

► eQ JOURNAL ISSUE 005 ►

RETHINKING RECYCLING



sappi



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KNOWLEDGE
IS POWER

Recycling paper is a great way to reduce our environmental footprint—but how we put that fiber to use is not a simple one-size-fits-all solution. We need to be responsible. We need to follow the science. We need to put recovered fiber to its best use, where it will lower emissions and the consumption of natural resources.

LAURA M.
THOMPSON, PhD

Director of
Technical Marketing
and Sustainable
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Sappi Fine Paper
North America

» For decades, recycled content was the “go-to” attribute for making environmentally preferable materials—in both paper and other industries. It seems intuitive that if recycling is good for the environment, then using recycled fiber must also be good. And if a little bit of something is good, then more must be better. However, as the science of sustainability has matured, we have come to view issues more holistically—to approach complex concepts with systems thinking.

We’ve learned that what’s in your paper is only part of the picture. Responsible sourcing of materials is critical, but we must also consider the environmental impacts of manufacturing—including those associated with processing scrap paper. There are vast differences in systems that make deinked pulp for use in graphic paper versus other recycling systems that have higher yield with less environmental impact.

Using recycled fiber is not a one-size-fits-all solution. In fact, the US Federal Trade Commission (FTC) has issued environmental marketing guidance, stating that “Claiming ‘Green, made with recycled content’ may be deceptive if the environmental costs of using recycled content outweigh the environmental benefits of using it.”

Despite the fact that paper far outshines other materials in recovery rates, there are still major opportunities and challenges ahead. When assessing the full life cycle of printed materials, we know that greenhouse gas emissions from landfill disposal are a key contributor to a product’s carbon footprint. The growth of single stream recycling has improved recovery rates, but it also has significant downstream

impacts for paper in terms of increased costs and lower quality. But many regions have passed the tipping point of investment in collection and sorting systems, so we must learn to cope with these challenges.

One solution is to make sure that recovered fiber is put to its best use. We must work to ensure that fiber flows to where it makes the most economic and environmental sense. It’s easy to believe that more recycled content is always better, but the answer is not that simple. We are committed to researching and following the science behind this complex issue.

We invite you to explore these issues with us. In this edition of the *eQ Journal*, we review recycled fiber markets, offer an in-depth look at single stream recycling, learn about the trade-offs associated with using recycled fiber in different applications and hear from leaders across other segments in the industry.

We also discuss Sappi’s overall commitment to waste management and our efforts to support recycling education and outreach. We touch on the importance of life cycle analysis, as we detail the cradle-to-gate greenhouse gas emissions at our Somerset Mill.

Lastly, we offer insights for how everyone can reduce their environmental impact across the life cycle of printed materials. We must continue to increase paper recovery and do our homework to make appropriate procurement decisions. We must also stop looking at recycling as an excuse for excessive consumption and remember the other R’s that come first: reduce and reuse. So when you are finished with this journal, please consider keeping it for future reference, or share it with a friend (or two) and then recycle it.



PCW ISN'T ALWAYS PC

These days, it's common to believe we should use as much post-consumer recycled fiber in as many paper grades as possible. Unfortunately, it's not that simple. The true story is much more complicated. You have to dig deeper. Read on to learn the surprising truth about the complex world of paper recycling.



1

Why is it important to recycle paper?

WASTE REDUCTION IS A FUNDAMENTAL TENET of sustainability and recycling is an integral element of any solid waste management plan. It's one of the three Rs we're all familiar with: reduce—reuse—recycle, practiced in that order. The environmental benefits of recycling vary greatly between programs. For materials like e-waste, it is critical to minimize exposure to hazardous materials. For household products like aluminum or glass beverage containers, there are enormous energy savings for using recycled materials over processing raw materials. The number one reason to recycle paper is to avoid the generation of greenhouse gases in landfills.

Organic materials—including food waste, grass clippings and leaves—decompose much faster than other materials in landfills. In the absence of oxygen, one of the by-products of biodegradation is methane. Methane—also known as natural gas—has a global warming potential that is 25 times higher than carbon dioxide. This is why many municipalities require that grass clippings and leaves be separated from other waste streams. By managing these streams separately they can develop composting systems—which break down materials in the presence of air—to avoid methane generation. The same is true for the fiber in paper products. By keeping these materials out of landfills, the fiber can be put to use and avoid methane formation.

2

Can our society reach 100% recycling of paper products?

FOR RECYCLING IN GENERAL, THE MAJOR barriers for increasing recovery rates are access and education. In other words, people need to understand what can be recycled and where. While most of us quickly become familiar with recycling programs at home or in school, we may experience different programs at work and in public venues. Or worse yet, we may not have access to recycling at all.

For paper products, recovery rates in the US are at an all-time high. In fact, paper recovery increased by 1.2 million tons in 2011, lifting the recovery rate to a record-high 66.8%. That's up from 63.5% in 2010 and 33.5% in 1990.

Digging deeper into the data reveals that the recovery of printing and writing grades lags behind that of other products, like corrugated containers. As an industry segment, we have to do better. While some paper products can never be recycled (e.g., personal hygiene products like bathroom tissue and towel), all of Sappi's coated fine papers can and should be recycled. If 87% of Americans have access to curbside or drop-off paper recycling programs, we can infer that recycling magazines and catalogs is not limited by access, but perhaps simply by awareness. For this reason, we are strong supporters of recycling education and outreach, and we encourage corporate marketers and graphic designers to use "please recycle" statements or logos on all printed pieces.

If you are unsure whether something can be recycled, the best solution is to seek out information rather than err toward landfilling. Resources like Earth911.com can help identify recycling facilities.

3

What is single stream recycling?

THE TERM “SINGLE STREAM” RECYCLING IS used to refer to collection processes where recyclable materials are comingled, or all placed in a single bin. By contrast, some recycling programs are designed to separate various materials, collecting glass, metals and plastics separately from paper. While single stream systems typically result in lower collection costs and higher overall recycling rates, unfortunately they also lead to increased levels of cross-contamination. For example, paper collected through single stream systems will contain more glass, plastic and organic matter, ultimately leading to higher costs and lower quality for paper recycling facilities.

Several studies have shown that the downstream costs associated with additional sorting and lower quality due to contamination are greater than the savings achieved through single stream collection methods. However, because the cost burden of collection (borne primarily by municipalities and ultimately residents) is typically separated from the rest of the value stream (the scrap materials markets), it is unlikely that the momentum toward single stream recovery will be reversed.

In addition to municipal programs, many office buildings are also turning to single stream collections. Unfortunately, this means high-value office paper is often comingled with other products and ends up in a mixed paper stream instead of staying separated.

If given a choice, think about downstream processing and separate recyclables when you can.

4

Why doesn't Sappi make coated papers with 100% recycled content?

IN MANUFACTURING, SELECTION OF MATERIALS must balance economic and environmental considerations alongside performance attributes. At Sappi, we offer products with up to 30% recycled fiber derived from post-consumer waste.

Unfortunately, it is an oversimplified notion to universally promote maximizing recycled fiber in all paper products. Paper is not monolithic; certain paper grades and even certain mills are better suited for using recycled fiber than others. There are vast differences between processing recycled fiber for packaging applications versus doing so for premium papers. Some mills are integrated with pulping systems, while others rely on purchased fiber. Pulping can be done mechanically (e.g., groundwood) or chemically (i.e., kraft pulping). Depending on the grade and the application, there may or may not be bleaching involved. And so on. Ultimately, recycled fiber should be used in products where it does not create a higher net environmental impact.

Many people are surprised to learn that recycled fiber—processed to meet our quality standards for brightness and cleanliness—is actually more expensive than manufacturing pulp on-site from wood. Recycled fibers are lower in strength than virgin fiber and as a result there are physical limitations to how much recycled fiber can be utilized without compromising the strength properties of the paper. Because most of the energy used to process recycled fiber is purchased from the power grid, many deinking mills have higher carbon emissions than Sappi's integrated pulp mills that use more renewable energy sources. In fact, our analysis shows that adding 10% recycled fiber to products made at our Somerset mill actually raises the carbon footprint of those products by 16%.



It's time
to recycle
and think

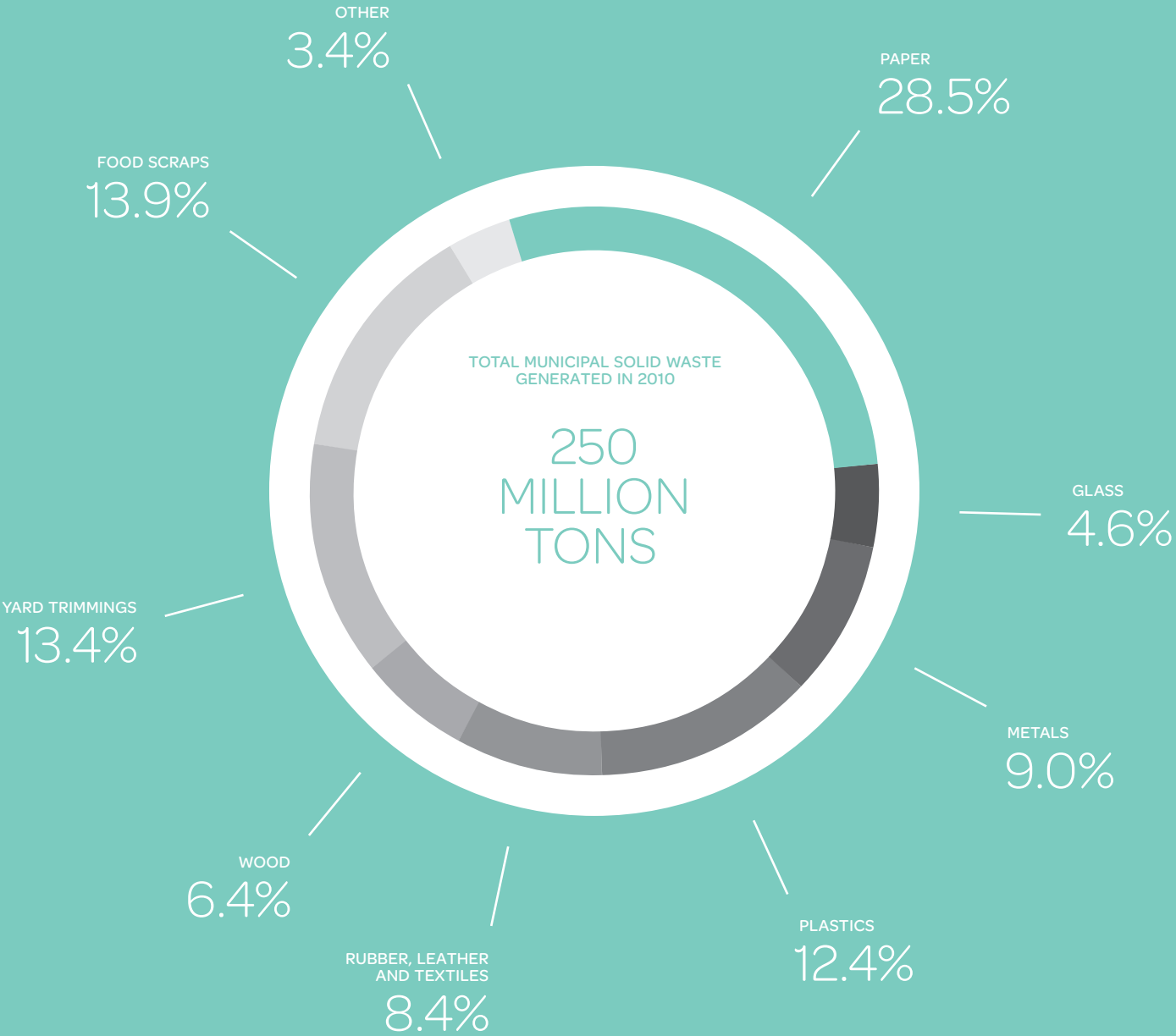
The background of the image is a dense, chaotic pile of crumpled and torn newspaper and paper waste. The papers are in various shades of white, grey, and brown, with some colorful fragments visible. The pile is viewed through a dark metal grid that runs horizontally and vertically across the frame. The text "e to", "y our", and "ng." is overlaid on the left side of the image in a large, white, serif font. The text "e to" is at the top, "y our" is in the middle, and "ng." is at the bottom. The text "y our" is partially cut off on the left side. The text "ng." is also partially cut off on the left side. The text "e to" is followed by "y our" and then "ng.". The text "y our" is followed by "ng.". The text "ng." is followed by a white arrow pointing to the right.

e to
y our
ng.



➤ In 2010, Americans on average produced 4.43 pounds of trash for every man, woman and child in the country, every day. Of the 250 million tons generated,

we managed to compost or recycle roughly 85 million tons of Municipal Solid Waste (MSW) —that's just over one-third, 34.1%.



PICKING APART OUR TRASH

Municipal Solid Waste

WHERE IT COMES FROM AND WHAT WE DO WITH IT

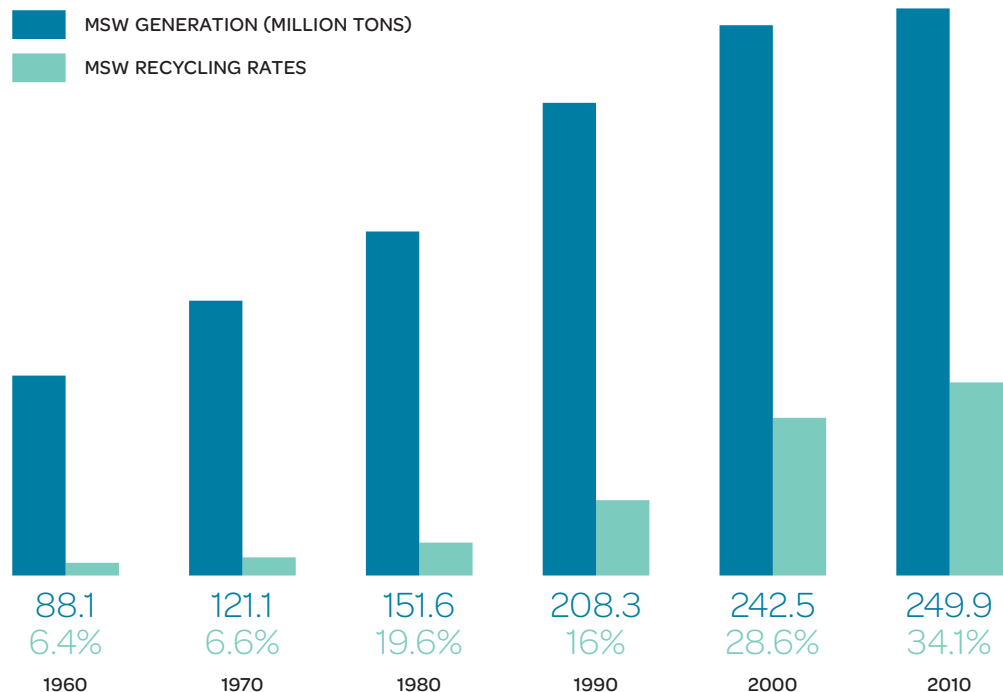
➤ Municipal Solid Waste (MSW) consists of materials ordinary citizens throw into the trash at our homes and offices. This includes everything from food scraps to lawn waste to old tires and computers—even paper products. MSW does not, however, include industrial or construction waste.

All MSW doesn't necessarily have to wind up in a landfill, but unfortunately most of it does. In fact, around two-thirds of everything

we as a society throw into the trash makes its way into a landfill. However, there are a wide range of environmental benefits to be reaped from recycling various materials. For materials like e-waste it is possible to recover precious metals and eliminate potential environmental damage. For household products like aluminum or glass beverage containers, there are enormous energy savings for using recycled materials over processing raw materials. The number one reason to recycle paper is to avoid the generation of greenhouse gases in landfills.

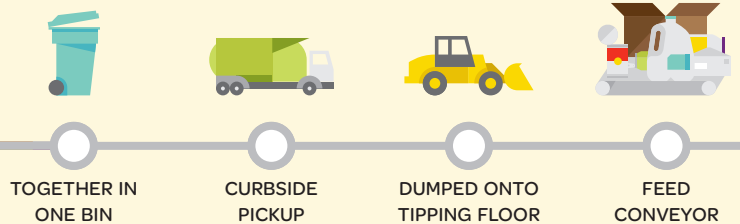
The good news is that educational programs and greater access to recycling facilities have resulted in a significant rise in recycling rates since the middle of the 20th century. In fact, recycling rates in the US have increased 432% since 1960. So we're doing a much better job today than we have in the past, but as you can see in the chart below, there is still plenty of room for improvement in recycling the materials we consume on a daily basis.

➤ Solid waste generation increased by 0.77 pounds per person per day between 1980 and 2010, while recycling rates also increased during that same period—up from less than 10% in 1980 to about 34% in 2010. The total amount of waste going to landfills has remained over 160 million tons per year since 1990.



SINGLE STREAM RECYCLING

This illustration shows a collection of waste items and recycling bins. The top row includes a newspaper, a red and white food container, a green food container, a blue food container, a red box, and a yellow bottle. The bottom row features four cans (green, blue, grey, and red) and two grey recycling bins.



A wide range of materials can now be recycled, but there is still a long way to go to increase participation and effectiveness of recycling programs. More importantly, every municipality is different. Be sure to check with your local recycling facility to learn specifically which materials are acceptable for recycling and just as importantly, which materials are prohibited. Where access to recycling is not available, encourage your local community to consider offering services.

Single stream recycling is being implemented by municipalities to lower costs of waste handling while increasing participation in recycling programs. Single stream systems collect all recyclable materials together, in one bin, and then separate them later at a centralized sorting facility. This approach means that residents don't have to separate paper, plastic, metals, glass and other recyclables in their homes or offices. Instead, everything goes into one bin and gets separated and organized at a materials recovery facility after collection.

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EXPERT INSIGHT
Kevin Roche of ecomaine, a single stream recycler, takes a moment to walk us through the single stream recycling process.

STEP ONE
The first thing that happens is the material gets dumped into a pit and metered onto a conveyor system. We have an inspection station that pulls out any kind of gross contamination. That includes things that would foul up our system, like hoses or propane tanks that we don't want to let into our sorting system.

CARDBOARD SEPARATED

BALED

SOLD

SIZING IT UP
The next piece of equipment is a cardboard separator, which basically separates the cardboard by size. So anything newspaper-size or smaller falls through, including all the containers. Larger than newspaper-sized material, which is predominantly cardboard or very large plastic, passes over the screen.

NEWSPAPER, OFFICE PAPER & MAIL SEPARATED

MANUAL QUALITY CONTROL

BALED

SOLD

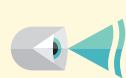
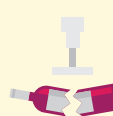
THE HUMAN TOUCH

Despite all the advancements in sorting technology, materials are still constantly winding up where they shouldn't be. Quality controllers manually separate anything missed or misplaced by the automated sections of the recycling system.



REDUCE, REUSE, RECYCLE

It's important to note that recycling is the last leg in the "Reduce, Reuse, Recycle" mantra. Where possible, try to reduce consumption of materials and reuse items before inserting them into the recycling stream. Using paper as an example, good design can reduce waste on press; magazines, books and catalogs can be passed along to friends; and at the end of their useful lives, all printed materials should be recycled.



1ST PRE-SORT

DISK SCREENS

2ND PRE-SORT

COMBINATION NEWS SCREENS

GLASS BREAKER

MAGNET

OPTICAL SCANNER

MANUAL SORT

EDDY CURRENT

WHATEVER IS LEFT OVER

LANDFILL

WASTE TO ENERGY

SNAGS IN THE SYSTEM
Plastic bags are the bane of single stream recyclers. They clog up the machine gears and usually cannot be recycled by most single stream recyclers anyway. This means they wind up in a landfill, so please don't include them in your recycling bin. Instead, take them to a grocery store that accepts and recycles plastic bags. For more info visit PlasticBagRecycling.org.

SCREEN ALL ABOUT IT
After the second pre-sort we have a newspaper screen that separates the newspaper. The newspaper goes over the screen and everything else falls through, which would be the plastic, metal, glass and mail. The third screen is a mixed paper sorter.

PRECIOUS METALS
The container stream flows down the system and there's a magnet that pulls out the ferrous product.



LIGHT PLASTICS SEPARATED

BALED

SOLD

ALUMINUM SEPARATED

BALED

SOLD

LEFTOVERS
Unfortunately, certain materials cannot be recycled despite our best efforts. After recycling, incineration for energy production is the second preferred use for waste. Landfilling the material should be used as the last possible option only after all other options have been exhausted.



PLASTIC BAGS SEPARATED

BALED

SOLD

GLASS SEPARATED

MANUAL QUALITY CONTROL

WATER MISTER

OPTICAL SCANNER

COLLECTED

SOLD

PAPER SEPARATED

CERAMIC & STONE SEPARATED

NON-RECYCLABLES SEPARATED

LANDFILL

RIGID PLASTICS SEPARATED

BALED

SOLD

RESIN IDENTIFICATION CODES

→ Resin codes help recyclers sort plastics based on their polymer type. Different types of plastics are found in household waste, and not every facility recycles all types. Be sure to check with your local recycling program to determine which plastics are accepted.



POLYETHYLENE TEREPHTHALATE
Plastic beverage bottles and food jars.



HIGH DENSITY POLYETHYLENE
Shampoo and cleaning bottles, toys, shipping containers.



POLYVINYL CHLORIDE
Cooking oil bottles, pipes, fencing, medical tubing.



LOW DENSITY POLYETHYLENE
Grocery and garbage bags, shrink-wrap.



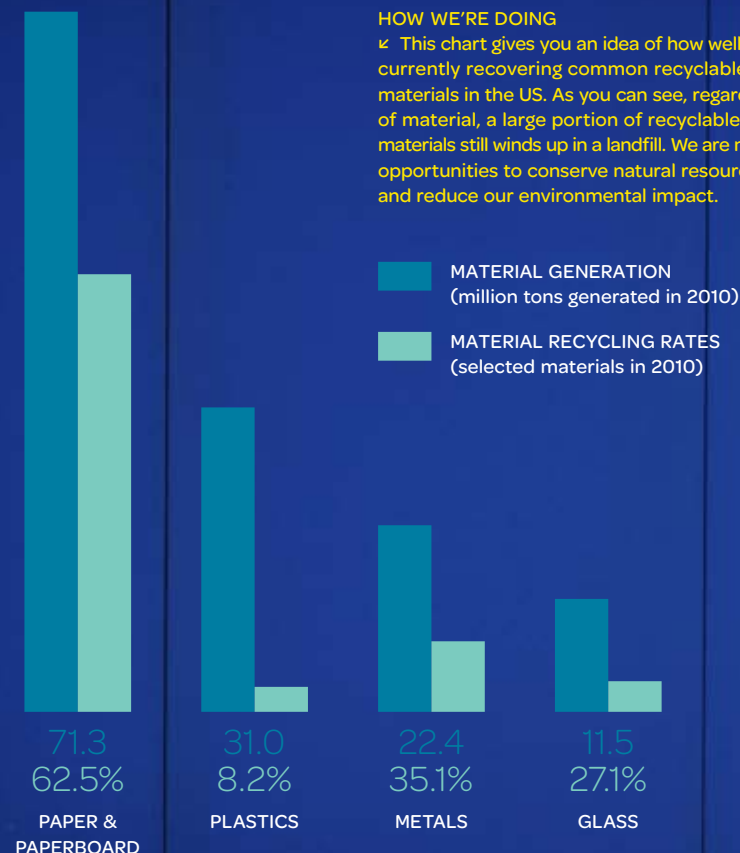
POLYPROPYLENE
Medicine bottles, bottle caps, automotive parts.



POLYSTYRENE
Disposable cups and utensils, foam food packaging.



OTHER PLASTICS
3- and 5-gallon reusable water bottles, acrylic, nylon.



Paper Recovery

WHY WE NEED TO RECYCLE

Paper, in particular, is an important material to recover due to the amount of methane it can produce if allowed to decompose in a landfill. And methane is 25 times worse than carbon dioxide in terms of its global warming potential—or the ability to trap heat in the atmosphere. Recycled fiber also provides benefits in terms of reduced water usage and energy savings for many applications. It is important to remember, though, that recycled fiber alone cannot meet all our fiber supply needs, as recycled fiber breaks down—losing strength characteristics—every time it is recycled. Furthermore, an estimated 15% of paper products such as tissues cannot be recycled. Virgin fiber must be used to meet the global demand for fiber and should be sourced from responsibly managed forests.

Did You Know?

»

14,000

One million tons of recovered paper can fill more than 14,000 railroad cars.



81%

Paper and paperboard recovery has increased 81% between 1990 and 2011.

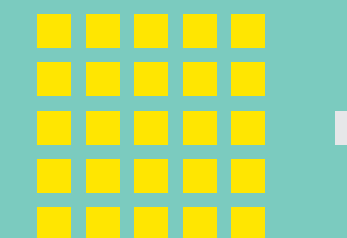


25x

Methane—which can be generated by paper decomposing in landfills—has a global warming potential 25x higher than CO₂.

50 Million

The amount of wood and paper Americans trash every year holds the energy potential to heat 50 million homes for 20 years.





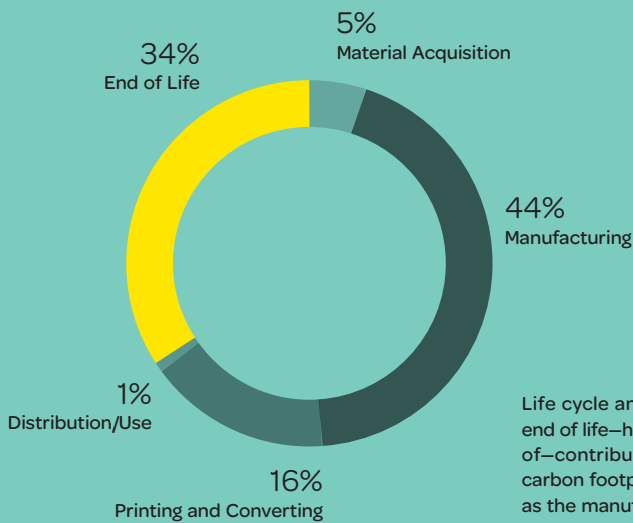
3.52

Every short ton of mixed paper that is not sent to landfill avoids 3.52 metric tons of CO₂ equivalents.



3.3 *cubic yards*

Every ton of paper recycled saves more than 3.3 cubic yards of landfill space.



Life cycle analysis has shown that the end of life—how a product is disposed of—contributes nearly as much to the carbon footprint of a paper product as the manufacturing process.



268 Million

87% (268 million) of Americans have access to curbside or drop-off paper recycling programs.

“We’re constantly looking for and finding new products that can use recovered fiber. We’re making a floor cover for industries and convention centers that don’t want to ruin their floors, tubes for pouring concrete, products for the produce industry and others. We’re proud to make products that are made of 100% recycled fiber. If it weren’t for our industry, it would be back in the landfill.”

↓
JOHNNY GOLD
THE NEWARK GROUP



338 *pounds*

In 2011, the amount of paper recovered for recycling averaged 338 pounds for every man, woman and child in the United States.

“We wholly support the waste hierarchy, which is Reduce, Reuse, Recycle—in that order. Once we get material into our facility, our first priority is to recycle it. Converting it to waste energy is the second-best option for the planet. Landfilling, though, is the lowest priority and should be treated as a last resort, so to speak.”

↓
KEVIN ROCHE
ecomaine



Combining recovery rates and processing yields, we see that the example for printing and writing paper has more than double the loss of the paperboard application.



HOW MANY TIMES CAN PAPER BE RECYCLED?

It is possible to recycle fiber an estimated 4–7 times, but in reality, due to collection rates and process losses, as much as 80% of the fiber can be lost after two rounds of collection and processing. Furthermore, the quality of the fiber weakens significantly with each round of processing.

RECOVERED FIBER

The US EPA encourages the use of the term “recovered fiber” over “waste” to acknowledge that this material is a valuable resource. To be considered recycled it must be repulped. Paper cannot simply be recut or repackaged to count as recovered-content paper. Furthermore, recovered fiber does not include forest residues such as sawdust and wood chips from forestry operations.

Processing by Grade

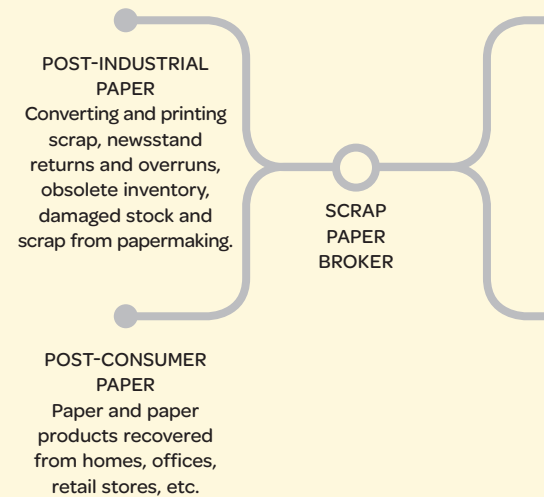
UNDERSTANDING YIELD

Once paper makes its way through the collection and sorting processes, it is then baled and sold to recyclers where it can be made into pulp and ultimately, new paper products. The vast majority of recovered paper is traded through brokers; however, some scrap suppliers (like printing plants) may have direct relationships with recycling facilities—and in some areas entrepreneurial groups (e.g., schools or scouts) are establishing collection drives to sell scrap paper to facilities.

As the recovered paper gets processed, a certain percentage of the paper fiber is lost along the way. According to Ron Fox of leading boxboard producer Graphic Packaging International, “All recovery systems lose yield as they process fiber, it’s wear and tear. You wet it and rework it, and you lose yield the more you process it.” He likens it to tires on a car. “You don’t see it, but they’re wearing all the time. And the more miles you put on, the more you lose. Fiber is kind of the same thing.”

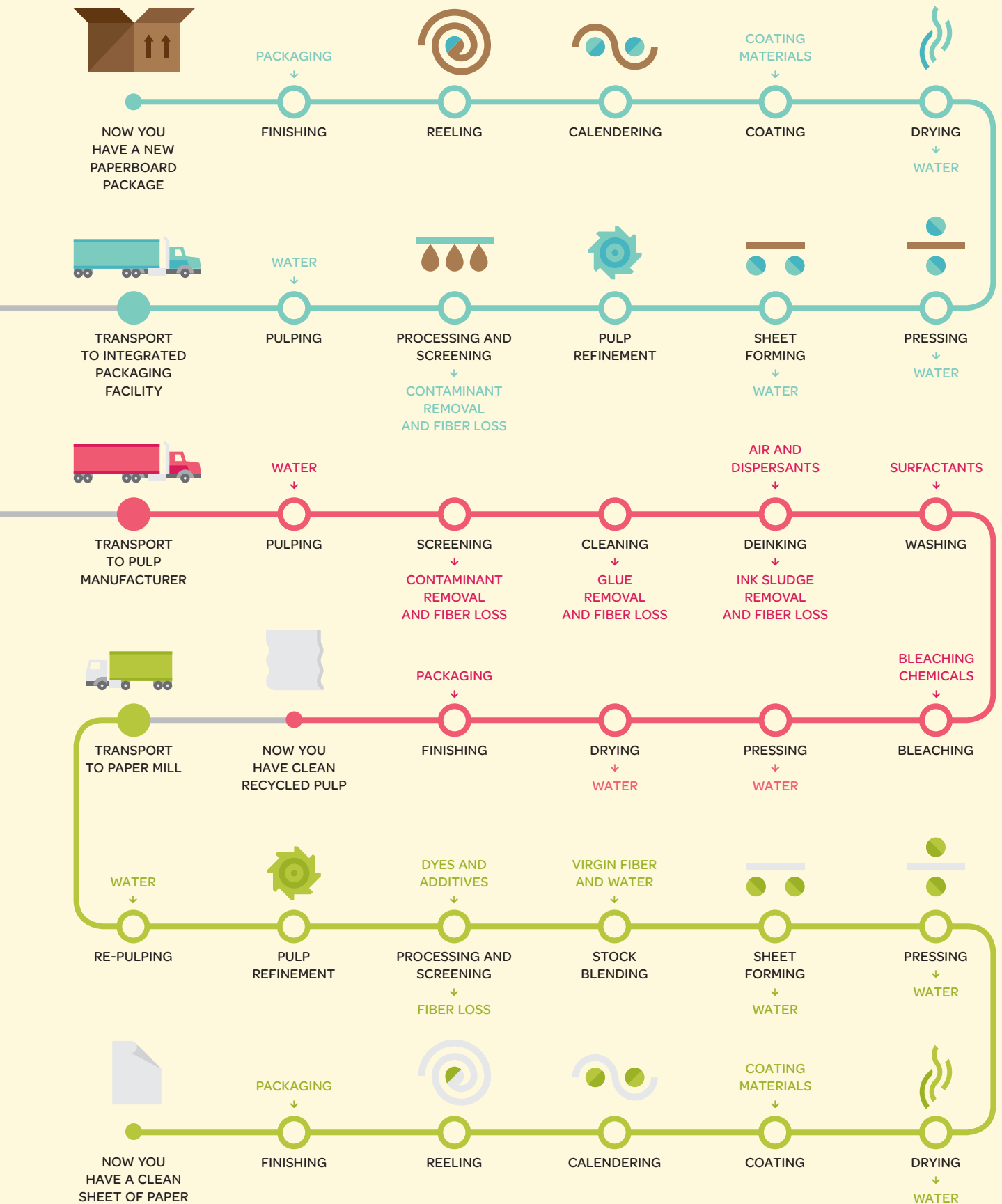
For use in lower-grade products such as boxboard containers, recovered fiber undergoes minimal processing and produces minimal waste. According to Fox, “When we reuse the fiber, we’re basically just filtering out the non-fibrous, extraneous materials like plastics and metal. We keep all the fiber and additives. So when we’re making containerboard or boxboard, at the lowest our yield is about 90%. Generally we yield about 97%, 98%.” The key to this higher yield is to keep the processing to a minimum, says Fox. “We don’t do too much to the fiber. We don’t deink it, we don’t bleach it, we don’t do anything to degrade that fiber.” On the other end of the spectrum, higher-end products such as writing and printing paper require a much cleaner, purer fiber. Cleaning, filtering and processing recovered fiber to meet the tough standards of graphic paper requires additional energy and chemicals

Processing recycled fiber for use in lower-grade paper products is more cost efficient and has less environmental impact than processing the same fiber for use in higher-grade paper products.



to raise its quality and separate the fiber from materials such as clay and ink. This additional processing also creates more waste. According to Fox, “All processing creates waste. When you deink and so on, you create an additional waste stream. Then, as you develop the fiber back into usable products, you generate more waste as well. It’s not just free.”

The additional waste can be significant. Deinking facilities that process recovered fibers for use in graphic paper routinely report much lower yields—around 70%—with some studies reporting yields as low as 60%.





COATED MECHANICAL

Lightweight magazines, catalogs, coupons and inserts



Just as there are wide variations in paper grades, there are many different types of recycled fibers derived from different sources. Below is a selection of recovered paper types and common uses.

Pulp Substitutes

Unprinted shavings, clippings and leftovers of wood-free papers from mills, print shops and converters. The highest quality recycled fiber, often used in place of virgin fiber.

High-Grade Deinking Paper

Bleached chemical grade (wood-free) office papers and coated book stock. Used in high-grade graphic papers and tissues.

Mixed Paper

Broad category of mail, telephone books, paperboard, specialty grades, magazines, catalogs and all grades not elsewhere specified. Used in paperboard, tissue and construction materials.

Newspapers

Old newspapers, white blank news, mixed groundwood and coated groundwood. Often used to make recycled newspapers, paperboard and tissue.

Old Corrugated

Unbleached and colored kraft papers used in corrugated media and solid linerboard, fiber cores, kraft paper and bags. Used to make shipping boxes (corrugated containers) and product packages.

Unrecyclable

Some products such as tissues and paper towels cannot be recycled for further use in the fiber cycle.

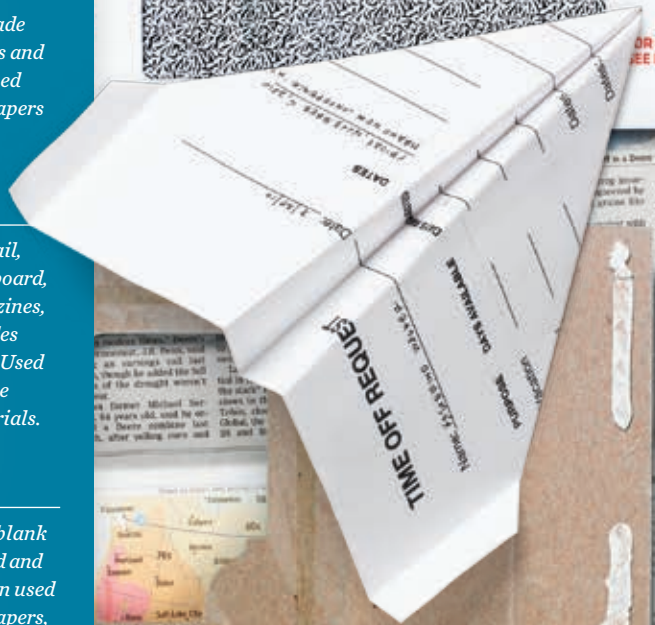
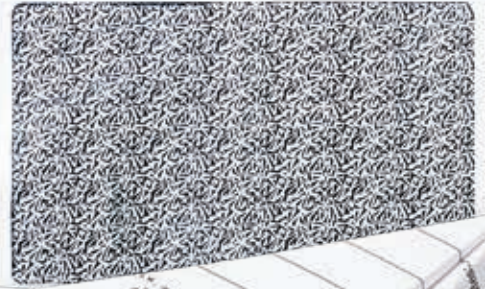
COATED FREESHEET

Glossy magazines, catalogs, direct mail and corporate brochures



UNCOATED FREESHEET

Cut sheets for copier and printer papers as well as envelopes and billing applications



BOXBOARD

Rigid packaging such as frozen foods, cosmetics and pharmaceutical boxes



PACKAGING CONVERTING

Product labels, gift-wrap and multiwall bags

CONTAINERBOARD

Most brown shipping containers—including linerboard and corrugated medium





➤ **PULP SUBSTITUTE**
Scraps from the papermaking and converting processes at paper mills and print shops

➤ **UNCOATED MECHANICAL**
Telephone books, circulars and magazine inserts

➤ **NEWSPRINT**
Low-cost paper used in newspapers and advertising materials

Fiber Physics

HOW BEST USE TRICKLES DOWN

➤ Not all paper fiber is created equal. The quality of virgin fiber is determined by its source, pulping process and whether or not bleaching is involved. Mechanical processing tends to be harder on fibers — breaking fiber length and compromising strength. Virgin, kraft and softwood fibers are generally the strongest wood-based fibers, while bleached hardwood fibers provide the right surface, uniformity and opacity for printing and writing grades. Hardwood and softwood fibers are often blended to achieve the right combination of fiber properties.

However, once virgin fiber is used, it will never be the same. The more you use fiber, the more it breaks down and the weaker it becomes. How paper is recovered also has a significant impact on quality and suitability. Recovered paper is classified by its source and level of contamination. In fact, the Institute of Scrap Recycling Industries (ISRI) currently defines 47 different grades of paper stock used for

THE CONTENT OF COATED PAPER

In coated papers, roughly one-third of the product is comprised of coatings and filler—not fiber. So the fiber portion must be strong enough to support the sheet through high-speed printing presses as well as folding, binding and everyday use. Because recycled fiber is significantly weaker than virgin fiber, there are limitations in

the amount of recycled fiber that can be added while maintaining strength specifications. There are also challenges of achieving brightness and shade characteristics. This is in stark contrast to something like tissue and towel grades that are not subjected to the rigors or quality demands of high-end printing applications.

re-pulping (recycling). There are an additional 28 specialty grades of paper currently traded — many of which are not considered recyclable by US standards (e.g., wax-coated boxboard and poly-coated cup stock). Much of this fiber is either exported or consumed domestically for energy generation.

A paper product's tolerance for a high percentage of recycled fiber increases dramatically as you move into certain paper categories. Cardboard and boxboard, for example, can use almost zero virgin fiber and still meet all their performance requirements. According to Johnny Gold of paperboard and packaging manufacturer Newark Group, "We make products that are 100% recycled content, and the rigors of our recycled boxboard versus a virgin boxboard are no different in terms of quality and how it stands up to its environment."

Ron Fox of boxboard manufacturer Graphic Packaging International also sees this advantage. "We can handle all grades and any fiber source when it comes to boxboard and paperboard," says Fox. "We can use more of a blend of short and long fibers. And in corrugated packaging, you can use all grades in certain quantities."

By contrast, the type of fiber used in high-end graphics applications is limited to pulp substitutes (primarily from post-industrial sources) and high-grade deinking papers that require significant processing. So while high-quality papers can be used in many subsequent applications, it is not possible to push fibers up the quality ladder. Many refer to this as "down-cycling."

E REASONS
DE.

...of an hour here there.
...at, he predicts North
...of four what
...to rise 2.6%, to
...Cordoba sales will fall
...in 1994, after a big surge
...year, he said.
...losses are already
...with her family at
...in their farms in Delaware
...is, he said, that the family
...the business for a new
...her doesn't quit on any
...big purchases, she said.
...out on the market to get
...much more than their
...potential for the next few
...years," she said.
—Rob Tice
contributed to this article

AccuWeather.com

City	High/Low	Wind	Humidity	Clouds	UV Index
Atlanta	61/74	10-15	70%	Partly Cloudy	3
Boston	45/58	10-15	60%	Partly Cloudy	2
Chicago	55/68	10-15	60%	Partly Cloudy	2
Dallas	75/88	10-15	60%	Partly Cloudy	3
Denver	65/78	10-15	60%	Partly Cloudy	3
Houston	75/88	10-15	60%	Partly Cloudy	3
Los Angeles	65/78	10-15	60%	Partly Cloudy	3
Miami	75/88	10-15	60%	Partly Cloudy	3
Minneapolis	55/68	10-15	60%	Partly Cloudy	2
New York	55/68	10-15	60%	Partly Cloudy	2
Phoenix	75/88	10-15	60%	Partly Cloudy	3
Portland	55/68	10-15	60%	Partly Cloudy	2
San Francisco	55/68	10-15	60%	Partly Cloudy	2
Seattle	55/68	10-15	60%	Partly Cloudy	2
Wash. DC	55/68	10-15	60%	Partly Cloudy	2

TISSUE/TOWEL

Toilet paper, tissues, paper towels

PURCHASED
DEINKED FIBER

3.43

↳ CRADLE-TO-GATE CARBON
FOOTPRINT OF COMMON WOOD
PULPS USED IN PAPERMAKING
(kg CO₂ eq/dry kg of pulp)

These life cycle estimations illustrate the carbon footprints of different pulp sources. Industry averages are not necessarily representative of specific suppliers and in all cases we recommend seeking out primary data sources.

PURCHASED
TMP

1.65

PURCHASED
BLEACHED
KRAFT

0.99

SOMERSET
SYNERGY PULP

0.77

Assessing the Life Cycle of Paper

Some consumers focus on purchasing paper with a high percentage of recycled fiber. This drive for recycled content is often based on the false assumption that more recycled fiber in every product and paper grade is always better for the environment.

In reality, there are many other factors involved in the life cycle of paper, and these factors can only be fully understood and quantified by taking a comprehensive Life Cycle Analysis (LCA) approach. LCA accounts for the environmental impact of every step involved in the life of paper — this includes everything from material acquisition and processing to end use and disposal.

Sappi uses LCA to determine what applications of recycled fiber (and at which levels) can yield the most benefit. As it turns out, many Sappi papers that do not contain recycled fiber have a significantly lower carbon footprint than other papers on the market that do contain recycled fiber.

In 2012, Sappi completed a cradle-to-gate carbon footprint analysis of our Somerset Mill located in Skowhegan, Maine, using the Footprint Estimator for Forest Products (FEFPro) developed by the National Council for Air and Stream Improvement. This is an expansion of earlier reporting which had been limited to our own direct emissions (Scope 1) and emissions associated with purchased electricity (Scope 2). In the cradle-to-gate study, we include Scope 3 carbon emissions associated with material inputs (e.g., roundwood and chips, pulping and bleaching chemicals, coatings and fillers) as well as those from purchased pulps. Results of this analysis revealed that our mill generates kraft pulp with a footprint of 0.77 kg of CO₂ per dry kilogram of pulp. This is roughly 20% lower than emissions factors provided for purchased bleached kraft, 50% lower than thermo-mechanical pulp (TMP) and 77% lower than purchased deinked fiber.

In fact, our study of products made at the Somerset Mill showed that adding 10% recycled content increases the product's carbon footprint by 16%, compared to the same product made with 100% virgin fiber. It is important to note that the emissions data for purchased pulps reported herein are based on best available industry data and are not specific to Sappi's suppliers. We will be seeking primary data to further refine this study, but it is clear that substituting deinked recycled fiber for Sappi-made pulp increases the carbon footprint of those products.

INDUSTRY
AVERAGE

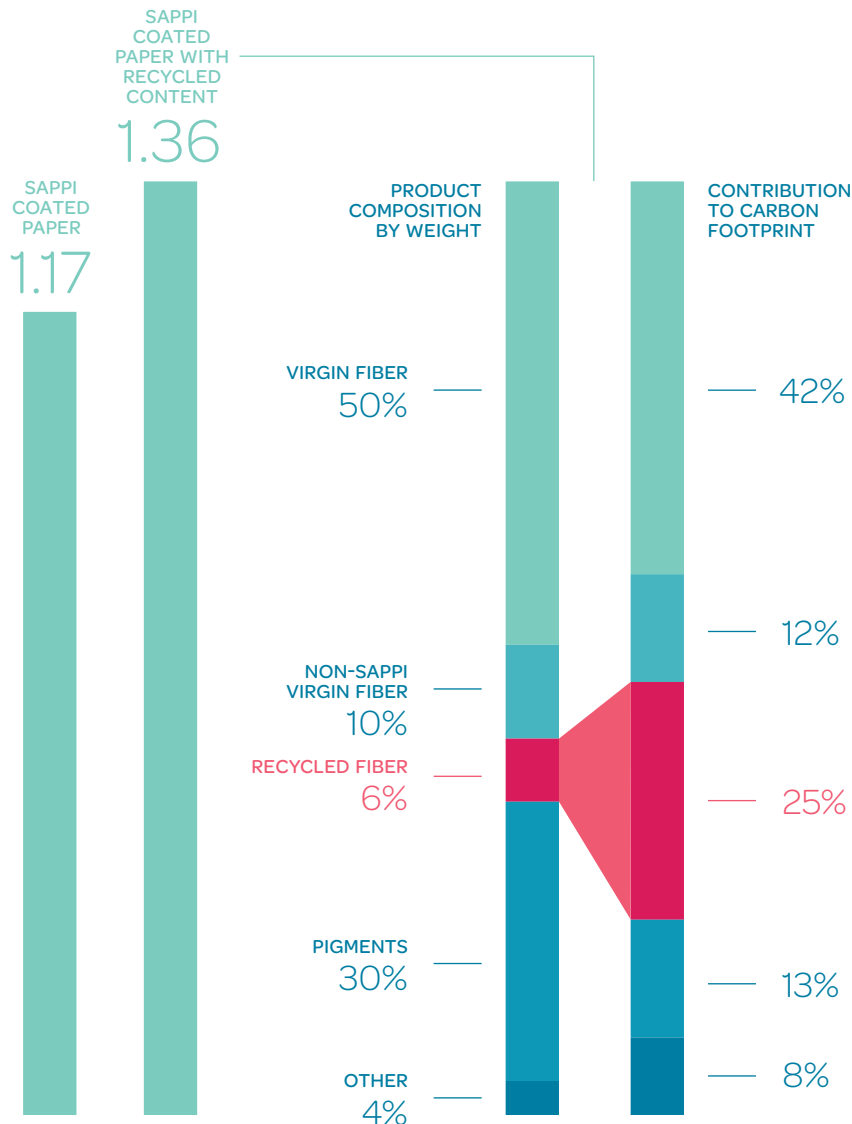
2.2

← SAPPI CO₂ EMISSIONS WITH AND WITHOUT RECYCLED FIBER (kg CO₂ eq/kg of paper)

Adding recycled fiber to papers made at Sappi's Somerset and Cloquet facilities actually raises the carbon footprint of those papers.

SUMMARY OF FINDINGS

Our analysis revealed that the pulping process in particular is a significant contributor to the overall carbon footprint of a paper product. Generally speaking, kraft pulping has a lower carbon footprint than mechanical processing and deinking processes due to their greater need for electricity, which usually does not come from renewable sources. The footprint estimations on this page reflect emissions associated with every step in the papermaking process—from material acquisition all the way through the finished pulp product. For virgin fibers, this includes wood procurement and the pulping and bleaching chemicals; for deinking pulps, this includes recovering, sorting and processing waste paper. The analysis also includes the impact of materials (like pigments and binders) used in the finished paper products.



Best Use

HOW THE GLOBAL FIBER TRADE AFFECTS USE



ABOUT CERTIFICATION

Third-party certification programs provide assurance that wood-based products have been procured from well-managed forests and are legally harvested. Sappi currently holds chain-of-custody certifications from FSC®, SFI and PEFC, the leading independent entities developing standards for forest management.

» Beyond the technical and environmental impacts associated with processing recycled fiber, the use of recovered paper is greatly impacted by global trade. Companies across the world that specialize in manufacturing consumer and durable goods—such as many in China and India—need fiber to create product packaging, labels and shipping containers. This fiber does not need to be perfectly white and free of contaminants.

“These are global commodities,” says Bill Moore of Moore and Associates, a paper recycling consulting firm. “The world’s entire pulp paper and packaging production is now about 55% recycled fiber. So, we’ve passed the 50% point, and if you go back to about 1990, it would have been in the low 30s. That’s an amazing increase, almost double in just 20 years.”

Producers of packaging for consumer goods oftentimes don’t have enough volume of recycled fiber to meet their needs. When there’s not enough recycled fiber available, companies turn to using virgin fiber. But as we’ve seen, packaging and other lower-quality paper products don’t need to use a high percentage of virgin fiber in order to meet their performance requirements. In other words, using too much virgin fiber in lower-quality paper products could in some cases be seen as a waste of virgin fiber. What’s more, the virgin fiber from certain countries that makes its way into

these lower-end applications may not be coming from a responsibly managed forest, thus potentially impacting forest health in those areas.

Environmental nongovernmental organizations such as the World Wildlife Fund (WWF) now consider virgin fiber from well-managed forests to be on par with recycled fiber sources. In stating their value system in the manual for their paper scorecard, WWF says: “WWF’s mission is to safeguard biodiversity as well as to reduce wasteful consumption. New virgin fiber will always be needed in paper production as each time fiber is recycled it loses quality and thus cannot be recycled indefinitely. The new fibers need to be from well-managed forests.”

Overseas demand continues to grow and create high value for recycled papers. Because we import so many finished goods from overseas, exporting scrap paper takes advantage of available shipping containers that must travel between regions. We do not support policies that would control or restrict fair markets for these products.

TOTAL RECOVERED FIBER
IN 2011

52.8
MILLION
TONS

◀ WHERE DOES RECYCLED PAPER GO?

In 2011, 41% of the paper and paperboard recovered in the US went to produce containerboard and boxboard, the materials used for corrugated and folding boxes. Exports (primarily to China) accounted for 42% of the paper recovered in the US.

NET EXPORTS
(22,174)

42%

NEWSPRINT
(1,836)

3%

TISSUE
(4,084)

8%

OTHER
(2,634)

5%

BOXBOARD
(6,046)

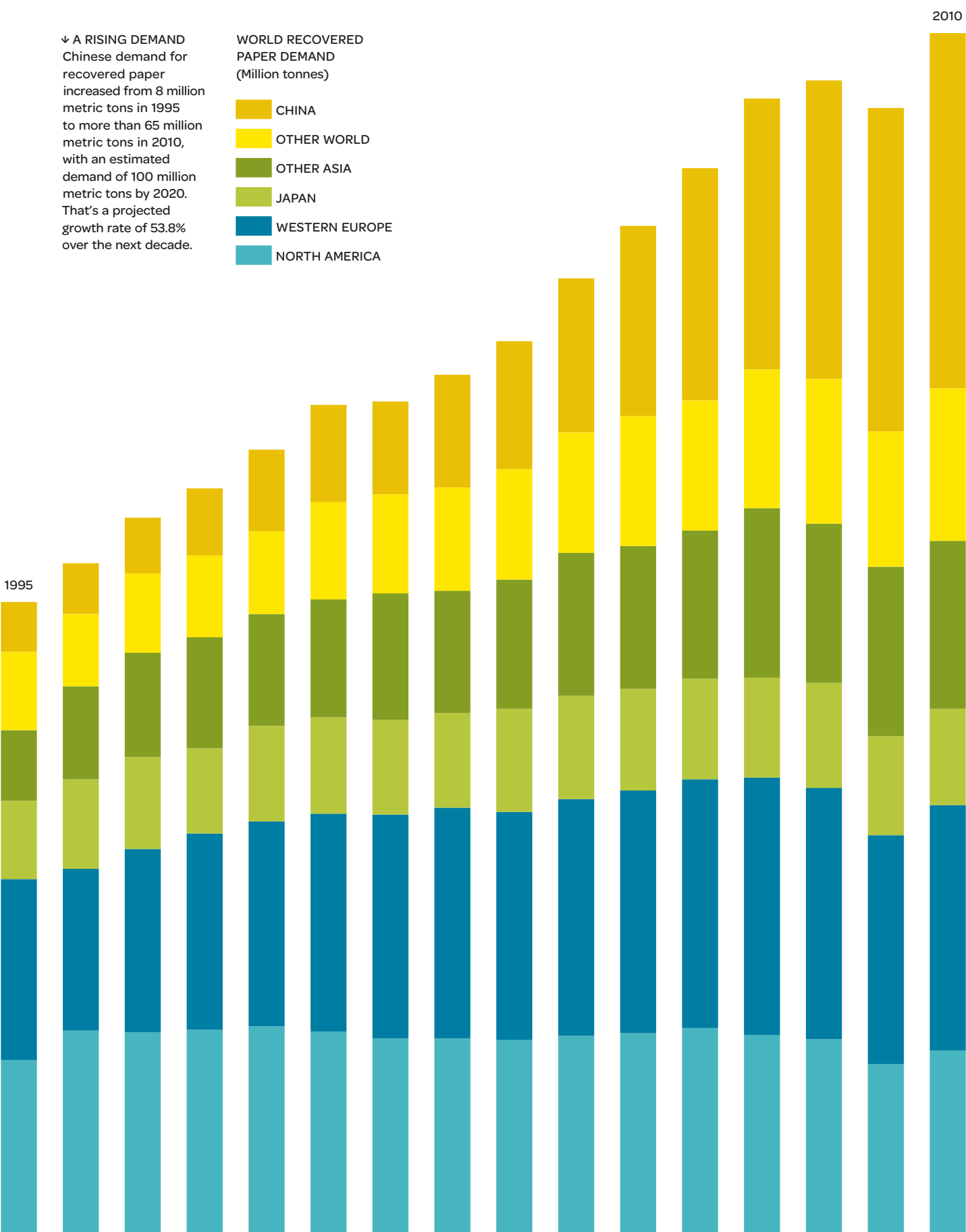
11%

CONTAINERBOARD
(15,993)

30%

PAPERONOMICS

As countries and economies continue to grow across the world, so too will their need for recovered fiber. For many of these countries and companies, using recycled fiber is a business decision, not an environmental decision.



➤ IN PRACTICE ➤

SAPPI'S ENVIRONMENTAL COMMITMENT

Holistic Responsibility

SEEING THE FOREST THROUGH THE TREES

» Everything in the world is interconnected. That's why you can't look at your product or service in a vacuum. At Sappi, we take a holistic view of the paper and printing industry. Our sphere of influence and impact extends well beyond our mill gates—from materials acquisition through manufacturing, use, disposal and reuse of our products.

RESPONSIBLE SOURCING

100% of Sappi fiber is procured in accordance with the SFI® Fiber Sourcing Standard as well as the FSC® Controlled Wood standard. Recycled fiber is derived from post consumer waste and is also FSC® certified. Sappi does not have a deinking facility in any of its operations. All recycled fiber is purchased within North America and is processed chlorine free (PCF). All kraft pulp is elemental chlorine free (ECF) and is either made onsite or purchased within North America.

RESPONSIBLE MANUFACTURING

When it comes to responsible manufacturing, the source of energy used is just as important as the amount of energy used—maybe even more so. Today, more than 80% of Sappi's total energy use comes from renewable resources—including the energy generated onsite as well as the energy purchased from the grid. Reducing reliance on fossil fuels helps Sappi stabilize energy costs and reduce its carbon footprint.

RESPONSIBLE DISTRIBUTION

A paper manufacturer's responsibility doesn't end when their product is out the door. Sappi has committed to an efficient distribution network by becoming a SmartWay® transport partner. SmartWay® is a collaboration between the US EPA and private freight carriers focused on reducing carbon emissions and conserving fuel.

RESPONSIBLE DISPOSAL

Life cycle analysis of paper has shown that how a product is disposed of can contribute as much to its carbon footprint as the manufacturing process. Sappi supports outreach and education on the local and national stages for recycling of all paper grades, especially printing and writing paper.



1



2



3



4



5



6



Sappi Mill Efforts

FINDING WAYS TO REDUCE OUR WASTE

» At Sappi, we don't like waste. In fact, we hate waste so much that we take every step possible to reduce, reuse or recycle the materials we use in our facilities. Our first aim is to reduce consumption of materials whenever possible—eliminating waste in this way drops straight to the bottom line. We recycle a broad range of materials from paper and printer cartridges to batteries, building supplies and outdated information technology. We even recycle used oil and old asphalt.

We also engage with our communities to explore the use of alternative fuels. Our Westbrook mill uses construction and demolition wood waste and converts it to energy in a biomass boiler. Our Somerset mill works with a local supplier to convert discarded tires into a fuel source. The use of various waste materials as fuel sources keeps these materials from going to landfills while reducing the need to purchase fossil fuels such as coal and fuel oil.

① RECOVERY BOILER

The chemical recovery process is a recycling process unto itself—designed to recapture and reuse pulping chemicals indefinitely. At the heart of the process, “black liquor” is burned to create renewable energy used throughout the mill.

Scan the QR code to learn more.



② UNIVERSAL WASTE RECYCLING

A range of different light bulbs is collected at Sappi facilities. Pictured at left, fluorescent bulbs are packed for recycling.

③ TIRE-DERIVED FUEL

Used car and truck tires have always been a disposal problem. Tire-derived fuel replaces oil used in power boilers at Sappi's Somerset mill.

④ SEPARATING RECYCLABLES

Recyclable paper, cardboard, wood and metal are separated for recycling in the sorting area at Sappi's Somerset Mill.

⑤ WATER TREATMENT

The secondary clarifier is part of an extensive water treatment system at Sappi's Somerset mill, involving mechanical and biological treatment stages. The water used in the pulp and papermaking processes is treated to protect local receiving waters. Water in paper mills is essentially recycled back to its original source. On average the paper industry returns 89% of water intake—while much of the “loss” is through evaporation in the local ecosystem.

⑥ WOOD YARD

Biomass boilers use scrap wood and shavings to provide a renewable source of energy while reducing greenhouse gas emissions and materials sent to landfill.

⑦ LIME MUD

Boiler ash and lime mud from the pulping process is shipped to area farms to help farmers enrich their soil and improve crop yields.

Scan the QR code to learn more.





◀ CODMAN ACADEMY

Founded in 2001, Codman Academy is a college-preparatory charter public school serving at-risk students in Boston's Dorchester neighborhood. Sappi has long been a sponsor of the community-based school, helping sponsor class trips and school-based recycling efforts. "It's been a wonderful partnership for us," says Dawn Leanness of Codman Academy. "And we're so excited that it's been around since pretty much the beginning and that each year it continues to grow stronger."

"Because Sappi had recently moved into a new building and rolled out their improved recycling plan, they were in a really good place to help us do the same thing. They told us about the process that they went through and the systems they set up. We looked at the things they did and how we could apply them in our new building."

↓
DAWN LEANESS
CODMAN ACADEMY

Reaching Our Customers and Our Communities

PARTNERSHIPS OF AWARENESS AND CHANGE

» Sappi takes responsibility for recycling outreach and education very seriously. From sponsoring local organizations to participating in national and international industry initiatives, Sappi strives to reach a broad range of stakeholders with a primary focus on customers, employees and local communities.



◀ E-WASTE ALTERNATIVES

Founded in 2002, e-Waste Alternatives Program's mission is to provide computers to historically underserved populations who do not have access to information technology. It has since evolved to become a self-sustaining electronic waste recycling firm that employs people with learning disabilities and mental handicaps. "Reinvesting a little bit of time in a computer has infinitely more value than that computer's precious metals do as scrap," says e-Waste founder Chris Martin. Sappi supports e-Waste's social and environmental mission,

in one instance providing process system analysis that led to a 250% capacity increase without the need for physical expansion. "Companies like Sappi really get it," says Chris Martin. "We are now a totally sustainable social enterprise, and let me tell you, those are rare. The taxpayers aren't paying for this. Grant foundations aren't paying for this. This now operates on its own."



↑ RECYCLEMANIA

Sappi is proud to support industry advocacy efforts such as RecycleMania—an annual competition among college and university recycling programs to promote waste reduction. Schools across the US and Canada participate by reporting their trash collection rates over an eight-week period. Categories vary from per capita recycling to total waste reduction

and more. Schools can view their weekly updated rankings online to track their progress and motivate their campus. Winning schools receive a trophy made of (what else?) recycled materials.

“We think so much about the community and the things that we do and what our employees are doing, because we’re all part of the communities that we live and work in. The way I look at it, our community is just an extension of the mill environment and our family there.”

↓
MARTY DUGGAN
Sappi



↑ GREEN COMMUNITY DAY

In 2012, Sappi held its first Sappi Green Community Day—a day of fun, food, prizes and awareness—at the Sappi Westbrook Paper Mill. Cost of admission was one nonperishable food item per person, donated directly to local food pantries for families in need. The event focused on creating awareness and an outlet for items not commonly recycled through curbside programs. Participants were provided the opportunity to recycle confidential documents, sneakers, CDs and DVDs, small electronics and eyeglasses. Additional activities ranged from birdhouse building to a bike rodeo structured to teach safe riding skills. Sappi’s foresters were also on hand sharing information on the importance of responsible forestry.



← BETTER PRACTICES/BETTER PLANET

Working with the American Forest and Paper Association, Sappi helped in the development of Better Practices, Better Planet 2020—an extensive set of quantifiable sustainability goals for the paper industry, with a commitment to transparency and progress. The largest sustainability program of its kind for any major US manufacturing industry, Better Practices, Better Planet 2020 sets specific and challenging goals for improving paper recovery and recycling, increasing energy efficiency, reducing greenhouse gas emissions and promoting sustainable forestry practices while striving for safer workplaces for employees.

➤ TAKE ACTION ➤

KNOWLEDGE IS POWER

➤ So how do you become a responsible paper purchaser? The most important thing is to do your homework. Reading this journal is a great first step. Everyone along the supply chain, including consumers, procurement officers, graphic designers, printers and paper distributors, should educate themselves on where their paper is coming from and what went into sourcing, producing and transporting it. It's important to note that industry averages performance is rarely representative of individual products or even companies. So call the paper company. Inquire about their mill practices and any certifications they might hold. Ask about their

sources for virgin and recycled fiber and for the environmental performance data of those manufacturing facilities.

Just because a given paper incorporates recycled fiber does not mean that the company that produced it employs sustainable practices. Procurement policies that favor recycled fiber over wood fiber could discount paper sources with stronger environmental performance and could actually increase your environmental impact!

“Claiming ‘Green, made with recycled content’ may be deceptive if the environmental costs of using recycled content outweigh the environmental benefits of using it.” → US FTC

FTC ISSUES REVISED “GREEN GUIDES”

In October of 2012, the US Federal Trade Commission released its revised *Guides for the Use of Environmental Marketing Claims*, also known as the “Green Guides.” These revised Guides are intended to protect consumers from misleading claims by helping marketers ensure their products’ environmental claims are truthful and nondeceptive.

Reflecting input from hundreds of consumers, advocates and businesses, these changes are “a win for consumers who want to purchase greener products and producers who want to sell them,” says FTC Chairman Jon Leibowitz. “But this win-win can only occur if marketers’ claims are truthful and substantiated. The FTC’s changes to the Green Guides will level the playing field for honest business people.”



POST-CONSUMER VS. POST-INDUSTRIAL FIBER

You may encounter these terms in the world of recycled paper, and it’s helpful to understand the differences. ♪ POST-CONSUMER RECYCLED FIBER (PCRf) accounts for any material that was once in the hands of a consumer. PCRf includes direct mail pieces, magazines, catalogs, newspapers, cardboard boxes and other paperboard packaging materials that would otherwise be thrown into a landfill. ♪ POST-INDUSTRIAL FIBER—also known as pre-consumer content—includes scrap and by-products generated by the manufacturing process of products. These can include printed defects, short rolls, paper trimmings and other materials that would normally not be reused by the manufacturer.



← RECYCLE!

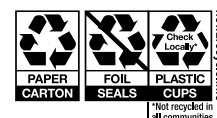
Life cycle analysis has shown that the end of life—how a product is disposed of—contributes nearly as much to the carbon footprint of a product as the manufacturing process. “We try to get the message out for people to check their local recycling instructions by reaching out to their government to see the system’s regulations,” says Anne Bedarf of the environmental nonprofit GreenBlue. “Call your local government or look online to learn the recycling breakdown for your area.”

KNOW PRODUCT CLAIMS

An important product-level distinction is the difference between the claim “made with recycled materials” and the claim that something is “recyclable.”

♪ The term “RECYCLED” means a portion of that product was created from something that was pulled from the waste stream, otherwise headed to the landfill. For paper, these claims should differentiate between the recycled materials—for example, is just the fiber recycled or some other component as well? ♪ “RECYCLABLE” means that the product or packaging—or specific components of each—has the potential to be recycled.

With packaging, things can get a little murky. Some “recyclable” claims don’t specify which portions of the package can actually be recycled, hence decreasing the likelihood that it will, in fact, be recycled properly. To address this issue, GreenBlue developed a labeling program called How2Recycle which pairs familiar icons with instructions to help consumers. For example, a package of single-serve yogurt containers might be labeled with three symbols to explain how the different materials—paper outer carton, plastic cup and a foil lid—can be recycled. Visit how2recycle.info for more information.





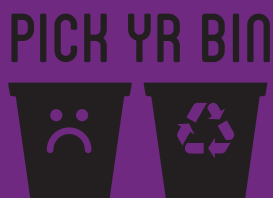
RECYCLE



MY LIFE
AIN'T
OVER!
RECYCLE



MAKE A DIFFERENCE



← THE CHASING ARROWS

The iconic and internationally recognized recycling symbol was designed in 1970 by then 23-year-old college student Gary Anderson. Anderson submitted his design—inspired by the continuity of the Mobius strip—in a competition sponsored by a recycled products maker.

➤ BECOME AN ADVOCATE ➤

CREATIVITY MATTERS

← FOR YOU TO USE

If any of these recycling logos tickle your fancy, visit sappi.com/eQ to download the digital versions in your preferred language and use them to encourage recycling on your next creative project.

➤ People are more apt to engage in a behavior after being prompted to do so, so be an advocate for recycling. Push for recycling initiatives at home, in the workplace and in your community. Put a “please recycle” label, claim or other recycling message in a prominent place on your organization’s printed materials. We understand that real estate on printed materials is precious—but so is our planet! Do your part.

Get creative with it. A “please recycle” message doesn’t always have to be the ubiquitous chasing arrows logo we’ve all seen. In fact, it can be any interpretation of the message that you can think of. What’s important is that you do it. This is a fertile opportunity to flex your creative muscles and at the same time engage in real behavioral change that will have a substantial impact on the health of the planet.

It’s important to constantly remind your office and community about recycling efforts and details. Even people as knowledgeable as Kevin Roche, of the single stream recycler ecomaine, need reminders. “Somebody might recycle one thing and then the next year, they forget or they stop recycling another thing,” he says. “Even in my own household, I have to remind myself and my family about what’s recyclable and what’s not. That kind of floors me, and I’ve been doing this for 25 years. So the reminders have to be there.”

RECYCLING IS A SOUND ECONOMIC, SOCIAL AND ENVIRONMENTAL PRACTICE.

Let's all work together to protect our planet from unnecessary waste and pollution. Recycle as much, as often and as responsibly as you can.

► LEARN MORE ►

eQ ONLINE

» From this *eQ Journal* series, to *eQ Insights* (Sappi's white paper series on topical sustainability issues in the paper industry), to the *eQ Tool* (Sappi's interactive sustainability tool), everything eQ is online and in one place—your trusted source for guidance and thought leadership around environmental responsibility. You'll find a wealth of fact-based information and tools for making better paper choices. And with our eQ blog, *The Environmental Quotient*, you can instantly share your thoughts and ideas with your peers to gain new insights and help elevate the eQ of our entire world.

Visit sappi.com/eQ

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Moore & Associates

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ecomaine

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Reference Materials

American Forest & Paper Association, Paper Recovery Statistics, updated annually at paperrecycles.org.

Environmental Protection Agency, "Municipal Solid Waste Generation, Recycling, and Disposal in the United States: Facts and Figures for 2010," published November 2011.

Federal Trade Commission, "Environmental Claims: Summary of the Green Guides." To view the complete Green Guides, information for business and legal resources related to environmental marketing, go to business.ftc.gov.

Institute of Scrap Recycling Industries, "Scrap Specifications Circular 2012," January 2012.

Lantz, D., "Single stream versus two stream recycling: an examination of costs and recovery rates of current programs in Ontario, Canada," WIT Transactions on Ecology and the Environment, Vol 109, © 2008 WIT Press, www.witpress.com, ISSN 1743-3541 (online).

Sappi Fine Paper North America, Unpublished results: Somerset Synergy Pulp Carbon Footprint calculated using NCASI's Footprint Estimator for Forest Products (FEFPro) Version 1.3. Carbon footprint results calculated using production data from FY2010. Average emissions factors for purchased pulps found in the Fiber Parameters tab of FEFPro Version 1.3.

WWF International, "USERS MANUAL: WWF CHECK YOUR PAPER" Based on the WWF Paper Scorecard Criteria Version 3.0, November 2010.

Zhao, H., "Outlook for Global Recovered Paper Markets," Presented at RISI North American Forest Products Conference, Boston, MA, October 2012.

National Council for Air and Stream Improvement, Inc. (NCASI) for American Forest and Paper Association and Forest Products Association of Canada, "Life Cycle Assessment Of North American Printing and Writing Paper Products", Research Triangle Park, NC, 2010.

Production Notes

FRONT COVER

Opus Gloss Cover 120lb/325gsm, 4-color process, plus multi-level sculptured emboss and overall satin aqueous.

INSIDE FRONT AND BACK COVER

Opus Gloss Cover 120lb/325gsm, 4-color process, match cream plus overall satin aqueous.

INTERIOR PAGES

Opus Dull Text 80lb/118gsm, 4-color process, match cream plus overall satin aqueous.

BACK COVER

Opus Gloss Cover 120lb/325gsm, 4-color process, plus multi-level sculptured emboss and overall satin aqueous.

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in support of America
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