Waste Management Committee - Survey of Paper and Cardboard Recycling in South Australia

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Printed on Recycled Paper

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Executive Summary

All Australian states have seen substantial growth in waste paper recovery rates in the past 10 years. South Australia has been no exception with most recovered waste paper being transported to interstate and overseas processing facilities. However the lack of paper production in South Australia utilising waste paper and hence a local market appears to have inhibited the recovery of most grades of waste paper with the recovery levels for newsprint, magazine, cardboard and printing paper (the main grades of waste paper) being below the national average.

The annual paper consumption in South Australia is estimated at 210 000 tonne/yr. Almost half of this is cardboard (102 000 tonne/yr). Newsprint accounts for 53 50 000 tonne/yr, printing and writing grades (41 000 tonne/yr) and magazine (14 000 tonne/yr).

There is also a small quantity of liquid paperboard and directory paper consumed in South Australia. As there is no domestic production of these in South Australia and recovery is minor they have not been included in this survey. 17 000 tonnes/yr of tissue is consumed in South Australia however no recovery is possible and no recycled fibre utilisation occurs. For this reason tissue has not been a focus of this survey.

It is estimated that currently 108 000 tonne/yr of waste paper is recovered for recycling from the South Australian waste stream.

Approximately 30 000 tonne/yr is exported either directly from Adelaide or from Melbourne, 65 000 tonne/yr is sent to Victoria for reprocessing, and 15 000 tonne/yr is transported to New South Wales and Queensland paper mills. In addition Fibrecycle locally processes about 1 500 tonne/yr of newsprint into kitty litter.

Visy Recycling, Amcor and Fletcher Challenge Paper are the main reprocessing companies for South Australian recovered waste paper. Between the three companies they receive 80% of the paper recovered.

Cardboard is recovered from a range of commercial and industrial sites particularly retail. It is estimated that 66 000 tonne/yr or 65% of cardboard consumed is recovered for recycling. While this is an impressive achievement it still leaves almost 35 000 tonne/yr of cardboard going to waste each year. The 1998 EPA landfill waste-stream audit showed cardboard as 28% of commercial and industrial waste and in many cases this was disposed of in loads where cardboard made up well over 60% of the waste material.

Those involved in collecting cardboard acknowledge that the level of collection activity is not as intense as in other capital cities. This was reflected in our survey of commercial and industrial companies which showed a significant proportion of paper waste generating companies had no cardboard collection.

A percentage of the cardboard will be too dispersed to collect viably. However it is estimated that a further 15 000 tonne/yr could be recovered economically.

Kerbside collection of paper across the state yields an estimated 32 000 tonne/yr. This is low on a per household basis compared to other states. This could be expected to rise if councils upgrade kerbside collection services including a container for paper (bin or crate) and smaller garbage bin sizes. If this can be encouraged over the next 2 to 3 years an additional 10 000 tonne/yr could be recovered.

Printing grade paper is consumed at the level of 41 000 tonne/yr with a recycling of 9 000 tonne/yr coming equally from pre consumer sources (printers and converters) and post consumer (office, kerbside) collections. While the pre consumer recycling overall is quite high there is evidence that some high waste generating sites, such as printers, are not currently recycling. This combined with a more comprehensive office paper collection could see an additional 10 000 tonne/yr recovered from the 32 000 tonne/yr currently going to landfill.

Below is a summary of some of the actions that are needed to achieve the increased quantities are listed below. An explanation of these is included in the recommendations section of the report.

Cardboard (OCC) - an estimated additional 15 000 tonne/yr could be recovered by:

Strip shopping runs for small retailers;

Upgrade baling for increased throughput and efficiency;

Gain industry product stewardship commitment;

Distribute commercial and industrial information on cardboard and printing paper recycling collections;

Provide information to residents to include cardboard; and

Drop off at depot centres for small businesses.

Newspaper and magazine (ONP/OMG) - an estimated additional 10 000 tonne/yr could be recovered by:

Assisting local government to provide a recycling container for paper;

Provide information to residents to include all magazines;

Assist local government to downsize garbage bin size;

Encourage extension of kerbside/drop off points in provincial centres; and

Gain state based industry product stewardship commitment.

Printing and writing paper – an estimated additional 10 000 tonne/yr could be recovered by:

Distributing commercial and industrial information on recycling particularly in the printing industry;

Upgrade of baling equipment;

Upgrade of wharf storage undercover; and

Expansion of wastepaper utilisation by tissue manufacture (interstate).

The effective implementation of these initiatives will require the participation and co-operation of all key stakeholders including state government, local government, and industry. Suggested responsibilities are presented in the recommendations section of this report.

Introduction

The South Australian Government has identified, from research undertaken by News Limited, that the 1999 recovery of newsprint for recycling of 5156.1% in South Australia is was the lowest of any mainland state. The national average is 6769.8%. The recovery rate for other paper products is also believed to be low compared to other states.

The purpose of this survey is to prepare a comprehensive information base on current waste paper and cardboard consumption recycling activities, to identify barriers to improved recovery, and to recommend specific actions to improve the overall recycling rates of newsprint, cardboard and paper in South Australia.

The specific objectives of the survey are to:

- Identify existing recovery systems for newsprint, magazines, paper and cardboard from domestic, commercial and industrial sources in South Australia.

- Describe the operational aspects of the recovery systems i.e. presentation requirements (e.g. commingled or source separated at kerbside), which materials are accepted for each collection or drop off system, the path of the materials from point of collection to end market, as well as promotion and education programs.

- Identify problems experienced with each recovery system such as quality issues, low returns and participation rates, available markets, costs, market specifications. The objective is to identify problems and issues at all stages of the recovery process from collection to end market requirements.

- Make specific recommendations that will lead to improved recovery rates and marketability of newsprint, magazines, paper and cardboard.

Paper grades considered in the survey as Old Corrugated Cardboard (OCC), Old Newsprint (ONP), Old Magazines (OMG), and printing paper. Liquid Paper Board (LPB), telephone directories, and tissue have been excluded due to there comparatively small quantities.

Methodology

The study has been conducted in the following four phases:

- Preliminary Issues Identification
- Identification of Recovery Systems and Performance
- Identification of Problems and Issues
- Recommendations

Preliminary Issues Identification

A workshop with key stakeholders was held on 8 September, 1999 to identify and clarify issues of importance and concern, to exchange views on opportunities to increase recovery rates and to assist the project team gain critical perspectives on the operational arrangements for paper recovery. A list of attendees is presented in Appendix A.

Identify Recovery Systems and Performance

The current waste paper recovery systems were identified via a series of surveys. These covered metropolitan Councils and waste management authorities, commercial and industrial waste generators, kerbside collection contractors, contractors collecting from the commercial and industrial sectors, material recovery facility operators, as well as purchasers of the recovered materials (local, interstate and export markets).

Data on paper consumption was obtained from individual manufacturing companies in the paper industry. This enabled a reasonably accurate assessment of consumption of paper grades in South Australia.

Knowledge of the local government kerbside recycling system was obtained via the Kerbside Rebate scheme data base. This database provided quarterly information on the metropolitan Adelaide collection system and the recovered materials. Gaps in the Metropolitan database were infilled via telephone surveys. For non-metropolitan Adelaide a telephone survey of 15 of the largest Councils was conducted.

Information on paper recycling practices, barriers, and opportunities within the commercial sector was obtained via a telephone survey of 20 commercial waste paper generators. The surveyed companies were selected, in consultation with SAECCI, from the following industry sectors:

- Printing and publishing
- Machinery and equipment
- Retail trade – food
- Retail trade – personal
- Road transport
- Business services

Most metropolitan Adelaide sorting facilities were inspected to assess the operation arrangements and to obtain advice on issues and concerns.

Meetings and telephone discussions were conducted with the major reprocessors to confirm estimates of recovery rates and to obtain advice on options for increasing the current recovery rates. Those participating included Amcor, Visy Recycling, Fletcher Challenge Paper, Fibre Cycle, and Tredex.

Individual companies have given excellent support to the study by providing precise quantities of waste paper recovered in South Australia on a grade by grade basis. The destination of this paper for reprocessing has also been supplied. This company specific data has been provided on a confidential basis and therefore some aggregation of waste paper quantities is necessary for publication of this report.

Identify Problems and Opportunities

Problems experienced with each recovery system such as quality issues, low returns and participation rates, available markets, costs, market specifications were identified based upon the survey results and the stakeholder consultation.

Prepare Recommendations

At the conclusion of the survey specific recommendations to improve recovery rates and the marketability of newsprint, magazines, paper and cardboard were prepared.

Consumption and Market Trends

Consumption

Estimates of paper consumption in SA have been obtained from a variety of industry sources. These are presented in Table 3.1 below.

Table 3.1: South Australian Paper Consumption, 1999

Paper Grade	Tonne/yr
OCC	102 000
ONP	50 000
OMG	14 000
Printing	41 000

OCC consumption was the most difficult to estimate as the quantity of cardboard that enters the state as outer packaging on finished goods from interstate or overseas is almost impossible to reliably determine. For this reason the OCC consumption estimate may be higher or lower by a slightly greater margin than for other grades.

As much of the printed material such as books and reports is produced in Melbourne or Sydney, the generation of printing grade wastepaper is lower as a percentage of the national total than is the case for other grades. This is due to the fact that, as the production processes are not carried out in SA to a large extent, there is less waste generated as part of the manufacturing processes

Historical Price Trends

Pulp

Australia continues to be a net importer of pulp, paper and board, and as such, is strongly influenced by international supply and demand cycles. At the same time export demand for recovered paper follows these cycles, which coincides with international surpluses or shortages.

Historically, our domestic mills have had little influence on these cycles and can only regulate their own supply and pricing either to compete against more competitive paper imports or the export of recovered paper.

The October 1999 pulp prices are:

	Oct 1999
Bleached Thermal Mechanical	US$340
Reject BCTMP	US$280
Bleached Eucalyptus	US$570
Bleached Tropical Hardwood	US$580
Bleached Northern Softwood	US$590
Unbleached Softwood	US$420

Recovered Paper

The international price of recycled paper generally follows the cyclic trend of pulp prices with a lag of about three months. As an example the weighted average FOB prices, in Australian dollars and on a per tonne basis, of exported recovered paper from South Australia between 1993 and 2000 are:

1993 $94.50
1994 $110.25
1995 $217.00
1996 $154.25
1997 $131.33
1998 $78.00
1999 $120.00
2000 $170

Domestic waste paper prices follow the international market cycle with both price increases and decreases being delayed in implementation.

At the present time the waste paper market is in reasonable balance and prices have risen significantly from those available during 1998. 1995 represents an abnormal price spike due to a worldwide shortage and 1998 is a low point in the price cycle. Outside of these two extremes the price ranged from $95/tonne to $154/tonne.

Australian pricing follows the larger Northern Hemisphere suppliers and Australia is considered throughout Asia as an irregular but improving source of supply.

The trends in mixed, ONP, OCC, and white ledger recovered paper prices since mid 1996 are shown in Figure 3.1. This figure indicates that separated grades such as OCC and white ledger have a higher market value than mixed grade paper. The sorted grades also have a higher certainty of being purchased and recycled during periods of over supply when both Australian and export markets tighten and mills are able to select more specifically the grades they require. Several collectors and reprocessors have observed ‘you can always find a home for sorted grades but not for mixed’.

As recovered paper exported from South Australia during 1999 was typically mixed, OCC and ONP, average weighted prices were in the order of A$120.00.

The first two quarters of 2000 have seen quite dramatic price increases on the export market across all grades. This has seen mixed paper prices of over $80 tonne at wharf and OCC and ONP prices well over $200 a tonne. The prospects for 2001 are positive as the Asian economies and demand continue to improve. Pulp prices are expected to level off by 2002. Currency and ocean freight rates are difficult to project, however both are anticipated to firm which will have a negative effect upon FOB prices.

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Historically, our domestic mills have had little influence on these cycles and can only regulate their own supply and pricing either to compete against more competitive paper imports or the export of recovered paper.

The October 1999 and May 2000 pulp prices are:

	Oct 1999	May 2000
Bleached Thermal Mechanical	US$340	
Reject BCTMP	US$280	
Bleached Eucalyptus	US$570	
Bleached Tropical Hardwood	US$580	
Bleached Northern Softwood	US$590	
Unbleached Softwood	US$420	

These prices are approximately US$50 higher than they were a few months ago. Pulp mills are seeking a further pulp price increase 1 December 1999, however due to the slow down following the Y2K surge this increase is likely to be delayed until the second quarter of 2000.

Recovered Paper

The international price of recycled paper generally follows the cyclic trend of pulp prices with a lag of about three months. As an example the weighted average FOB prices, in Australian dollars and on a per tonne basis, of exported recovered paper from South Australia between 1993 and 1998 are:

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At the present time the waste paper market is in reasonable balance and prices have risen from those available during 1998. 1995 represents an abnormal price spike due to a worldwide shortage and 1998 is a low point in the price cycle. Outside of these two extremes the price ranged from $95/tonne to $154/tonne.

Australian pricing follows the larger Northern Hemisphere suppliers and Australia is considered throughout Asia as an irregular but improving source of supply.

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As recovered paper exported from South Australia during 1999 is typically mixed, OCC and ONP, average weighted prices are currently in the order of A$120.00.

The prospects for 2000 and 2001 are positive as the Asian economies and demand improves. Pulp prices are expected to continue to recover by an average of US$15.00 per quarter before levelling off by 2002. Currency and ocean freight rates are difficult to project, however both are anticipated to firm which will have a negative effect upon FOB prices.

Future Market Trends

Qualitative changes although slow in the paper industry are continually occurring and will continue to do so. Each industry segment has its own competitive pressures and quality requirements, which influence demand and pricing. These are discussed below.

Newsprint

International demand for newsprint has levelled off and is trending downwards. This is a result of lightweighting, web resizing, , waste reduction, more efficient distribution and the worldwide trend of slowly reducing circulation, particularly in midweek papers. In order to improve publication quality, publishers are seeking improved newsprint quality paper which is a cheaper substitute for supercalendered and/or coated paper.

Any newsprint demand growth is likely to be localised to Asia who are already reliant upon the utilisation of secondary fibre.

Future trends for newsprint production may include:

- More demand for old newspapers and magazines;
- Cleaner recovered paper from sorting facilities such as less cardboard, plastic and glass;
- Older uncoated woodfree paper machines, which can surface size to be converted over to improved newsprint production.
- Continued increase in the demand for improved grades of newsprint.
- A further shift to lighter weight newsprint. Grade weights have gone down from 52g to 48.8g to 45g and could go lower again.

Recovered ONP is currently utilised for the production of newsprint and packaging board. Future demand will also include higher value publication grades, tissue and low quality printing and writing papers.

Any increase in recovery will be absorbed into Asia, unless or until production capacity increases in Australia.

Packaging

Unlike newsprint, publication papers, tissues and printing papers, Australia is self-sufficient in the majority of packaging production.

A surplus of approximately 10 000 tonne/month of mixed paper and boards are already exported which will increase with more regional and commercial paper recovery.

Waste paper suppliers may be receiving contradictory influences from those end users mills who will pay for cleaner source separated paper and board, against the low value board mills who will wish to control the supply stream and therefore price, then export the surplus as required.

As Australia cannot fully utilise its recovered paper surplus, demand and price for mixed paper will remain volatile for domestic and export.

The prospect of a packaging paper mill being built in Adelaide remains a possibility. The minimum volume of waste paper to feed a mill is generally regarded as 100 000 tonne/yr to 120 000 tonne/yr. At present recovery levels this would be difficult to achieve. If recovered volumes were to reach 140 000/tonne/yr to 150 000 tonne/yr in the next few years this will enhance the likelihood of establishing a mill. There is no doubt that a mill in South Australia would provide a high level of security for waste paper recovery.

Tissue Paper

The production of tissue paper from recovered fibre is increasing for most consumable household tissue grades. As de-inking technology improves and becomes cheaper lower grades of recovery paper will be utilised. These lower grades include coloured ledger and/or post consumer milk carton fully bleached board.

This trend will increase demand for office papers at a time when there is a growing awareness of large volumes of white paper going into landfill.

In Australia, the Amcor de-inking plant at Fairfield, Victoria is already supplying Carter Holt Harvey in Box Hill. Paper Converting are importing de-inked pulp from America as well as domestic pre and post consumer pulp substitutes, as are Encore Tissue and Cosco Holdings which are absorbing post consumer office papers. The South Australian tissue mill in the south east is remote from de-inking plants and this makes it more difficult to utilise recovered pulp. It may be possible for the mill to utilise waste paper that does not require ink removal. Kimberley Clark should be approach about the possibility of waste paper utilisation.

During 2001, two new tissue machines will be commissioned in Australia, one each in Melbourne and Sydney. This should increase recovered paper demand by at least 20 000 tonne/yr

Export demand is already higher than Australia’s ability to supply so there are encouraging prospects as more high quality commercial office paper is recovered.

Existing Systems

Kerbside Collections

Information on kerbside paper and cardboard collections has been obtained from the kerbside recycling rebate scheme and a telephone survey of 15 of the largest non metropolitan councils.

All of the metropolitan Councils and 40% of the surveyed non-metropolitan Councils undertake kerbside recycling collection services, and over 80% of South Australian households have access to either a kerbside collection or a convenient drop off point.

Yields

The collected quantities for the 1998/99 year are presented in Table 4.1.

Table 4.1: Metropolitan Adelaide Recovered Paper - Kerbside

Council	Paper & Cardboard tonnes	Collection Method	Kg/Per Household	Kg/Per Capita
Adelaide City	366	bundled	66.5	22.8
Adelaide Hills (Former East Torrens)	306	bundled	N/A	N/A
Burnside	1 394	commingled MGB	77.4	35.7
Cambelltown	1 106	bundled	60.6	24.5
Charles Sturt	987	bundled	23.2	9.6
Holdfast Bay	1 129	bundled	71.0	35.3
Marion	3 222	commingled MGB	97.0	41.6
Mitcham	1 700	bundled	70.8	27.1
Playford/Salisbury/Gawler	4 505	commingled MGB *Salisbury-bundled	60.8	23.2
Onkaparinga	1 498	bundled	30.0	10.2
Norwood/Payneham/St Peters	940	bundled	53.7	26.8
Pt. Adelaide Enfield	3 228	bundled	73.4	32.3
Prospect	465	bundled	51.6	24.4
Tea Tree Gully	2 576	bundled	85.8	27.1
Unley	1 376	crate	91.7	39.2
Walkerville	193	bundled	64.3	27.6
West Torrens	2 666	commingled MGB	136.0	60.6
Total			66.1	26.4

in November 1999 commingled.

This is equivalent to a yield of 1.3 kg/tenement week across the 406 000 households within metropolitan Adelaide. Recovery is low in almost all areas except where crates or MGB recycling systems are provided.

The total South Australian kerbside paper recycling rate is estimated to be 32 000 tonne/yr. The approximate break-up of this is 19 000 tonne/yr of ONP, 9 000 tonne/yr of OCC, 3 000 tonne/yr of OMG, and 1 000 tonne/yr of printing paper.

Collection Systems

The kerbside recycling collection systems include:

- Weekly and fortnightly bagged containers with paper & cardboard tied and bundled;
- Weekly and fortnightly crated containers with paper & cardboard tied and bundled;
- Weekly split 240 L MGBs with commingled containers and paper one side and garbage on the other.
- Fortnightly 240 L MGBs with commingled containers and paper.

In addition Unley Council has recently introduced a purpose designed crate for paper recycling. It is too early yet to draw accurate conclusions about long term volumes, however, the increase in collection so far has been very encouraging. Previous trials have shown that an increase of 30% to 40% can be expected with a shift from loose or baled paper collection to a containerised collection.

The collection of separated grades of paper and cardboard enables the collection of the highest quality product. This material commands the highest market price and also has the highest security of market outlet during market downturns. There is no requirement to sort paper grades from each other or from other recyclables. This offers a significant reduction in costs which usually offsets any additional collection cost from running two collection vehicles.

Adelaide has a higher level of fully co-mingled recyclable collections than most Australian cities.

For the kerbside collection systems in which the waste paper is separated from the other recyclables, two collection vehicles are sometimes involved. This allows the paper to be delivered directly to some reprocessors without the need to go through a sorting facility.

A number of Councils have introduced or a planning to introduce upgraded collection systems. This will result in higher recovery rates of paper and cardboard.

Changes to Council services are: -

- City of Campbelltown- from July 2000, 60 lt crate for commingled recyclables. Paper bundled and tied but can place in the crate
- City of Norwood Payneham and St Peters – from July 2000 same service as for Campbelltown
- City of Salisbury commenced commingled MGB in November 1999
- City of Pt Adelaide Enfield changed to crate for containers and separate bundled paper and cardboard in January 2000
- City of Prospect to begin commingled split MGB collection in July 2000.

Due to these changes it will be important to monitor recovery rates to make valid comparisons on an annual basis. It is suggested that the Waste Management Committee facilitate kerbside audits to add to the historical data obtained from Recycle 2000 since 1996 and the valuable information gained from information supplied by Councils for the metropolitan kerbside rebate scheme.

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Service Providers

The major kerbside collectors are Solo, Kerbside Recycling Services, Cleanaway, Western Region Waste Management Authority , Gully Recyclers, and Scout Recyclers.

Kerbside Environmental Services, operates rear loading compactor vehicles that have been divided to allow for the efficient collection of newspaper/magazine and cardboard. This negates the need to undertake subsequent sorting of paper grades. These divided rear-loading compactors are also used by some interstate companies.

Commercial Collections

By far the largest quantity of waste paper collected is from the commercial sector.

Yields

Information on collected quantities has been obtained primarily from the sorters, reprocessors, and the exporters. Estimates of pre and post consumer commercial paper recycling volumes are presented in Table 4.2.

Table 4.2: South Australian Recovered Paper - Commercial

Source	Quantity (tonne/yr)				
	OCC	**ONP**	**OMG**	**Printing**	**Total**
Pre-consumer	9 000	6 500	2 500	4 000	20 22 000
Post-consumer	50 000	500	-	4 000	56 54 500
Total	59 000	7 000	2 500	8 000	76 500

There is an estimated 59 000 tonne/yr of OCC recovered from commercial and industrial premises across South Australia. There are substantial quantities collected from supermarkets and other major retailers. In addition a further 8 000 tonne/yr of printing and writing paper is also recovered and recycled. Of the OCC, 9 000 tonne/yr is from box making plants operated by Visy, Carter Holt Harvey and Amcor.

The level of pre-consumer ONP and OMG recovery appears quite high in South Australia. All of the production waste and newsagent returns from the Advertiser and major magazine distributors is recycled.

However the recovery rate of printing and writing papers is relatively low. These papers are recovered from two main sources. Pre-consumer waste is collected from printer and convertors and office collections contribute a similar quantity of paper (4 000 tonne/yr). The recovery of paper from the printing and publishing sector is usually very comprehensive. In Adelaide however there appears to be a number of printers with no collection. Some of these are the result of collections being terminated or charges raised during an over supply period two years ago.

Service Providers

Paper is collected by private collection contractors who have contractual arrangements with either sorters or reprocessors. The largest of these appear to be Collex, Cleanaway, Pacific Waste, and Kerbside Recycling Services. There are also smaller private collection contractors that collect white office paper.

From a phone survey of both small and large commercial outlets it was identified that despite the activity of these collectors and marketing by collectors and reprocessors there is still a large amount of non recycling business premises in and around the CBD and in some of these cases collections had occurred in the past and ceased.

The most common reasons given for not recycling were the inability to find a reliable collector and costs.

Sorting and Receival Facilities

Facilities for Sorting Domestic Sourced Paper

There are four sorting facilities within metropolitan Adelaide that receive kerbside collected recyclables. Regional Recyclers own and operate three of these. They are located at West Torrens, Elizabeth West and Wingfield. In addition the Western Region Recyclers operate a facility at Marleston.

The material obtained from the co-mingled collections received by Regional Recyclers at West Torrens and Elizabeth West is sorted to remove paper and cardboard from other recyclables and rubbish. Of these the new Elizabeth West facility is the most well engineered and efficient. Through the use of trommels and hand sorting the mixed paper grades are separated from other recyclables.

A small amount is then subsequently sorted into separate newsprint/magazines and cardboard. Most is baled as mixed grade waste paper and exported. Several of the interstate markets expressed concern that the co-mingled material would not reach their specification requirements.

Other Receival Facilities

Mixed and separated paper from commercial sources is generally received at the following facilities:

- Normetals at Wingfield. Normetals act as an agent for Visy Recycling. Product collected at this facility is transported to Visy Paper's paper mill at Coolaroo in Melbourne.
- Amcor. Product received at this facility is transported to Amcor paper plants at Fairfield and Maryvale (Victoria), Shoalhaven (NSW), and Petrie (Queensland). Some of this product is also sold to Fletcher Challenge Paper.
- SA Cardboard who have agent arrangements with several reprocessors.
- Tredex wharf storage. Product received by collectors and sorters is transported to the wharf for export by Tredex.

Reprocessing Plants

Apart from the tissue paper manufacturer, Kimberly Clark, which has a paper mill in the south east there are no paper manufacturing plants in South Australia. There is however one consumer of waste paper in South Australia; FibreCycle, which reprocesses approximately 1 500 tonne/yr into kitty litter.

The paper plants receiving waste paper from South Australia are:

- Visy Paper Coolaroo, Victoria
- Amcor Fairfield and Maryvale, Victoria

Shoalhaven, NSW

Petrie, Queensland

- Fletcher Challenge Paper Albury, NSW

In addition, a significant proportion of the South Australian recovered paper is exported by Tredex.

Summary of Material Flows

The paper consumption and paper recovery estimates for OCC, ONP, OMG, and Printing paper are presented in Table 5.1

Table 5.1: South Australian Paper Recycling – Consumption and Recovery ('000 tonne/yr)

		OCC	**ONP**	**OMG**	**Printing**	**Total**
Consumption		102	53	14	41	210
Recovered	Commercial Pre-consumer	9	6.5	2.5	4	22
	Commercial Post- consumer	50	0.5	0	4	54.5
	Kerbside	8	20	3	1	32
	Total	67	27	5.5	9	108.5
	% Recovered	65.6	51.0	39.3	22	51.6

Estimates of the quantities disposed to landfill or in use (i.e. files, archives, household uses) are as follows: OCC 35 000 tonne/yr

- ONP 26 000 tonne/y
- OMG 8 500 tonne/y
- Printing Paper 33 000 tonne/yr

These estimates are based upon both the 1998 EPA landfill audit and the differences between recovered quantities and consumption.

The above table clearly indicates that the major targets for improved recovery should be:

- Commercially and domestically sourced OCC
- ONP and OMG from kerbside; and
- Printing paper from commercial sources.

The barriers to overcome increase recovery in these areas are discussed later in this report.

Newsprint and Magazines Agreement

Currently the newspaper and magazine industry has a strong commitment to ensure that all waste paper recovered is recycled.

This commitment is made through the Publishers National Environmental Bureau (PNEB) and Fletcher Challenge Paper Australasia and obliges the members to underwrite if necessary the recycling or export of all newspaper and magazine through Fletcher Challenge Paper, the sole producer of Australian newsprint. The industry sees this commitment as a central part of its product stewardship responsibilities.

The majority of this material goes into the Fletcher Challenge Paper mill at Albury with export of surplus tonnes from time to time from all capital city markets.

This has involved the exporting of paper during low market phases at a considerable loss. It has also resulted in the publishers agreeing to divert their own production waste to export to enable the Albury mill to receive more post consumer material.

It is likely that the PNEB would be prepared to re-endorse this commitment in a specific South Australian context. The State Government could seek an assurance that newsprint and magazines collected would find a market and if necessary would be purchased at a floor price per tonne. This will ensure that the State could implement programs that will result in higher recovery levels with the certainty that collected tonnes will be recycled in all markets.

National Packaging Covenant

The National Packaging Covenant is an agreement entered into by Federal, State and Local Governments and industries involved in the packaging supply chain for the management of consumer packaging waste in Australia. The self-regulatory agreement is based on the principles of product stewardship and shared responsibility.

The Covenant applies to the lifecycle management of consumer packaging and household paper. Household paper is defined as writing paper, cardboard and mixed paper, other than paper used to publish newspapers or magazines.

The Covenant's goal is to work with all sectors involved in the packaging products lifecycle to minimise the environmental impacts of consumer packaging, close the recycling loop and develop economically viable and sustainable recycling collection systems.

Signatories to the Covenant are required to submit Action Plans that identify major commitments, financial resources and arrangements that will be put in place to achieve the obligations set out in the Covenant.

It can be expected that there will be improvements made to the overall recovery of household paper as a result of the Covenant. This may well provide an opportunity for the State Government to influence the major producers of packaging cardboard to enter into secure arrangements for the purchase of paper from South Australia. Companies will be keen to assure their customers that there are secure arrangements in place to ensure the sustainability of recycling services so as to effectively meet the objectives of their Action Plans.

Barriers to Improved Recovery

There are several barriers which must be overcome to improve waste paper recovery. These relate to the provision of collection services, education, infrastructure, proximity to markets, and security of collection. These barriers to improved recovery are discussed below.

Domestic Collection Services

The low to moderate level of penetration of kerbside collection services in non-metropolitan areas, and the low level of service (i.e. many metropolitan Councils still operate bagged collections) is probably due to:

- The majority of bottles and cans come back by other collection routes (CDL drop-off centres) and therefore the 'drive' to establish kerbside recycling is less strong;
- The value of the paper and cardboard being generally lower where interstate freighting is required;
- The major reprocessors are less actively 'chasing' tonnage in the absence of a state based mill requirement for waste paper.
- The cost to freight recyclables from non metropolitan areas to Adelaide or direct to markets is prohibitive.

It is apparent from both South Australian and interstate experience that the recycling participation rates and yields increase dramatically with higher service levels. This would involve more frequent collections and a more efficient collection container. It has also been observed that when moving from a bag to crate system for containers, that the paper yields increase as well as the container yields. .

The size of the garbage bin is also a major influencing factor on waste diversion. Large garbage bins (240L) allow too much disposal capacity and fail to provide an incentive to recycle. With the reduction of bins from 240L capacity to 80/120L the garbage levels are usually reduced by 30-50%. This is dependent, however, on increased capacity and convenience of the kerbside recycling service offered.

There is a growing trend away from mixed low value reprocessing of recyclables to the production of higher value products by having particular plastic, paper or glass types separate prior to reprocessing. This is achieved partly by more sophisticated sorting of materials but also by efforts to keep materials separated where possible.

Community Education

As evidenced by the low percentage of non ONP collected at the kerbside many people continue to see household paper recycling as 'newspaper' recycling. Greater yields from kerbside collections would in part be dependent on encouraging the same focus on magazine, cardboard and printing grade paper recycling. The PNEB provides an annual allocation of advertising space that could be utilised to contribute to the overall community education effort.

Security of Receival Arrangements

Many suppliers of waste paper to reprocessors do not have long term contracts or alternatively the purchase arrangements are based upon a fixed price per tonne. Local government contractual pricing is often structured without the flexibility to change during severe market fluctuations.

For this reason reprocessors have often either stopped receiving waste paper or varied arrangements during periods of low commodity prices. This problem is exacerbated by the lack of a paper mill in South Australia, and hence the increased freight costs compared with eastern states. Few wastepaper suppliers have sufficient understanding of why such drastic measures became necessary almost overnight

The setting of contract prices that are fixed and not linked to export parity pricing leads to contract failure and negates the opportunity to export surpluses because losses will occur.

These problems have occurred in the past as:

- Local Councils do not wish to adjust their budgeted amount for recycling. They prefer stable long-term contracts. They often fail to fully appreciate the impact of international pricing trends.
- Waste paper procurement managers are under the direction of head office financial directors who place a low priority on loyalty to suppliers.
- Collectors/suppliers during buoyant cycles over-capitalise and find they cannot survive when turnover and profits reduce.

There is also a stream of overseas buyers flooding the market during the high cycles, inflating prices then walking away when demand and prices weaken. This has forced contract prices often well above the true value of the commodity which inevitably crashes causing breach of contracts, litigation and bankruptcies.

The cyclical volatility of the international paper industry is likely to continue, although to a lesser extent in the future as mergers and take-overs create larger global groups.

FCP have sought to redress this negative effect on sustainable paper recovery by offering variable price contracts with an agreed floor price.

Adequacy of Balers

Waste paper from South Australia is competing at interstate and export mills against paper that is not incurring the same level of freight costs. Enabling trucks and ships to carry full loads and containers to be filled to capacity will narrow this disadvantage for South Australian tonnes. At present the level and speed of compaction that can be achieved is limited by the size and capacity of existing compactors.

Insufficient density in compaction may mean that trucks will freight at 20% to 30% below optimal weight increasing the cost performance. In the export market, containers, which are full but underweight, incur a significant price penalty.

The speed of compaction is also a crucial issue as a slow baler may operate as a bottleneck between collections and freighting to reprocessors.

The waste paper freighted to Fletcher Challenge at Albury is backloaded in an efficient form using large ‘smart’ trucks. The movement of paper in uncompacted form is also costly. There are examples of where loose cardboard of less than 3 tonne per truck load is being transferred across the metropolitan area. The cost of this for either the collector or the receiver is very high on a per tonne basis.

By the end of June 2000 Amcor will have a new baling plant at their Dry Creek facility that will be able to bale paper and cardboard 2.5 times faster than their old baler.

The impact of improved baling and storage will be to remove the present inhibitors in the system and to encourage collectors and reprocessors to ‘chase’ more paper out of the waste system. Higher speed, higher density balers could enable a further 25 000 tonne/yr of paper to be diverted from landfill.

Any assistance for infrastructure upgrading will build on funds made available in the past by the PNEB which includes the provision of $35 000 for a weighbridge at the NAWMA facility in Elizabeth West.

Landfill Disposal Charges

As with other potentially recyclable commodities, the low landfill disposal cost of between $22/tonne to $25/tonne and the lack of differential pricing reduces the commercial sectors incentive to recycle paper. The low disposal charges are also compounded by a poor awareness across the commercial and industrial sector of the full cost of waste collection and disposal.

Paper Grade Sorting

The market for waste paper is built around a number of separated grade categories. Prices received are dependent on the waste paper achieving a designated level of purity free from contaminant materials. The reliance on mixed paper and the limited paper grade sorting is a major vulnerability for the waste paper collected from kerbside.

Export Barriers

As close to 20 percent of the recovered paper in South Australia is exported, consideration needs to be given to removing barriers to improve the efficiency of waste paper recovery for export.

Freight Costs for Exported Paper

Unfortunately, despite the significant proportion of the recovered volume, the volume is still small from a shipping perspective hence most of the large shipping line bypass Adelaide. Those lines prepared to call require an outbound premium of $100 per container ($5 per tonne) over that charged in Melbourne. Larger more competitive shipping lines centralise Adelaide cargo in Melbourne at a cost of $11-16 per tonne. For these reasons it is generally not economic to export mixed paper from South Australia.

The SA freight surcharge could be overcome to some extent by negotiating improved transport and ocean freight arrangements.

Recovered Paper Storage

Ocean freight rates are influenced by volume, which induces lines to call at a particular port. When shipping lines cannot pre-receive containers at a port, external storage will increase costs due to handling and additional transport back to the wharf ($5/tonne to - $8/tonne).

Low grades such as Mixed, ONP and OCC must be loaded daily for interstate or export. High grades such as sorted white ledger are normally stocked in container yards up to eight (8) weeks to build a minimum order quantity to Asia of 200 tonne. Neither scenario provides economies of scale to negotiate better pricing.

Recovered paper must be exported with a maximum moisture content of 12%. Residential recovery can often exceed this level unless paper is kept undercover, hence claims are inevitable. Such claims are calculated not at ex-factory prices but at destination cost, which can include all transport and taxes considerably exceeding ex-factory prices to the processor.

Sorting plants are often designed without adequate paper storage and container loading facilities. Container side loaders cost an additional $90-100 per lift or $4/tonne. This must be added on to the transport costs. When ocean freight surcharges, transport, storage and lift-on are added these can increase costs by up to $28/tonne.

Recommendations

The improvement in paper recovery rates can only be achieved through the co-operation of all stakeholders including state and local government, and industry.

The following recommendations have been developed for each of these stakeholder groupings. They are based upon overcoming the barriers described in the previous section and are targeted at improving recovery in the following areas:

- Commercially and domestically sourced OCC
- ONP and OMG from kerbside; and
- Printing paper from commercial sources.

This range of measures, if fully implemented, could increase the recovery rates by 15 000 tonne/yr for OCC, 10 000 tonne/yr for ONP and OMG, and 10 000 tonne/yr for printing paper. This nett increase of 35 000 tonne/yr would increase the total recovery rate to 143 000 tonne/yr (a Statewide recovery rate of 73 %.) The recommendations are not prioritised.

State Government

It is recommended that the State Government:

- Modify the kerbside rebate scheme to provide incentive schemes to encourage local government to upgrade the kerbside recycling services and reduce the size of the residual waste MGBs from 240 L to 140 L or smaller.
- Promote kerbside recycling through an educational and marketing program.
- Facilitate annual metropolitan kerbside audits
- Promote commercial paper recycling through a promotional campaign.
- Work with reprocessors to establish secure receival arrangements with some flexibility in buy-back pricing.
- Provide seed funding to establish drop off facilities.
- Provide seed funding to industry to establish improved infrastructure including paper sorting facilities, storage, and baling facilities.
- Promotion of waste paper diversion at landfills.
- Establishment of Policy to encourage multi-use of packaging

Modify Kerbside Rebate Scheme Provide Incentive Schemes

The recovery level of all recyclables from households is linked very closely to the garbage and recycling service provided.

In areas where a durable recycling container (bin or crate) is utilised, the yield of recyclables is markedly higher than in bag or loose systems. Adelaide has a higher level of households still being serviced by a non containerised system than other capital cities.

As these services are upgraded to either a crate or bin based system for paper, the level of paper being recovered will rise dramatically. It is usual for an upgrade to a durable container to result in a 30% to 40% rise in recyclables.

Similarly the diversion of recyclables is dramatically higher in households with a smaller garbage bin. Large 240 L MGBs undermine the motivation of residents to recycle and all audits of garbage and recycling show that the downsizing of garbage bin size is an effective method of significantly boosting recovery levels.

As Adelaide has a large number of municipalities with 240 litre bins this is significantly undermining paper recycling. A push to eliminate the 240 L MGBs as soon as possible should be a key commitment if paper recycling is to increase.

The recycling rebate, or other forms of State Government support services that are being forwarded totargetted at local government should be linked to achievement of a container for paper and other recyclables and the down sizing of the garbage bins to 80 L MGB to or a 140 L MGB. This will result in improved recovery rates for all recyclables.

Kerbside Recycling Educational and Marketing Program

In conjunction with the upgrade of the kerbside rebate schemeGovernment incentive schemes an educational and marketing program aimed at encouraging higher participation rates and the recycling of all paper streams as well as ONP would have a lasting impact on kerbside recovery rates. The PNEB have expressed interest in working with government to run an advertising campaign.

Facilitate Annual Metropolitan Kerbside Audits

There is currently good historical data on the performance of metropolitan kerbside recycling systems (kerbside audits facilitated by Recycle 2000 since 1996 and data supplied by Councils to receive the metropolitan kerbside recycling rebate). There will be ongoing changes to Council kerbside collection systems and an independent analysis of performance will be important to monitor the performance of different collection systems and overall recovery rates in Adelaide. The SA Waste Management Committee is well placed to continue this monitoring role.

Facilitate Annual Metropolitan Kerbside Audits

There is currently good historical data on the performance of metropolitan kerbside recycling systems (kerbside audits facilitated by Recycle 2000 since 1996 and data supplied by Councils to receive the metropolitan kerbside recycling rebate). There will be ongoing changes to Council kerbside collection systems and an independent analysis of performance will be important to monitor the performance of different collection systems and overall recovery rates in Adelaide. The SA Waste Management Committee is well placed to continue this monitoring role.

Commercial Paper Recycling Promotional Campaign

Many in commerce and industry are unaware of the opportunities available to recycle their office paper and cardboard. There is a wide spread lack of knowledge about who to contract for a collection, what is required and what it will cost. Paper collection companies have some staff assigned to providing this sort of information and to actively recruiting new collection sites however they are usually limited to a role reacting to inquiries.

While some companies lack any motivation to undertake recycling it is likely that a significant number would respond if provided with the basics information on how to establish paper recycling including contact numbers for paper collection companies.

A priority should be to provide information to these businesses outlining how they can undertake collections, the costs and benefits and a list of collection contractors for them to contact. It is anticipated that a significant promotional and information effort in this sector would result in a much higher recovery rate. A concerted effort should be made to prepare and distribute a brochure to commerce and industry on a phased basis information in co-operation with collection contractors, on services available for commercial paper recycling.

ors.

Establish Secure Price Arrangements

It is recommended that the State Government negotiate with Visy Recycling and Amcor, the two Australian producers of packaging cardboard in the South Australian market, to obtain assurances of secure arrangements for purchase of paper from South Australia. A similar model to that developed by the PNEB and Fletcher Challenge Paper with a variable benchmarked price including a floor price may be suitable.

The Fletcher Challenge contract offers a reasonable model for this with printing and writing paper. The market is divided more evenly between Amcor and a range of imports. The commitment ought to reflect this with an undertaking applying only up to the domestic percentage of printing paper.

Both companies have shown a commitment to the South Australian market and are particularly keen to assure their major customers in this State of their ability to stand by the product through their recycling activity.

The only cardboard in the waste stream that is not produced by these two companies is the packaging on imported products. This is a quantity that is difficult to estimate precisely but is likely to be less than 20 000 tonne/yr in South Australia. Clearly the Australian producers have no product stewardship responsibilities for the imported material and therefore any commitment sought should be limited to Australian production levels.

The implementation of the National Packaging Covenant may be the catalyst for companies to entire into secure receival and pricing mechanisms.

Seed Funding for Drop Off Facilities

The cost efficiency of commercial paper and cardboard collections is reduced as volumes per site are smaller. For this reason small business premises will have greater difficulty getting a collection service at a reasonable cost.

These sites are probably best served by the ability for drop off of paper and cardboard at regionally convenient sites. A combination of bottle depot sites, waste disposal sites and recycling sorting facilities should be encouraged to allow drop off for smaller businesses.

In addition strip shopping centres should be encouraged to negotiate a co-ordinated kerbside pick up of cardboard on a weekly basis. A small charge would need to apply and local municipalities could be asked to facilitate these collections.

Seed Funding for Infrastructure Development

The inadequacy of some waste paper compaction, storage and loading infrastructure inhibits the cost efficiency of paper recycling in South Australia. The handling of increased waste paper tonnages is dependent on the upgrading of this infrastructure. The result of an upgrade of equipment at the major receival and freighting facilities would be to change the market from one where the industry is often struggling to cope efficiently with present volumes, to one where additional volumes of waste paper are sought to utilise fully the facilities.

These facilities include:

- Efficient baling presses;
- Storage facilities; and
- Mixed paper sorting systems.

As an example of a funding model, in 1998 EcoRecycle Victoria sought to improve the efficiency and security of paper recycling during a market down turn. Funding assistance was provided to assist collectors and sorters to undertake the infrastructure changes necessary to achieve sorted paper grades.

The assistance was provided on a volume basis so that the funding was linked to the outcomes sought. It also meant individual companies could undertake infrastructure changes in a manner most suited to their business context. Some built sorting lines, others introduced trommels into existing sorting lines, and others modified collection vehicles to allow separation at source. As the funding was set at $20 per tonne all companies were treated equitably. As a result the proportion of paper reprocessed as sorted grades climbed from 9% to 75%.

A similar approach could be taken in South Australia to facilitate the increased diversion of paper grades through improvements to infrastructure. The program could be tailored to the local need to upgrade baling, storage and mixed paper sorting infrastructure.

Funds should be established that can be accessed by industry to help defray nominated infrastructure improvement costs or in a designated ratio for selected infrastructure improvements. The latter is probably more feasible on a 1:4 basis for a total upgrade.

Encouragement of Landfill Diversion

Many loads of predominantly paper and cardboard are arriving at landfills. At present paper and cardboard makes up a total of 39% of commercial and industrial waste. The unrestricted disposal of readily recyclable materials such as this is changing in many parts of the world. This is done either through bins (e.g. no load containing more than 25% of waste paper will be accepted), or differential pricing (e.g. load containing more than 25% waste paper will be charged a rate double the usual gate fee).

These restrictions have the effect of motivating waste collection companies and their customers to put in place a waste and recycling collection service.

It is recommended that such a restriction be foreshadowed in the near future to take effect from the closure of the Wingfield landfill. The foreshadowing of these changes will enable waste collection contractors and paper recyclers to gain a much higher willingness to introduce paper recycling in the commercial and industrial area.

Policy to Programs to Encourage Multi-use of PackagingWaste Avoidance

Surveys of manufacturing industry show that a large proportion of cardboard packaging is utilised for shipping components between different companies prior to final freighting to retail. Rather than utilising cardboard packaging many companies are equipped with multi use stillages and crates. Delivered goods arrive in the multi-use containers and empty containers are returned. This use of durable outer packaging is capable of producing significant waste reduction and cost savings.

This is one example of avoiding waste in an industrial situation. There are many examples of commercial and industrial waste avoidance actions that should be widely promoted.

The dual benefits of cost savings and being an environmentally responsible corporate citizen should be encouraged.

Any information developed and provided to the commercial and industrial sector should encourage this situation.

Local Government

It is recommended that Local Government:

- Work with the State Government to upgrade the kerbside recycling services and reduce the size of the residual waste MGBs from 240 L to 140 L or smaller. Consideration should be given to the development of efficient and cost effective services.
- Promote kerbside recycling through an educational and marketing program as part of the service provision contract.
- Negotiate with sorters and reprocessors to establish secure receival arrangements with some flexibility in buy-back pricing.
- Encourage contractors to upgrade facilities where required.

The details and background to these programs are described above.

Industry

It is recommended that Industry:

- Work with the State Government to promote kerbside recycling through an educational and marketing program and commercial paper recycling through a promotional campaign.
- Negotiate with government to establish secure receival arrangements with some flexibility in buy-back pricing.
- Establish improved infrastructure including paper sorting facilities, storage, and baling facilities utilising seed funding from the State.

The details and background to these programs are described above.

Report Limitations

This report has been prepared in accordance with an agreement between the Waste Management Committee and Nolan-ITU. The services performed by Nolan-ITU have been conducted in a manner consistent with the level of quality and skill generally exercised by members of its profession and consulting practices.

This report is solely for the use of Waste Management Committee and any reliance of this report by third parties shall be at such party's sole risk and may not contain sufficient information for purposes of other parties or for other uses.

This report shall only be presented in full and may not be used to support any other objectives than those set out in the report, except where written approval with comments are provided by Nolan-ITU.

Glossary

Directory Paper	Telephone books made from newsprint.
Liquid Paperboard	Polyethylene coated cardboard used for packaging milk, juice and other beverages.
OCC	Old corrugated cardboard. Includes corrugated cardboard and other cardboard used as consumer packaging.
OMG	Old magazines. Includes magazines and direct mail advertising material.
ONP	Old newspapers. Sometimes used to describe a mix of newspapers and magazines.
Post-consumer waste paper	Waste paper generated in homes and commercial and industrial premises that is not related to paper production or publishing.
White Ledger	Printed or unprinted sheets, shavings, guillotined books, and cuttings of white groundwood free ledger, bond, writing paper, and all other papers which have a similar fibre and filler content.

MGB	Mobile garbage(or recycling) bin
Pre-consumer waste paper	Waste paper generated in the pulp and paper and publishing industries that occurs as a result of production or distribution. This includes unsold and returned newspapers and magazines.

Appendix A Workshop Attendees

Workshop Attendees

The following companies and authorities were represented at the 8th September 1999 Workshop held at the SAECCI Conference Rooms:

Eric	Zesers	Waste Management Committee
Trevor	Hockley	Western Region Waste Management Authority
Liz	Jeremy	City of Tea Tree Gully
Michael	Raggatt	Collex Waste
Scott	Trennerry	AMCOR
John	Stagarevich	SA Cardboard Services
Steve	Balmforth	Fletcher Challenge Paper
Norman	Schueler	Normetals
John	Townsend	Cleanaway
Andrew	Thiele	SAECCI
Tony	Wilkins	PNEB / News Limited
Terry	Lucas	Regional Recyclers Pty Ltd

Appendix B Existing Programs in Paper Recovery

SUMMARY OF EXISTING PROGRAMS IN PAPER RECOVERY

PROGRAM	CONTACT
EcoRecycle Victoria (ERV)	Tel. (03) 9639 3322 Fax. (03) 9639 3077 Web Site: http://www.ecorecycle.vic.gov.au Recycling and infoline and waste exchange 1800 35 32 33 DESCRIPTION ERV and the PNEB Publishers National Recycling Bureau initiated funding to support s This initiative has done much to reduce existing stockpiles. ERV has assigned a project team to implement a market development program. The one for paper) grants for product and market development and buy recycled activitie all recyclables including paper. The Project Manager Mark Kenny has good paper indu government paper specifications, and to negotiate these standards with the Mills (AM
Buy Recycled Business	Erica Powell Tel (02) 9358 7972

Alliance:

Paper Recycling Symbol Guidelines, American Pulp & Paper Association	American Pulp & Paper Association DESCRIPTION Paper symbol guidelines have been developed in America to encourage consistent us among customers. APPENDIX 9: Paper Recycling Symbol Guidelines, American Pulp and Paper Associatic
Official Recycled Products Guide American Recycling Markets, Inc. 1-800-267-0707	EPA Procurement Guideline Hotline: 703/941-4452 DESCRIPTION Provides specifications for recycling of paper products into building board, insulating insulating board, acoustical and non- acoustical ceiling tile, insulating wallboard, floor insulating and structural uses of structural fibreboard and laminated paper products. APPENDIX 8. USEPA Recommended Minimum Content Standards (Recycled Paper)
Municipal Solid Waste Prevention in Federal Agencies: Executive Order 12780 on Recycling (October 1992)	United States Environmental Protection Agency Tel: 0011 1 (800) 424-9346; RCRA Information Office of Solid Waste (OS-305), U.S. EPA, 401 M Street, S.W., Washington, D.C. 20460. DESCRIPTION Executive Order 12780 on Recycling charged all Federal Agencies with promoting anc recycling into waste management programs. This fact sheet highlights the ample mu existing in Federal agencies. Source reduction is the design, manufacture, purchase, packages) to reduce their amount or toxicity before they enter the waste stream. Relevant documents produced by the EPA include: • How Businesses are Saving Money By Reducing Waste (EPA/530-K-92-005) - applying them through "real life" examples. • A Business Guide for Reducing Solid Waste (EPA/530-K-92-004) - provides ste reduction program and conducting a waste stream analysis to identify source
Executive Order 12873 on Federal Acquisition, Recycling and Waste Prevention, 1993 -	DESCRIPTION The order applied to uncoated printing and writing paper by executive agencies. Ame
Guide to Commercial & Industrial Recycling	Northeast Maryland Waste Disposal Authority 25 South Charles St. #2105 Baltimore, MD 21201-3330 FAX: (410) 333-2721

	FAX: (410) 333-2721 DESCRIPTION Practical guide for waste avoidance and recycling - appears to be a modified version Recycling Guide.
Solid Waste Reduction for Business and Industry, North Carolina	PO Box 27687 Raleigh NC 27611-7687 (919) 571 4100 DESCRIPTION Comprehensive waste reduction program for C&I waste. Summary for paper appears Business and Industry
National Recycling Coalition Buy Recycled Campaign	1101 30th Street, NW Washington, DC 20007 Tel: 0011 1 (202) 625-6406 DESCRIPTION Provides technical and legal assistance to governments and businesses on buying rec
National Buy Recycled Campaign	U.S. Conference of Mayors - 1620 Eye Street, NW Washington, DC 20006 DESCRIPTION This US EPA funded program offers local governments and interested parties technica procurement programs.
Recycled Products Information Clearinghouse Center for Earth Resources Management 5528 Hempstead Way	Springfield, VA 22151 Tel: 0011 1 (703) 941-4452 DESCRIPTION Information on EPA guidelines; detailed lists of recycled paper and paperboard manu paper fact sheets, labeling information, trouble- shooting guide for printers; and tech reduction and collection programs.
Recycleline	Tel: 0011 1 (800) 461-0707 DESCRIPTION National on-line computer database service listing recycled products, markets for rec
US Federal Procurement Guidelines for Paper Products Recovered materials (RMAN)	DESCRIPTION Covers specifications for papers from packaging to tissue papers. Final guidelines pub
50% Paper Recovery Goal & 100%	http://www.afandpa.org/Content/NavigationMenu/Environment_and_Recycling/Recy - American Forest and Paper Association

Recycled Paperboard Alliance, Annual Best Paper Recycling Awards Program.	DESCRIPTION The American Forest and Paper Association is seen to drive a number of initiatives. I recover--for recycling and reuse--50% of all the paper Americans use in the year 20
SWICH / Solid Waste Information Clearinghouse	P.O. Box 7219 Silver Spring, MD 29010 Tel: 0011 1 (301) 585-2898 DESCRIPTION SWICH is a complete database for solid waste and recycling issues. It can be access
Recycled Products Guide	P.O. Box 577 Ogdensburg, NY 13669 Tel: 0011 1 800-267-0707 DESCRIPTION Comprehensive list of several thousand recycled products from paper products to bu
Canadian Pulp & Paper Association	http://www.cppa.org/english/info/future.htm DESCRIPTION Canadian pulp and paper companies are working now to ensure that they can offer t industry competitive.
Canada - industry leadership in market expansion for use of recycled fibre	DESCRIPTION Recycling has come a long way in Canada. In 1989, there was only one newsprint mi newsprint. Today, there are 62. Investments for deinking and recycling facilities at C last eight years. In 1996 two national paper industry associations formed an alliance country. The Paper and Paperboard Packaging Environmental Council (PPEC) and the Paper Association together represent over 90 percent of paper recycling mills in Can tonnes of used paper.
The Virginia Waste Minimization Program	http://es.epa.gov/techinfo/facts/vdwm/va-fs17.html DESCRIPTION Fact Sheet: Waste Reduction in the Commercial Printing Industry

Appendix C US EPA National Office Paper Recycling Project's Office Paper Recycling Guide

US EPA National Office Paper Recycling Project's Office Paper Recycling Guide

To organise paper collection:

1. Identify any opportunities to co-ordinate with other businesses and/or your building manager for a joint recycling program.

Make contact with your local waste board or council to identify if any drop - off centres are located conveniently or

Make contact with a number of collection contractors to identify the best service.

Some questions to ask prospective recyclers, waste paper dealers, and waste contractors:

what grades of paper does the recycler collect?

What is the minimum amount required for a pickup?

Will the recycler help organize and promote your program?

What are the allowable contaminants?

Does the paper need to be consolidated into one main storage area?

Will the recycler supply recycling containers to use throughout the office and/or large bins for the main storage area?

Will the recycler provide scheduled or on-call pickups?

If you plan to take the material to a buy-back center, is it nearby and accessible?

Will the recycler pay for the paper? If so, which pricing structure is used? Several types are available.

Is the recycler willing to sign a long-term contract? (A multi-year agreement is recommended.)

Can the recycler ensure a continuing market for your paper?

Remember that with whatever system and recycler you choose, you want to ensure the longevity of your program.

Implementing a Collection Program

You and your recycler have now determined the focus of the collection program appropriate for your office. A guiding principle for a successful collection program is to keep it a simple and easy as possible. Maximizing participation is crucial.

Collection and Storage

When evaluating how to collect and where to store your paper, keep in mind:

- The types, number, and locations of containers needed.
- The personnel responsible for separating recyclable paper and transporting it to the pickup point.
- The need for a central storage area to store material between pickups.
- Local fire codes for storing paper at intermediate and central storage locations.

Offices find that participation increases when collection begins at each desk (desk-side program).

furthermore, this type of program sorts paper at its source - the desk. Employees sort their recyclable paper into special containers beside or on their desks and deposit the remaining material in their regular waste baskets. Multiple containers may be provided, if required, to sort multiple grades of paper.

Desk-side containers are emptied into intermediate collection areas located throughout the office-one intermediate container for every 15 or 20 employees is a good rule of thumb. Good sites for intermediate collection centers include areas where materials are generated such as the copy room, computer centers, and other common areas. Trash cans should be available at these sites in order to minimize unwanted trash and make it easier for people to recycle.

Make sure employees are fully versed on what materials are acceptable and unacceptable with your collection program. Doing so will help to avoid contamination. If a load is contaminated, your recycler may reject the load and you may have to pay to have the material disposed of.

Furthermore, your recyclable paper is worth more when contaminants have been minimized.

A central storage area is required to collect and store your paper between pickups. It should be easily accessible to both your recycling service (so material can be transported to the recycling facility) and to those responsible for transferring paper from the intermediate collection bins. This area must meet local fire codes. (Note: 400 pounds of paper will fill two 90- gallon drums).

Working with Your Custodial Staff

Involve the custodial staff in planning your program; as they will pay a critical role in eliminating contamination and transporting your recyclables.

Some businesses provide the custodial staff with collection carts that have two compartments – one for trash and one for recyclables. Others use existing equipment to collect trash and recyclables on alternate days. The custodial staff may simply assist with transferring recyclables from intermediate sites to the central collection point. Some offices do not involve the custodial staff at all: offices do not involve the custodial staff at all: office employees are responsible for transporting recyclables to central areas where the recycler regularly picks up the materials.

Selecting a Program Coordinator

A successful recycling program requires an enthusiastic coordinator who can foster a sense of teamwork and enlist the support of all the employees. Recycling experience isn't necessary, but the coordinator should have organizational experience and good communication skills. The coordinator's commitment and enthusiasm will be strengthened if he or she is brought into the planning process as early as possible. Depending on the number of employees in your office, several monitors may be needed to keep the program running smoothly. Monitors need to have a good rapport with other staff and a thorough understanding of how the program works.

Coordinator: The responsibilities of the coordinator may include selecting a recycler, developing the collection system, educating fellow employees, and tracking the success of the program. The coordinator also may be the point of contact for the recycler or the building manager and should work with the purchasing department to establish a "buy recycled" program.

Monitors: Monitors may be given various responsibilities, including keeping containers contaminant-free, ensuring the containers are emptied periodically, and encouraging employees to participate.

Your recycling team also should include upper management, maintenance staff, department heads, and purchasing agents. Their support will help make the most of your program - in terms of both collection of recyclable waste paper and the use of recycled products. Getting Staff to Participate

Continual promotion is key to a successful program. Your fellow office workers will participate if they are well-informed about the program and its benefits. Explain the recycling process and how they can participate by collecting recyclables and by using products made from recycled materials.

The support of your CEO or senior management is vitally important!

An effective promotional campaign includes:

Kick-off memo: A memorandum signed by your CEO and directed to all employees, highlighting the benefits of recycling and describing the program, is a good way to start your program.

Education and Promotional sessions: The kick-off memo should be supplemented by brief presentations to all employees. The "do's and don'ts" of the program and its benefits should be explained and questions answered. (Stickers with lists of what goes into each bin may be available from your recycler and are helpful informational tools.) Remember: Information on your recycling program should be included as part of the orientation of new employees.

Reinforcement and Follow-up: It is important to reinforce the new recycling habit. Keep employees informed of your company's recycling efforts, highlight new recycled products that are purchased, participation rates, quantities of waste paper that are collected, revenue earned, disposal cost savings, and any problems encountered and/or solved in company memos or newsletters. Seek suggestions for program improvement.

A successful program requires time and effort to familiarize the employees and the custodial staff with the recycling program's objectives and requirements. Employees won't participate if they don't know how the program works.

Close the Loop - Buy Recycled and Recyclable Products

Office paper collection is not enough. Remember the third arrow in the recycling symbol: the purchase of recycled content products. Quite simply, recycling is the process of remanufacturing one end product (that would otherwise be thrown away) into another useful product. If the demand for these products is reliable and significant, more competitively priced recycled products will be produced and you will have played your part in creating markets for the paper you've collected.

Every business, individual and government office must take an active role in buying products that are made from recycled paper. This means standard business papers like stationery, envelopes, newsletters and publications, copy paper, fax paper, corrugated boxes, tissue products...and many more! When making purchases for your office, it is also important to make sure that all of the paper you purchase can be recycled as a part of your office recycling program. Example: To purchase yellow legal pads when you have a white paper collection program is inappropriate. If you collect recyclable paper, but do not purchase recycled products, you discourage manufacturers of recycled products and contribute to the flooding of the waste paper market and discourage office paper recycling in the long run. Conversely, to purchase recycled paper products, but not to collect recyclable waste paper can assure recycled products to be more expensive than necessary. We must all work on closing the loop on recycling by committing to both the collection of recyclable waste paper and the procurement of recycled paper products. Recycling works only if marketable products can be made from collected materials.

By buying recycled paper products for your office, you join a growing number of businesses, institutions and government agencies who are helping complete the recycling loop. The more organizations that are willing to Buy Recycled, the more recycled products will be manufactured. You can be proud to know that every time you buy recycled paper products you demonstrate your commitment to the environment, save landfill space and set an example for other institutions to Buy Recycled, too.

Available Recycled Paper Products

Recycled paper products have come a long way since the 1970s. Today top quality products are available:

Cellulose Insulation - for office construction projects

Computer Paper - carbonless, continuous bond, form bond, and greenbar

Office Supplies - adding machine rolls, binders, dividers, files, folders, report covers, etc.

Packaging Materials - boxes, cushioning, kraft envelopes, mailing tubes, and other packing materials.

Paper Products - absorbents, paper refuse bags, books/journals, calendars, coloring books, file boxes, office recycling containers, food service containers such as bowls, trays and plates.

Office Papers - lined pads, loose leaf, note pads, spiral bound notebooks, telephone message pads, wrapping paper, etc.

Paperboard - indexes, hanging files, kraft files, linerboard, corrugating medium, pressboard, and tube stock.

Printing Papers - bond, book, coated offset, copy/xerographic, cotton fiber, cover stock, envelopes, business cards, label, mimeo, newsprint, offset, and text paper.

Tissue Papers - industrial wipers, napkins, bath tissue, facial tissue, and paper towels

* Source: Recycled Products Guide, Volume 3, Number 1, Spring/Summer 1991, published by American Recycling Markets, Inc.

Strengthen Your Purchasing Policy

The first step in buying recycled paper products is for executive management to make a commitment to buy recycled paper products. Once a commitment is made, gather information about how your organization can do its share to protect the environment, without sacrificing cost effectiveness or quality. A good place to start is by reviewing your current purchasing programs:

1. Determine the types and quantities of paper products now being used and consider using a variety of recycled paper products. If you are already purchasing some recycled products, consider expanding your program to include additional products.

2. Investigate what recycled products are now available for your needs. Sources of information about recycled paper products include:

- Your present suppliers, including paper vendors and printers. Tell your suppliers you wish to buy recycled paper and other recycled paper products and ask to be kept informed about future recycled paper products, which will become available as demand grows.
- Your state and local solid waste agencies that often maintain information on recycled paper manufacturers and suppliers.
- The Recycled Products Guide (RPG)*, which lists over 3,000 manufacturers and vendors.
- CERMA's Recycled Products Information Clearinghouse*, which maintains lists of recycled paper manufacturers and vendors.

3. Maintain quality. With recent technological improvements, there's no need to sacrifice quality when buying recycled products.

4. Review existing specifications and standards to eliminate prohibitions or limitations against recycled products. Look for clauses that restrict the use of recycled materials such as "virgin only" or "recycled materials prohibited." It is not necessary to establish new standards for recycled paper products.

5. Search out more subtle obstacles to using recycled products, such as:

- Brightness requirements or dirt counts. These restrictions are often overly stringent, relating only to aesthetic and not to performance. Note pads, for example, do not need the same brightness levels as bond paper.
- All-or-nothing clauses. Allow vendors of recycled products to offer one or more of the items covered by a solicitation rather than requiring them to submit a bid on every product. An all-or-nothing clause may prevent them from bidding.
- Quantity and availability. Recycled paper products may not be available in the quantities needed within short time frames. Therefore, allow reasonable lead times.
- Color matching. A paper-matching requirement that requires recycled papers to be the same shade as existing papers may prevent recycled paper vendors from bidding.

6. Use common definitions when possible. Commonly defined products are less expensive to produce and to purchase than custom-made items. Because there are currently no nationally accepted definitions for recycled paper products, many purchasing agents use definitions and minimum content standards established by the EPA (see page 13). These standards are currently under review by the American Society for Testing and Materials, the National Association of State

Purchasing Officials, the Recycling Advisory Council, and the Environmental Protection Agency.Check to see whether your state has labeling or emblem standards that establish definitions and minimum content standards.

7. Test recycled paper for a wide range of uses to determine how well it works in your equipment and fits your needs. Be fair. For example, do not expect recycled paper to meet higher quality standards than virgin products. Consider using a blind test so that recycled and virgin paper products can be compared without bias.

8. Most purchasing officers require vendors to certify minimum recycled content. You may wish to use a certification clause provided by the manufacturer or the sample certification included on page 14.

9. Boost the effect of your commitment to buy recycled by requiring your contractors, printers and other suppliers to use recycled paper and paper products.

What's It Going To Cost?

Many recycled paper products are no more expensive than non- recycled, virgin products. Recycled paper, particularly printing and writing paper, may cost more than comparable virgin paper, with cost differentials varying from grade to grade, and from region to region, depending on the prevailing economic conditions.

Recycled printing and writing paper, often produced by small paper mills, costs more to manufacture than virgin paper produced at larger, fully integrated mills. Other factors, such as the supply of clean source-separated waste paper, the cost of raw materials, fluctuations in the international paper market, and the demand for finished products, also affect pricing.

One effective way to reduce costs is through cooperative purchasing. Cooperative purchasing increases the volume of recycled products purchased, helps ensure availability, establishes common definitions and percentages, and lowers the cost of producing and purchasing recycled products.

Even with higher costs, many businesses, institutions and government agencies recognize the need to purchase recycled paper products and do so via preferential purchasing mechanisms, including:

1. Price preferences, which allow the purchase of recycled paper products even if they are more expensive than comparable virgin items. In general, price preferences are in the 5-10 percent range.

2. Set-aside programs that set specific percentage goals for the amount of recycled paper products to be purchased. These goals are often met by purchasing a variety of recycled products, including corrugated, tissue products, packaging, office products, and other paper products.

3. Dual track bids, which allow bids from both vendors offering recycled paper products and those offering virgin products. This system is particularly applicable to governmental bodies and larger, multi-department businesses where preferred vendors are established by bid. Approved vendors of both recycled and virgin products allow individual departments and offices a choice in meeting their paper product needs.

Make a Commitment

A commitment by executive management to purchase and use recycled products is a positive statement of policy, sets an example for other organizations and sends a clear message to manufacturers to invest in recycling equipment and make more recycled products available.

This commitment may be expressed through executive orders or corporate management directives for the purchase of recycled, reusable and recyclable paper products. State and local governments may express their commitment through ordinances and resolutions requiring their agencies and departments to purchase recycled paper products. Each employee should also make a commitment to buy recycled paper products for his or her needs.

Others have ......

AT&T recently adopted a corporate environmental policy that calls for a growing percentage of the corporate paper purchasing budge to be directed toward the purchase of recycled paper products.

McRecycle USA is McDonald's program through which the company has committed to an annual purchase of $100 million of recycled materials for the construction and equipping of its restaurants.

In its first year, 1990-1991, McDonald's exceeded that dollar amount by $24 million, purchasing a total of $124 million of recycled materials through McRecycle USA.

In addition, the company purchased more than $80 million in recycled paper for the use in its restaurants and offices in 1990.

The United States Environmental Protection Agency (EPA) has established guidelines for federal agencies, as well as agencies and contractors using federal funds, to purchase recycled paper products. In addition, all 50 states, the District of Columbia, and more than 161 local governments now have laws, executive orders, or programs favoring the purchase and use of recycled paper.

Many businesses, industries and non-profit organizations also have policies to purchase and use recycled paper products.

Phase In Your Purchasing Effort

Many recycled paper products, such as packaging materials and tissue, are widely available and can be ordered in volume to suit your needs right away. Printing and writing paper, on the other hand, may be in varying supply.

If products are not available or inadequate supplies block you from meeting all your recycled paper needs all at once, don't be discouraged! The best approach is to maintain a regular dialogue with your suppliers so you can purchase recycled products as they become available.

Keeping insisting on recycled paper products from you suppliers. A consistent, long-term demand will persuade manufacturers that a strong market for recycled paper products exists and warrants their investment in equipment and facilities to produce recycled paper and paper products.

Promote Your Program

Tell prospective vendors that you are committed to buying recycled, and if they want your business, they must be prepared to provide an increasing variety of recycled paper products on an established time schedule. Vendors will respond and importantly, they will let paper products manufacturers know what is happening in the consumer marketplace. As demand increases, so will the quality and range of available products, and, correspondingly, prices will decrease.

Buying recycled and collecting are nothing to hide! Be sure all employees are aware, and let your customers know that your organization is committed to closing the loop by buying recycled and collecting office waste paper. It is good business and will encourage others to join you. Include statements such as "Printed on Recycled Paper" where appropriate. Put announcements on the bulletin boards and office newsletters. Include references to your organization's buy recycled program in media advertising, and consider sponsoring a public service announcement.

Most importantly, now that your recycling plans are complete, it is time to officially accept the National Office Paper Recycling Challenge!

For information, call (202) 223-3089.

Tell the rest of your organization about your commitment to buy recycled so that using recycled paper products becomes a healthy habit. You may wish to:

- Survey your office to identify and overcome any problems with quality, delivery, etc.
- Record purchases, keeping accurate records of recycled product purchases to identify program successes and failures.
- Survey market developments, staying in contact with your suppliers, state and local purchasing and recycling agencies, and trade publications to keep abreast of the latest in recycled paper and paper products. You may also wish to conduct or attend vendor shows on a regular basis to give your buyers and vendors a chance to discuss the latest innovations in recycled paper products.
- Train buyers and staff about the latest products on the market and any changes in regulations and specifications.
- Conduct annual program reviews of your buy recycled program, including information on purchases by grade, volume, price and availability. You may also wish to reassess goals for the coming year, reviewing products that could not be purchased before that may have become available.
- Let other organizations know about your success and encourage them to establish similar programs.

Reduce Waste

You can support your office recycling efforts by promoting activities that reduce, avoid, or eliminate the generation of unnecessary waste. Less waste means lower waste collection and disposal costs and significant savings on future purchases. Here are some ideas:

- Make double-sided copies
- Place information on announcement boards and circulate memos rather than making multiple copies.
- Share reports and periodicals instead of duplicating or purchasing multiple copies.
- Update distribution/mailing lists periodically and remove those who no longer need the information
- Use scrap paper for notes and message pads
- Request reduced packaging in shipments
- Use non-glossy fax paper that does not require copying
- Use electronic mail
- Buy products that can be recycled in your office wastepaper collection program. (Check with your waste paper hauler to determine what is appropriate.)
- Remove your name from mailing lists of unwanted mailing lists.