

1-1-1974

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Recommended Citation

Clifford P. Case III, *Waste Paper Wasted: A Non-Response to a Need for Change*, 3 B.C. Env'tl. Aff. L. Rev. 221 (1974), <http://lawdigitalcommons.bc.edu/ealr/vol3/iss2/3>

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WASTE PAPER WASTED: A NON-RESPONSE TO A NEED FOR CHANGE

*By Clifford P. Case III**

In this imperfect world, good ideas may not, like nice guys, always finish last, but they often seem to end up rather far back in the pack. Paper recycling is just such a good idea. This article seeks to explain its advantages, to investigate why its progress is so much less than would be hoped, and to suggest how the situation could be improved in the future.

I. BACKGROUND

Currently, the United States consumes about 60 million tons of paper products each year, divided almost evenly between what is strictly defined as paper (for printing and writing, newspaper and disposal tissue), and paperboard (the thicker substance used primarily for boxes and other containers).¹ (Unless otherwise stated, the term "paper" in this article includes both categories.) U.S. paper consumption doubled between 1947 and 1970,² and is predicted to double again by 1985.³

Paper consists basically of cellulose fibers arranged together in matted sheets.⁴ These fibers can be treated in many different ways, and many substances can be added, such as clays, resins, sizing or dye, to produce different qualities in the final product; but the starting point is always cellulose, or pulp as it is called in the trade. The distinction between recycled and virgin paper is that while the cellulose in virgin paper comes from trees, recycled paper gets a major portion of its cellulose from paper wastes of various kinds. A third category of raw material also exists, halfway between trees and waste paper: wood residues, or sawdust and wood fragments created by lumbering and tree-consuming industries other than paper-making. Whether paper made from such residues should properly be called virgin or recycled is discussed in more detail below.⁵

Once the pulp stage is reached, there are no further differences between paper-making using trees or waste paper. However, the process of making pulp from trees differs significantly from that used in making pulp from waste paper. When trees are the raw material, they must first be felled, debarked, and cut into short lengths. If the desired end product is a fairly low grade of paper such as newsprint, the logs are ground without removal of substances other than cellulose in the wood. For better grades where more strength and durability are required, the logs are reduced to chips

and cooked with water and caustic chemicals to purify the pulp. Pulp produced by grinding alone is called mechanical pulp, while pulp produced by cooking with chemicals is called chemical pulp.

With waste paper as a raw material, on the other hand, the cutting, grinding and cooking processes are eliminated. The waste paper is mixed with water and beaten to reduce it to a kind of paper soup and screened to remove contaminants such as clips or staples. If color variations are unimportant, such as with some types of paperboard used in the manufacture of containers, the inks and dyes in the waste paper need not be removed. However, if paper or paperboard of uniform color is needed, the pulp must be de-inked, or washed and bleached to remove these inks and dyes.

II. ENVIRONMENTAL ADVANTAGES OF RECYCLING

Using waste paper to manufacture new paper has a number of environmental benefits: first, if waste paper is reclaimed for making, it need not be disposed of as solid waste; second, using waste paper instead of trees reduces pressure on our forest resources, making them available for other uses, including recreation and conservation; and third, making pulp from waste paper instead of trees uses less energy and water, causing less pollution.

A. Reduction of Solid Waste

Along with paper consumption, the generation of garbage (solid waste) is increasingly rapidly in this country. According to a report of the federal Environmental Protection Agency (EPA), the total quantity of waste created in 1971 was 4.45 billion tons, up nearly 1 billion tons since 1967.⁶ Annual municipal wastes are estimated to be 230 million tons⁷ and studies of the garbage collected in a number of urban centers indicate that paper is the largest single component of municipal waste—from 35 to over 50 percent by dry weight.⁸

Disposal of this solid waste creates serious fiscal and environmental problems. In 1970, municipal and industrial costs for handling garbage and refuse were \$6.8 billion.⁹ Solid waste disposal was the third largest municipal expense, exceeded only by the costs of schools and highways.¹⁰ In New York City, the Sanitation Department collects 14,000 tons of household garbage every day; the total amount of solid waste New York must dispose of each day is 29,000 tons, at an annual cost of over \$25 million.¹¹

Moreover, current disposal methods leave a great deal to be desired. Landfills, the least expensive disposal method, can be managed soundly from an environmental point of view. Often, however,

they are not, and periodic fires, pollution of water supplies and possible spread of disease can result.¹² Moreover, suitable landfill sites are becoming rare in most population centers, since unused land is scarce and very few people want to live next to a dump. Of 34 cities relying primarily on landfill for garbage disposal, at least 22, according to a recent study, will run out of space at their current sites within five years.¹³ Alternatives to landfill, such as incineration, are available, but they are much more expensive: new incinerators could increase New York City's disposal costs over 100%.¹⁴ Moreover, incineration can cause unacceptable air pollution, and it leaves residues which must be disposed of.¹⁵

Faced with the mounting costs—both monetary and social—of waste disposal, few would question the desirability of seeking all practical means of reducing the volume of waste, and therefore its disposal costs. Using the paper component of solid waste as the raw material for new paper may not be the only answer to our garbage problems, but it is at least a partial answer.

B. Conservation of Trees

If waste paper is substituted for trees in making paper, trees will be saved. Disputes arise, however, as to how necessary such savings are—in other words, whether we will at some future point start running out of trees if present trends continue. Per capita paper consumption in the United States has increased over 10 times since 1900, and is predicted to rise to 800 pounds per person by the year 2000.¹⁶ This growing demand for paper has been coupled with a growing demand for other forest products, while the amount of forest land per person has steadily decreased—from 11 acres per person in 1900, to 3 acres today.¹⁷ Studies predict this figure will continue to shrink to about 1½ acres in 1985.¹⁸ Increasing forest productivity, and in the case of paper, the ability through new technology to use more and more types of trees as economic sources of pulp, has enabled supply to keep pace with demand until now. Nevertheless, it is unlikely that increased demand can continue to be accommodated indefinitely, since the amount of land that can be devoted to growing trees, like everything else on the earth, is finite. The Forest Service has predicted that unless recycling of waste paper increases, the projected timber growth in the United States will begin to fall short of the anticipated timber cut shortly after 1980.¹⁹ A recent study summarizes Forest Service forecasts:

These projections show that, although increases in the level of annual growth realized from present levels of [forest] management are likely

to continue for several decades, these will not keep pace with prospective increases in the consumption of wood products. As a result, the relatively small present annual wood deficit between removals and growth, would get steadily larger in the future, other things being equal.²⁰

Contrary to the above predictions, at least with respect to the paper industry, are those in a Commerce Department study, which states that "through increased intensive forest management, no problems in pulpwood supply are envisioned at least through the year 2000."²¹ Possibly the key to resolving this conflict between the Forest Service and the Commerce Department lies in the phrase "increased intensive forest management." This phrase may well contemplate forestry practices that many environmentalists would find abhorrent, because they could seriously affect the ability of our forests to maintain themselves. Conservation organizations like the Sierra Club have long been critical of existing forestry policy and practices,²² and it seems likely that increased controversy over such harvesting methods as clear-cutting, and public pressure for increased land devoted to recreation in place of tree growing, will make it more and more necessary and desirable to shift some of the acreage devoted to raising pulpwood to other uses.

Recent history suggests, moreover, that paper, like many other commodities of which we have long had an abundance, is now in shorter supply. Countless business organizations have recently experienced great difficulties in obtaining supplies heretofore readily available.²³ Similar paper shortages exist elsewhere in the world: exports of waste newsprint from the United States to Japan, Korea and Taiwan have increased 50% since late 1972, increasing the price of such newsprint to recycling mills by 60%.²⁴

These paper shortages may be due to factors other than lack of sufficient timber. But even assuming that no shortage currently exists, and that predictions of such shortages in the near future are entirely wrong, it would seem foolish to ignore an alternative source of raw material literally under our noses and thereby pass up the opportunity to alleviate the pressure on our forests.

C. Decreasing Pollution and Energy Use

Besides eliminating solid waste and saving trees, the recycling of waste paper results in less pollution, energy use and water consumption than does making virgin paper from trees. A recent study by the federal EPA compared the manufacture of 1000 tons of paper from waste paper and from trees.²⁵ If no de-inking is required (i.e.,

if the end product is a lower grade paper, or paperboard where color is not important), the use of waste paper results in 74% less air pollution, 35% less water pollution, 35% less solid waste, and uses 70% less energy and 58% less water. If the desired end product is a high grade paper and the waste paper must therefore be de-inked, recycling still results in a decrease of 59% in air pollution, 15% in water consumption and 61% in energy use. The biochemical oxygen demand of the waste water is also reduced 13%. There is an increase of 100% in solid wastes created and 221% in waterborne suspended solids, but the increases in these two categories of pollutants must be weighed against the reduction in solid waste caused by the reuse of waste paper in the first place. It should also be remembered that the air pollution which recycling reduces is much harder to control than the water pollution which increases due to de-inking.²⁶

Of particular note in the above figures are the significant reductions in energy consumption required by recycling. The paper industry is the third largest consumer of energy in the United States, behind only basic steel and petroleum refining according to a federal survey,²⁷ and it is the largest single industrial user of fuel oil.²⁸ A move toward recycling would be a major way in which the industry could do its part to resolve our current energy shortages.

III. THE PRODUCT

All of the environmental advantages described above would not be of much significance if the product which resulted were of inferior quality, or could not perform the functions it was supposed to perform. Such, however, is not the case with recycled paper.

A number of major business and governmental agencies have tried and approved recycled paper.²⁹ The Government Printing Office (GPO) has used recycled paper with no quality problems; in fact, staff members of the Joint Congressional Committee on Printing, which oversees GPO operations, state that one reason the GPO has not specified a particular percentage of recycled fiber in products it buys is that recycled and virgin paper of the same type are indistinguishable.³⁰ Whether or not this reason is valid, as will be discussed below,³¹ it at least shows that in the opinion of GPO experts, recycled paper and virgin paper are of equal quality.

Moreover, recycled paper possesses certain characteristics which are advantageous in many uses, such as greater dimensional stability, suppleness and opacity.³² Recycled newsprint even proved stronger than virgin newsprint in one test.³³ The final argument on the question of quality, however, is supplied by the very existence of companies making recycled paper in competition with virgin

paper manufacturers for several decades. If these companies had not been able to supply their customers with a satisfactory product at a reasonable price, they would long since have passed from the scene.

IV. BARRIERS TO PROGRESS

In spite of its demonstrated advantages, recycling of waste paper, and in particular waste paper from municipal garbage, which is the variety most in need of recycling, has made disappointingly slow progress. There are a number of reasons for this problem, some good and some bad.

A. Current Status of Recycling

The consumption of waste paper as a percentage of total fiber consumption for paper manufacture stood at 17.8% in 1969,³⁴ after a 50 year decline.³⁵ The high point in recycling in this country was reached in 1944 (during World War II) when 36.6% of all fiber used came from waste paper.³⁶ A report sponsored by the paper industry states that if current trends continue, waste paper use will continue to fall, reaching 17.2% by 1985; but it suggests that favorable governmental action may lead to some alteration of these trends, producing an increase in waste paper used by 1985 to 26.3% of total fiber.³⁷ The American Paper Institute (API), the major industry trade association, sees signs that this turnabout has already started to occur: in 1972, according to API, waste paper accounted for 21.4% of total fiber, and API predicts this percentage will increase to 23.4% by 1975, yielding an average annual rate of increase over this period of 5.7%.³⁸ Not all studies are as sanguine as that of API however. One prepared by the Solid Waste Management Office of EPA, for instance, predicts that waste paper use will "continue to decline, falling to 19% of total fiber in 1976."³⁹

Even if the optimistic industry forecasts for increases in the rate of waste paper consumption can be accepted, two questions must still be asked: First, is recycling increasing fast enough? Second, is it encompassing those types of waste paper which need most to be recycled? Unfortunately, it seems the answer to both questions is no.

In the first place, even assuming that recycling will increase at an annual rate of 5.7%, it must be recognized that paper consumption will increase too, at an average annual rate of 3.6%,⁴⁰ so that the volume of paper waste generated each year will continue nearly unabated. More important, it is likely that paper from municipal

solid waste will form an insignificant part of any increase in recycling. A study of waste paper use in 1969 demonstrated that while most paper waste generated during manufacturing and distribution operations (e.g., envelope cuttings, cardboard box scraps, and surplus newspapers and magazines) are already recycled, only 13% of paper and paperboard products were recycled *after* they had reached the consumer and were discarded.⁴¹ Thus in 1969, such post-consumer waste formed just 11% of the total fiber used in making paper.⁴²

This small percentage can only increase to a point where it will have real impact on the solid waste problem if much more effort is directed at the problem than at present. Currently, the reclaiming of paper from municipal garbage is largely a volunteer effort. Some municipalities (e.g., Madison, Wisconsin)⁴³ operate newspaper salvaging programs and New York City is experimenting with such a program,⁴⁴ but these attempts are miniscule compared to the need. Also, the system of private scavengers and brokers, which once collected substantial amounts of paper waste from households and businesses, seems to be rapidly shrinking.⁴⁵ Experiments with new technology to remove paper from garbage (e.g., The Black-Clawson Hydroposal/Fibreclaim installation in Franklin, Ohio)⁴⁶ are still operating on only a very small scale.

B. Industry Structure and Trends

One reason for the steady decline in the recycling of waste paper is the way the paper industry has developed in this country, in response to technological changes, and the resulting available sources of fiber for pulp manufacture.⁴⁷

Use of wood as a raw material in making paper is little more than a century old. Before that time, the primary fiber source was cotton. New techniques for producing pulp from wood were introduced and refined starting in the latter part of the nineteenth century, and the pre-eminence of wood has never since been challenged. Softwoods in the Northeastern and North-central United States were first used.

Because of the hiatus in investment caused by the Depression and World War II, there was an extreme shortage in pulp and pulping capacity in 1945. By this time, processes yielding commercially attractive amounts of fiber from previously unpulpable pines and firs (as well as hardwoods) from the South and Northwest became available. The result was that the paper industry undertook a major expansion program in those parts of the United States, building primarily "integrated" mills; that is, facilities which made pulp,

and then paper, in one continuous operation. There was little or no investment in "non-integrated" mills relying on waste paper as a raw material, so that such mills are now generally older, smaller and less economical to operate than most virgin paper mills. Three-quarters of today's pulpmaking capacity has been installed since World War II.⁴⁸

The importance of integrated operations is shown by the fact that in 1968, 89.4% of wood pulp was "captive," that is, manufactured by the same company which then used that pulp to produce paper; and much of this captive pulp was manufactured in an integrated pulp and paper mill.⁴⁹ The integration is further extended, in many cases, by paper company ownership of land on which its pulpwood is grown. The industry obtains a third of its needs from such lands, which total 50 million acres and represent 10% of all commercial forest lands in the United States.⁵⁰

There is little incentive for such integrated companies, located next to their forests and far from garbage producing urban centers, to resort to waste paper in their operations.⁵¹ Such companies have turned, to an increasing extent, to wood residues, often produced by lumbering operations near their mills, as a source of raw material. Starting from almost nothing in 1950, such wood residues surpassed waste paper in importance as a fiber source in 1966.⁵² Using such residues undoubtedly has environmental advantages, in that other, less desirable disposal methods are avoided, and trees are conserved. But, the advantages in pulp manufacture enjoyed by waste paper are not enjoyed by wood residues, which must undergo the same water and energy consuming, pollution producing process as pulp logs.⁵³ Furthermore, use of wood residues does nothing to help solve urban garbage problems. Some paper industry representatives have claimed that paper made from such residues should be called "recycled" since wastes are used as the raw material.⁵⁴ Insofar as the use of such residues does not have many significant benefits associated with use of waste paper, however, it seems proper to reserve the term "recycled" for paper where waste paper is a major portion of the raw material.⁵⁵

Integrated virgin mills enjoy other advantages than modernity in their competition with recycling mills. Wood supplies have tended to be both uniform and reliable,⁵⁶ while waste paper supplies have fluctuated widely in availability and price.⁵⁷ As use of wood pulp has increased faster than paper consumption, the value of waste paper has declined, driving many collectors out of business, thus decreasing available waste paper so that in an unfortunate cycle, there is

even less incentive for paper makers to use waste paper.⁵⁸ Also, contaminants which render the waste paper unusable in recycling, such as non-water-soluble glues and plastics, have become more common, necessitating more careful hand sorting, and thus adding to the already high labor costs of the waste paper business.

C. Tax Advantages

Representatives of companies involved in paper recycling contend that virgin paper makers benefit from favorable federal tax provisions which are unfairly denied to them. They point to Treasury Department studies indicating that virgin paper makers pay an effective tax rate which is 5% less than that paid by other manufacturing industries,⁶⁰ and that in 1966 federal aid to the lumber and paper industries in the form of foregone tax revenues amounted to \$125 million.⁶¹

The basis for such recycling industry claims is Internal Revenue Code § 631,⁶² which permits timber growers to treat the appreciation in value of their timber as a capital gain, whether it is cut and sold, or used by the owner, at one time or over a period of time as it matures. This provision makes it possible for income from the sale or other disposition of pulp wood to be taxed at capital gains rates, while income from the collection and sale of waste paper to a recycling mill is taxed at ordinary income rates. Section 631 is unquestionably of significant benefit to the virgin paper industry. As one study prepared for the paper industry states:

Federal tax policy has encouraged the development of a long-range supply and use of natural resources, but there is no comparable policy to encourage the use of recycled materials. In particular, the capital gains treatment of timber has encouraged the long term development and preferential utilization of forest resources, and this is a key economic consideration in the forest products industries.⁶³

D. The Non-Rational Element

Described above are the factors most often cited by commentators seeking to explain why paper recycling has not made greater progress. A discussion based solely on such objective and largely economic factors, though, is not complete. Other irrational, non-objective factors are of great significance and attempts to improve the chances for recycling which do not take these irrational factors into account can only fail.

1. Lack of Customer Acceptance

We have been brainwashed in America into thinking that whatever is new is thereby good, and conversely, that old means bad. When applied to paper buying, this prejudice has expressed itself in purchase specifications which explicitly or implicitly exclude cellulose fiber from waste paper as a possible constituent of the product involved, without regard to whether or not a recycled product could serve the need just as well as a virgin one.

In many instances, of course, paper buyers do not specify anything about the fiber content of products they buy, and instead use a general description or brand name as a guide. Here, too, the prejudice in favor of virgin material continues to operate, if only indirectly, because many paper manufacturers and dealers refuse to make or stock recycled products on the ground that their customers would not buy them if they knew what the product was. The prejudice against recycling is expressed by popular use of the word "bogus" to mean something which is a fake or a sham; the term originated in the paper industry as a name for a type of paper made from waste paper.⁶⁴

Allied to this prejudice against recycling is the tendency to over-specify, that is, to set requirements for products higher than they need be for the product's desired end use. Thus, some users ask for printing and writing paper which is brilliantly white, although duller paper is more legible, as well as easier to manufacture from either virgin or recycled fiber without the use of harsh whitening agents.⁶⁵ The same pre-occupation with whiteness blocks greater use of recycled fiber in tissue products: if consumers would accept grayer napkins and toilet paper, the use of waste paper without de-inking to make tissue could expand immensely.⁶⁶ Cartons provide a final example of over-specification. Their strength requirements are often much higher than necessary, requiring more use of longer virgin fibers and less of the shorter fibers from waste paper.⁶⁷

2. Institutional Biases

One hopes that the public's low opinion of recycled products can be changed, and in fact will change over time through repeated exposure to the facts, and to recycled products themselves. More difficult to deal with are various institutional biases against recycled paper in government and in the paper industry itself. An exhaustive description of all the institutions involved and all the nuances of their various positions is not possible here, but two ex-

amples, drawn from this author's three years of effort on behalf of recycled paper, should suffice. The first involves the major paper industry trade association, the American Paper Institute. The second involves the Government Printing Office, which is probably the largest single printing operation and consumer of printing and writing paper in the country.

In late 1971 and early 1972, this author and two other lawyers drafted a short report, which we called a prospectus for recycled paper for The Council of New York Law Association, an organization of young lawyers in New York City.⁶⁸ The report described the reasons for using recycled paper and urged lawyers to do so. To add to the report's impact, we presented it to the Executive Committee of The Association of the Bar of the City of New York and asked that the Executive Committee endorse it and mail it out to the association's 10,000 members. Both the endorsement and the permission to mail were eventually received.

During the course of preparation of the report, we had discussed it several times with representatives of the American Paper Institute and had forwarded a draft to API. These representatives had orally questioned our facts as to the current level of paper recycling, the amount of paper in garbage, the level of recycling in countries other than the United States, the degree to which demand for forest products will exceed future supplies, and the pollution caused by recycling as opposed to virgin paper manufacture; but these comments, which invariably tended to favor virgin paper over recycled, were never put in writing as we asked on several occasions, nor were sources for API's facts ever supplied.

Even though these conversations with API officials produced little, we kept these officials up to date on the progress of our efforts to secure the endorsement of the bar association's Executive Committee, and informed them when the endorsement was received. A few days thereafter, we learned second-hand that the attorney representing API had called the chairman of the Executive Committee claiming that our report contained significant factual inaccuracies and that its publication would cause the bar association to suffer serious embarrassment.

API's claims of inaccuracies were eventually tested in a meeting attended by API's attorney and three API officials, including API's senior vice-president and secretary. The thrust of API's position then and later seemed to be "using waste paper is impractical—leave us alone to make paper from trees." Some API criticisms of our description of the paper-making process were valid, and at this

meeting and in a subsequent exchange of correspondence, we agreed to some tightening of our statistics. However, API could not produce facts to challenge any of the major theses in our report, and at no point was our conclusion, that the use of recycled paper should increase, rebutted.

The API officials compared pollution and energy use during the entire recycled paper manufacturing process, starting with waste paper, to pollution and energy use during the last half of the virgin paper manufacturing process, after wood has been turned to pulp. Certainly such a comparison favors virgin paper, since it conveniently eliminates the energy intensive pulp making steps which also create the worst pollution. A fair comparison starts with the raw material—waste paper or trees—and follows through to the finished product—recycled or virgin paper. Recycling comes out far ahead in such an analysis, as has already been described.⁶⁹

The API officials also criticized the statement in our report that to make a ton of virgin paper, seventeen trees must be cut down.⁷⁰ Obviously, this statement represents an average—some trees are bigger or smaller than others, and some paper making processes yield more or less fiber from each tree than others—but the figure is useful because it puts the whole question of recycling into concrete terms and helps the non-expert consumer understand the consequences of his product choices. The API officials, however, argued long and hard, at first, that the statement was entirely wrong and misleading, without any factual basis. What they failed to admit, until we pointed it out on the basis of our research, was that the seventeen trees per ton figure came from testimony before a U.S. Senate subcommittee by none other than the president of API itself.⁷¹

Our report was subsequently distributed, its substance intact, but we found the entire experience disturbing and mysterious. A newspaper article about the report and our encounter with API reasoned as follows:

Sources familiar with the organization [API] but not allied with the Case group suggest that API opposes the idea of recycling for "economic" reasons; some of the big firms that support the institute financially, they say, prefer for various reasons to make and sell virgin paper and feel threatened by the prospect of a consumer movement to recycling.

Officials of the Institute respond, though, that they do in fact support recycling in principle; they ply a reporter with brochures about projects they have encouraged for the collection of old newspaper for recycling. . . . Their concern with the prospectus, they contend, arises solely from

their concern that “misconceptions” and factual errors about the paper industry not gain currency. “We represent a \$22 billion industry here,” declares Edwin Locke, president of API. “We have to be meticulous.”⁷²

The truth is that the paper industry could make money from recycling—many firms have done so for years. In fact, the capital investment required for a recycling mill is significantly less than that needed for a virgin mill.⁷³ What is needed is a little courage and a little desire to innovate, qualities which our experience seems to indicate that virgin paper makers lack.

The attitude of the Government Printing Office, and the Joint Committee on Printing, the Congressional body which by statute oversees its operations, differs only slightly from that exhibited in our experience with API. Where API wants to be left alone to *make* virgin paper, the GPO and the Joint Committee want to be left alone to *use* virgin paper in filling the extremely large printing needs of the entire federal government.

A number of organizations and individuals have for some time been seeking to convince the Joint Committee, which fixes the GPO's paper specifications, to follow the lead of the General Services Administration, which supplies the federal government's needs for non-printing and writing paper products. The GSA began in 1971 an extensive revision of their specifications to require that the products they buy contain fixed percentages of “reclaimed” fiber which is defined to include fiber from wood residues and other fibrous residues, manufacturing wastes and post-consumer waste. In some instances, mandatory post-consumer waste requirements have been set within the overall reclaimed fiber standard.⁷⁴ The GPO, however, has no such affirmative specifications, because the Joint Committee refuses to set them.⁷⁵

The Joint Committee's reasons for this refusal, as set forth in recent discussions with Committee staff, are not convincing. The first is that there is no way to distinguish between virgin and recycled fibers in the finished product, so that the GPO could not be sure that recycled fiber requirements were in fact being satisfied. The second is that it is the opinion of the Joint Committee that the paper industry is genuinely co-operating in the effort to achieve greater recycling, and that better results are possible, more quickly, through a voluntary, rather than a mandatory program.

As already noted, the Joint Committee's first point about the impossibility of distinguishing between virgin and recycled paper lays to rest the contention that recycled paper is inherently inferior to virgin paper.⁷⁶ In fact, Joint Committee staff members confirmed

that makers of recycled paper have won several contracts for supplying paper to the GPO, and the paper has performed properly in each instance. In any case, however, the fact that lab tests cannot verify recycled fiber content in paper is not an acceptable reason for refusing to require such content in the first place, because other workable verification methods exist, which could make any significant deception highly unlikely. For example, New York City requires suppliers of paper to certify as to its recycled content, and also requires manufacturers to permit periodic inspections of their plants.⁷⁷ The GPO could adopt such measures and could also require a firm claiming to supply recycled paper to provide documentation for the purchases of waste paper needed to make the new paper being furnished. Finally, de-inking machinery is needed to make the recycled printing and writing papers which the GPO would buy; and the GPO could require proof that a manufacturer had such equipment, or purchased its pulp from a company that did.

The Joint Committee's second point, that voluntary industry cooperation and good faith in supporting recycling will result in higher levels of recycling than a mandatory program, is not supported by the facts. As our experience with the API demonstrates, industry enthusiasm for recycling is scarcely limitless. As was noted above, the amount of waste paper used annually is increasing far too slowly, if at all, particularly in the category of post-consumer waste.⁷⁸ No progress of any real importance will be achieved without a mandatory program. Moreover, the Joint Committee's refusal to require reclaimed fiber in its products, because compliance with this requirement cannot be verified, is totally inconsistent with its praise of the paper industry's good faith and cooperation. Verification is only necessary if manufacturer or supplier is going to cheat, and it is difficult to see how the Joint Committee can indirectly accuse paper makers of dishonesty while simultaneously extolling their good faith and high level of social responsibility.

In discussing the GPO's role as a consumer of paper products, the Joint Committee's staff minimized its importance, stating that GPO purchases only account for $\frac{1}{2}$ of 1% of total U.S. paper consumption. What the staff omitted to say, however, was that the GPO "contracts-out" about one half of its printing work, and sets the specifications for the paper used in this outside work. Thus, although paper bought directly by the GPO only accounts for $\frac{1}{2}$ of 1% of our national consumption, the GPO controls the specifications for approximately 1% of all paper used; and this latter figure is a fairer measure of its importance.

Moreover, as the staff acknowledged, the influence of the GPO specifications extends far beyond printing work done for the federal government. Municipalities and government agencies throughout the country which cannot themselves afford to maintain paper testing facilities (and the only government body with which this author is with such facilities, outside the federal government, is New York City) look to the GPO specifications as a guide, so that a shift by the Joint Committee on this issue would have national repercussions most favorable to the future of recycling. In sum, if the GPO specifications required significant recycled fiber content, potential makers of recycled paper would be assured that their product would have a market, and would be encouraged to invest in the needed plants and equipment.

Like the API, the GPO and the Joint Committee have a significant opportunity to provide needed leadership to advance paper recycling, with all the social and environmental benefits such an advance would bring. Sadly, both the Joint Committee and the GPO have thus far managed to ignore this leadership opportunity.

V. CONCLUSIONS AND RECOMMENDATIONS

Use of recycled paper has many advantages over virgin fiber in the production process. Less energy and water are consumed, and less pollution is produced. Garbage is diminished and trees are conserved. But recycling confronts many obstacles, ranging from the present structure of the paper industry, to tax discrimination, to lack of adequate collection systems for waste paper, to prejudice from consumers and within industry and government. If recycled paper is to make significant progress, these obstacles must either be removed or offsetting advantages must be provided.

A program to provide the necessary support for recycled paper should be built on the following five elements:

- (1) Preferential purchasing policies, both private and governmental under which the required percentage of recycled fiber (and specifically, fiber from post-consumer waste) in paper products is steadily increased, to encourage increasing investment in recycling equipment.

- (2) Tax benefits or direct grants to reduce the cost of recycling equipment, and to encourage the location of recycling plants in urban centers, where they would at once help to alleviate the garbage problem and provide needed employment.

- (3) Surtaxes or disposal charges added to the price of virgin products, so that the price of the product when new would include the cost of disposing of it. Virgin products are now subsidized because their dis-

posal is paid for by the general public through tax revenues, and the goal of this surtax or charge would be to remove the subsidy. Recycled products would be exempt from the surtax or charge, or receive a credit equal to the surtax or charge, because their production reduces the amount of garbage to be handled.

(4) Tax law changes to eliminate virgin paper's favored status under Section 631 of the Internal Revenue Code or to grant similar status to recycled paper.

(5) Government financing of research and development into improved ways of reclaiming paper from waste. This last item is probably the least important, although volunteer efforts often center on increasing waste paper collection, as opposed to stimulating the purchase of recycled paper products. Waste paper supplies will increase automatically as the value of waste paper increases, and this value will rise when the end product, recycled paper, increases in popularity. Waste paper is only thrown out now because it costs more to reclaim it than to dispose of it. Increasing the use of recycled paper will require more waste paper and thus make reclamation the more economic alternative.⁷⁹

This program of incentives to the use of recycled paper should gradually become less necessary as the recycling industry develops and its inherent economics assert themselves. These economies include: (1) a possible location for the production facility which near to both sources of supply and markets for the finished product, thereby lessening transportation costs both ways; (2) less required outlays (both capital and operating) for pollution control, since there is less pollution to control;⁸⁰ (3) lower fuel costs, since energy needs are lower (a particularly important factor in view of the increasing costs of all forms of energy);⁸¹ and (4) a smaller required capital investment in plants, since recycling mills are less expensive to build and equip than virgin mills.⁸²

Some of the specifics of the program outlined above may be unworkable and other better solutions may suggest themselves. What is important is not whether a particular item is included or excluded, but whether a good faith effort is made to solve the problem. With the proper will, there is no question at all that it can be solved; the difficulty is that at high levels of government and industry, that will is lacking. To complete the picture suggested by the examples cited above of the American Paper Institute, the Government Printing Office and the Joint Committee on Printing, one need only refer to the attempt last year by the national administration to cut the funds available for experiments in reclaiming waste from municipal garbage, and even to eliminate any federal role whatever in solid waste management, on the ground that such matters were properly

a function of state and local governments alone.⁸³ Moreover, last year the Federal Office of Management and Budget attempted to suppress an EPA report listing specific methods of increasing all types of recycling.⁸⁴

Such a formula for inaction, supported as it is by powerful industrial interests, can only be defeated by strong public pressure on both government and industry. The facts overwhelmingly favor the recycling of paper; it is up to all of us to ensure that the facts become known and are followed by action.⁸⁵



FOOTNOTES

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¹Midwest Research Institute, *PAPER RECYCLING: THE ART OF THE POSSIBLE 1970-1985*, at 23-4, (March 1973).

²*Id.* at 4.

³Bank of America, *PAPER RECYCLING: A REPORT ON ITS ECONOMIC AND ECOLOGICAL IMPLICATIONS*, at 8, (Dec. 1971).

⁴A fuller description of the paper-making process may be found in Bank of America, *supra* n. 3, at 14-18; and in 9 *MCGRAW-HILL ENCYCL. OF SCIENCE AND TECHNOLOGY* 539-41 (1966).

⁵See text at n. 52, *infra*.

⁶Environmental Protection Agency, *Report to Congress on Resource Recovery*, at 2, (Feb. 22, 1973; 2d ed. April, 1973).

⁷*Id.*

⁸Bank of America, *supra* n. 3, at 10; Atchison, J., *Future Prospects for Increased Paper Recycling*, 155 *PAPER TRADE JOURNAL* 63 (Sept. 13, 1971).

⁹Belknap, M., *Paper Recycling: A Business Perspective, A Report of the Subcommittee on Solid Waste, New York Chamber of Commerce*, at 6, (Sept. 1972).

¹⁰*Id.*

¹¹*Id.*

¹²Bank of America, *supra* n. 3, at 10.

¹³*Id.*

¹⁴Belknap, *supra* n. 9, at 6.

¹⁵Bank of America, *supra* n. 3, at 10.

¹⁶*Id.* at 8; National Academy of Sciences/National Academy of Engineering, *MAN, MATERIALS, ENVIRONMENT*, at 147, (Mar., 1973).

¹⁷Bank of America, *supra* n. 3, at 12.

¹⁸*Id.*

¹⁹Hair, D., *Use of Regression Equations for Projecting Trends in Demand for Paper and Board* (U.S. Department of Agriculture, Forest Service, Dec., 1967) (Forest Resource Report No. 18), cited in Atchison, *supra* n. 8, at 58.

²⁰National Academy of Sciences/National Academy of Engineering, *supra* n. 16, at 134-5.

²¹Post, H., and R. Downey, *The Disposal of Newspapers and Containerboard*, PULP, PAPER AND BOARD, at 9, (U. S. Dept. of Commerce, Oct., 1970), quoted in Bank of America, *supra* n. 3, at 12.

²²See, e.g., Robinson, G., *Our Export Forests*, 58 SIERRA CLUB BULLETIN 10 (Jan., 1973).

²³BUSINESS WEEK No. 2288, at 54, 58 (July 14, 1973).

²⁴"Producer of Recycled Newsprint Cites Shortages, Opportunities," 47 PULP & PAPER No. 10, at 89 (Sept., 1973); Wilson, A., *The Rich Saga of Recycled Newsprint*, 47 PULP & PAPER No. 13, at 53 (Dec., 1973).

²⁵Environmental Protection Agency, *supra* n. 6. The following comparative statistics on virgin and recycled paper manufacture are all derived from this report.

²⁶Belknap, *supra* n. 9, at 32.

²⁷N.Y. TIMES, Dec. 27, 1973, at 59, col. 2.

²⁸N.Y. TIMES, Feb. 6, 1974, at 50, col. 8.

²⁹For partial lists see Bank of America, *supra* n. 3, at 21; Belknap, *supra* n. 9, at 10-4.

³⁰Interview with staff of Joint Committee on Printing, Washington, D. C., July 20, 1973.

³¹See text at n. 75, *infra*.

³²Bergstrom Paper Company, *Fiber Purification System*, at 5, (No date). See also National Industrial Pollution Control Council, Paper Sub-Council, PAPER, at 42, (Mar., 1971); Belknap, *supra* n. 9, at 45-7.

³³Hearing on S. 2266 and S. 2267 Before the Sen. Comm. on Rules and Administration, 92d Cong., 1st Sess., at 60-9 (1971).

³⁴Environmental Protection Agency, *supra* n. 6, at 5. Midwest Research Institute, *supra* n. 1, at 9 (Table 2), fixes the low point at 20.27%, in 1968.

³⁵Quimby, T., *The Economics of Paper Recycling*, at 12, (Paper delivered at seminar on paper recycling, New York Chamber of Commerce, Oct. 20, 1971).

³⁶Atchison, *supra* n. 8, at 59.

³⁷Midwest Research Institute, *supra* n. 1, at x, xvi, 36.

³⁸American Paper Institute, *Paper, Paperboard & Wood Pulp Capacity*, 1972-75, at 7, 20, 21 (Oct. 1973).

³⁹Environmental Protection Agency, Solid Waste Management Office, *THE ROLE OF NONPACKAGING PAPER IN SOLID WASTE MANAGEMENT*, 1966 to 1976, at 63, (1971).

⁴⁰Midwest Research Institute, *supra* n. 1, at 20.

⁴¹Quimby, *supra* n. 35, at 9.

⁴²*Id.* at 7. (Quimby gives total fiber consumption for paper manufacture in 1969 as 55.6 million tons, and states that post-consumer waste paper consumption was 6 million tons, or 11% of the total).

⁴³Belknap, *supra* n. 9, at 55-6.

⁴⁴*See*, N.Y. TIMES, Feb. 11, 1973, § 1, at 37B, col. 1; New York City Environmental Protection Administration, "Newspaper Recycling Projects for New York City" (Aug. 25, 1972).

⁴⁵Council on the Environment of New York City, *A DISCUSSION: GOVERNMENT INCENTIVES AND DISINCENTIVES TO RECLAMATION OF WASTE PAPER*, at 16-25, (Mar., 1973).

⁴⁶Midwest Research Institute, *RESOURCE RECOVERY—THE STATE OF TECHNOLOGY*, at 10-1, (Feb. 1973).

⁴⁷More detail on the historical development of the paper industry can be found in Midwest Research Institute, *supra* n. 1, at 3-4; Council on the Environment of New York City, *supra* n. 45, at 8-12; and Quimby, *supra* n. 35, at 12-3.

⁴⁸Quimby, *supra* n. 35, at 16.

⁴⁹Council on the Environment of New York City, *supra* n. 45, at 11.

⁵⁰Battelle Memorial Institute, Columbus Laboratories, *8 A STUDY TO IDENTIFY OPPORTUNITIES FOR INCREASED SOLID WASTE UTILIZATION*, at 111A (1972).

⁵¹Some observers have stated that in addition to the obstacles provided by long transportation distances between the sources of waste paper and most virgin paper mills, recycling faces an obstacle in the form of railroad freight rates which are lower for pulpwood than for waste paper. *See* Belknap, *supra* n. 9, at 21; National Association of Secondary Material Industries, Inc., *NATIONAL PRIORITIES FOR RECYCLING: PROPOSALS FOR A LEGISLATIVE ACTION PROGRAM*, at 7, (No date; based on testimony by M. Mighdoll and T. Davis before the Joint Comm. on Economics, U. S. Cong., Nov. 8, 1971). Another study of this question, however, has concluded that transportation rates have little, if any, effect on the recycling of paper, and notes that the data in support of the contrary claim are ambiguous or non-existent. Council on the Environment of New York City, *supra* n. 45, at 96-110.

⁵²Midwest Research Institute, *supra* n. 1, at 5, 9 (Table 2).

⁵³*Id.* at 48.

⁵⁴*See, e.g.*, testimony of J. Darrow, Vice President, American Paper Institute, J. Turnbull, Executive Vice President, National Forest Products Association, and H. Willets, Director of Marketing, Great Northern Paper Co., in *Hearings, supra* n. 33, at 70-89. The current paper specifications of the Federal General Services Administration include forest residues as one possible element in recycled paper, although in some instances post-consumer waste is specifically required, as well. GSA, *Fact Sheet—Recycled Paper* (Oct. 20, 1972); *GSA Takes New Steps to Spur Paper Recycling* (GSA News Release No. 5326, Aug. 2, 1971).

⁵⁵*See*, Belknap, *supra* n. 9, at 36-9.

⁵⁶Quimby, *supra* n. 35, at 17.

⁵⁷National Industrial Pollution Control Council, Paper Sub-Council, *supra* n. 32, at 42; Belknap, *supra* n. 9, at 21-4.

⁵⁸Virgin pulp is currently in short supply, so that many paper makers might now be willing to use more waste paper in their operations. Unfortunately, however, waste paper is in short supply as well. *See* text at n.24, *supra*, and Lowe, K., *Contaminants, Supply Problems Hinder Secondary Fiberusage*, 47 PULP & PAPER No. 13, at 100-104 (Dec., 1973).

⁵⁹Battelle Memorial Institute, Columbus Laboratories, *supra* n. 50, at 151-4; Lowe, K., *supra* note 58.

⁶⁰National Association of Secondary Material Industries, Inc., *supra* n. 51, at 12.

⁶¹Riordan, B., *The Compressed Gas Industry and Its Relation to the Environment*, PAPERS PRESENTED AT 58TH ANNUAL MEETING OF COMPRESSED GAS ASSOC., INC., at 46-7, (Jan. 18, 1971), *cited in* Atchison, *supra* n. 8, at 62.

⁶²26 U.S.C. § 631 (1970).

⁶³Midwest Research Institute, *supra* n. 1, at 12. Some observers have stated that in addition to the favorable capital gains treatment accorded the virgin paper industry through Section 631, the industry receives another tax benefit denied the recycling industry because of the deduction for depletion of timber holdings permitted by Section 611 of the Internal Revenue Code, 26 U.S.C. § 611 (1970). The deduction for timber growers is not a percentage depletion allowance (applicable to mineral extraction activities like oil drilling), however, but is rather based on cost, and it is not clear that it provides the virgin paper producers with any competitive advantage over recycled paper makers. *See*, Atchison, *supra* n. 8, at

62. The National Association of Secondary Material Industries, Inc. has not asked for any change in the depletion deduction provisions applicable to the virgin and recycled paper industries, although it has asked that the advantages of Section 631's capital gains treatment be extended to the recycling industry in addition to the virgin industry. National Association of Secondary Material Industries, Inc., *supra* n. 51, at 12-4.

⁶⁴This revealing etymology has been noted elsewhere. Quimby, *supra* n. 35, at 18-9.

⁶⁵*Id.* at 20.

⁶⁶*Id.*

⁶⁷Belknap, *supra* n. 9, at 47.

⁶⁸Case, C., S. Kahn, M. Kaplan, *Purchasing Recycling Paper* (1972).

⁶⁹See text at n. 25, *supra*.

⁷⁰Case, C., S. Kahn, M. Kaplan, *supra* n. 68, at 5.

⁷¹Testimony of E. Locke, President, American Paper Institute, in *Hearings on S. 2005 Before the Subcomm. on Air and Water Pollution of the Senate Comm. on Public Works*, 91st Cong., 2d Sess., pt. 4, at 1870 (1970).

⁷²WALL ST. J., April 19, 1972, at 22, col. 4.

⁷³Quimby, *supra* n. 35, at 13; Atchison, *supra* n. 8, at 61-2.

⁷⁴See n. 54, *supra*.

⁷⁵Interview with Joint Committee staff, Washington, D.C., July 20, 1973; telephone conversation with Joint Committee staff, July 24, 1973.

⁷⁶See text at n. 31, *supra*.

⁷⁷The forms and requirements are set forth in Council on the Environment of New York City, *supra* n. 45, at 192-6 (Appendix D).

⁷⁸See text at n. 42, *supra*.

⁷⁹This process is already occurring with some forms of waste as prices rise in response to demand. See N.Y. TIMES, Jan. 29, 1974, at 50, col. 1.

⁸⁰See text at n. 25, *supra*.

⁸¹*Id.*

⁸²See text at n. 73, *supra*.

⁸³N.Y. TIMES, Feb. 5, 1973, at 39, col. 2.

⁸⁴N.Y. TIMES, Feb. 4, 1973, at 1, col. 1.

⁸⁵An excellent source of product information for those persons who wish to purchase recycled paper products or to encourage other organizations, governments or businesses to do so is Dane, S., *THE NATIONAL BUYER'S GUIDE TO RECYCLED PAPER* (1973). This guide is

available for \$4 postpaid from the publisher, Environmental Educators, Inc., at 1621 Connecticut Avenue, N.W., Washington, D. C. 20009.