening agent in initial stages of bleaching process. (Final or near final stage uses chlorine dioxide.)
ECF with extended or oxygen delignification ("Enhanced ECF")	Removes more of the lignin before bleaching, thus reducing energy and chemical use during bleaching. (Final stage uses chlorine dioxide.)
Elemental chlorine-free ("Traditional ECF")	Replaces elemental chlorine with chlorine dioxide.
Elemental chlorine	Uses elemental chlorine to bleach pulp. In the U.S., the EPA's Cluster Rule phased out elemental chlorine as of April 2001.

### 3.3. Major Trends in Production and Consumption<sup>6</sup>

*Wood Pulp.* The United States is by far the world's biggest producer of wood pulp and is likely to remain so for the foreseeable future (see Figures 6 and 7).

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<sup>6</sup> Unless otherwise noted, all data and charts are from Resource Information Systems, Inc. (RISI), World Pulp & Recovered Paper Forecast (2004 October), RISI North American Graphic Paper Forecast (2004 August), RISI World Graphic Paper Capacity Report (2004), and RISI World Printing and Writing Forecast (2004).

Figure 6: World Pulp Capacity by Region, 2003

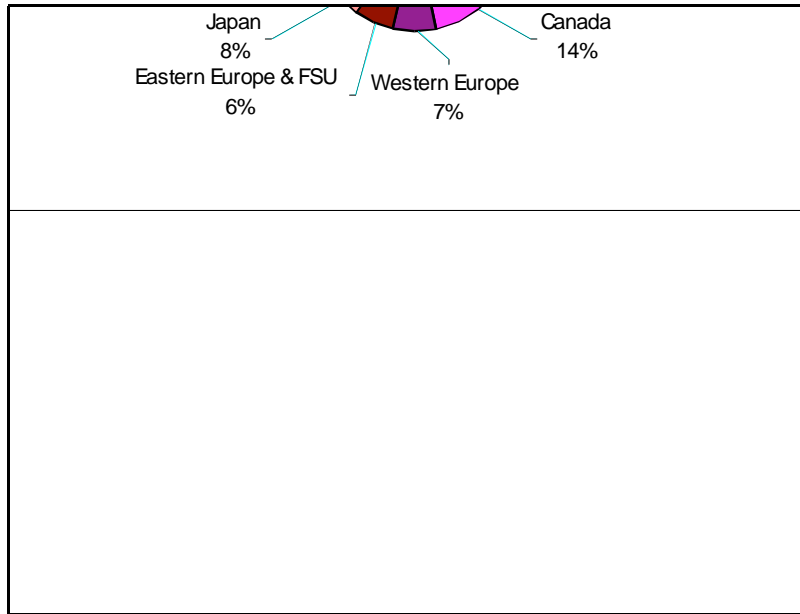
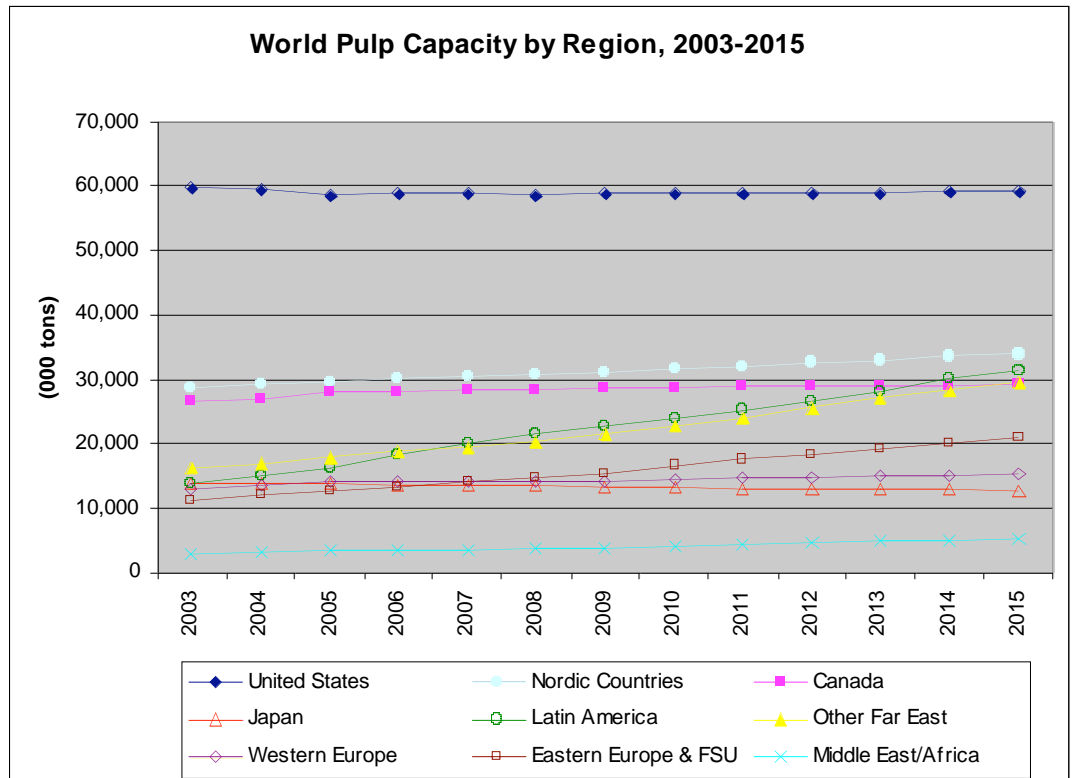


Figure 7: World Pulp Capacity by Region, 2003 to 2015



However, pulp capacity is growing fastest in the Far East (excluding Japan) and Latin America (especially Brazil), and Eastern Europe and the Former Soviet Union (see Figures 8 through 11).

Figure 8: Pulp Capacity by Type in the Other Far East from 2003 to 2015

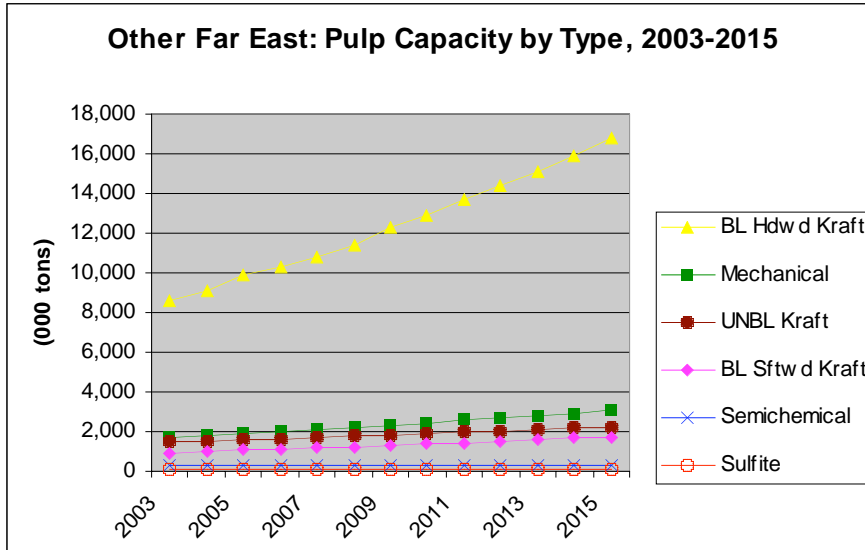


Figure 9: Pulp Capacity by Type in Brazil from 2003 to 2015

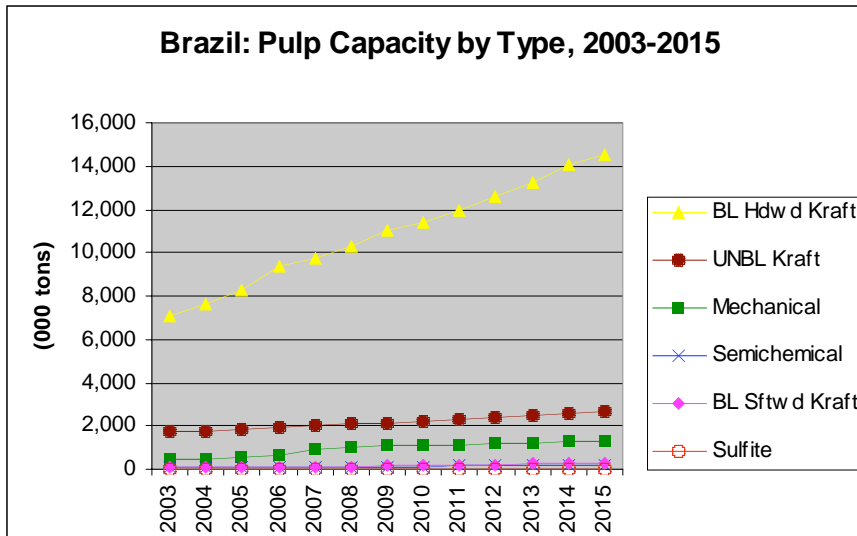




Figure 10: Pulp Capacity by Type in Other Latin America from 2003 to 2015

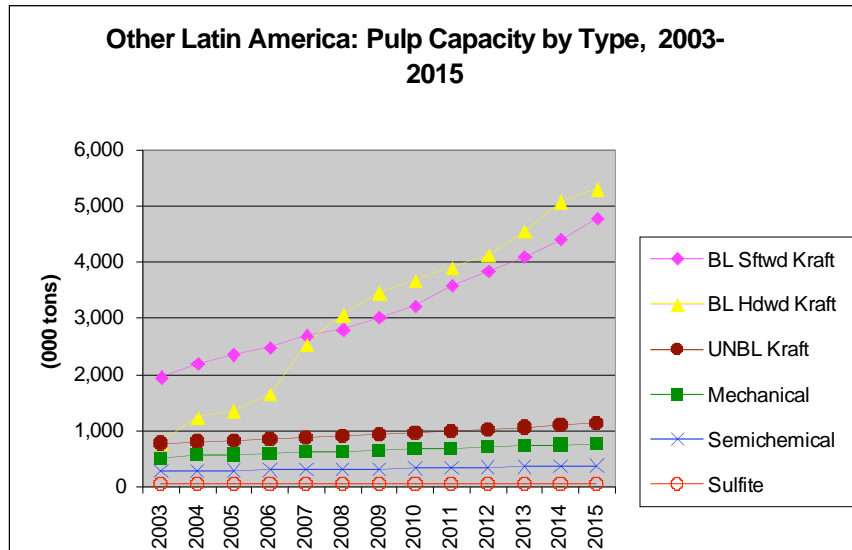
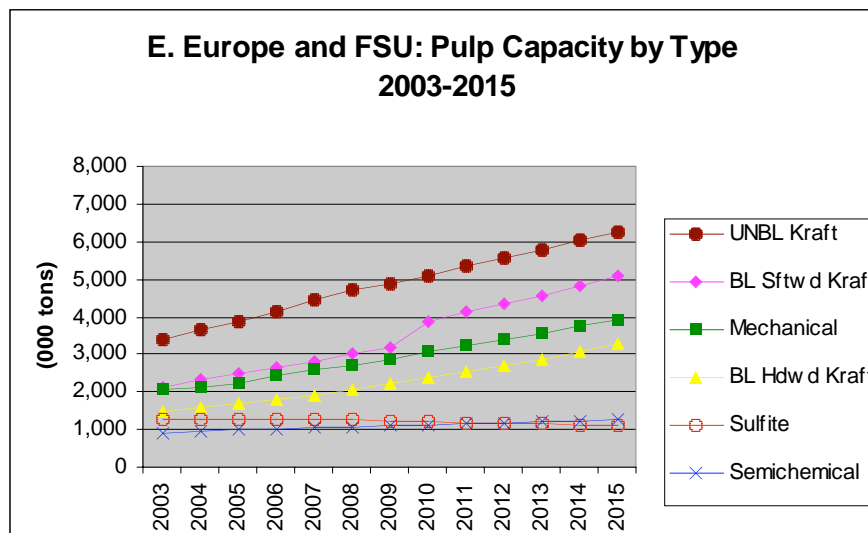


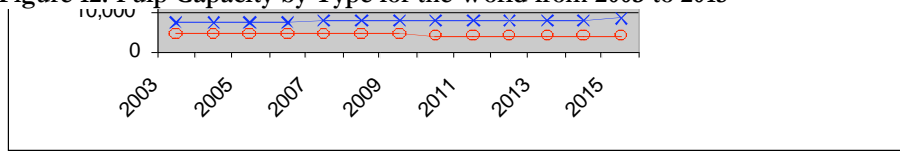
Figure 11: Pulp Capacity by Type in Eastern Europe and the Former Soviet Union (FSU) from 2003 to 2015



According to RISI (2004), “fast-growing plantations in the Southern Hemisphere and native forests in Eastern Europe and Russia will be the major sources of fiber to underpin the growth in world wood pulp demand that we are forecasting over the next 15 years. Latin America, in particular, is expected to see large investments in wood pulp capacity, which is projected to allow production to expand from 14 million tons now to 36 million tons in 2019.”

Most of the growth will be in capacity to produce bleached hardwood kraft pulp, which already accounts for the largest share (29 percent in 2003) of world wood pulp production (see Figure 12).

Figure 12: Pulp Capacity by Type for the World from 2003 to 2015



Most of the new pulp capacity will be market pulp (i.e., from a free-standing pulp mill that is not integrated with a paper mill). It will also have significant cost advantages over pulp produced in North America and Northern Europe. According to RISI (2004), “the supply-side shift to regions of the world with low wood costs will allow average production costs to trend down, pulling prices along.”

Figures 13 and 14 show production costs for U.S. and Brazilian bleached hardwood kraft pulp.

Figure 13: Production Costs for Bleached Hardwood Kraft Pulp in the U.S. South

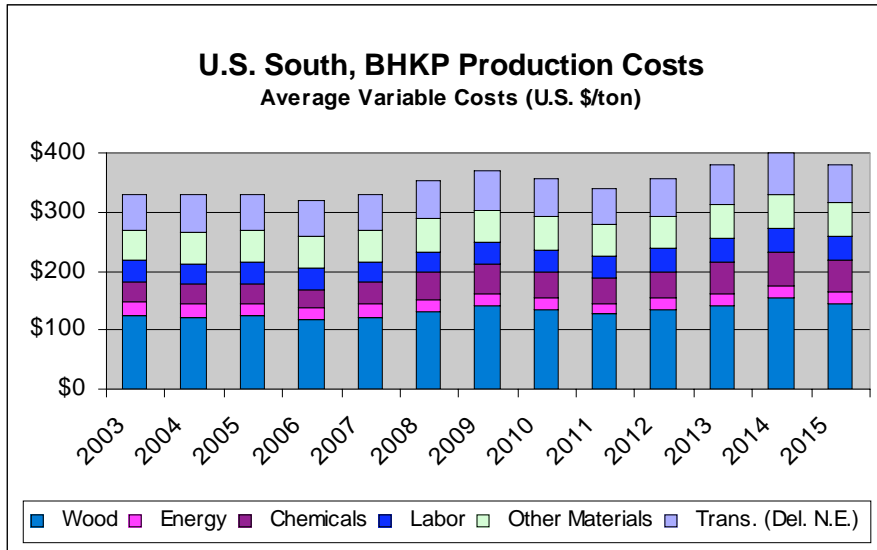
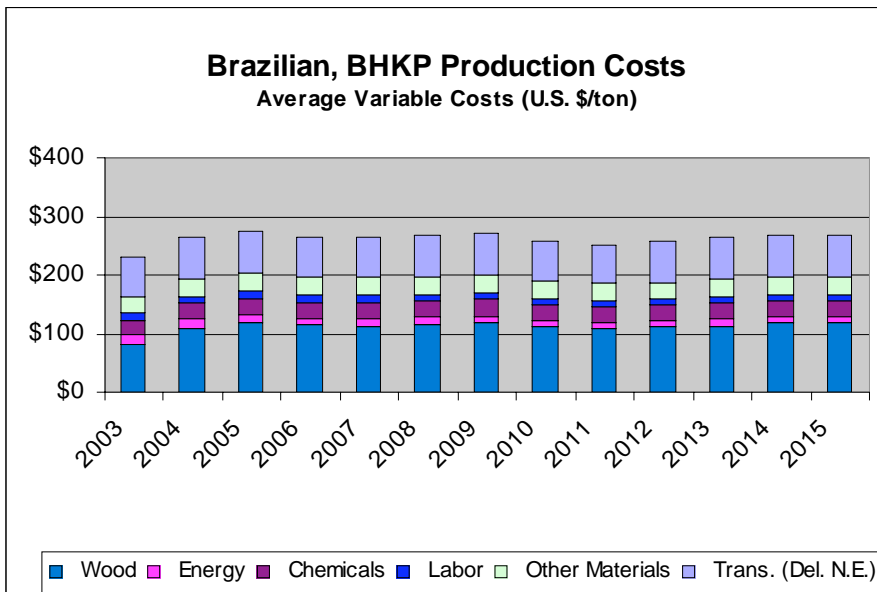


Figure 14: Production Costs for Bleached Hardwood Kraft Pulp in Brazil

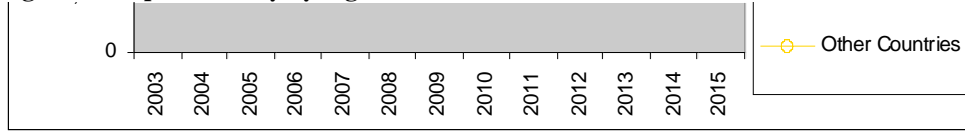


The biggest markets for wood pulp will also be in the developing world, due to strong demand growth for paper and limited virgin fiber availability. The developing world as a whole will account for 70 percent of the growth of world pulp usage over the next 15 years, with the other Far East by itself generating 40 percent of the world increase.

*Recovered Paper.* Paper recovery is expanding worldwide to meet global demand for fiber (see Figure 15). World recovered paper usage is projected to advance

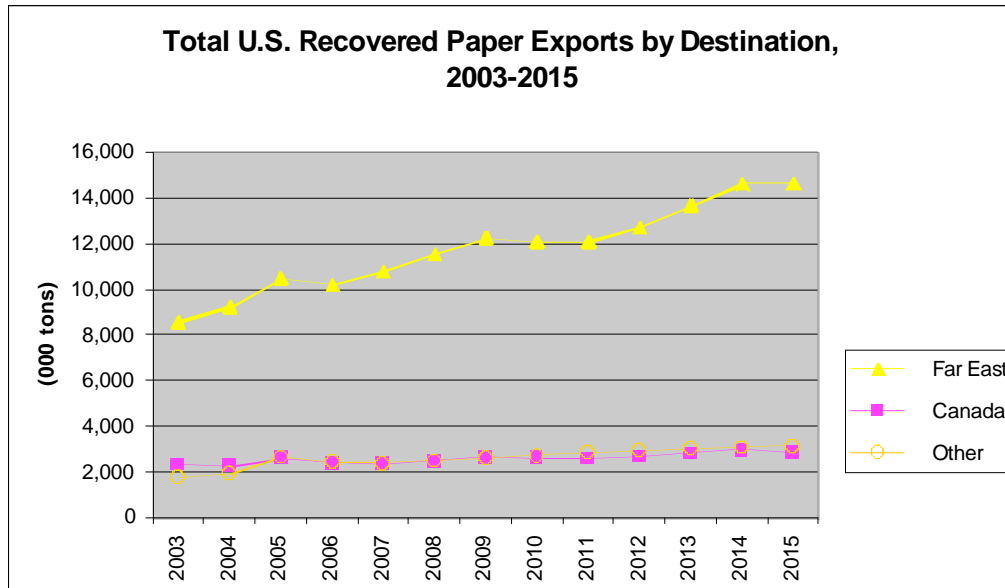
four percent annually from 2005 to 2019, compared to two percent per year for wood pulp.

Figure 15: Paper recovery by region from 2003 to 2015



U.S. exports of recovered paper will continue to rise, particularly to the Far East (see Figure 16).

Figure 16: Total U.S. recovered paper exports in the Far East, Canada and other countries



However, the highest-volume exports to Asia are, and are likely to remain, mixed paper, old corrugated containers, and old newsprint; not high-grade deinking and

pulp substitutes which are commonly used to produce recycled printing and writing papers in the United States.

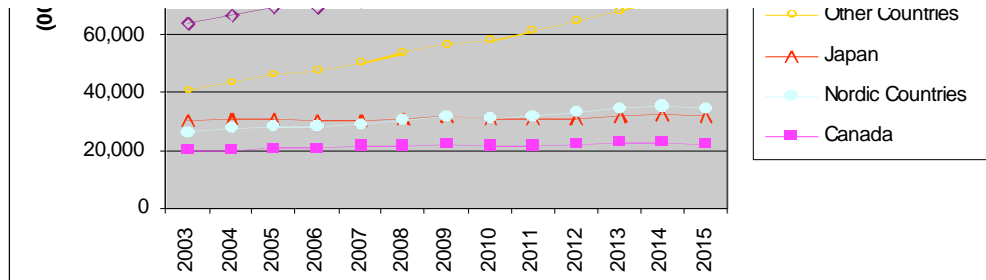
### *World Paper and Paperboard Production*

The United States is the largest paper and board producing nation. As a region, however, the Far East excluding Japan has surpassed the United States and will continue growing dramatically (see Figures 17 and 18).

Figure 17: World paper and paperboard production in 2003

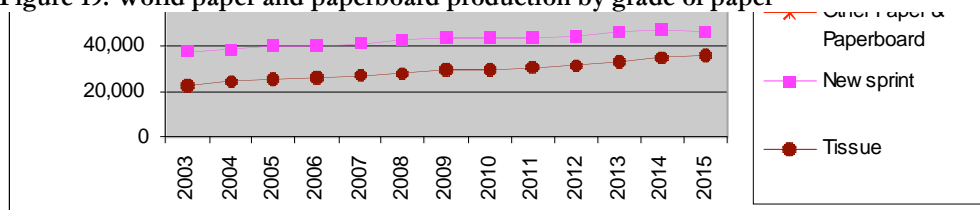


Figure 18: World paper and paperboard production from 2003 to 2015



Global paper production by grade will stay fairly consistent over the next decade, with slightly faster growth in the two largest-volume segments (containerboard and printing & writing paper) (see Figure 19).

Figure 19: World paper and paperboard production by grade of paper



Different regions of the world tend to specialize in certain paper grades, depending on their fiber base and consumption patterns. Containerboard is the number one grade produced in both Asia and the United States, while printing and writing papers lead in Europe and newsprint in Canada (see Table 6).

Table 6: Paper Production by Grade and by Region in 2003

	Other Far East	United States	Western Europe	Canada
<b>Tissue</b>	6%	8%	8%	4%
<b>Newsprint</b>	7%	6%	10%	<b>42%</b>
<b>Other Paper &amp; Paperboard</b>	26%	21%	20%	8%
<b>Containerboard</b>	<b>33%</b>	<b>38%</b>	28%	14%
<b>Printing &amp; Writing</b>	28%	27%	<b>34%</b>	32%

### *World Paper and Paperboard Consumption*

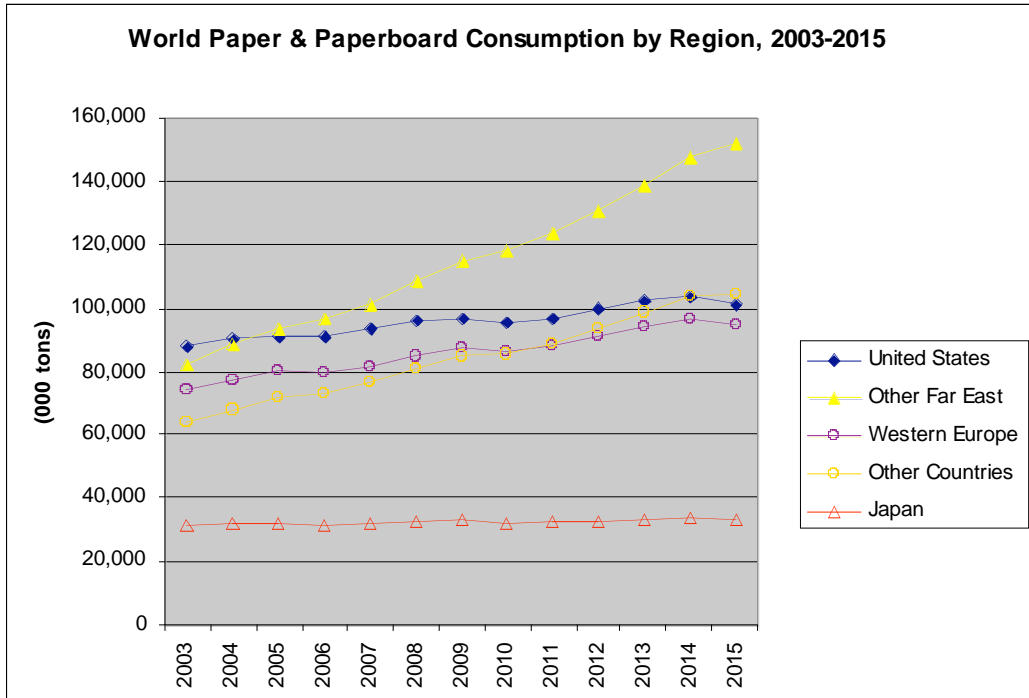
Not surprisingly, the United States is also the world's biggest paper consumer (see Figure 20).

**Figure 20: Paper and Paperboard Consumption by Region in 2003**



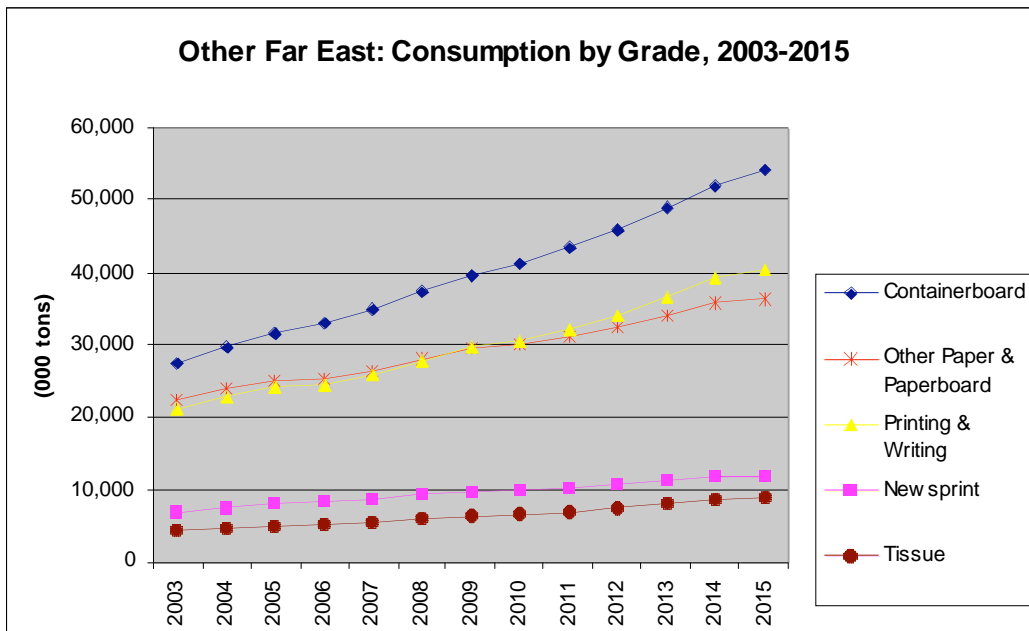
Global demand for paper and paperboard is expected to rise from 340 to 484 million tons between 2003 and 2015, about three percent per year. Demand for paper and paperboard in the U.S. is expected to grow at less than 1.4 percent annually during the same period, well below the global growth rate and only about half the expected growth rate of the general U.S. economy (3.3 percent). Regionally, paper consumption growth largely parallels paper production growth, with a similarly steep rise in paper consumption in the Far East (excluding Japan) over the next decade (see Figure 21).

Figure 21: Paper and Paperboard Consumption by Region from 2003 to 2015



Asia's paper consumption will grow most steeply; whereas in the United States, growth in consumption will be more gradual (see Figures 22 and 23).

Figure 22: Paper Consumption by Grade in the Other Far East from 2003 to 2015







### 3.4. U.S. Industry Spotlight

#### *The changing role of the U.S. paper industry in the world*

The United States has historically led the world in paper production and consumption. Starting after the Civil War, the emergence of new technologies for making paper from wood fiber, vast tracts of forestland, and a rapidly growing economy helped create the world's largest paper industry. Currently producing 80 million tons per year, or about 660 pounds per person (Korutz, 2004), the United States is the largest paper producing and consuming nation, and will remain so at least until 2015 (RISI, *World Pulp and Recovered Paper Forecast*, 2004). The four largest paper and forestry companies in the world – International Paper, Georgia Pacific, Weyerhaeuser, and Kimberly-Clark – are based in the United States. And among the top 100 public forest products companies in the world, the 27 U.S. producers accounted for over 40 percent of total revenues (PricewaterhouseCoopers, 2004).

In the last decade the United States' relative position in the global industry has declined, and the projected growth rate of the U.S. industry for the next decade is far lower than other regions of the world (See Figures 25 and 26).

**Figure 25: Average Paper Production Growth Rates Around the World from 2004 to 2015 (RISI, *World Pulp and Recovered Paper Forecast*, 2004)**

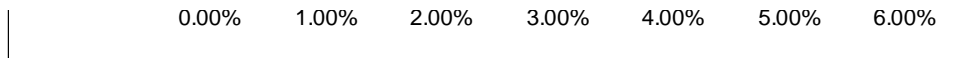
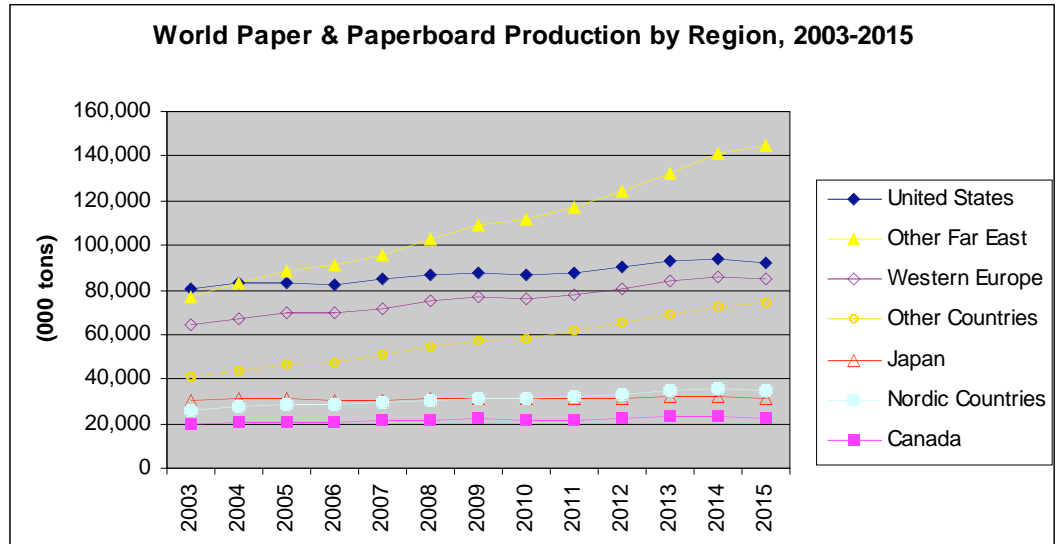


Figure 26: World Paper and Paperboard Production by Region from 2003 to 2015 (RISI, World Pulp and Recovered Paper Forecast, 2004)

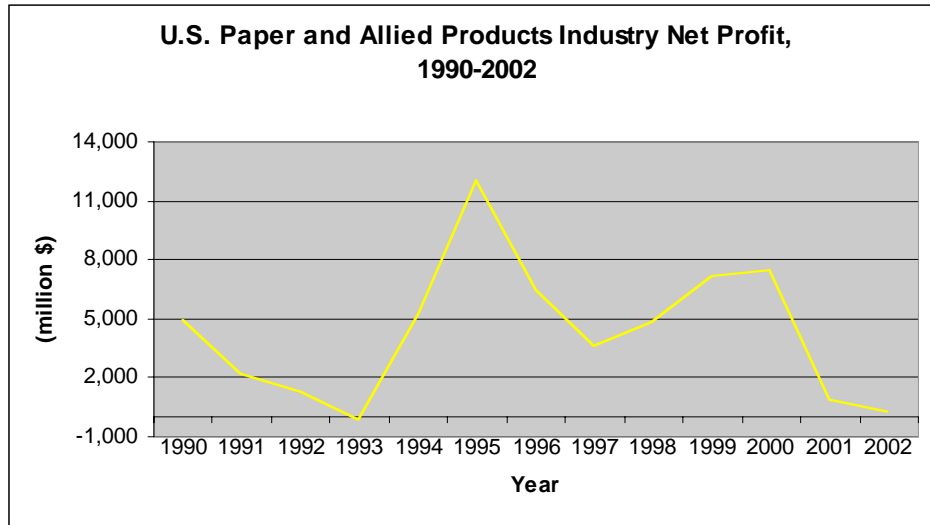


Reasons for this projected decline include rising populations and GDP in Asia, Latin America, and Eastern Europe; expansion of the paper industry in countries with far lower production costs than the United States; and changing currency valuations. Most of these factors have emerged within the past ten years.

#### *A Decade of Change: 1995 to 2005*

The last decade has been one of the most challenging in the history of the U.S. paper industry. After briefly enjoying its most profitable year in history in 1995, the U.S. paper industry began a decline in profitability that led to a historical low in 2001 (See Figure 27). The decline continued through 2003 and into the spring of 2004 when the overall economy began to improve (Korutz, 2003 and 2004).

Figure 27: Net Profit for United States Paper and Allied Product Industry from 1990 to 2002 (Paperloop, 2004, p. 9)



*Soft domestic demand.* As in any commodity industry, paper consumption is closely tied with the health of the overall economy. When the U.S. economy went into recession in 2001, employment declined, and magazine advertising page counts fell by 12 percent (Magazine Publishers of America, 2002). Meanwhile, postal rates increased (including a 15 percent jump between 2000 and 2001) which led many direct mailers to reduce their use of paper. Slow domestic demand for paper was exacerbated by a strong dollar, and the emergence of low-cost producers in other countries.

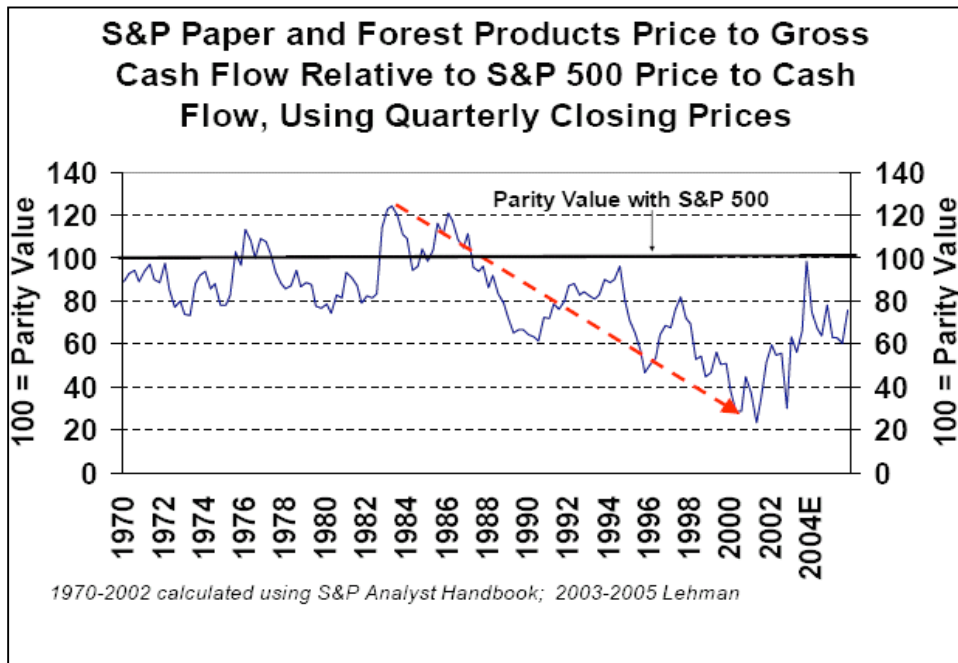
*The strong dollar.* A strong dollar for most of this decade made U.S. paper exports less competitive and imports cheaper. For example, between 1997 and 2000, U.S. consumption of paper and paperboard products grew by 3.5 million tons, but imports captured more than 90 percent of that demand growth. Meanwhile, the U.S. trade deficit in paper and paperboard product ballooned to \$3.4 billion in 2000 from a trade surplus of \$14 million in 1997 (Paperloop, 2004, p. 21). The American Forest and Paper Association testified before Congress in 2002 that the dollar was overvalued by 30 percent, and blamed the strong dollar on the loss of key European markets for U.S. products (“Hearing on Exchange Rate Policy”, 2002). A weakening dollar since 2003 may offset this trend in the future.

*Competition from low-cost producers.* While U.S. producers were struggling with soft domestic and export demand, they also faced competition from global pulp producers operating in countries with far lower fiber, energy, and labor costs. For example, in 2003, the cost to produce a ton of bleached hardwood kraft pulp was US\$376/ton in Brazil, compared to US\$446 in the U.S. South (RISI, *World Pulp and Recovered Paper Forecast*, 2004). Not surprisingly, Brazilian bleached hardwood kraft pulp production (mostly from eucalyptus plantations) has soared, at the expense of U.S. production.

***The result: poor financial performance***

This “perfect storm” of macro- and micro-economic challenges played out in lackluster financial performance. According to Wall Street analysts, the paper industry managed to meet its cost of capital in only one year between 1993 and 2003 (Chercover, Dillon and Martin, 2003). Jacobs-Sirrine Consultants (JSC) estimates that during the 1990s the industry lost \$22 billion of market value (Paperloop, 2004, p.15). During the late 1990s, stock prices of paper companies were a notable exception to the overall gains of the bull market. In 1998, for example, the Standard & Poor’s Index of paper and forest products stocks dropped by 1.1 percent while the S&P 500 rose 20 percent. Figure 28 shows the long-term trend since the 1980s of the forest products industry’s poor financial performance relative to the S&P 500.

Figure 28: Financial Performance of Forest Products and Paper Index (Georgia Institute of Technology, 2004)



Return on capital employed (ROCE) is a key figure for assessing the financial health of the paper industry. The goal, set by analysts and paper industry executives, is a ten percent return. However, the U.S. industry has not met this goal since at least 1996 (nor has the global industry). In 2000, ROCE among large paper companies in the United States was 7.3 percent but plummeted the following year to 4.0 percent and has been creeping back up over the past few years. In 2003 ROCE among the largest players in the United States paper industry was 4.7 percent...nowhere near the ten percent goal but slightly better than the ROCE of 4.2 percent met in aggregate by large companies from around the world (PricewaterhouseCoopers, 1998-2004).

### *How the Industry Responded*

Declining stock valuations and negative analyst reports from Wall Street prompted paper industry CEOs to embark on a sweeping round of consolidations, production cuts, and cost-cutting measures. These were all intended to squeeze excess capacity out of the system, cut production costs, and increase profits.

*Consolidation.* The rationale behind consolidation is that it increases the capacity and market share of the acquiring firm but not of the sector overall, which helps control supply and stabilize prices and profits. It also allows companies to shut down excess capacity and replace older, less efficient mills with newer, lower-cost operations, and to cut overhead by merging the companies' corporate infrastructures.

Starting in the late 1990s, many U.S. paper companies consolidated in order to raise their market share. In 1997, the top 100 global forest products included 35 U.S. firms, which accounted for 45.3 percent of the top 100's net sales. In 2003 the number of U.S. firms had dropped to 27, but their share of net sales was still 43.5 percent. International Paper has been at the forefront of the consolidation trend. Between 1995 and 2000, in deals totaling \$16.7 billion, International Paper bought Federal, then Union Camp, and then Champion to become the largest paper company in the world.

*Capacity and production cuts.* Meanwhile, even producers that avoided mergers and acquisitions either cut their capacity, their production, or both. Producers generally idle or shut down the oldest and least efficient mills, which are also the most expensive to operate.

U.S. pulp production went through an unprecedented five-year decline between 1997 to 2002, from 65.4 million to 58.1 million tons, the lowest level since 1986 (Paperloop, 2004, p. 9). Between 1998 and 2003, U.S. paper companies permanently closed 92 pulp and paper mills and more than 150 paper machines. As a result, more than ten million tons of annual production capacity was retired and nearly 50,000 manufacturing jobs were lost (Paperloop, 2004, p.7). For the first time in history, U.S. capacity to produce paper and paperboard fell for three consecutive years (between 2001 and 2003) (Paperloop, 2004, p.9).

*Sale of Timberland.* A related trend is the significant shift in timberland ownership from forest products companies to other private landowners. This trend has been driven by the need for forest products companies to raise cash in order to pay down debt incurred throughout the industry's consolidation phase (Korutz,

2004). Also, timber is at the low end of the value spectrum for paper and forest products companies, and they have the least control over its price on the commodity market. As they are able to secure long-term contracts for low-priced fiber from outside their own holdings, divesting becomes increasingly attractive to pulp and paper companies. Virtually all of the major timberland sales over the past five years have been to private forest investment management companies.

Some recent examples of timberland divestment by the major forest products companies include:

- *Boise Cascade*. In the largest timberland acquisition in U.S. history, Boise Cascade agreed in December 2004 to sell its 2.2 million acres of timberland to Forest Capital Partners of Boston for \$1.65 billion in cash. The press release announcing the sale quoted Tom Stephens, Boise Cascade's CEO, as saying "This sale, which is in line with our strategy of rapid debt reduction, will significantly strengthen our balance sheet and allow us to focus on our paper, wood products and distribution businesses."
- *Weyerhaeuser*. In 2005, Weyerhaeuser divested close to US\$1 billion of forest assets in British Columbia to Brascan, Corp., an asset management company (Brascan, 2005).
- *International Paper*. In 2004, IP announced the sale of 1.1 million acres of forestland in Maine and New Hampshire for \$250 million. And in 2001, as part of its debt reduction commitment that included liquidation of non-strategic timberlands, International Paper closed land deals totaling one billion USD and involving over one million acres across the U.S. (Paperloop, *Pulp & Paper*, 2002).

*Cost-cutting measures*. Paper companies have also sought to improve their financial performance through aggressive cost cutting. According to a Boston Consulting Group study published in 2002, which covered 65 publicly traded paper and forest products industry companies from 1989 to 2000, capital expenditures in 2000 were at levels near or below depreciation, whereas in the early years of the



study, capital spending ran at about two to three times depreciation (Korutz, 2002). In addition to cutting overall capital spending, paper companies also redirected their investments from building new capacity to modernizing existing capacity (Jaffe and Korutz, 1999).

Labor costs have come down through consolidations (which eliminate redundant jobs) and shifting production to newer mills that rely more on technology and less on manual labor. Employment in the United States paper industry dropped 15 percent from 1990 to 2002 (Paperloop, 2004, p. 27).

### *Prognosis for the U.S. Paper Industry*

There is some cause for optimism for the U.S. paper industry in the short term, with economic recovery and a weaker dollar having the potential to boost both domestic consumption and exports. Over the longer term, however, North American demand for paper is projected to grow more slowly than GDP (see Figure 29). Meanwhile, U.S. producers will also face increasingly stiff competition from foreign suppliers, especially in Asia and Latin America. As a region, Asia (excluding Japan) is expected to begin producing more total paper and paperboard than the United States in 2004 and consuming more in 2005<sup>7</sup> (RISI, *World Pulp and Recovered Paper Forecast*, 2004).

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<sup>7</sup> RISI includes the following 12 countries in “Asia excluding Japan”: Hong Kong, India, Indonesia, Korea, Malaysia, Pakistan, China, Philippines, Singapore, Taiwan, and Thailand.

Figure 29: Average Annual Growth Rate of Regional Economies and Paper Demand (RISI, *World Pulp and Recovered Paper Forecast*, 2004, p.50)

	1980 -1989		1990 -1999		2000 -2009		2010 -2019	
	% Ch	% Ch	% Ch	% Ch	% Ch	% Ch	% Ch	% Ch
	GDP	Demand	GDP	Demand	GDP	Demand	GDP	Demand
North America	3.1	2.6	3.1	2.3	3.1	0.4	3.2	1.2
Western Europe	2.3	3.1	2.1	2.8	1.9	2.0	1.9	1.9
Far East	5.7	6.7	5.5	5.3	5.5	4.5	5.6	4.0
Middle East	1.7	4.8	4.1	8.5	3.9	6.4	3.8	5.2
Latin America	1.9	2.4	3.1	4.9	2.7	3.3	3.6	3.8
Africa	2.5	4.8	2.1	2.3	3.6	4.7	3.4	4.3
Oceania	3.4	4.3	3.2	2.1	3.3	3.4	3.2	2.8
Eastern Europe	1.8	1.4	-4.6	-4.5	5.3	7.8	4.2	5.0

*China, the emerging giant.* The Chinese National Pulp and Paper Research Institute estimate that Chinese paper and board production in 2005 will be between 38 and 48 million tons, making China the second largest global producer after the United States (Paperloop, 2004, p. 58). The same source estimates that by 2010, Chinese production will reach 50 to 53 million tons (roughly a seven percent annual increase, compared to the one percent growth per year forecast for the U.S.), and that consumption will grow from 45 to 60 million tons in the same period. In another estimate, Steve Rogel, the Chairman and CEO of Weyerhaeuser, put Chinese paper consumption at 80 million tons by 2010 and 100 million tons by 2015, which would equal projected paper consumption in the United States in that year (RISI, *World Pulp and Recovered Paper Forecast*, 2004, p. 65).

*Latin America, the low-cost producer.* U.S. bleached kraft pulp producers will face stiff competition from Latin America. Cheap and plentiful virgin bleached hardwood kraft pulp from Brazil could be bad news for recycled paper, if its cost is lower than that of deinked kraft pulp, its functional substitute. However, using pulp imported from Latin America instead of North American pulp could help paper mills save money.

*Europe's advantages.* Although the European paper industry is growing by about the same rate as the United States, the European paper industry is arguably in a

better competitive position. Whereas the U.S. has not built any significant new papermaking capacity in recent years, Europeans have steadily been installing fast, state-of-the-art, and efficient paper mills. Of the world's 18 fastest paper machines, 12 are located in Europe (none are in the United States) (Paperloop, 2004, p. 51). According to RISI, "A continuing technological advantage will combine with extensive availability of relatively low-cost recovered fiber to maintain the competitive position of the Western European paper industry" (RISI, *World Pulp and Recovered Paper Forecast*, 2004, p. 1).

To compete in this environment, U.S. paper mills will need to continue employing the same strategies to cut costs and maximize profits that they began using in the last decade. We can expect to see more consolidations, production and capacity cuts, and sale of timberland and other non-core assets in the years ahead.

### ***3.5. Outlook***

In 2000, a critic described the U.S. paper industry as "mature, capital intensive, extremely cyclical, seriously affected with failing performance and returns, monolithic and slow to change. Substantive assets are underutilized and underperforming. Leadership seems largely to lack adequate vision, innovative thinking and a good solid understanding about the character of value." It remains to be seen whether the industry's response to the challenges of the last decade have been sufficient to turn its financial fortunes around, let alone its vision or culture.

What does this mean for environmentalists? Given the reality of an increasingly competitive global marketplace, and continuing pressure on the industry to improve returns for its shareholders, environmental improvements are unlikely to be a top priority for most companies. Nor is there any imminent regulatory or legislative threat to help drive change.<sup>8</sup> Consequently, the best hope for moving the relevant industries forward on such goals as minimizing paper consumption,

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<sup>8</sup> One recent development is that climate regulation appears increasingly likely in the United States within the next five years. If that happens, then the costs of recycled paper could drop relative to virgin paper and the pulp, paper and related industries could become more receptive to environmental initiatives.

clean production, responsible fiber sourcing, and maximize recycled content is to engage the one audience that has real-time impacts on decision making—its customers. The success in recent years of market-based campaigns and other initiatives targeting major paper consumers demonstrates that this strategy can work.

Achieving lasting environmental change in the paper industry will require a range of approaches including education, advocacy, confrontational campaigns, and partnerships. Equally important is promoting cooperation among different groups working on paper and environmental issues, to ensure that key information is shared and strategies are coordinated. Finally, being able to measure and report progress toward environmental goals is critical to raising market awareness of environmental issues, and sustaining momentum for change over time.

## *Chapter Four Analysis and Conclusions*

This report describes two areas of research developed with and for the Alliance. First, it describes an initial set of evaluation criteria that the Alliance can use as a tool to guide decision-making and trade-offs among existing and potential projects. Second, it provides an overview of environmental and market information relevant for use by the Alliance with funders, other environmental organizations, existing and potential corporate partners, and within Environmental Defense.

This chapter will further discuss the circumstances under which an organization might chose to develop explicit evaluation criteria to facilitate comparisons among projects, some challenges related to the development and use of such criteria, and suggestions for using evaluation effectively in a broader decision-making process. This chapter will then provide an illustration of how the criteria could be utilized related to the Alliance's paper and packaging focus area and review what the environmental and industry research appears to suggest for the Alliance's future strategy for minimizing the environmental impacts of paper and packaging. (Note: fully utilizing the evaluation criteria to help the Alliance evolve their paper strategy fell outside the scope of this project.)

### *4.1. Challenges and Suggestions for Developing and Using Evaluation Criteria*

Making evaluation criteria more explicit, like what the Alliance has begun to do with the criteria described in this paper, could be relevant to other organizations in a variety of circumstances, including when:

- An organization identifies specific goals and objectives and decides to become more strategic and focused about its activities (for various reasons including to develop name recognition, staff expertise and organizational knowledge, collaborative networks, thought leadership, and so on);

- An organization must more carefully allocate limited staff and/or financial resources because there are more potential and fund-able projects than there are resources to develop those projects;
- Leadership and staff of an organization are unsatisfied with the process or results from their past or current projects;
- An organization wants to define its niche among similar organizations competing for high-impact projects as well as gain respect and attention by decision-makers, donors, and the media.

Organizations considering using explicit criteria to aid in their decision-making processes should develop at least rough guidelines for the amount of staff time and other resources that should be used for collecting the data required to use the criteria effectively and also a process for discussing and making decisions about where to focus the organization's efforts and resources. The criteria, which are likely to evolve over time, will play a role in the decision-making process but are only one of a number of inputs to a decision to pursue (or not) a focus area, project, or partnership.

Non-profit organizations, even those as well managed and funded as the Alliance, often have strictly limited staff and financial resources. Strategic decision-making is no less important in these circumstances but if processes and supporting tools are to be used successfully, then they must be streamlined, result in outcomes that people have confidence in, and the process of using the tools must have some learning benefit unto itself. If decision-making tools and processes feel cumbersome or overly time-consuming, particularly in organizations where project managers have a great deal of autonomy and are motivated to get the most environmental benefit out of each grant dollar, then those tools and processes are likely to fall by the wayside.

Organizations that decide to incorporate explicit evaluation criteria into their decision-making processes should consider that any meaningful new tool or processes often feel onerous until it becomes business-as-usual and is adapted over time to fit the specific needs of the organization.

#### 4.2. *What the Research Might Mean for the Alliance*

Since the Alliance's previous market assessment in 1999, the paper industry has been transformed through consolidation and globalization. Environmental pressures on the industry have increased, especially with regard to forest management and recycled content. Increased solidarity and coordination have emerged among environmental groups working on paper. In addition, the Alliance, as an organization, has developed its skills, knowledge, and infrastructure related to developing and managing successful partnerships.

In part because the paper industry has matured in the United States, each producer and even the largest consumers have little control over the forces that impact supply and price. International organizations and advocacy groups may have more leverage with the paper industry: international organizations because mills and plantations are being developed in areas of the world with less strict environmental regulations; and advocacy groups because recycled content legislation appears to be the most viable strategy for significantly increasing the recycled content in printing and writing papers.

The Alliance faces several challenges and opportunities when considering future work to minimize the environmental impacts of paper and packaging.

One of the challenges is not having complete control over the choice of companies willing and available to partner with the Alliance. If the organization can not choose the partner that they believe will most effectively drive industry change, they will find themselves pursuing partnerships with companies that are likely to make great strides on improving their own environmental footprint, but that do not motivate far-reaching change by their peers, customers, and suppliers. The dilemma in that instance is determining when partnerships are worth the time and energy they require, with the goal of attracting more influential corporate partners once the initial partnership(s) report success. Over time this trend may result in industry change, but it is not the direct route that Environmental Defense seeks and that it achieved in previous projects such as with McDonald's in the initial packaging project or with UPS and FedEx in the overnight package delivery market.

The Alliance will use the criteria described in Chapter 2 as one tool among several to help them refine their strategy related to paper and packaging. Like many non-profit organizations, the Alliance does not have the benefit of dedicated analysts and strategists so their staff must define strategy while continuing to maintain and develop relationships within the environmental non-profit and corporate communities.

To help the Alliance discuss its future paper and packaging strategy, the following is an example of some of the content contained in a review of pulp and paper using the criteria discussed in Chapter 2. The Alliance staff members working on paper issues were just beginning the process of fully answering the questions and discussing their revised strategy at the conclusion of this research.

<b>1. Success will result in substantive, lasting, and measurable environmental benefits</b>	
a. What are our potential environmental goals?	<ul style="list-style-type: none"> <li>• Reduce use of virgin pulp/increase use of recycled content (or at least decrease the rate of increase in the use of virgin pulp)</li> <li>• Increase the use of environmentally preferable bleaching technologies</li> </ul>
b. What would need to change for those goals to be met?	<ul style="list-style-type: none"> <li>• The economics of using recycled content would have to be better than of using virgin pulp and also stable.</li> <li>• There would have to be a steady supply of high-quality recycled paper for pulp.</li> </ul>
<b>2. Work in this area significantly advances one or more Environmental Defense organizational goals (stabilizing climate, restoring ecosystems, protecting health, safeguarding oceans)</b>	
a. How does the focus area intersect with Environmental Defense's organizational goals, relative to other potential focus areas?	<p>The pulp and paper industry is a significant contributor to greenhouse gas emissions. Slowing the growth of paper manufacturing could have an impact on global warming.</p> <p>Increasing the use of recycled pulp could potentially reduce the amount of virgin pulp, thus providing an opportunity to protect existing natural ecosystems and potentially restore some of what has been turned into monoculture tree farms (with the resulting impacts on watersheds, biodiversity, plant health, etc.)</p>



<b>3. Work in this area has the potential for widespread industry impact</b>	
a. What industries are involved throughout the supply chain?	Pulp, Paper, Consumer products, Publishing, Professional Service, Finance, Transportation, Waste Management, Office Machinery, Mail and Package Delivery
b. Where do the biggest environmental impacts occur and who is best able to influence them?	Pulp and paper manufacturing have multiple significant environmental impacts such as: destruction of GHG sinks and old forests, erosion, loss of biodiversity, air and water pollution from production and disposal. U.S. producers are operating in an increasingly challenging and commoditized global marketplace. Environmental improvements are most likely to be driven by consumer and regulatory pressure.
<b>4. Work in this area has the potential for measurable business benefits</b>	
a. What are the business implications of making the changes that we seek and who bears the cost and gets the benefit?	There is a bias against recycled-content paper due to the perception of high-priced products, unreliable supply, and concerns about quality. Through its research and partnerships the Alliance has demonstrated that recycled-content paper can be of equal or higher quality and cost-neutral. In addition, minimizing the amount and weight of paper packaging can result in significant cost savings to consumer project companies.
<b>5. Others are not sufficiently dealing with the problem.</b>	
a. What is Environmental Defense already doing in this focus area?	<p>The Alliance has a long history in the area of paper and packaging research and collaboration. The Alliance is working on several projects including:</p> <ul style="list-style-type: none"> <li>• Reducing the use of paper by financial institutions by promoting electronic billing, etc.;</li> <li>• Increasing the use of recycled content in office paper and catalogs;</li> <li>• Minimizing the amount of paper used in consumer products packaging, starting with product design; and</li> <li>• Providing up-to-date and accurate research to other NGOs working in the arena.</li> </ul>

<p>b. What are other NGOs doing in this focus area?</p>	<p>Many NGOs are working in this area including: Natural Resources Defense Counsel; Coop America; ForestEthics; Conservatree; Center for a New American Dream; and many others. In addition there are at least two major public/private alliances actively coordinating NGO and public sector efforts to minimize the environmental impacts of paper and packaging: the Dogwood Alliance and the Environmental Paper Network (ED is a member of both).</p>
<p>c. What is government doing in this focus area?</p>	<p>For example, many county and local governments are mandating recycling, the federal government has a recycled content standard (although it currently is easy to get around this “requirement”).</p>
<p>d. What are companies or industry groups doing in this area?</p>	<p>Many big players in consumer products packaging are continually looking for ways to reduce the weight and cost of their packaging, individually and in industry consortiums. As the impacts of paper and waste on climate change become more apparent, sustainable packaging efforts are likely to increase as well. For example, one industry group called the “Sustainable Packaging Coalition” counts some of the largest consumer products companies among its members.</p> <p>Most financial institutions offer electronic statements and billing, they do not need Environmental Defense to help determine how to make those cost savings real.</p> <p>Most of the large catalogue, magazine, and financial service firms have been approached regarding increased recycled content in their paper. Some are considering movement in this area but many also have repeatedly rejected moving to recycled content paper.</p> <p>Some companies are working on closing the loop within their own supply chains, including recovering paper for later recycling.</p>
<p>e. How would our unique contribution address the gap?</p>	<p>Environmental Defense has developed the credibility among private sector organizations to get initial conversations with industry leaders where other environmental organizations might not have that opportunity. In addition, ED</p>
<p><b>6. Our experience, skills, and resources match the task, or we will commit ourselves to get what we lack.</b></p>	
<p>a. What expertise and resources exists within Environmental Defense in this focus area?</p>	<p>The Alliance already has the expertise and resources needed to work in this focus area. Additional resources could possibly include staff with experience in a particular paper-intensive sector such as financial services or consumer products.</p>
<p>b. What is lacking or unavailable?</p>	<p>Environmental Defense and the Alliance are well-staffed with regard to paper and packaging. If any expertise might be helpful it would be on the business side to help provide additional relationships with actors in the international paper industry.</p>

c. How would we fill the gaps?	Not necessary at this time.
<b>7. The related issues and/or potential partners can facilitate visible results.</b>	
a. What media coverage has the focus area received (how much and what type)?	Over the past few years all of the major media outlets have covered topics such as recycling, electronic billing, forest depletion and its impact on climate change, etc. but stories about paper and packaging are generally not hot topics
b. Is the focus area something consumers and businesspeople can see and understand?	Although paper and packaging are a big part of consumers' everyday lives, most products (except office paper) are not sold based on the paper they contain. Consumers and businesspeople can understand issues related to paper and packaging but concerns about quality are difficult to overcome. One challenge is that paper is omnipresent that it has in many ways become invisible to the public.
c. What environmental problems are associated with the focus area and are they correct about the big problems?	Trees and forests being cut down to make paper is probably the greatest association. The biodiversity loss associated with irresponsible forestry is a big issue but is equaled in importance by the energy and water use in the paper lifecycle and the climate impacts of the methane released when paper products decompose in landfills.
d. What else might contribute to this focus area being ripe for work by the Alliance?	The threat of enforced recycled-content mandates, at the federal, state, or city level. Improved reliability in the price and supply of recovered paper. U.S. and global carbon and climate policies (might encourage conservation of forestland)
<b>8. Working in this area allows the Alliance to optimize fundraising opportunities</b>	
a. Who is funding work in this focus area?	<i>(Research related to funding opportunities not completed during the study period)</i>
b. What are they funding related to this area (e.g., research, advocacy campaigns, lobbying) and for how much?	<i>(Research related to funding opportunities not completed during the study period)</i>

The background research and review of the evaluation criteria indicate that the Alliance has a great deal of expertise and can bring particular value to solving environmental issues related to paper and packaging, particularly by conducting and sharing scientific, market, and regulatory research. Other environmental organizations are working on various aspects of paper such as recycling or increasing recycled content, but none fill the research role that Environmental Defense and the Alliance have played over the past 15 years. Due to difficult

market conditions in the United States, the most likely projects and partnerships for the Alliance will relate to cost-neutral or cost-saving increases in recycled content and movement away from paper mailings toward electronic communications. At a minimum, Environmental Defense and the Alliance should pursue funding in two areas: 1) to provide accurate and current research and data for the organizations involved in the Environmental Paper Network and to enable paper-related work with partner organizations if such opportunities arise organically; and 2) for maintenance of the on-line paper calculator, a valuable resource for companies considering switching to recycled-content papers.

### **4.3. *Conclusions***

Simply filling out a set of project evaluation criteria will not result in strategic decisions. Such criteria are a tool that can facilitate informed and strategic decisions. This type of tool should be used to help guide the decision makers' intuition and experience through a more explicit and systematic investigation and decision making process. In the end, strategic decisions must reflect intuition and experience as well as specific research and data. The criteria are intended to spark conversations that will lead to good decisions. Other parts of the decision-making process should include, for example: clearly defined decision-making roles; a regular timeline for updating the information for on-going projects; guidance on how the organization might weigh the different criteria; and a structured and regular agenda for project evaluation discussions. However, one of the most important elements of decision-making tools and processes, particularly within resource-constrained and hierarchically flat organizations, is that they are intuitive and flexible.

The Alliance is at a stage of its organization where it will likely become increasingly explicit about its standards, norms, and procedures. However, the organization faces a difficult job of continuing to identify high-potential focus areas, projects, and partnerships, persuading the relevant corporate decision makers to engage in discussions, negotiating strategically significant initiatives, and then carrying out the partnerships to the benefit of the company, Environmental Defense, and the

environment. All of this must be done on a limited budget and often without an initial mandate or invitation from potential partner companies to begin discussions.

Paper and packaging is likely to continue as one of the Alliance's specific focus areas. This is due in large part to the developed expertise of the staff; the particularly valuable role the Alliance plays among other organizations within the environmental community; and the significant climate-related impacts of forestry, paper production, and solid waste disposal. Finding the best corporate partners to leverage the Alliance's skills and expertise will continue to be difficult, at least until market conditions improve significantly for the paper industry in the United States.

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