

# **Recovered Fiber Planning Project: Potential Strategies**

**by**

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**For the  
Environmental Paper Network**

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## I. EXECUTIVE SUMMARY

In March 2007, the Environmental Paper Network convened a Deinking Roundtable at AF&PA's Paper Week to discuss ways to build capacity to meet the increasing market demand for recycled printing & writing papers and other recycled papers. Fifty representatives attended, bringing together a mix of people from the paper industry, major paper purchasers, government and environmental groups that would not have been possible just a few years ago. The Roundtable recommended, as a first step, that a report be compiled of possible strategies to use in increasing recovered fiber collection.

EPN sees expanded recycled paper capacity as a potential source of renewal and revitalization for the North American paper industry. While many new overseas paper mills have built recycling into their newsprint and packaging production, they have built almost none of the high grade deinking capacity necessary for making recycled printing & writing papers. The global high grade deinking capacity that does exist is almost all in North America, Western Europe, and Japan, yet even in these regions it is far too little for today's market demands.

For example, despite the fact that recycled content in printing & writing papers offers the greatest environmental benefits of all paper grades, more than 90% of printing and office papers in the U.S. have no recycled content and only 6% of the fiber used to make them comes from recycled sources. Yet current North American deinking capacity is already close to its production limits.

At the same time, North America is the source for much of the recovered fiber shipped overseas for developing countries' burgeoning paper industries. In addition, these newly developing industries want to sell their printing & writing paper, as well as printing and school and office paper products, to North American major purchasers, although almost none of it includes recycled content.

The new demand of huge populations in developing nations for papers previously unavailable to them makes clear the imminent need to rapidly reduce paper's production footprint. Otherwise, paper's appetite for forests, resources, energy, water, and chemicals will become devastating. Recycling is an essential foundation for sustainable production and a critical element in redesigning paper manufacturing to minimize environmental impacts. North America, as the source for much of the global demand for printing & writing papers, as well as for much of the discards that can be made back into new paper, is perfectly positioned to develop the models for minimum impact environmentally sustainable papers.

EPN's Recovered Fiber Project, then, is an effort by a large coalition of environmental groups to join the paper industry in realistically addressing and resolving some of the obstacles holding back development of more recycling capacity in North America. In order to develop new deinking capacity that can provide high quality pulp for printing & writing papers, several "pieces of the puzzle" need to come together and fall into place at approximately the same time. These include:

- Sufficient investment to build new capacity, expand existing capacity, or convert industrial facilities built for other types of pulping, papermaking, or production.
- Reliable sources of recovered fiber to supply new deinking capacity; this supply must be clean, sorted, of the appropriate grades, without contamination, cost-effective, and made available to domestic mills rather than exported.
- Significant, consistent, and stable market demand for recycled paper, with specifications that are economically and technologically achievable; even better would be a cultural context that not only supports but expects recycled content in all papers.

## Objectives

While EPN's Recovered Fiber Project focuses primarily on increasing options for recycled printing & writing papers, it also includes a component to increase the fiber supply for tissue mills, which use the same feedstock and pulp, and for newsprint mills, which deink a different fiber supply (old newspapers).

The ultimate objectives of this project are:

- I.** Stimulate increased fiber recovery sufficient to support new North American high grade kraft deinked pulp capacity and suitable for use in kraft printing & writing papers, including coated papers; achieving this objective will also meet the supply needs for planned increased capacity at tissue mills.
- II.** Stimulate increased fiber recovery sufficient to support new North American mechanical deinked pulp capacity and suitable for use in groundwood printing & writing papers, including light-weight coated papers.
- III.** Stimulate increased, and improved, ONP recovery to support additional conversion of domestic virgin newsprint to recycled content.

These three objectives are intertwined with each other, and yet each requires fiber different from the others, and accesses different parts of the recycling system. High grade deinking requires sorted office paper collected in commercial recycling programs, where more than half the paper in offices is not yet collected for recycling, and only slightly more than half of what is collected is used to make recycled products in North America. Recycled newsprint requires old newspapers (ONP), primarily collected in municipal curbside recycling programs, where the ONP collection rate is extremely high. Increasing recovered fiber availability for newsprint mills will require focusing on much better processing of collected materials so that they can be more easily usable as manufacturing feedstocks.

In other words, addressing the potential to increase fiber recovery in North America is very complex. It affects, and is affected by, the health of the whole recycling system, which in turn,

with no overall manager, relies on the daily decisions of thousands of independent businesses and community recycling systems with widely varying levels of sophistication and self-interest.

The complexities exist not only in methods of increased fiber recovery. Both the tissue and newsprint sectors have significant deinking capacity, but this is not true for the printing & writing sector. For the Recovered Fiber Project, the answer to the classic question of which comes first, capacity or supply, the chicken or the egg, is that *BOTH* must be developing at the same time. Without more, and usable, fiber recovery, increased deinking capacity will not be viable. But increasing recovery without parallel plans going forward to open new deinking capacity for printing & writing production will not meet EPN's primary goal of increasing recycled content in printing & writing papers, even if increased recovery of fiber is successful.

## **Organization**

Section II: Background is intended to give some context for the issues faced in this project, and the current state of recycling development that affects paper options.

Section III: Strategies, summarized on the following pages and explained in detail in the second half of the report, is intended to be a brainstorm of as many different potential approaches as possible. Some are already in process, carried out by organizations taking the lead in specific directions. Some will be chosen by EPN as directions it will take the lead in, or collaborate with others, or facilitate. Many of the strategies will require other organizations with more capacity and resources, specific expertise, and/or the appropriate connections to carry them out. Some will require a "connect-the-dots" strategy, linking several approaches to each other, rather than relying on one direction to succeed alone. There will surely be even more ideas for strategies and directions than are listed here, as well.

The Strategies listed in this report are not intended to be a prescription, but rather a take-off point for creativity and commitment. Many different strategies, many different leaders, and many different ideas will be essential to create meaningful success. We welcome many collaborations.

## Summary of Proposed Strategies

#	Strategy	Page	Lead
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1C	Develop recycling programs' commercial assistance	27	Municipal gov's
1D	Collaborate with NRC and its state affiliates	28	NRC
1E	Develop leverage through federal, regional and state/provincial government programs	29	
1F	Team with SWANA, NSWMA	29	
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1H	Coordinate best practices with shredding industry, direct to recycling	30	
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1J	Create a network of major corporate business offices	31	
1K	Collaborate with office products retail stores	31	
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1P	Make conference presentations	34	
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2A	National Recycling Partnership	35	NRC
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2D	Team up with SWANA and NSWMA	36	
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2F	Promote support through city and county associations	36	
2G	Provide best practices and resources	37	
2H	Promote high quality processing	37	
2I	Promote a philosophy of resource management	37	
2J	Collaborate with manufacturers that are promoting recycling	37	
2K	Develop better collection for multi-family housing and small businesses	37	

**Summary of Proposed Strategies, continued**

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5E	Provide model collection plans, step-by-step guide	43	
<b>6</b>	<b>Organize Purchasers</b>	43	
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## Summary of Proposed Strategies, continued

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## II. INTRODUCTION

A year ago, in March 2007, the Environmental Paper Network convened a Deinking Roundtable at AF&PA's Paper Week to discuss the potential for expanding North American deinking capacity. EPN's goal was to ensure sufficient supply of recycled (including postconsumer) pulp to meet the increasing market demand for recycled printing & writing papers. In particular, the Deinking Roundtable focused on how to ensure that new capacity would have sufficient clean, high quality recovered fiber to produce more recycled pulp. Fifty representatives attended, bringing together a mix of people from the paper industry, major paper purchasers, government and environmental groups that would not have been possible just a few years ago.

In fact, one industry panelist noted how odd it was to find himself agreeing with environmental groups, when they used to be considered "the enemy." Nevertheless, he advocated more such industry/ENGO collaborations to achieve success. In the past, many in the paper industry have criticized environmentalists for pursuing demands without taking into account the tangible obstacles the industry must surmount to meet them. EPN's Recovered Fiber Project is an effort by a large coalition of environmental groups to join the paper industry in realistically addressing and resolving some of these obstacles.

Focusing on increasing recovered fiber collection has a successful history of stimulating expanded recycled paper production capacity. Dr. Peter Ince of the USDA Forest Service, in analyzing the most influential paper recycling drivers from 1988 to 1998, pointed out that "expansion of collection programs since the mid-1980s had a direct influence on capital investment within the pulp and paper sector. The long-run investment cycle is influenced by the forces of fiber supply and product demand, including trade. Supply and demand determine prices in the short run and influence decisions to invest in new production capacity. Change in capacity will in turn influence supply and demand in the long run."<sup>1</sup>

Market dynamics have changed in some notable ways since 1998 with the advent of significant recovered fiber market demand from China and other nations that are developing their paper industries. Now North American paper purchasers' recycled content specifications are becoming more important than ever. Major purchasers' requirements for papers that meet environmental criteria help create the context to ensure environmentally sustainable production no matter where it is located geographically.

In fact, EPN sees expanded recycled paper capacity as a potential source of renewal and revitalization for the North American paper industry that is in an otherwise increasingly challenging economic situation. To lay the groundwork for such an expansion, increased recovered fiber collection is still critical.

But, for the Recovered Fiber Project, the answer to the classic question of which comes first,

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<sup>1</sup> Dr. Peter Ince, USDA Forest Service, Forest Products Laboratory, Madison, Wisconsin, presentation at *Recycling, Energy, and Market Interactions Workshop*, UN-ECE Timber Committee, November 1998, Istanbul, Turkey, summarized by USDA Forest Service and Dr. B. Hillring Swedish University of Agricultural Sciences

capacity or supply, the chicken or the egg, is that *BOTH* must be developing at the same time. Without more, and usable, fiber recovery, increased deinking capacity will not be viable. But increasing recovery without parallel plans going forward to open new deinking capacity will only result in supporting the existing North American deinking mills that are already reaching their limits and the increasingly voracious export market. Without new deinking capacity, preferably domestic, EPN's goal of increasing recycled content in printing & writing papers will be unachievable even if increased recovery of fiber is successful.

Currently, increasing deinking capacity suitable for providing pulp to printing & writing papers faces a number of challenges in North America. Ironically, just as citizens and governments are becoming aware of the seriousness of global warming and the need to conserve forest cover, and as developing world populations are beginning to surge into paper markets, the U.S. and Canada have been losing recycling capacity, even though North America is the source for much of the recovered fiber shipped to new recycling mills in other parts of the world. Yet even though countries such as China are rapidly developing their paper industries and building recycling mills to produce newsprint and packaging papers, there is very little new capacity for recycled printing & writing papers, despite the fact that these offer the greatest environmental savings of all paper grades.

In North America, more than 90% of printing & writing papers have no recycled content. Only 6% of the fiber used to make them comes from recycled sources,<sup>2</sup> and half of this is preconsumer. Western European printing & writing papers use only slightly more recycled fibers (about 8% overall), Japan has not been able to keep up with its market demand for recycled printing & writing papers, and deinking for these grades in the rest of the world, including in the rapidly developing industries in China, Indonesia, Brazil, and other countries, is miniscule or nonexistent, despite significant recycling investment for other grades.

In order to develop new deinking capacity that can provide high quality pulp for printing & writing papers, several "pieces of the puzzle" need to come together and fall into place at approximately the same time. These include:

- Sufficient investment to build new capacity, expand existing capacity, or convert industrial facilities built for other types of pulping, papermaking, or production.
- Reliable sources of recovered fiber to supply new deinking capacity; this supply must be clean, sorted, of the appropriate grades, without contamination, cost-effective, and made available to domestic mills rather than exported.
- Significant, consistent, and stable market demand for recycled paper, with specifications that are economically and technologically achievable; even better would be a cultural context that not only supports but expects recycled content in all papers.

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<sup>2</sup> Environmental Paper Network, "Maximizing Recycled Content," *The State of the Paper Industry: Monitoring the Indicators of Environmental Performance*, October 2007

Many of the environmental groups that belong to the Environmental Paper Network have been building demand for recycled paper for decades. New markets campaigns for recycled paper since 2000 have been particularly successful in developing demand for recycled content in papers for offices, printing, publishing, tissue products, newsprint and packaging. Some of the environmental groups active in EPN have also been leaders in advocating a strong recycling system and advances in recovered fiber collection. EPN's Recovered Fiber Project combines the experience, expertise and commitment of its member groups to join with the paper industry and major purchasers to stimulate the increased level of recovered fiber collection necessary to support the development of more recycled paper.

This report, then, is an attempt to sketch out as wide a range of strategies for increasing fiber recovery as possible. Although we consider source reduction, buying recycled paper, certified forest fiber, clean production, and non-chlorine bleaching to also be essential environmental attributes and issues, they are not addressed in this report except for ways that they can help increase the recovery of recyclable fiber.

## **OBJECTIVES**

A common misunderstanding, even sometimes among people in the paper industry, is the fact that there is wide variation in the types of fiber inputs needed for different recycled paper products, with equally wide variations in their sources, opportunities and access points for increasing collection, obstacles to overcome, and export rates. Some paper products need well-sorted inputs, while others can take a broader or narrower mix. For example, the type of recovered fiber needed to make corrugated or paperboard boxes has very little in common with what is needed to make printing & writing papers. But, to make the matter more complex, there are different types of printing & writing papers, and these need feedstock mixes different from each other as well.

Additionally, while EPN's Recovered Fiber Project focuses primarily on increasing options for recycled printing & writing papers, it also includes a component to increase the fiber supply for tissue mills, which use the same feedstock and pulp, and for newsprint mills, which deink a different fiber supply (old newspapers). Sixty percent of North American newsprint is supplied by Canadian paper mills, with the other 40% supplied by U.S. mills.

Therefore, the ultimate objectives of this project are:

- I. Stimulate increased fiber recovery sufficient to support new North American high grade kraft deinked pulp capacity and suitable for use in kraft printing & writing papers, including coated papers; achieving this objective will also meet the supply needs for planned increased capacity at tissue mills.

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- II.** Stimulate increased fiber recovery sufficient to support new North American mechanical deinked pulp capacity and suitable for use in groundwood printing & writing papers, including light-weight coated papers.
- III.** Stimulate increased, and improved, ONP recovery to support additional conversion of domestic virgin newsprint to recycled content.

These three objectives are intertwined with each other, and yet also separate. Each requires fiber different from the others, and accesses different parts of the recycling system. For example, fiber for mechanical deinking and for newsprint is likely to come from curbside paper collections operated by municipal recycling programs, while fiber for high grade deinking primarily comes from offices and commercial accounts that are collected independently. Increases in office paper collections will benefit recycled printing & writing paper, tissue products, and printing for packaging, but they will have no effect on increasing recycled content in newsprint.

Many municipal recycling programs, particularly in the western part of the continent, send high percentages of their curbside fiber collection overseas, especially to China, which currently tends to draw it by offering higher prices. For many reasons, including significant differences in labor rates, environmental requirements, economic structures, competition with virgin paper fiber, and government relationships, U.S. and Canadian mills cannot always compete with these new overseas mills. Rather than lower requirements here, EPN sees these circumstances as an opportunity to keep enough recovered fiber available domestically to launch a revitalization of the North American paper industry as a model for the future of environmentally, socially and economically sustainable paper production.

More than half the U.S. population still has no access to curbside programs,<sup>3</sup> suggesting untapped reservoirs of recoverable paper, and even the existing curbside programs often are not collecting the full range of fiber they could be marketing.

Commercial fiber collection programs are a different story from the curbside programs. They generally are operated independently of municipal governments, although those governments often are deeply invested in encouraging local businesses to cooperate in meeting local community recycling goals. More than half the paper in offices is not yet collected for recycling, and only slightly more than half of what is collected is used to make recycled products in North America.<sup>4</sup>

The quality of recovered fiber has been degrading significantly over the past several years, with the slide increasing with the introduction of single stream collection programs. While these programs are credited with increasing the volume of collections, particularly curbside, larger percentages of the materials are unusable when they get to manufacturers. However, improved sorting processes could potentially make good on the increased volume by producing more

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<sup>3</sup> US EPA, *Municipal Solid Waste Generation, Recycling, and Disposal in the United States, Facts and Figures for 2006*

<sup>4</sup> PaperRecycles.org, "Where Printing-Writing Papers Go," 2006 Recovered Paper Annual Statistics

usable fiber.<sup>5</sup> In fact, since the recovery rate for ONP (old newsprint) is already very high, ranging from 72-88% depending on the report, it is likely that only producing cleaner, and therefore more usable, volumes of recovered newsprint will enable newsprint mills to significantly increase their recycled content.

In other words, addressing the potential to increase fiber recovery in North America is very complex. It affects, and is affected by, the health of the whole recycling system, which in turn has no overall manager but rather relies on the daily decisions of thousands of independent businesses and community recycling systems with widely varying levels of sophistication and self-interest.

But recycling has such a vital role to play – as the foundation for a sustainable paper production system, a critical key to reducing forest and resource demand, and a vital means for reducing climate change – that EPN sees its regeneration in paper production as essential to a future in which manufacturing provides for people’s needs in ways that nourish and conserve planetary resources rather than increasingly consume them.

## AUDIENCE AND ORGANIZATION

This report is intended for a widely disparate audience, including:

- EPN members who will decide what strategies to champion as a collaboration,
- Members of the Technical Advisory Group that will help EPN plan the most effective strategies,
- Major paper purchasers who are committed to using recycled paper and want a stronger, expanded supply system,
- Recyclers and paper industry representatives who help implement the strategies,
- Government officials who craft and implement legislation, authorize and implement recycling programs, and support improvements to the recycling system,
- Business offices, college campuses and schools that could initiate more recycling and/or assure appropriate quality to supply recycling mills,
- ENGOs that promote the use of environmental papers, protect forests, conserve resources, work to reduce global warming, and advance environmentally and socially sustainable production,
- People committed to a strong recycling system and environmentally sustainable paper,
- And of course, many more.

With such a wide range of expertise, many in this audience will not have specific background in recycling. Therefore, Section II: Background is intended to give some context for the issues faced in this project, and the current state of recycling development that affects paper options.

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<sup>5</sup> Susan Kinsella and Richard Gertman, *Single Stream Recycling Best Practices Manual and Implementation Guide*, 2007, as well as Susan Kinsella, “Single Stream: Closing the Loop,” *Resource Recycling*, January 2006. Available at [conservatree.org](http://conservatree.org).

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Section III: Strategies, the point of this report, is intended to be a brainstorm of as many different potential approaches as possible. Some are already in process, carried out by organizations taking the lead in specific directions. Some will be chosen by EPN as directions it will take the lead in, or collaborate with others, or facilitate. Many of the strategies will require other organizations with more capacity and resources, specific expertise, and/or the appropriate connections to carry them out. There will surely be even more ideas for strategies and directions than are listed here, as well.

The Strategies listed in this report are not intended to be a prescription, but rather a take-off point for creativity and commitment. Many different strategies, many different leaders, and many different ideas will be essential to create meaningful success. We welcome many collaborations.

### **III. Background**

#### **Forecasted Demand for Recycled Paper**

The forecasted demand varies somewhat by forecaster. It does not refer to new paper, but rather to paper currently produced with virgin fiber that could be switched to include some percentage of recycled fiber. The projected demand is for paper that is expected to be used by purchasers who have committed to using recycled paper. Therefore, it is not directly affected by increases or decreases in total paper production and the percentage of paper meeting the demand specs can escalate rapidly in relation to independent variables such as demand, capacity and supply of feedstocks.

**Forecast 1: Tyson Miller, Green Press Initiative/Environmental Paper Network, at EPN Deinking Roundtable, 3/07**

Catalogs – 300,000 tpy  
Magazines – 200,000 tpy  
Books – 250,000 tpy  
Office Supply – 200,000 tpy  
Financial Services – 100,000 tpy  
Tissue – 150,000 tpy  
Newsprint (Canada) – 300,000 tpy\*  
(\*2008 update to 1 million tpy for North America)

**Forecast 2: Pat Moore, manager of Stora Enso's Duluth, Minnesota deinked pulp mill, at EPN Deinking Roundtable, 3/07**

Mr. Moore estimated demand for deinked fiber within 10 years at a half million tons higher than the 1.5 million tons forecast by NGOs, but warned of the economic challenges of convincing investors in North America to see profitability in increasing deinking capacity.

#### **Implications of Projected Demand for New Deinking Mill Capacity**

Currently, 17 deinking mills in the U.S. and Canada supply at least some of their pulp to paper mills making recycled printing & writing paper. Fourteen of these mills make kraft deinked pulp, two make mechanical deinked pulp, and one makes both. Nine of these deinking mills are integrated to paper manufacturing mills and eight are stand-alone mills that sell market pulp to printing & writing mills, tissue mills, and packaging mills making the top printing layer of white boxes. Together, these 17 deinking mills supply approximately 1.6 million short tons of high

grade deinked fiber, both kraft and mechanical, for use in printing & writing papers.<sup>6</sup> Because their pulp is also used by other industry sectors, the portion available to printing & writing mills is somewhat variable.

To achieve EPN's Objectives, increases in two different types of deinking mills are needed:

1. **Kraft deinking**, which is used to make freesheet papers such as copy paper, letterhead, uncoated printing paper, billing and report papers from financial institutions, and high-quality books, as well as the base sheet for some coated papers. It also supplies half the fiber for groundwood-base coated papers. If demand is for paper that is 100% recycled, the projected new demand in Forecast 1 would require more than 824,000 tons of new office paper collections, slightly more than a 5% increase over the amount of printing & writing paper collected in 2006 in the U.S., and 4-5 new kraft deinking mills at current sizes. Demand for 50% recycled content would require 400,000 tons of new recovered office paper, a 2.3% increase over 2006 recovery, and 2 new deinking mills.
2. **Mechanical deinked** pulp would replace virgin fiber in groundwood coated and uncoated papers. The projected new demand for recycled printing & writing papers in Forecast 1 would require more than 224,000 tons of new ONP to be collected, or a 2.3% increase over the 2006 U.S. collection volume, if the specification is for 100% recycled content paper. This would necessitate at least one and possibly two new mechanical fiber deinking mills. If coated groundwood papers were, instead, required to have 30% recycled content, the demand for new ONP sources would be for approximately 70,000 tons, or less than a 1% collection increase.

However, it is likely that demand for mechanical deinked pulp will increase significantly beyond these projections, since some products such as 3<sup>rd</sup> class mail that is currently predominantly on kraft paper is poised to possibly switch to mechanical grades, both for cost and environmental reasons. Additionally, the increased availability of deinked mechanical pulp would offer new opportunities to paperback book production to switch to recycled paper, as well as other publication grades that use this type of paper.

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<sup>6</sup> Environmental Paper Network, "North American Operating High Grade Deinking Mills, 2007," *The State of the Paper Industry: Monitoring the Indicators of Environmental Performance*, October 2007

Grade	Projected Increased Demand	Recycled Content	Projected Kraft (Chemical) Pulp Required	Projected Mechanical Pulp Required
<b>OPTION 1</b>				
Magazines, Catalogs - Coated #4 and #5	500,000 tpy	100%	160,000 tpy	160,000 tpy
Book, Office Supply, Financial – Uncoated Freesheet	550,000 tpy	100%	429,000 tpy	0
<b>TOTAL</b>	<b>1,050,000 tpy</b>	<b>100%</b>	<b>589,000 tpy</b>	<b>160,000 tpy</b>
<b>OPTION 2</b>				
Magazines, Catalogs – Coated #4 and #5	500,000 tpy	30%	48,000 tpy	48,000 tpy
Book, Office Supply, Financial – Uncoated Freesheet	550,000 tpy	50%	214,500 tpy	0
<b>TOTAL</b>	<b>1,050,000 tpy</b>	<b>30% - 50%</b>	<b>262,500 tpy</b>	<b>48,000 tpy</b>
<i>Calculations based on typical paper contents determined by Environmental Defense Paper Task Force Report and typical recycled fiber yield determined by Environmental Defense and Conservatree Deinking Capacity Study.</i>				

Grade	Increased Demand	Recycled Content	Kraft (Chemical) Pulp Deinking	Mechanical Pulp Deinking
Uncoated freesheet, Coated #4 and #5	1,050,000 tpy	100%	5 @ 350 tpd 4 @ 450 tpd	1.3 @ 350 tpd 1 @ 450 tpd
		30% -50%	2 @ 400 tpd	0.4 @ 350 tpd

Increased demand for recycled newsprint and for recycled tissue products would not necessarily require more deinking facilities because both those industry sectors already have significant capacity, although more deinking mills are already projected to be built for tissue production. Many newsprint and tissue mills produce both recycled and virgin fiber products and could therefore increase their recycled production. But the demand would add to increased requirements for fiber collection, with tissue adding another 1% to high grade fiber needs and newsprint projections requiring an additional 6% for ONP collections to provide for an additional one million tons of newsprint converting to 50% recycled content.

In other words, to meet all the EPN projections for increased demand would require an additional 3.3 – 6.3% high grade collection ( 525,000 – 1 million tons, depending on recycled content

percentage) and an additional 7 – 8.5% ONP collection ( 650,000 – 812,000 tons, depending on recycled content percentages).

The high grade collection is considered quite feasible, given that half of office grade paper appears to be still uncollected. The ONP is more of a challenge, since well over 72% of newsprint is already believed to be collected.

**TABLE 2.3 Projection of Increased Recovered Fiber Required to Meet Recycled Content Demand (see Table 2.1)**

Grade	Tons Production	Recycled Content	Tons Office Paper Increase	Percent Increase*	Tons ONP Increase	Percent Increase*
Printing & Writing	1,050,000	30-50%	367,500	2.34%	67,200	0.70%
		100%	824,600	5.26%	224,000	2.34%
Tissue	150,000	100%	157,500	1%		
Newsprint	1,000,000	50%			588,235	6.15%

*\*Based on 2006 recovered fiber statistics from PaperRecycles.org, Paper Industry Association Council, of 15,690,000 tons P&W and 9,565,000 tons ONP*

## Options for Providing Capacity

Financing new deinking pulp capacity is considered a challenge, particularly because a number of deinking mills opened in the mid-1990s that ultimately failed for numerous reasons, including poor financing structures, radical shifts in recovered paper characteristics, new and unexpected competition from foreign virgin pulp producers, and a cooling of recycled paper market demand because of high paper market prices and lack of leadership.

However, new financing sources could be substantiated by the escalating concern about global climate change, illustrating the connection between increasing recycling and reducing global warming, increasing numbers of major purchasers committed to using paper with recycled content, state and federal support for converting brownfields and creating jobs, local government support for economic development, reducing demand for forest fibers and other resources, reducing demand for energy and water, and much more.

Increasing capacity could take several forms:

- Deinking pulp mill expansion – Existing deinking mills could add capacity:
  - Stand-alone mills could expand their market pulp production,
  - Deinking mills integrated to paper mills could expand production to make more recycled paper and paper with higher recycled contents at the related paper mill,
  - Tissue mills could expand deinking capacity and sell excess as market pulp
- Reopening Closed Mills – For example, a closed deinking mill in eastern Washington is considered a candidate for reinvestment.

- Mill Conversion – A mill used to make other grades of paper, particularly a tissue mill with a deinking pulp mill, could be converted to make pulp appropriate for printing & writing papers.
- Greenfield vs brownfield:
  - A new deinking mill could be built (greenfield)
  - A deinking mill could be built within a converted industrial site (brownfield). State governments often are willing to provide funding to assist in this type of conversion because it reclaims otherwise abandoned sites.

## Current Collection Status

Any consideration of new deinking capacity will require determination of new, secure, increased sources of recovered fiber collection. Estimates of the amount of fiber currently being collected vary depending on whether they are based on what typically goes into municipal landfills or the entire industry production.

## U.S. Collection Statistics

**TABLE 2.4 U.S. EPA Statistics for Municipal Solid Waste and Recycling, 2006**

Grade	Generated* (short tons)	Recovered (000 tons)	Recovery Rate	Discarded (waste) (000 tons)
<b>Overall Paper and Paperboard</b>	<b>85,300,00 (34% of SW generation)</b>	<b>44,000,000</b>	<b>51.6%</b>	<b>41,300,000 (24.3% of SW discards)</b>
Office Paper (e.g. copy, printing, both residential and commercial)	6,320,000	4,150,000	65.7%	2,170,000
Standard Mail (3 <sup>rd</sup> class)	5,890,000	2,280,000	38.7%	3,600,000
Newsprint and Groundwood Inserts	12,360,000	10,870,000	88.1 %	1,050,000
Books	1,130,000	290,000	25.7%	840,000
Magazines	2,570,000	1,040,000	40.5%	1,530,000
Other Commercial Printing	6,630,000	1,400,000	21.1%	5,230,000
Corrugated Boxes	31,430,000	22,630,000	72%	8,800,000
Folding Cartons	5,570,000	890,000	16%	4,680,000

Source: *Municipal Solid Waste Generation, Recycling, and Disposal in the United States, Facts and Figures for 2006*, <http://www.epa.gov/msw/msw99.htm>

\* “Generated” in the EPA statistics means materials put into the municipal solid waste stream, not the total amount manufactured. As a comparison, EPA shows 1.13 million tons of books

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“generated” while EPN calculates that 1.7 million tons of books are produced.<sup>7</sup> However, many of the books in EPN’s number are in libraries and not expected to enter the solid waste stream for recovery or disposal. As another example, EPA reports 88% of newsprint recovered, while PaperRecycles, in Table 2.5, indicates a 72% recovery rate. EPA is reporting on the percentage of newspapers put into the municipal solid waste system, while PaperRecycles is reporting on newspaper recovery compared to production.

Just under half of the U.S. population has access to curbside recyclables collection programs,<sup>8</sup> although this includes most major population centers.

**TABLE 2.5 PaperRecycles.org, 2006 Statistics (U.S. Production)**

Grade	Generated (000 tons)	Recovered (000 tons)	Recovery Rate	Archived or Discarded (000 tons)
<b>Overall Paper and Paperboard</b>	<b>100,198,000</b>	<b>53,488,000</b>	<b>53.4%</b>	<b>46,710,000</b>
Printing & writing paper (total supply)	32,005,000	15,690,000	49.0%	16,315,000
High Grade Deinking Pulp Substitutes		3,620,000		
Newsprint (total supply)	13,221,000	9,565,000	72.3%	3,656,000
Old Corrugated Containers (OCC)	32,986,000	25,185,000	76.40%	7,801,000

*Source: 2006 Recovered Paper Annual Statistics, PaperRecycles.org, Paper Industry Association Council*

**Canadian Statistics**

Eighty-eight percent of Canadians have access to paper recycling programs, and nearly all (94%) participate in them.<sup>9</sup>

In 1989, only one mill in Canada could produce recycled content newsprint; today there are 22.<sup>10</sup>

<sup>7</sup> Environmental Paper Network, *The State of the Paper Industry: Monitoring the Indicators of Environmental Performance*, October 2007

<sup>8</sup> U.S. EPA, *Municipal Solid Waste Generation, Recycling, and Disposal in the United States, Facts and Figures for 2006*, <http://www.epa.gov/msw/msw99.htm>

<sup>9</sup> Statistics Canada EnviroStats Summer 2007

<sup>10</sup> Forest Products Association of Canada (FPAC), <http://www.fpac.ca/en/sustainability/stewardship/recycling.php>

In 2006, Canada recovered approximately 49% of the paper and paper products consumed in Canada and turned them into new products. In all, the industry recycled 4.8 million metric tonnes of recovered fiber, 59% of it (2.8 million tonnes) from Canadian sources and the rest imported, primarily from the U.S.<sup>11</sup>

### **California Office Collection**

A study published by the California Integrated Waste Management Board (CIWMB) in June 2006 quantified and characterized the materials diverted for recycling in 14 different business venues compared to materials they dispose of.<sup>12</sup> It found that large office buildings in California's largest cities had a recycling rate of only 7% in 2005. Given that California has a strong statewide legislative requirement as well as public ethic supporting recycling, the finding of such a low diversion rate suggests that there may be far more potentially recyclable paper available in office buildings than even the EPA and PaperRecycles statistics indicate.

Specifically, the CIWMB study reported:

- Large office buildings on average generate 1,998 pounds of waste material per thousand square feet per year.
- Of the total waste generation approximately 7 percent, or 132 pounds, is diverted per thousand square feet per year.
- Large office buildings on average only divert three types of materials, cardboard (52 pounds per thousand square feet per year), white ledger paper (79 pounds per thousand square feet per year), and lumber and treated wood waste (1 pound per thousand square feet per year).
- Annually, nearly 34 percent (639 pounds per thousand square feet) of all materials disposed could be diverted through expanded paper recycling programs.
- Approximately 32 percent of large office buildings surveyed about their diversion practices had some type of diversion program in place (suggesting that two-thirds did not).

An excerpt from the CIWMB report's table showing findings for large office buildings indicates that, while white ledger and corrugated cardboard are the most highly diverted materials in this venue, there is still plenty of paper available for collection, with, for example, more than 140 pounds of white ledger per 1,000 sq feet of office buildings still uncollected.

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<sup>11</sup> Paper Recycling Association, [http://www.pppc.org/en/1\\_0/index.html](http://www.pppc.org/en/1_0/index.html)

<sup>12</sup> Cascadia Consulting Group, *Targeted Statewide Waste Characterization Study: Waste Disposal and Diversion Findings for Selected Industry Groups*, published by the California Integrated Waste Management Board, June 2006

**TABLE 2.6 Excerpt. Large Office Buildings: Waste Disposal, Diversion, and Total Generation Composition, 2005**

Material	Disposed Waste		Diverted Waste	Total Generated Waste
	Est. Percent	+/-	Est. Percent	Est. Percent
<b>Paper</b>	<b>50.3%</b>		<b>99.0%</b>	<b>53.5%</b>
Uncoated corrugated cardboard	2.6%	1.3%	39.2%	5.0%
Paper bags/Kraft	0.5%	0.2%	0.0%	0.5%
Newspaper	3.8%	1.1%	0.0%	3.5%
White ledger	7.7%	2.5%	59.8%	11.1%
Other office paper and Colored ledger paper	7.3%		0.0%	6.9%
Colored ledger	0.4%	0.2%		
Other office paper	6.9%	4.2%		
Computer paper	0.3%	0.2%	0.0%	0.3%
Magazines and catalogs	2.5%	1.3%	0.0%	2.3%
Phone books and directories	0.2%	0.2%	0.0%	0.2%
Other miscellaneous paper	9.4%	2.1%	0.0%	8.7%
Remainder/Composite paper	16.0%	3.8%	0.0%	15.0%
All materials (including non-fiber)				
Ttl pounds/1,000 sq ft	1,866		132	1,988

*Source: Cascadia Consulting Group, Targeted Statewide Waste Characterization Study: Waste Disposal and Diversion Findings for Selected Industry Groups, published by the California Integrated Waste Management Board, June 2006*

The U.S. Dept. of Energy reports that there are 705,000 office buildings in the U.S., with the average office building containing 14,900 square feet, for a total of 10.5 billion square feet of office space.<sup>13</sup> This suggests that there could be another 1 million tons of white ledger alone still available and an additional 1 million tons of lower grades of office paper. Nearly 400,000 tons are additionally projected as available newsprint, as well.

These projections should be considered conservative, since they are based on the office recycling rate in a state with some of the strongest recycling laws and mandates in the country. Many U.S. states have much lower recycling rates, and Canadian provinces can contribute significant amounts of recovered fiber, as well. If methods were developed to collect white papers from home offices and small businesses that are gathered through the curbside collection system, even more office paper could be available.

Joel Makower reports, at About.com, “As a rule of thumb, a typical office generates about 1.5 pounds of waste paper per employee each workday. (Financial businesses generate more than

<sup>13</sup> [http://www.eia.doe.gov/emeu/consumptionbriefs/cbecs/pbawebwebsite/office/office\\_howlarge.htm](http://www.eia.doe.gov/emeu/consumptionbriefs/cbecs/pbawebwebsite/office/office_howlarge.htm)

two pounds.) That's roughly 350 pounds per employee a year—or a total of about 2.5 tons for a small, 15-person office.”<sup>14</sup>

Paper has been more economically challenging to collect from small offices in the past, but new processes might be devised to address that.

## Potential Fiber Recovery

The U.S. collected 38.7% of its fiber (35,400,000 tons) in 1993. In 2006, those totals had climbed to 53% and 53,488,000 tons. PaperRecycles.org reports that 49% of printing & writing was collected in 2006, suggesting that 16 million tons were uncollected. (This includes papers that are archived and unlikely to be recycled, as well.)

Canada reports collecting 49.1% of its overall fiber (2,843,000 metric tonnes) in 2006.<sup>15</sup>

But Germany reports a recycling collection rate of 75%, South Korea reports 68%, and the European Union has set a 2010 goal of 66%. Many California cities and counties report recycling rates over 70%.

How do the leaders reach such high recycling percentages? First, it must be recognized that not all the metrics are parallel. Publicly reported recycling rates can only be generally compared because of wide variations in their methods of calculation. Nevertheless, some regions are collecting far more recyclable materials than others.

Some use more aggressive recycling policies than the U.S. Germany and the Netherlands emphasize producer responsibility, requiring manufacturers to ensure that their products get recycled. Canada's Ontario and Quebec provinces are experimenting with Product Stewardship fees on brand-holders whose products must be collected for recycling, in order to support municipal recycling programs. The state of California has committed to Zero Waste and enforces legislation requiring local governments to divert more than 50% of their solid waste from landfills, with the assumption that it will be recycled. Some local governments around the U.S. have ordinances requiring mandatory recycling. Some, including Canada's provincial government of Newfoundland and Labrador, even mandate commercial office recycling.

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<sup>14</sup> Joel Makower, “Taking the Wrinkles Out of Paper Recycling,” About.com, <http://environment.about.com/od/recycling/a/officepaper.htm>

<sup>15</sup> Paper Recycling Association, [http://www.pppc.org/en/1\\_0/index.html](http://www.pppc.org/en/1_0/index.html)

## Obstacles

Even a successful campaign to increase fiber recovery suitable for use in recycled printing & writing papers could result in no net increase for deinking mills. Among the threats to success are:

- Opposition within the paper industry to using recycled fiber in printing & writing papers
- Diversion of collected paper to waste-to-energy plants, in an attempt to create more energy from non-oil sources
- Increased demand from China and soon from India, with the willingness to pay higher prices
- Conversion of North American paper mills to biorefineries, with paper as a sideline and the need for wood byproducts to generate energy
- Incentives for creating mixed paper, or disincentives for sorting paper
- Increased shredding of office paper with inclusion of contaminants
- Increased demand from tissue mills that keeps up with increases in recovery
- Increased popularity of composting programs that can include paper

## Additional Obstacles

Opposition by some in the paper and printing industries, as well as some misinformed demands by environmentalists and some major purchasers, has left many purchasers confused and unsure whether the effort to switch to recycled paper is truly worth it. Among the contentious claims:

- Recycled paper does not benefit the environment
- Too much energy is used to truck it to sorting and recycling plants (Oregon's Dept. of Environmental Quality has research indicating the "break-even" points for long-haul transportation of different paper products by truck, rail and freighter, after which there are no more energy savings from recycling; the distances range from 4,400 – 49,000 miles.<sup>16</sup>)
- Recovered fiber is not worth sorting (although that is necessary for use in high grade mills)

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<sup>16</sup> David Allaway, "Climate and Waste: The next frontier in waste management policies?", OR DEQ, presented to EPA Resource Conservation Challenge Web Academy, November 15, 2007, <http://www.epa.gov/region1/RCCedu/nov152007.html>

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- It is too demanding to put recycled fiber into printing & writing paper, just put it into packaging grades
- The paper industry will not make any more investments in North America
- Recycled paper uses energy from fossil fuels while virgin paper mills generate energy from biomass

All of these objections, and many more, can be met and addressed with substantial data proving the very significant advantages of recycling and recycled paper.

## IV. Strategies

What kinds of strategies can be used to increase fiber recovery for recycling? There are many possibilities. Some can be implemented by EPN, some are already being implemented by other organizations, some are appropriate only for certain types of sites or fibers. Many could be duplicated by organizations in several different regions and would benefit from organizations taking them on to develop and launch them.

Often, success comes more from a “connect-the-dots” strategy, linking several approaches to each other, than from expecting one direction to succeed on its own. For example, business office managers will have an easier time of establishing recovered office paper collections in their buildings if the local hauler has a recycling collection program they can fit into and the janitorial contractor has well-trained workers who support the recycling program. All might be more likely to make a collection program work if the municipal government enacts ordinances that provide incentives or even mandates.

Which should be priorities? It depends on the intended goals and which organizations have what types of expertise and capacity to pursue them. The strategies used by office management companies will be different from those used by curbside recycling program managers, and these will both differ from those pursued by schools or major purchasers. The reality is that there needs to be many different approaches by many different types of organizations in order to be successful. Recommended priorities for the Environmental Paper Network are discussed in a separate document. Following are details for ten potential strategy directions.

### 1. **STRATEGY: Stimulate New and Expanded Office Paper Collection Programs**

High grade deinking mills that make pulp suitable for recycled content printing & writing papers, tissue products, and printing surfaces for some types of packaging need predominantly white recovered fibers such as discarded office papers. The paper industry reports that only half of printing & writing papers are recovered for recycling.<sup>17</sup> While developing more office paper collection programs appears feasible, the challenges will be to ensure that their materials are not mixed with inappropriate fiber grades or other materials, and that sufficient quantities are made available to U.S. and Canadian mills instead of exported.

Guides, education, and presentations should emphasize the importance of sorting out white office papers, keeping it separate from other paper categories, and directing it to domestic markets when possible.

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<sup>17</sup> PaperRecycles.org, 2006 Recovered Paper Annual Statistics

**1A. Develop an EPN website section devoted to resources supporting increased commercial recovered fiber collection**

- Develop an extensive page of annotated links on EPN's website, by category, of the best tools and resources, e.g. guides to setting up office collection programs, paper recycling factsheets, reports, useful statistics, case studies
- Link to government and regional resources that can help local businesses set up recycling programs

**1B. Collaborate with the Building and Owners Managers Association (BOMA) International**

BOMA has membership throughout the U.S. and Canada, with regional directors and a strong communications network. Members may manage one or many buildings.

- Create a model guide for how to set up office paper collection programs, with adaptations to office managers' variety of circumstances (several guides already exist, prepared by different government programs, that can serve as a foundation)
- Write up information about recycling collection for BOMA's website, promote it through BOMA communications
- Arrange to speak at BOMA meetings and conferences, regional venues
- Publish short articles in BOMA publications
- Collaborate with BOMA's regional sustainability teams, promote formation in regions without them
- Conduct teleconferences or webinars with BOMA managers
- Trouble-shoot obstacles at specific locations

**1C. Facilitate the development of municipal recycling programs' commercial technical assistance**

With some exceptions, most municipal recycling programs are responsible only for curbside recycling and cannot control commercial collection. Nevertheless, some of the most successful municipal recycling programs sponsor technical assistance to influence local businesses to increase their recycling rate (e.g. San Francisco, Portland-OR, Alameda County-CA, Philadelphia). These can include workshops, hands-on technical assistance, educational materials, and mini-grants

to buy recycling equipment or implement programs. Assistance is offered through websites, by phone, and in person, often by contractors or consultants hired by the municipal program. Some localities also have passed legislation mandating commercial recycling (see Legislation section).

- Develop website pages that provide paper recycling educational information that municipal program managers can point local businesses to for assistance.
- Develop a seminar for local recycling program managers to learn about ideas for motivating their local businesses even if their program does not have jurisdiction over them; offer the seminar regionally, at the National Recycling Coalition conference, as a webinar, as a flash/ppt/pdf on the website. Include a panel of managers with successful commercial outreach, when possible.
- Develop case studies of community recycling programs that are innovative and successful in motivating their local businesses to participate in commercial recycling programs within a range of different circumstances.

#### **1D. Collaborate with the National Recycling Coalition and its state affiliates**

The membership of the National Recycling Coalition (NRC) includes governments, businesses, and nonprofit organizations responsible for recycling programs and advances. Its state affiliates bring together recyclers working on local and regional levels, while the national NRC office produces a well-attended national Congress and pursues a number of national projects.

- Schedule a presentation on the importance and processes of commercial office paper collection at the NRC Congress.
- Teach a seminar on stimulating office paper collection at the NRC Congress, including a panel of program managers successfully educating their jurisdiction's commercial sector.
- Communicate with state affiliate chairs to determine the current status of commercial fiber recovery in their state, and to encourage programs to increase office paper recovery that could be used to support domestic deinking mills.
- Ask for their assistance in how best to encourage commercial paper collection in their region, develop case studies, hold roundtable discussions at the NRC Congress and state conferences to determine successful options and ways to overcome obstacles.
- Offer to teach a seminar on ideas for stimulating office paper collection at their state recycling conference, and invite them to such a seminar at the NRC

conference. Include a panel of those with the best commercial outreach.

**1E. Develop leverage and assistance through federal, regional and state/provincial government programs**

Many states and provinces provide support and assistance to the municipal recycling programs within their jurisdiction. California, Indiana, Massachusetts, Minnesota, New York, North Carolina, Oregon, Pennsylvania, Washington, British Columbia, Ontario, Quebec, and Nova Scotia are some of the jurisdictions in the lead. Some, especially California, Oregon and Ontario, have extensive state/provincial legislation that provide particularly strong frameworks for local efforts. In the U.S., each of EPA's ten regions offers resources and often grants to assist jurisdictions within their area.

- Enlist EPA to promote commercial paper recycling to municipal recycling programs, e.g. sending communications to mayors and program managers encouraging their promotion of office paper recycling, with detailed suggestions and reference to resources.
- Identify state/provincial resources for encouraging commercial collection, network to encourage additional focus on stimulating commercial collection
- Link local jurisdictions to their state/provincial resources, post annotated links online
- Identify EPA Regional resources

**1F. Team up with SWANA and NSWMA**

Most of the national and local garbage haulers belong to SWANA (Solid Waste Assn of North America) and/or NSWMA (National Solid Waste Management Association), and most of these also collect curbside recycling, often as part of their solid waste contract with local governments. Many of these haulers also independently offer trash services to commercial businesses and also either offer recycling services, as well, or could do so if customers requested it. Office building managers report that one of the likeliest ways to initiate an office paper recycling program is for the hauler that handles trash to offer to implement a recycling program, as well.

- Determine the range of recycling programs SWANA and NSWMA members already may offer, and develop case studies from the best ones.
- Develop a seminar and speech to deliver at waste hauler conferences, including a panel of haulers with successful commercial recovered fiber

collection programs when possible.

- Collaborate with SWANA and NSWMA in developing material for their websites and newsletters, as well as educational materials and outreach to their memberships that encourage high quality commercial paper collection and appropriate practices to direct it to domestic deinking mills.
- Work with SWANA and NSWMA to promote the development of more commercial office paper recycling programs among their memberships.

**1G. Facilitate the training of office janitorial companies in best recycling practices**

Building office managers frequently say that the success of their office recycling programs depends on the cooperation of their janitorial contractors. When the janitorial companies do not support the recycling program, even the best intentions are stymied. Because the janitorial teams often work at night when office staff is gone, and janitorial staff frequently changes and may not speak the dominant language, it can be challenging to coordinate implementation of the recycling program.

- With the assistance of experienced building managers, develop a handbook for janitorial service companies about implementing recycling programs. This can be posted on BOMA's website as well as EPN's, and offered to local recycling program managers for their commercial outreach programs.
- Develop one-page highlights of program implementation in the languages common to local janitorial staffs.
- Include a component in the office paper recycling seminar that includes tips for office managers and local recycling program managers for working with janitorial contractors to create a successful program.

**1H. Coordinate best practices for recycling with the shredding industry, encourage them to direct their materials to recycling**

The paper shredding industry has ramped up rapidly in the past few years. According to Harper's Index, even the U.S. federal government has increased its expenditures for shredding nearly 600% since 2001. Given its primary goal of security, the shredding industry has developed processes that put all types of office materials through the shredders indiscriminately. At first, it was thought shredding would be a boon to the recycling industry because mobile shredders in particular would access small offices that are less cost-effective for recycling collection companies to service. But the shredded materials have become serious problems for recycling processors and paper manufacturers as they include

contaminants so extensive and tiny that they cannot be adequately controlled in the production process.

White paper that was shredded while still in brown corrugated cartons, and shredded medical office files that include x-rays, substantial adhesives, and even pill bottles are common problems.

- Research and develop best practices for paper shredding (see Research topics).
- Work with NAID (National Assn for Information Destruction) and AMSA (American Mobile Shredders Assn) to educate their membership about best practices.

**1I. Educate offices about best recycling practices for shredding**

- Develop best practices factsheet directed towards office managers, to educate them about how to evaluate and choose a shredding company that will also meet their recycling goals.

**1J. Create a network of major corporate business offices that support recycling collection and buying recycled paper**

- Revive the Recycled Paper Coalition
- Create a pledge, goals and methods of evaluation for businesses to sign on to
- Create a challenge for offices to compete in how much of their paper they recycle, establishment of innovative programs
- Develop means for businesses to receive support, assistance, ideas and answers to their questions in setting up recycling programs, including through their local and regional governments
- Develop interactive communications through web support, webinars, regional or topical meetings, and/or annual meetings

**1K. Collaborate with office products retail stores**

Office products retailers such as Office Depot, Staples and Office Max reach the audience EPN wants to influence to recycle its office paper. They can potentially offer ways to educate and motivate business offices, home office workers, and their own corporate offices. Potential collaborations include:

- Educate B2B and retail customers about the importance of paper recycling programs through B2B communications, in-store promotions, notices in local and national advertising
- Work with the retailers to develop website information that will both educate their customers and point them to EPN's educational information, tools and resources
- Work with the companies' sustainability teams to facilitate their development of programs among their customers and corporate staff that promote paper recycling collection
- Explore the possibility of stores becoming sites for home office workers to drop off discarded white office paper for recycling

**1L. Promote the development of closed-loop white paper recycling with paper mills, where appropriate**

- Many major corporate offices and universities have counted on the income from markets for their white paper recovered fiber and do not want to lose it when their collection contractors switch to mixed paper collections. They are interested in ways to ensure access to white paper markets.
- Explore potentials for closed-loop recycling, in which major generators of white paper send it to the deinking mills serving the manufacturers from which they buy their new office recycled paper.
- Develop "fiber-sheds," identify deinking mills that need recovered fiber and determine how far shipping options reach to effectively collect materials to supply them. Organize the office collections within each "fiber-shed" to send their recovered fiber to the mills in their vicinity, sorted appropriately for the mills' requirements. Collaborate with local haulers and processors to ensure that the recovered fibers are delivered to the mills in optimal condition.

**1M. Develop collection options for small businesses**

- Develop case studies for different approaches to providing recycling for small businesses, including hauler-developed recycling businesses, re-routing commercial collection programs, collective contracting with other small businesses, and other innovations

**1N. Network with nonprofit and service organizations that focus on recycling**

Examples include:

- Keep America Beautiful is a network of local chapters that organize volunteers to improve their local communities, with focus on litter abatement and often recycling, as well. KAB chapter liaisons in some regions are strong supporters and motivators for developing recycling programs. They should be included in outreach for facilitating local programs.
- The Corps Network includes member organizations all over the U.S. that promote youth training and employment programs. Conservation, environmental programs and implementing recycling programs are common projects for local Corps sites. Some states also separately sponsor Conservation Corps programs.

**1O. Network with Green Business and Zero Waste certification programs**

Many local governments sponsor green business certifications that generally require businesses to meet a choice of several environmental goals. Office collection programs are popular components of these certifications, although not always required. Buying recycled paper is usually not required and is not always even on the list.

There are also a number of major businesses that are pursuing “zero waste” designations. They particularly appreciate ZW collection efficiencies, which focus on turning everything they regard as “waste” into feedstocks for other processes, resulting in economic savings.

- When working with local governments on promoting commercial collection programs, explore the potential for requiring office paper collection and buying recycled as part of green business certification programs.
- Network with ZW trainers and consultants to prioritize paper recycling and buying recycled paper.
- Emphasize the importance of closing the loop – businesses buying recycled paper to support the recycling system that provides markets for recovered fiber.

**1P. Make Presentations at Relevant Conferences**

- Submit proposals for conferences that address audiences of municipal recycling program managers, shredders, recycled paper manufacturers, paper brokers, fiber collectors (including solid waste collectors) in order to explain how each sector can help increase suitable fiber collection, including:
  - Municipal recycling program managers adding new categories of fiber collection, improving processing, encouraging commercial collection
  - Shredders following best practices to produce shredded fiber suited for high grade manufacturing
  - Recycled paper manufacturers communicating regularly with municipal programs, commercial collectors, and processors who provide fiber to them, to inform them about the quality of fiber received, millage loss they should add to their program contamination rates, and recommended quality improvements
  - Ways that collectors can maximize the quality of fiber collected and processed
- Keep a running list of potential conferences, including deadlines for submitting presentation proposals, such as:
  - PAPTAC PaperWeek International (this year February, Montreal; 2009 Call for Papers closes 7/30/08)
  - AF&PA's Paper Week (this year March 30 – April 1, New York)
  - National Association for Information Destruction Conference Trade Show (this year April 2-4, Anaheim)
  - Recycling Today Magazine's Paper Recycling Conference and Trade Show (this year June 22-24, Chicago)
  - National Recycling Coalition Annual Congress and Expo (this year September 21-24, Pittsburgh)
  - SWANA's WasteCon (this year October 21-23, Tampa; now accepting abstracts for 2009 presentations)
  - North American Association of Environmental Educators (this year October 15-18, Wichita, Kansas)

**1Q. Implement New U.S. Council of Mayors' Clean Your Files Days**

The U.S. Council of Mayors used to manage a very popular Clean Your Files Day program, through their National Office Paper Recycling Program (NOPRP). While this is a short-term boost for paper recycling, it refocuses interest in recycling and can stimulate promotion for on-going collection programs.

## **2. STRATEGY: Encourage New or Wider Range of Recycling Collection by Local Community Programs**

While developing commercial office paper recycling programs will most directly support high grade deinking mills, the EPN Recovered Fiber project also includes goals for increasing recycled content in newsprint and papers with groundwood/mechanical fiber content. Some environmental campaigns also focus on increasing recycled content in types of packaging that currently do not have high levels. These goals require improvements in the curbside recycling collection and processing systems rather than focusing on commercial collection. For example, manufacturers making the inner fluted layer of corrugated boxes, as well as recycled content paperboard boxes, use feedstocks collected from the curbside programs.

Newsprint collection is reported by the U.S. EPA as already at nearly a 90% rate (although the paper industry reports a lower 72%, which is still very high). Most recycling professionals regard both ONP (old newspapers) and OCC (old corrugated cardboard) to be nearly maxed out for additional recovery. However, increasing amounts of newsprint are lost to recycling because of poor processing methods that send so much contamination to the newsprint recycling mills that increasing recycled content is a difficult prospect. Therefore, any strategies that can help provide cleaner feedstocks to the manufacturers will support the potential for increased recycled content.

Following are ideas for increasing collection from curbside programs, including some already in process.

### **2A. National Recycling Partnership – National Recycling Coalition**

With the bulk of recyclables being consumed in homes, underperforming curbside programs explain much of the weakness in recycling rates in recent years. Under the direction of the NRC, the National Recycling Partnership will invest in up to four cities in the United States to demonstrate the best practices in residential programs and show how recycling rates can be improved.

### **2B. Re-Mix program – National Recycling Coalition**

This program, a collaboration with Time Inc. and Verso Paper, encourages municipal recycling programs to include magazines and catalogs in their curbside pick-ups. These can then be used in the newsprint recycling process.

### **2C. Collaborate with National Recycling Coalition and state affiliates**

As with the collaboration recommended for expanding commercial collection, EPN can reach many of the recycling program decision-makers by working with NRC and its affiliates.

- Network with state affiliates, determine opportunities for their local governments to initiate more recycling programs or add more fiber categories

**2D. Team up with SWANA and NSWMA**

Most of the national and local garbage haulers belong to SWANA (Solid Waste Assn of North America) and/or NSWMA (National Solid Waste Management Association), and most of these also collect curbside recycling, often as part of their solid waste contract with local governments and sometimes as an add-on to their garbage hauling contract.

- Develop a presentation for hauler conferences that advocates developing collection and processing programs focused on resource management first.
- Collaborate with SWANA and NSWMA in developing material for their websites and newsletters, as well as educational materials and outreach to their membership, that emphasizes developing recycling collection programs, including high quality processing.

**2E. Promote information and assistance through federal, regional and state/provincial governments**

- Collaborate with U.S. EPA on promoting development of more comprehensive recycling programs that collect a wider range of materials, coupled with appropriate processing.
- Promote the availability of U.S. EPA's new toolkit for local governments that helps them evaluate the economic effects of different recycling program choices.
- Identify state/provincial resources for encouraging expanded collection categories and markets.
- Link local jurisdictions to their state/provincial resources, post annotated links online
- Identify EPA Regional resources

**2F. Promote support through the US Conference of Mayors, other city and county associations, and "green city" associations**

- Enlist the support and assistance of the U.S. Conference of Mayors, the Local Government Commission, the National League of Cities, the National Association of Counties, and other local government organizations in

promoting more comprehensive recycling programs to municipal governments

- Collaborate with them to provide information for their websites on the issues
- Network with the growing number of sustainable, green, and healthy cities organizations

**2G. Provide best practices, sample contract language, case studies for local recycling program managers to use**

- Collect the best examples of these kinds of resource materials and present them, or links to them, on a highly organized website page
- Research government and organizational websites for resources

**2H. Promote high quality processing, to increase the amount of usable fiber in all grades**

- In speeches, educational materials, resources, and other communications, emphasize the importance of processing recovered fiber to high quality standards, not just what the market will bear
- Develop a visual document such as a flash, powerpoint or PDF document, that shows how paper is made and indicates how contaminants from poor processing of recyclables can sabotage paper recycling throughout the production system

**2I. Promote a philosophy of resource management instead of managing “wastes”**

- Promote the development of community programs that emphasize resource management through recycling first, before proceeding to waste management for materials left over.

**2J. Collaborate with paper manufacturers that are promoting recycling**

- Companies such as Pratt Industries have announced intentions to promote recycling to the public. Network and collaborate where possible.

**2K. Develop better collection for multi-family dwellings and small businesses**

A number of jurisdictions are experimenting with different ways to improve recycling for multi-family dwellings, which often have poor or no access to recycling even when single family homes have extensive programs. Small businesses, also, often find it difficult to establish recycling collection programs.

### **3. STRATEGY: Develop Media and Advertising Campaigns, Education Avenues**

Communication campaigns can range from reaching only select audiences such as business offices or a local community, to reaching a more general public.

A 2007 study by the American Institute of Architects found that 31% of respondents believe that recycling is the most important thing they can do to affect climate change. In fact, recycling was the highest response, topping both driving less and reducing energy consumption.<sup>18</sup> But the public is poorly informed about what happens to their recyclables and needs information about how it can best support the creation of an improved recycling system.

Following are some examples of media outreach that would help support the development of more recycling capacity in North America.

#### **3A. Create a Dedicated Website with Information and Tools**

Other strategies have included recommendations for an EPN website. Additional features to support public information include:

- What and why of collection
- A new, more comprehensive environmental profile of recycled paper that includes indicating how it reduces climate change and energy use
- Explanation of symbols and terms
- How to set up a paper collection program (adaptable to different situations)
- Links to information

#### **3B. Publicize importance of recycling collection and connect it to reducing global warming**

- Develop messages that encourage more commercial recycling and more participation in curbside recycling, then disseminate them through recycling program communications (including bills), PSAs and other low-cost targeted media.
- The National Recycling Partnership (NRP), directed by the National Recycling Coalition in collaboration with EPA, is intended to reintroduce and rebrand recycling to Americans. Activities include bringing consistency to the use of recycling symbols and terminology, rolling out the campaign in print, broadcast, online and outdoor media, and through corporate partners' advertising and outreach efforts.

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<sup>18</sup> Waste Business Journal.com, 12/6/07

- The National Recycling Coalition’s Climate Change Initiative intends three components – educating policy makers, educating the American public, and technical development to ensure that incentives for recycling are a key component of climate change policy, including participation in emissions trading markets. Claims of reductions in greenhouse gases associated with enhanced recycling will be verified by technical experts. The Initiative’s message includes reeducating citizens that they can make a difference by the simple act of recycling.
- America Recycles Day – November 15<sup>th</sup> and Earth Day – April 22<sup>nd</sup>
- Re-Mix Program - ReMix: Recycling Magazines is Excellent – National Recycling Coalition, Time Inc., and Verso Paper project to increase magazine and catalog recycling by working with recycling organizations, local government agencies, and private collectors/processors. ReMix reaches out to the public through local mailers, city bus advertising, Time Warner cable ads, radio spots, magnets, newspaper articles, community guide ads, county employee paychecks, and full-page ReMix ads in many popular magazines.

**3C. Raise business purchaser awareness of and support for recycled paper**

- Collaborate with B2B companies such as banks, utilities and paper suppliers such as office retail stores to include flyers in customer communications that promote office paper recycling collection and buying recycled paper.
- Organize seminars for customers of paper merchants.
- Place articles and full-page ads in publications directed towards paper-intensive industries, purchasers, government purchasing, printers, graphic designers.

**3D. Raise public awareness of and support for recycled paper.**

The paper industry has traditionally marketed its paper to the “gatekeepers” – printers, graphic designers, and major purchasers – intending to convince them to specify or order paper from the merchants that carry specific brands. There has been very little recycled paper advertising focused on end-users, although the little that has been done has been quite successful. (In particular, people know “the shark” of the Great White copy brand.)

Now that the hot topics include climate change, resource use, energy consumption, pollution, water use, and outsourced jobs, a campaign to market the concept of buying recycled paper in order to help alleviate all these problems could be well-positioned to boost EPN’s goals.

Raising awareness of and support for recycled paper can take a number of different forms, and would benefit from a coordination of a number of them. Communications should:

- Connect recycled paper (and other environmental attributes, when appropriate) to paper that is part of developing a promising future,
- Position recycled paper as a powerful contributor to reducing climate change and other environmental problems, as well as an important way to reduce one's carbon footprint,
- Picture the NEW recycled paper, reformulated for today's issues and today's complex equipment,
- Word the message to head off criticisms currently being used to undermine recycled paper,
- Include a reference to putting office or household paper into a recycling collection program so there can continue to be more recycled paper.

Some possibilities for carrying out this strategy:

- EPN's *What's In Your Paper* website and campaign.
- Collaborate on messaging with recycled paper companies. For example, Pratt Industries says they want to create a "recycling movement" and they are making major investments to support it.
- Create a consortium of all the North American mills making deinked pulp or recycled printing & writing paper, pool funding, hire an advertising agency, place ads in national media at nonprofit or pro bono rates, and on blogs and websites to market the concept of using recycled paper (not necessarily specific brands) as the best choice in today's world.

**3E. Arrange speaking opportunities at targeted conferences**

**3F. Arrange for articles in popular and industry publications**

#### **4. STRATEGY: Stimulate New and Expanded Paper Collection On College Campuses**

##### **4A. Coordinate with NRC College and University Council (CURC)**

The College and University Council (CURC) of the National Recycling Coalition provides recycling training, peer networking, and specific information geared to higher education institutions, as well as develops a specific track for college and university recycling issues within NRC's annual conference.

##### **4B. RecycleMania – National Recycling Coalition**

RecycleMania is a friendly competition among college and university recycling programs in the United to see which institution can collect the largest amount of recyclables per capita, the largest amount of total recyclables, the least amount of trash per capita, or have the highest recycling rate. The 10-week competition involves over 400 campuses in 47 states.

While long-term consistent recycling programs are necessary to support recycling manufacturing, the short-term focus of Recyclemania raises the profile of recycling programs, helps fine-tune improvements, and energizes student and campus commitment.

##### **4C . Delineate contributions of recycling to reducing climate change, network with campus climate change programs**

As campus organizing energy shifts to climate change issues, recycling is often overlooked for its critical contributions. Clarifying the ways that developing robust recycling programs can help campuses meet their climate change goals will provide more support for high quality recycling, as well.

##### **4D. Coordinate with existing campus programs**

Organizing to promote solutions to environmental issues has long been popular on college campuses and many programs and organizations now exist that further different types of solutions. Many of them already network with each other, as well.

In the past, recycling programs were popular but currently many of the programs and campaigns have shifted to a focus on goals for reducing climate change. With clear information on how promoting high quality recycling programs will also help reduce climate change, EPN can access this college and university network to encourage them to include recycling as a part of their message and activities. Some organizations and programs to network with include:

- Campus Ecology (National Wildlife Federation)
- American Association of Sustainability in Higher Education
- University Leaders for a Sustainable Future
- Campus Compact (network of 1000+ universities), signed book industry statement on using recycled paper in textbooks
- Campus Zero Waste Program (Grassroots Recycling Network/GRRN)

**4E. Explore opportunities for directing campus white paper collections to specific high grade deinking mills for closed-loop recycling**

Many college campuses have counted for many years on income from their white paper programs. Their students expect the paper to be used for highest and best use production. Can they make sure their recovered fiber is made into the new recycled paper they use?

**5. STRATEGY: Mobilize K-12 Schools and Educators**

**5A. Go Green Initiative**

The Go Green Initiative unites parents, students, teachers and school administrators in carrying out 5 principles for environmental responsibility. Recycling – both collection and buying recycled products – is one of the principles.

- Include tools and resources on the EPN website that specifically address school recycling, arrange for a Go Green Initiative website link to the resources.
- Participate in the Go Green blog to notify schools and programs of the resources available on EPN's website.
- Encourage participants to set recycling goals, profile schools that are meeting them to inspire others and showcase good ideas.

**5B. North American Assn. of Environmental Education**

This is a major portal for environmental education research.

- Qualify EPN website resources and tools for listing in its research database.

- Brainstorm with its directors and/or membership on how best to communicate the recycling message to educators.
- Create an Action Committee from its recommendations to spread the recycling message to schools and provide tools

**5C. Develop curricula**

- There are many curricula already designed. Evaluate and recommend the best for others to incorporate.

**5D. Develop film of recycling impacts**

- Review and evaluate films already available, recommend the best.

**5E. Provide model collection plans, step-by-step guide**

**6. STRATEGY: Organize Purchasers**

**6A. Revive Recycled Paper Coalition**

The Recycled Paper Coalition mobilized several hundred major paper purchasers during its decade of existence to develop innovative programs to reduce paper waste, create recycling collection programs, and buy recycled paper.

**6B. CNAD Responsible Purchasing Network**

The Center for A New American Dream is creating a network of socially responsible major purchasers that can provide education about the best environmental paper choices and help drive market commitment.

**6C. Create a network of corporate purchasers**

Corporate purchasers address somewhat different questions and procedures from government purchasers. A network specifically for corporate purchasers could pledge to develop comprehensive buy recycled programs, stimulate collection programs, network for support and ideas, conduct teleconferences, and meet annually at relevant regional or national conferences.

**6D. Develop more website support for purchasing**

Purchasers' questions help to determine the best tools and resources needed, as well as push new opportunities for environmental papers. Several websites provide purchasing information and resources, including U.S. EPA (government

purchasing and general information), Conservatree (all types of paper purchasing), Green Press Initiative and Markets Initiative (book publishing), many state and local government websites, and more. This information can be catalogued on EPN's website and expanded there and on relevant websites.

## **7. STRATEGY: Legislation**

A thorough overview of all federal, state/provincial, and local legislation that affects recovered fiber issues would be far beyond the resources of this report. However, the types of legislation, both enacted and proposed, fall into a number of categories that can be summarized and illustrated with examples.

Most can be broadly categorized as either supply-side drivers (focused on increasing the fiber supply) or demand-side drivers (enacting demands that are designed to "pull" fiber through the recycling system). Many are good models or starting points for ordinances and legislation in other localities.

### **OVERALL POLICY**

#### **7A. Ensure Inclusion of Recycling in Climate Change Legislation**

Resources and attention have shifted dramatically to climate change issues from previous environmental interests, without a clear understanding of how significantly recycling can contribute to its reduction. Many groups are now working on clarifying the connections, including the National Recycling Coalition, CRRA's Recyclers Global Warming Council, and EPN.

In December 2007, S.2191, the U.S. Senate Climate Change bill, incorporated the Carper Amendment which proposes that qualifying recycling projects be used to create GHG offset credits, study the lifecycle benefits of recycling in reducing and avoiding GHG production, and require states to use a portion of funding to increase their recycling rates.

### **SUPPLY-SIDE**

#### **7B. Mandatory recycling collection**

Some jurisdictions have enacted mandatory recycling collection legislation to drive programs for different types of materials and/or affecting specific generators, including:

- California A.B. 75 (1999) requires state agencies, including community colleges and state universities, to develop and adopt an integrated waste management plan to divert at least 25% of their solid waste disposal. A.B. 939

(1989) requires local governments to develop programs that divert at least 50% of disposed materials from local landfills. (The state has assumed that materials that are “diverted” from landfills will be recycled, but increasing contaminants shipped to manufacturers are forcing a closer look at how to ensure actual use in making new products.)

- The government of Newfoundland and Labrador includes the Mandatory Office Paper Recycling Program as part of its Waste Diversion Regulations. Since 2006, all businesses in certain population centers are required to recycle their waste paper.
- Mecklenburg County in North Carolina requires businesses that generate more than 500 pounds of discarded office paper per month to direct it into a recycling program.
- Connecticut’s Mandatory Recycling Regulations designate 11 items that must be recycled in the state, including old newspapers, corrugated cardboard, and high-grade white office paper.
- All Sacramento (CA) businesses and all non-residential properties that subscribe to garbage service of four (4) cubic yards or greater per week are required to have a recycling program. Haulers had previously been required to recycled 30% of what they collect from commercial accounts but when compliance remained low, responsibility was shifted to the generators: offices.
- The City of Los Angeles approved a large development project that included both commercial space and residential units by attaching special conditions to the land-use permit, including recycling the C&D debris from building construction, requiring purchase of recycled products and establishment of ongoing recycling programs.<sup>19</sup>
- The City of Pittsburg, CA requires businesses to submit a recycling plan with their annual business tax reports.
- Since 1991, the County of San Diego has enforced its mandatory recycling ordinance by including disposal bans on specific recyclable materials, including newspapers and office paper from office buildings of more than 20,000 square feet.

Mandatory recycling legislation may be particularly effective in states and localities that currently have very low recycling rates.

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<sup>19</sup> Gary Liss, “Business Recycling Plans and Policies: Tools for Local Government Recycling and Waste Reduction,” for the California Integrated Waste Management Board, Publication #310-01-009, September 2001

**7C. Provide opportunities to recycle**

- Oregon S.B. 405, the Opportunity to Recycle Act, requires local jurisdictions to provide curbside collection to population centers of more than 4,000 people and drop-off centers for smaller populations.
- San Mateo County in California includes commercial recycling in the franchise for its jurisdictions' recycling programs, although business use is voluntary. Ensuring the opportunity creates a strong incentive for the collection contractor to actively educate and solicit commercial accounts to set up recycling programs.
- The structure a local government uses for its garbage collection fees can encourage or undermine recycling.
- The City of Chicago gives businesses a choice of recycling at least three materials or recycling only two but conducting other waste reduction programs.
- The State of California obliges local governments to require space for storage of recyclable materials at all new developments.
- Some post offices make recycling carts available for patrons to discard unwanted mail into recycling instead of trash.

**7D. Landfill bans and fees**

- The Alameda County Source Reduction and Recycling Amendment Charter Initiative (Measure D) has been one of the most successful recycling laws. By instituting a \$6/ton surcharge on materials sent to the landfill that could have been recycled, the law raised significant amounts of funding that then were put to use developing ground-breaking recycling programs that became models for programs nationwide.
- Solid waste facilities in Massachusetts (including landfills, combustion facilities and transfer stations) are required to demonstrate how they will prevent banned materials, including recyclable paper, from being disposed.

**7E. Fund programs to implement recycling at schools**

- U.S. Congress H.R. 2906 proposes that the Secretary of Education make grants to establish and support a School Conservation Corps in an Illinois District. The Corps could use small grants to accomplish environmental goals, including establishing recycling programs for student and school waste.

**7F. Additional potential supply-side legislation**

- Direct all undeliverable mail to recycling
- Requirement or incentives for high quality processing, focus on producing manufacturing feedstocks
- Producer Responsibility legislation to provide for take-back and recycling of specific products or materials
- Attach recycling, source separation and waste diversion requirements to business and zoning permits
- Establish a system of deposits to encourage return of specific types of products

**DEMAND-SIDE**

**7G. Tax credits for investing in collection and using recovered fiber**

In the U.S. Congress, H.R. 5372 and S.1587, the RISE Act (Recycling Investment Saves Energy) proposes special depreciation allowances for certain reuse and recycling property used for collecting and processing recyclable materials, including recovered fiber.

**7H. Tax credits for investing in equipment for manufacturing recycled products**

Most current legislation authorizes spending caps that are too low to provide significant benefit for the major costs of paper manufacturers, but this could be addressed.

**7I. Mandatory recycled paper purchasing at state and local government levels**

All 50 U.S. states and many local municipalities have some form of recycled paper purchasing legislation or executive order, although some are much more effective than others. Formats include mandatory purchasing requirements, price preferences for recycled paper, and set-asides.

**7J. Enforce U.S. federal Executive Order recycled paper purchasing requirements**

S.1072, the Federal Agency Environmental Responsibility Act, proposes to enact into law the requirement that U.S. federal agencies use paper with at least 30% postconsumer content, along with many other environmentally sustainable

practices. The recycled paper procurement requirement, currently required by presidential Executive Order, would be strengthened if incorporated into legislation.

**7K. Labeling and Certification**

The Federal Trade Commission is currently considering questions and suggestions related to its Green Guides for Environmental Marketing Claims. The Guides do not mandate specific labeling nor award symbols, but rather clarify what types of environmental labeling might be considered misleading and therefore possibly subject to FTC investigation.

Several independent environmental product certification programs exist. None of those in North America are government-sanctioned or sponsored, although Canada's EcoLogo program was originally developed by its federal government. Many certification programs in other countries are sponsored or endorsed by their governments. Each program requires products to meet different criteria to qualify for its labels, some criticize the evaluations even within the same program as uneven, and most have little public awareness. In fact, there are indications that the public finds it more confusing than helpful to have many different labels.

But a consistent and publicly-accepted label could focus purchasing power on environmental papers, similar to the way that purchasers look for equipment with Energy-Star designations.

**7L. Additional potential demand-side legislation**

- Stronger, more comprehensive recycled content paper specifications, to impel recycling investments
- Provide tax credits for using recycled content in manufacturing, including authorizing companies to trade and sell the credits
- Credit or subsidy program to create incentives for deinking investments
- Adjustments to recycled paper definitions and/or specifications to give credit for preconsumer recycled content as well as postconsumer

## **8. STRATEGY: Rethink Recycling, Coordinate System**

### **8A. Develop a series of ongoing regional meetings**

Recycling is conducted by thousands of governments, businesses and organizations all pursuing what they consider to be their best opportunities within their sector of the system. None has comprehensive operational authority and there is no specific coordination. In addition, the expansion of recycling to a greater global system produces regional effects that need more exploration in order to make better decisions and prevent harmful distortions.

Greater effort to determine and promulgate best practices, understand the workings of the whole system, comprehend the implications of short-sighted decisions, and encourage more harmonization and synchronization of the system would be helpful. Even harmonization of recycling programs that use the same processing facility would be beneficial.

Some attempts at determining improved functioning of the recycling system include Conservatree's California Single Stream Recycling Roundtable in May 2005 and the current Standards and Guidelines Initiative underway in EPA Region 10 (the Pacific Northwest) to craft solutions to the persistently high contamination rates in commingled collection recycling programs.

Additional roundtable discussions focused on improved operation of recycling as a whole system rather than only as discrete enterprises could benefit other regions if representatives of all sectors are included. Each region, or collection of states and/or provinces that comprises a "waste-shed" and common markets, has different considerations from other regions, but all should be focused on how to best provide high quality feedstocks to recycled product manufacturers.

## **9. STRATEGY: Develop Plans for New Deinking Mills**

### **9A. Create an ongoing Roundtable to promote the development of new deinking mills**

This might be a subcommittee of the Technical Advisory Group, with expanded membership to include others critical to the discussion. Included should be manufacturing companies, government, investors, recycling programs that would commit to supplying a new mill, major paper purchasers, economic development representatives, ENGOs and others.

**9B. Investigate options**

What possibilities could exist for new deinking mills in North America? Options could include conversion of existing mills, stand-alone deinking, retrofitting, location, vertical integration, long-term government contracts for resulting products, government policies and incentives

**9C. Develop business models and the business case, explore funding options**

**10. STRATEGY: Conduct Research, Answer Critical Questions, Evaluate Options**

A number of questions require new research or new answers in order to remove obstacles to recycling progress.

**10A. Status of current deinking infrastructure, projections for future capacity – both North America and global**

The amount of available recycled pulp (reported separately for kraft and mechanical) illuminates today's market realities and their likely impact on major purchasers specifying recycled paper. New research is needed to provide a solid projection of how much new capacity must be achieved to fulfill EPN's recycled production goals. Without this clarity, it is difficult to make a convincing argument to increase capacity and it is difficult to know whether advances are sufficient to solve the problem.

Recycled paper products may increasingly be imported from foreign suppliers, but recycled content printing & writing paper does not appear to be common outside North America and Western Europe. Better understanding the available deinking capacity will help justify the arguments for new investments and provide guidance for realistic decision-making.

- Update Conservatree/Environmental Defense deinking mill capacity study from 2001 for North America, add global capacity, collaborate with AF&PA and FPAC for additional data
- Project capacity requirements for future environmental paper production (specifically, recycled content), by global geographic region
- Research should involve phone interviews with North American deinking mill managers (as was done for the 2001 study), review of industry resources to identify deinking mills in other countries (new research), projection of production for grades that use deinked fiber, and calculation

of needs and locations of deinking mills that could supply recycled pulp for those grades

**10B. Develop profile of deinked pulp market and alternatives, evaluate relative impact of tissue, packaging and P&W deinked pulp users and options for maximizing deinked pulp availability**

Development of more deinked pulp capacity specifically for recycled printing & writing paper is handicapped by the need to convince the paper industry and investors to build it. Meanwhile, tissue mills and packaging mills that use high grade pulp for printing layers already have substantial capacity. Without a sound understanding of the different pulls on the deinked pulp market, the recovered fiber project could succeed in increasing recycled fiber collection but see it used primarily for purposes other than expanding recycled printing & writing papers. A clear understanding, however, would guide decision-making and also potentially encourage ways to maximize the pulp for high-end production.

- How much deinked pulp is used for tissue and packaging mills, and how much is available for printing & writing mills? (This question is also central for the deinking capacity study and suggests this research project could be combined with that one.)
- What are the projections for future use for tissue and packaging printing, compared to future needs for printing & writing?
- Are there ways to reduce or change demand from either of these sectors, such as use of lower-grade recovered fiber by tissue mills?

**10C. Develop sophisticated and updated profile of recycled paper, answers to criticisms, reliable statistics**

While ENGO market campaigns influence more major purchasers to make commitments to use recycled papers, they are also too often undermined by a “whispering campaign” from paper manufacturers, printers, paper merchants, graphic designers, some ENGOs, and some high-profile purchasers – all viewed as experts by most purchasers. The “whispers” question a whole range of recycled paper’s environmental benefits, particularly for printing & writing papers. Without credible and well-researched responses, and a powerful profile for recycled paper as a beneficial product for the future, it is difficult to create enough momentum to truly transform paper purchasing and the industry.

A significant motivation for this “whispering campaign” is the fact that investments to build up capacity for recycled paper production cost far more than certification programs that justify continued reliance on forest fibers. Also, most of those certification costs can be spread out among many entities far beyond the

producers, while the much more substantial deinking investments fall almost entirely on the manufacturers.

If purchasers cannot create and maintain strong allegiances to recycled paper, then the work to increase fiber recovery and incentivize new deinking capacity will ultimately be unsuccessful.

- Gather the current criticisms from a wide range of sources.
- Investigate the realities in order to confirm, refute, refine, or identify the situations that favor or disfavor recycled. This does not need to require another large-scale Paper Task Force report. Most of the criticisms are pinpointed and can be researched by discussing them with a range of experts in the industry.
- Publish a profile of recycled paper that presents in a straightforward way the realities related to production energy, transportation energy, protection of forests, and other issues currently forming the criticisms.
- Use this profile as the basis for a “rebranding” of recycled paper.

**10D. Determine best practices for shredding to support the recycling industry**

Shredded paper opens up new sources of recovered fiber, but current shredding practices tend to produce contaminated material that most paper manufacturers cannot use. Business offices are increasingly contracting for their office papers to be shredded before disposing of them. Therefore, increases in office paper recycling must include shredded paper in usable forms.

- Learn what the current status is for shredded paper use by recycling mills. Who can use it, who can't, and why not?
- Determine what level of shredding is required by federal and state statutes, and which types of shredding accomplish the goals. Must the paper be pulverized to effectively achieve security?
- What are the methods in use today? How does the product differ depending on whether it was handled by a mobile shredder, MRF, secure room, or other service?
- Recommend Best Practices for each different requirement and coordinate with the shredding industry.

**10E. Survey mill production energy issues that affect market viability of deinking vs. virgin wood pulping, including biorefineries, cellulosic ethanol, biofuels**

If paper manufacturers find a promising future in the use of wood biofuels to run their facilities, and convert to being biorefineries, virgin paper mills with waste from wood and wood byproducts will be heavily favored. Deinking mills will be at a serious disadvantage, unless research develops more successful ways of creating energy and/or lucrative uses from deinking sludge.

- Survey status of wood biofuel and paper mill biorefinery development
- Research potential for use of deinking sludge for energy and other products
- Determine advantages and disadvantages for deinking

**10F. Evaluate competing demand for high grade paper fiber, and options – deinked pulp, waste-to-energy, composting, other**

**10G. Explore pros and cons of recycled paper definitions and their effect on production and markets – e.g. 100% recycled vs lower content percentages, postconsumer vs preconsumer, deinked fiber vs postconsumer; make recommendations for consistent definitions that optimize the markets; coordinate with other environmental attributes to provide guidance and consistency to purchasers**

**10H. Evaluate options for new deinking capacity – mill conversions, pulp mill expansions, stand-alone vs integrated, greenfield vs brownfield**

**10I. Survey best recycling practices – comparison of different approaches (e.g. single stream vs source separated, producer responsibility vs municipal government, entrepreneurial vs government system, independent processor vs corporate hauler operation, other options); how do states/provinces and some foreign countries achieve the highest recycling rates (and how do they measure that; is measurement comparable?); case studies, distill lessons, how adaptable are the best practices to different circumstances (e.g. various municipal funding mechanisms, effect of weather and cultural differences)**

**10J. Evaluate impact of source reduction on future industry infrastructure needs**  
How can we expect that paper use will change in the future? What product mix should we be planning the recycling system for, what significant differences might there be from the product mix today, what effect could that have on deinking investments?

- 10K. Effect of different legislative approaches on the development of the recycling system**, e.g. pros/cons of mandatory recycling, mandatory recycled paper purchasing, producer responsibility, financial incentives, disposal fees, funding mechanisms (e.g. Ontario Stewardship Council fees on brand owners)
- 10L. Profile recoverable fiber sources, determine breakdown of grades by type of sources** (e.g. offices, schools, curbside, commercial) in order to better pinpoint where recovery efforts should be maximized and how (AF&PA, Franklin, RISI have much of this data)
- 10M. Explore options for secondary processing to improve feedstock quality**, e.g. beneficiation centers to sort mixed papers, processing centers run by paper companies instead of haulers

## V. CONCLUSION

Paper use is changing, especially as computers and electronics continue to change patterns of communication. But paper products continue to adapt and fulfill fundamental communication, business, packaging and health needs. The brand new access of huge populations in developing nations to papers previously unavailable to them suggests both healthy paper markets far into the future and an imminently critical need to radically reduce paper's production footprint. The potential to produce paper for double or triple the population size that has had access to it up until now cannot possibly be sustained if paper continues to be made in the traditional, resource-intensive ways. "Production as usual" produces too many damaging environmental impacts to supply truly global markets without severe disruptions.

Far better then to plan for a healthy and positive future by redesigning paper production to minimize environmental impacts. Recycling is an essential foundation for sustainable production, and EPN believes it should be incorporated into all levels of paper production as a matter of course, not held out as a separate, often boutique, product.

In order to help support the shifts in infrastructure necessary to incorporate more recycled content into paper products, EPN is committed to developing collaborations with forward-thinking paper producers, and to contribute leadership, facilitation, problem-solving, education, research, and vision to help transform paper products into models of the kind of minimum footprint production the people of the world will need for a healthy future.