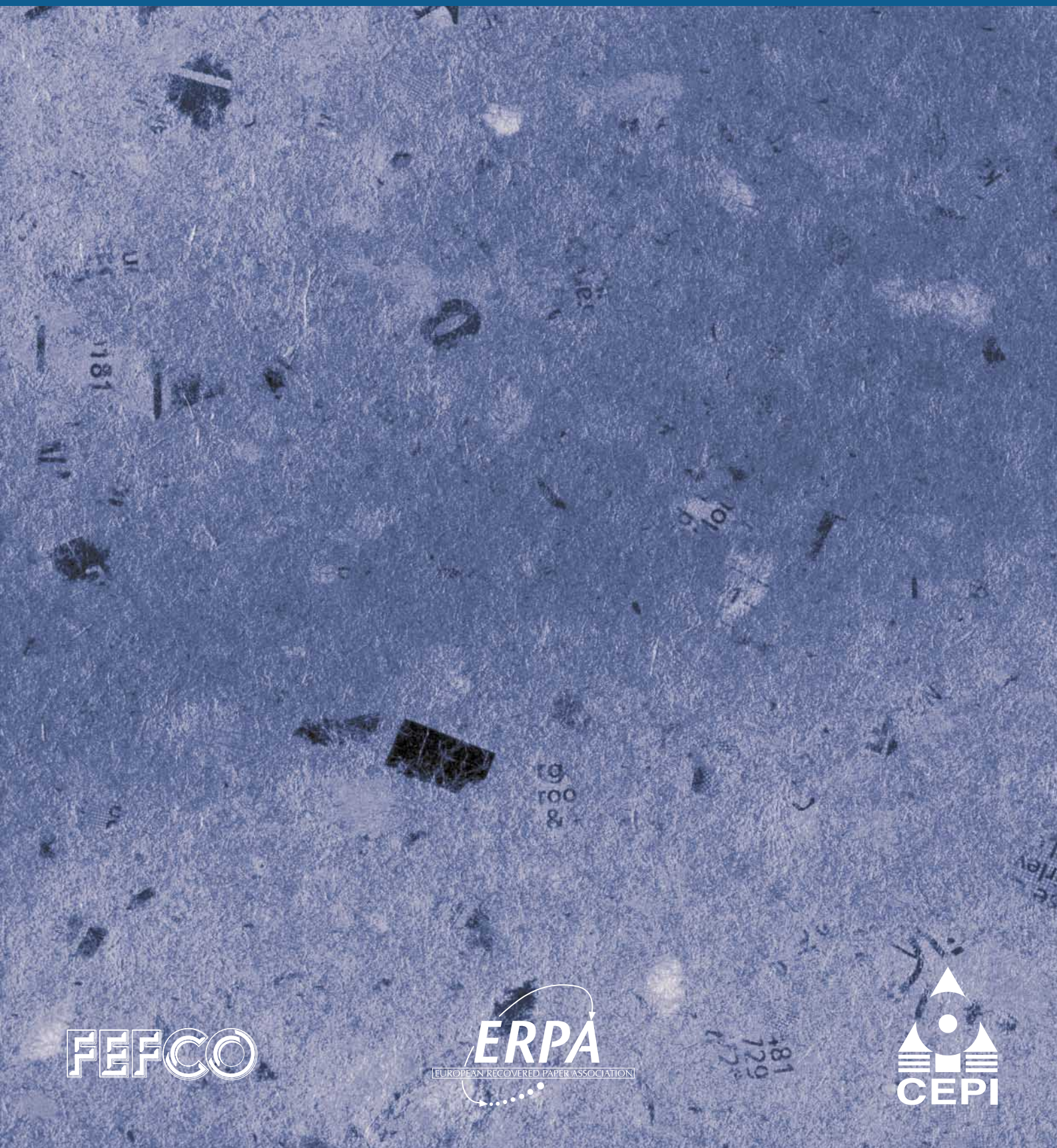
EUROPEAN RECOVERED PAPER COUNCIL

# The European Declaration on Paper Recovery

## Annual report 2001



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# Editorial

## Paper recycling: a big jump towards the target set for 2005

The aim of the European Declaration on Paper Recovery is to increase the level of paper recycling in Europe to 56% by 2005, and to further improve the environmental performance of the industry. The commitment was made because it seemed that the development of the recycling rate in Europe stagnated in the second half of 1990s.

This is the second annual report monitoring the achievements of the targets set in the European Declaration. A similar document will be produced every year until 2006, when the 2005 recycling rate is known.

As was indicated in last year's report, the major emphasis during the past year has been on the establishment of the follow-up mechanism. It is clear that reliable and transparent monitoring is of great importance when it comes to voluntary measures such as the European Declaration. Therefore, the role and importance of the European Recovered Paper Council (ERPC), which aims to monitor the progress of the European Declaration openly and transparently, cannot be underestimated.

2001 saw the arrival of a new Signatory member, when the European Federation of Corrugated Manufacturers (FEFCO) joined the two original Signatory organisations, making the set up more balanced with the converters. Efforts to attract even more parties to join the ERPC either as signatories or supporters will continue.

2001 was a very exceptional year for the paper and board industry, and for paper recycling in particular. Recovered paper collection increased by 0.8 million tonnes and was 44.7 million tonnes in 2001. This allowed the utilisation of recovered paper to increase by 0.3 million tonnes, or 0.8% in 2001, and amount to 42.0 million tonnes. The increments might sound like a modest development but when taking into account the fact that paper consumption, the other variable needed to calculate the recycling rate, decreased by 3.3 million tonnes or 4.0%, the result is excellent. Consequently, the recycling rate for 2001 is 52.1%. In other words, progress has been remarkable, and the industry is well on its way to achieve the target of 56% in 2005.

After setting up the monitoring system, the ERPC's work has become more active and systematic. An action plan was set up consisting of the following key areas: collection, communication and consumer awareness, free movement of recovered paper, quality of recovered paper, stimulation of research and development, reduction of residues during the recovery chain, and monitoring the recycling rate and data reliability. The most important achievements so far come from the area of recovered paper quality, where general principles between the buyers and sellers of recovered paper have been adopted and the work will continue in more detail. A good basis for this work is formed by the revision of the European standard EN643 establishing the Standard Grades of Recovered Paper and Board, which was completed in December 2001. Important work was achieved also in the data reliability through the adoption of the new data-reporting guidelines. The *Guide on Optimum Recyclability of Printed Graphic Paper* will in turn improve the recyclability of printed papers. A proposal to define recovered paper as a secondary raw material has also been prepared and communicated to the Commission. Work on recovered paper quality will continue, and new actions with regard to collection, communication and reduction of the residues are under way.

As the recycling rate increases, further increments will become more difficult. The role of legislation in this context also gains importance. Issues such as: the revision of the packaging and packaging waste directive, preparations with regard to the thematic strategies on sustainable resource use and recycling, the directive on renewable energy sources, the Council of Europe's Resolution on paper and board for food packaging, and the lack of progress on the issue of waste definition all play an important role in the further development of the paper and board recycling industry.

We are currently entering a new era in paper recycling in Europe. The question now is less whether the industry can recycle all the recovered paper that is being collected, but more whether the industry can get all the recovered paper it would like to recycle. Therefore, the focus in policies and legislation should be more on removing the existing and emerging obstacles such as clarifying the waste/non-waste issue, finding solutions for rejects and residues, and unnecessary limitations in the use of recovered paper in products, as well as in establishing non-distorting conditions in the raw material procurement. In fact, co-operation between all

# Editorial

the actors in private and public sectors, which have an influence on paper recovery and recycling, as well as an increased understanding with regard to the variables affecting them, is becoming more and more important. As was mentioned before, paper recycling is already at a high level in Europe, which means that further increments are becoming more demanding, and require coherency between the actions undertaken.

The increase of the recycling rate has been significant. This is partly due to market developments, such as a decrease in paper consumption, which has been surprising. Despite this, more recovered paper has been collected and utilised than in previous years, which is a remarkable achievement and shows clearly the industry's commitment to paper recycling. This, we believe, is also a result of the European Declaration on Paper Recovery.

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CEPI Recycling Committee Chairman

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ERPA President

**Jean-Pierre Lardillon**
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1 October 2002

The full text of the Annual Report is available on the CEPI website: www.cepi.org, the ERPA site: www.erpa.org and the FEFCO site: www.fefco.org

**Main developments in 2001:**

- The European Federation of Corrugated Manufacturers (FEFCO) joined the Signatories of the European Declaration.
- Recovered paper collection and utilisation increased, by 0.8 and 0.3 million tonnes respectively, despite the decrease in paper consumption.
- As a result, the recycling rate increased considerably: from 49.7% in 2000 to 52.1% in 2001.
- The European Recovered Paper Council is now fully established. The content has been developed through a work programme: collection, communication and consumer awareness, free movement of recovered paper, quality of recovered paper, stimulation of research and development, reduction of residues during the recovery chain, and monitoring the recycling rate and data reliability.
- A new era in paper recycling is about to start: raw material availability and quality are becoming more and more critical factors.
- As a result, the role of European policies and legislation should become more supportive rather than limiting.

# 1. The European Declaration on Paper Recovery

As a whole, paper recycling in Europe increased remarkably throughout the 1990s. The amount of paper collected and recycled at the end of the decade was roughly two thirds higher than at the beginning of the 90s. This means that at European level, the recycling rate was 49.2% in 1999 compared to 38.8% in 1990. In tonnage this means an increase of some 15 million tonnes.

The development was not stable however. And this for self-evident reasons: paper recycling is affected by market and legal developments. Due to a rapid increase in paper consumption the development of the recycling rate showed some stagnation in the second half of the 1990s. In response to this dual development, the initiative was taken to further improve long-term environmental protection and to close the paper loop in the form of the European Declaration on Paper Recovery.

The European Declaration on Paper Recovery was launched on 9 November 2000. It was signed by the Confederation of European Paper Industries (CEPI) and the European Recovered Paper Association (ERPA). In 2001, the European Federation of Corrugated Manufacturers (FEFCO) joined the two Signatory organisations. Three organisations from the paper chain expressed their support for the European Declaration, namely the European Federation of Waste Management and Environmental Services (FEAD), the European Paper Merchants Association (EUGROPA) and the International Confederation for Printing and Allied Industries (INTERGRAF).

The aim of the European Declaration is to increase the level of paper recycling in Europe – to achieve a recycling rate of 56% by 2005 – and to further improve the environmental performance of the industry. More concretely, the Signatories of the European Declaration on Paper Recovery commit themselves to achieve the following:

- Further improve the efficient use of raw and auxiliary materials.
- Optimise collection systems by sharing expertise with those responsible for collecting recovered paper for recycling purposes.
- Improve technical, operational and environmentally benign solutions by stimulating and supporting research and development.
- Improve awareness of paper recycling by informing consumers about their role in closing the paper loop.
- Further reduce the generation of residues during all processes in the paper and board life-cycle.
- Finally, the Signatories agree to take the necessary measures to ensure that by 2005 56% (±1.5%[1]) of paper and board products consumed in Europe are recycled.

Taking into account the expected increases in paper and board consumption, the target of a 56% recycling rate for 2005 would mean that the amount of paper and board recycled would be about 25% higher than it was in 1999. In real terms, an additional 10 million tonnes or so of recovered paper will be recycled by the European Paper and Board Industry by 2005, increasing the total amount of paper recycled per year from 39.2 million tonnes in 1999 to approximately 49 million tonnes in 2005.

The target of obtaining a higher recycling rate is a European rather than national target, since the paper and recovered paper markets work on a European level. Furthermore, collection and recovery possibilities vary from country to country. The European Declaration covers all the paper and board grades. The economic operators are then left with the responsibility and freedom to decide how to meet these targets. In other words, the European Declaration stimulates continuous progress while leaving room for market-based developments. It is up to the markets to decide in which country or area new capacity would be built and which paper and board grades to produce.

Through the European Declaration the industry makes a voluntary commitment to contribute to sustainable development in line with the overall policies of the Community. As long as the industry shows progress at meeting its self-imposed targets, then it argues that no additional legislation in the field of paper recovery and recycling is needed. The overall targets are met most efficiently when the industry is free to adapt to the needs of the individual markets and to the differentiated structure within Europe, guided by the European Declaration.

(1) A corridor of ±1.5% around the recycling rate has been introduced to adjust to the fluctuations of the international paper market. Paper and board consumption, for example, is something that the paper industry cannot influence.

## 2. The European Recovered Paper Council

The transparent and credible follow-up of voluntary self-commitments is of key importance. In order to monitor the progress towards the set targets, a European Recovered Paper Council (ERPC) was set up. The ERPC consists of the Signatory organisations CEPI, ERPA and FEFCO, the Supporter organisations EUGROPA, FEAD and INTERGRAF and the European Commission Directorates General Enterprise and Environment as Observers. Since the European Declaration, and therefore also the ERPC, is not meant to be a static measure, additional constituents will be considered. The ERPC aims to establish an open platform for interested parties to follow-up the achievements with regard to the targets set out in the European Declaration and its related topics.

According to the by-laws, the tasks of the ERPC are to:

- Co-ordinate the commitments of the Signatories.
- Provide evidence of progress achieved.
- Discuss all relevant matters regarding the successful operation of the European Declaration.
- Co-ordinate public information on the achievements of the European Declaration thereby encouraging education on paper recovery and recycling.
- Provide annual reports.

The annual reports will include measures taken, progress achieved (with specific quantification when applicable) and verifiable information on the fulfilment of the commitments of the European Declaration. However, the industry alone cannot provide continuous progress. Therefore, one major task for the ERPC is to establish an open platform to discuss topics related to the fulfilment and monitoring of the European Declaration.

# 3. Monitoring the Commitments

The year following the adoption of the European Declaration was largely spent in setting up an adequate monitoring system, i.e. the ERPC. Even though a lot of work was done, the issues have started to develop more during 2002: the ERPC's action programme was adopted and a more systematic way of working was developed.

In the 2000 Annual Report an extensive description was given of the actions taken in different Member States with regard to the commitments set in the European Declaration. As situations with regard to paper recycling vary a lot between the European countries, the measures undertaken vary as well. This year's report, in turn, will concentrate on actions taken at the European level.

## 3.1 Recycling rate in 2001

### 3.1.1 Monitoring process

In 2001, the CEPI countries included Austria, Belgium, the Czech Republic, Denmark, Finland, France, Germany, Hungary[2], Ireland, Italy, the Netherlands, Norway, Portugal, the Slovak Republic[3], Spain, Sweden, Switzerland, and the UK (data on Greece is also incorporated).

In the future, if the number of EU Member States (and/or CEPI countries) increases, the ERPC must decide how the newcomers are to be taken into account in the monitoring process.

For Denmark, Greece and Ireland the figures were estimated as the actual recovered paper utilisation figures in 2001 were not available. The total recovered paper utilisation in those countries was about 804,000 tonnes, which is 1.9% of the total CEPI recovered paper utilisation.

The statistical description of paper, board and recovered paper is based on the one used in the CEPI statistics. The data on recovered paper trade comes from official import/export data collected by national authorities. Data on recovered paper utilisation as well as production of paper and board used in the calculation come from the CEPI members, i.e. the national paper industry associations[4]. In 2001, new data reporting guidelines were adopted, and the data from 2001 presented here has been reported according to those guidelines. The purpose of these is to secure the reliability of the statistics supporting the monitoring exercise on the recycling rate (see chapter 3.2).

The definition of the recycling rate[5] is as follows:

$$\textbf{Recycling rate} = \frac{\textbf{recovered paper utilisation}}{\textbf{apparent paper and board consumption in Europe}}$$

Apparent consumption of paper and board in Europe, in turn, is defined as:

**Internal deliveries (within CEPI) + imports from outside CEPI**

When calculating the European recycling rate for 2001, the assistance of an independent consultant, Jaakko Pöyry Consulting, was used (see Annex). The consultant was asked to monitor the procedures and to highlight possible inconsistencies in the data, which then required further checking.[6]

(2) Hungarian data included as of 2000.
(3) Slovak Republic data included as of 1999.
(4) More detailed information on the data and calculations can be found in the CEPI Annual Statistics.
(5) The recycling rate definition used by the industry differs from the one introduced in the Packaging and Packaging Waste Directive (94/62/EC). The latter does not take into account the recycling of converting losses (clippings, shavings, etc.). Furthermore, the calculation used in this report only takes into account the recycling taking place within Europe. In other words, recovered paper collected in Europe but exported outside Europe to be recycled there does not contribute to the recycling rate as calculated in connection with the European Declaration.
(6) The Jaakko Pöyry Consulting report, "Monitoring the European Paper Recovery", forms an independent part of this report.

### 3.1.2 Outcome 2001

In 2001, European (CEPI countries) paper and board production was 88.2 million tonnes. During the same year the European paper and board industry utilised 42.0 million tonnes of recovered paper as raw material, and the total European consumption of paper and board was 80.7[7] million tonnes.

The European recycling rate for 2001 was 52.1%, which is 2.4 percentage points above the corresponding figure of the previous year. In other words, the recycling rate has grown considerably and the direction of the change supports the achievement of the set target in the European Declaration.

When the 56% recycling rate target for 2005 was set, the data from 1998 was used as a starting point. Data of that base-year, as well as from 1999, is shown in table 1. below, together with the outcome of 2001.

In 2001, the net trade of recovered paper amounted to 2.7 million tonnes. That amount of recovered paper was exported from the CEPI countries to third countries for recycling purposes[8].

### 3.1.3 Discussion

2001 was an exceptional year as both paper consumption and paper production decreased compared to 2000 – the former by 3.3 million tonnes and the latter by 2.5 million tonnes. However, such a decrease in paper consumption is exceptional, and obviously something over which the paper recycling industry has no control.

However, despite the decrease in paper and board consumption and production, recovered paper collection and utilisation increased. And as the recycling rate is calculated as a relation between recovered paper utilisation and paper and board consumption, the recycling rate increased compared to 2000 by 2.4 percentage points.

The recycling rate is sensitive to changes in paper and board consumption, which, as said, cannot be influenced by the paper and board industry. The last occurrence of such a dramatic situation was at the end of the 1990s, when paper and board consumption shot up by almost 9% in 1997. Even though recovered paper utilisation grew by 6%, the obvious result was a decrease in the recycling rate.

Figure 1 shows how the result of 2001 relates to the theoretical linear development from 1999 to 2005.

**Figure 1: Evolution of the recycling rate as expected in the European Declaration on Paper Recovery**

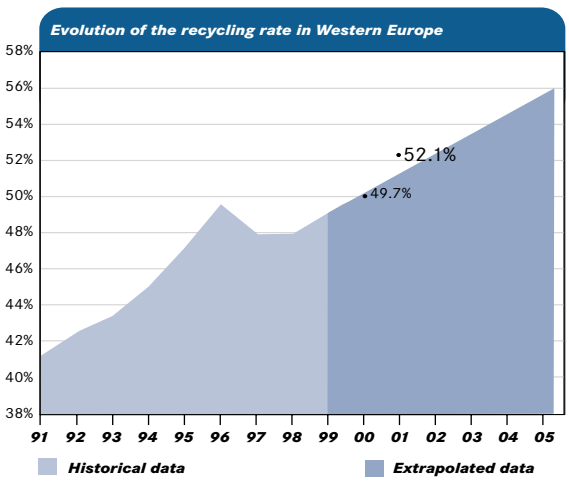



**Table 1: Recovered paper utilisation, paper and board consumption as well as recycling rates for 1998, 1999, 2000 and 2001**

| | 1998 | 1999 | Growth 99/98 | 2000 | Growth 00/99 | 2001[9] | Growth 01/00 |
|---|---|---|---|---|---|---|---|
| **Recovered paper utilisation** (in '000 tonnes) | 37,613 | 39,246 | 4.3% | 41,720 | 6.3% | 42,042 | 0.8% |
| **Paper and board consumption** (in '000 tonnes) | 78,409 | 79,699 | 1.6% | 84,024 | 5.4% | 80,673 | -4.0% |
| **Recycling rate** (in %) | 47.9 | 49.2 | +1.3 | 49.7 | +0.5 | 52.1 | +2.4 |

(7) When calculating the recycling rate, the figure on consumption of paper and board has been adjusted. This concerns two countries in 2000: Finland, where the exports of printed matter (mainly to Russia) can distort the consumption figure, and the Netherlands, where trade through the Rotterdam harbour creates distortion. In 2001, the Austrian consumption figure has also been adjusted, because of a particular problem concerning imports recorded entering Austria from Eastern Europe but being immediately shipped on. The non-adjusted consumption figure for 2000 was 84.5 million tonnes and for 2001, 81.3 million tonnes.

(8) If the net exports were taken into account, the recycling rate of 2001 would be 55.5% (see also footnote 5).

(9) For the EU countries the figures would be: recovered paper utilisation 39.5 million tonnes, paper and board consumption 76 million tonnes and recycling rate 52%.

## 3.2 Actions taken with respect to other commitments

As mentioned earlier, the first year after adopting the European Declaration was mainly spent establishing the necessary structures. In 2001, a more systematic and active way of working has been possible. An ERPC action plan was adopted which includes the following actions:

i. Collection
ii. Communication and consumer awareness
iii. Free movement of recovered paper
iv. Quality of recovered paper
v. Stimulation of research and development
vi. Reduction of residues during the recovery chain
vii. Monitoring of the recycling rate and data reliability

### Collection

The EU Landfill Directive (99/31/EC) will dramatically limit the amounts of biodegradable materials, including paper and board, destined to landfills. Furthermore, the revision of the Packaging and Packaging Waste Directive (94/62/EC) is expected to come up with increased recycling rates. Collection is also expected to become more and more challenging as the business and industry sources of recovered paper are to a large extent already covered and the relative increase mainly has to come from households, which consists of numerous small sources. Collection has therefore been identified as a key topic, and concrete actions are currently planned. In October 2002 a special conference dedicated to this topic will be organised.

A seminar on packaging collection systems was held in Rome on 23 October 2001, gathering delegates from CEPI, Comieco (the Italian consortium for the recovery and recycling of cellulose-based packaging), Assocarta (the Italian paper and board association), and industry sector organisations. The main focus was on implementing the Packaging & Packaging Waste Directive (94/62/EC), which has led to the adoption of very different national paper and board packaging collection systems. Big differences have been identified at least with respect to the following: general waste management systems, collection fees, energy recovery, household collection, apparent consumption of packaging per inhabitant, and recovery and recycling rates. This work will be continued with an aim to produce an exhaustive report on the different systems to comply with the Directive 94/62/EC.

### Communication and consumer awareness

The biggest potential to increase recovered paper collection in Europe lies with households, which means it is important to inform consumers. The European Declaration itself was translated into several languages to facilitate the communication at national level. It is on the national level that actions targeted to better inform consumers are mainly undertaken. The information is also to be found on the Internet, and an ERPC website is currently being developed which will facilitate the communication process.

### Free movement of recovered paper

Recovered paper is raw material that is widely traded within the Internal Market, but also globally – like any other raw material. Trade of recovered paper is also essential for paper recycling as the structure of the industry varies between the countries, which also has implications for the raw material structure.

The issue of the waste definition is closely linked to this problem. The Community legislation leaves it unclear when used paper and board collected for recycling cease to be waste and become a secondary raw material. CEPI and ERPA have prepared a proposal to clarify the interpretation of waste definition when it comes to recovered paper. The proposal does not challenge the existing waste definition as defined in the Framework Directive on Waste (75/442/EC and amended by 91/156/EC). It takes *Article 3*, where the extraction of secondary raw materials is defined as a recovery operation as a basis. Basically the proposal says that when waste paper has been collected and classified according to the European standard EN643, the Standard Grades of Recovered Paper and Board, it would become a secondary raw material called "recovered paper".

The existing unclear situation in many ways hampers the competitiveness of paper collection and recycling, as there are a lot of unnecessary administrative burdens for the trade as such but also for the actors in the business. Clarification of the situation would indeed enhance paper collection and recycling, by taking out the uncertainty with regard to possible future interpretations. As mentioned before, the level of paper recycling is already relatively high, and to go higher requires stable operating conditions for the industry, which is capital-intensive and based on long-term investments.

### Quality of recovered paper

The European standard EN643 – the European List of Standard Grades of Recovered Paper and Board – forms a corner stone in the quality management of recovered paper. The standard has been under revision, and the new version was eventually adopted by CEN in December 2001, and will be translated by the national standardisation bodies that are members of CEN. The standard is aimed at industry professionals, organisations and individuals with an interest in the recovered paper sector to assist them in the buying and selling of this raw material which is intended for recycling by the paper and board industry.

Over the past few months, the industry has worked to promote the use of the standard at national level in all official reports and in day-to-day operations between the paper and board companies using recovered paper and board, and the sellers of that material. The standard will help to secure the quality of the recovered paper supply to the paper mills and improve the traceability of the paper industry's raw materials, thereby contributing to meet the European Declaration's targets.

However, there is always room for additional improvement in the quality of the recovered paper. In 2000 a mapping of existing quality control systems applied in paper mills was carried out. Following this, work has intensified to promote proper and efficient recovered paper quality control systems and to develop a partnership between paper mills and recovered paper plants (used paper and board collectors and merchants). As a result, a preamble and some general principles have been drafted as well as some documents on baling conditions and delivery conditions.

More detailed recommendations on applied techniques and supplying conditions by main grades (packaging, deinking) will be elaborated on in a second phase. The following key areas have been identified: baling conditions, delivery conditions, training & education, technical controls and type of origin & traceability – the last point is very important for the paper industry as well as the paper packaging industry in particular.

### Stimulation of research and development

One of the factors, which enabled the increase in paper recycling, is technological development in the areas of collection and quality control of recovered paper, recycling technologies, and the recyclability of the products.

In March 2002, a document called "*Guide to an Optimum Recyclability of Printed Graphic Paper*" was adopted. It tackles the treatment of recovered paper in the area of deinking, which is becoming more difficult. It looks at how increased collection rates bring lower quality recovered paper. It also shows how increased recycling leads to lower shares of virgin fibres in recovered paper, and how lower grammage of paper leads to unfavourable ratios of ink vs. paper. The guide has been adopted jointly by the following organisations:

- European Federation of Paint, Printing Ink & Artists' Colours Manufacturers Association (CEPE).
- Confederation of European Paper Industries (CEPI).
- European Federation of Magazine Publishers (FAEP).
- Association of European Adhesive Manufacturers (FEICA).
- International Research Association Deinking Technology (INGEDE).
- International Association of the Printing & Allied Industries (INTERGRAF).

### Reduction of residues during the recovery chain

Within the paper chain attention is paid to minimising residues generated during recovery and recycling processes. Nevertheless, due to the nature of the raw material, a certain amount of residues are inevitably generated, such as non-paper components, paper and board detrimental to production as well as deinking and other sludges. The volume of the recycling process' residues is substantial, even though it is lower than the amount of waste that would exist if used paper and board went directly to landfills. Final disposal of these residues is becoming a problem, which has started to hamper paper recovery and recycling, as the disposal of these residues is the responsibility of the recycler.

As the paper industry represents the phase in the paper chain where the issue of production residues is the most burning one, CEPI is preparing a document on the production residues, where due attention will be given to the residues from recycling. It is the aim of the industry to introduce this problem to the Commission in light of the Thematic Strategies on the Sustainable Use of Resources and Waste Recycling it is preparing within the auspices of the 6th Environmental Action Programme.

### Monitoring of the recycling rate and data reliability

In order to secure and improve the reliability of the statistics supporting the monitoring exercise on the recycling rate, a set of guidelines was adopted in 2001. These guidelines have been sent to the national paper industry associations, which provide country data, to be applied when collecting and reporting the data needed to calculate the annual recycling rate.

Although the calculation of the recycling rate involves only 2 variables – recovered paper utilisation and paper and board consumption – the compliance of the grade definitions (both recovered paper and paper and board), with the main concepts/definitions and with the ratio definition is essential. Recommendations on statistics management also need to be made. The guidelines comprise the following:

1. Conceptual definitions have to be respected when reporting data.
2. Grade definitions have to be respected when reporting recovered paper and paper and board data.
3. The source has to be indicated when data reported does not come from the member companies.
4. When the data reported are estimated, this needs to be mentioned explicitly. The estimating method should also be mentioned.
5. Data collected has to be stored for at least 5 years after publication.

It has also become clear that more sophisticated data is needed to improve the knowledge of the European recovered fibre flows. Several areas of importance have been identified: share of non-collectable and/or non-recyclable volumes of paper and board; other end-use purposes of recovered paper that could be considered as recovered paper utilisation (composting, insulation materials, egg shells, etc.); amount and source of converting losses (shavings, clippings, etc. from printers and packaging producers); amount of used paper destined to energy recovery and finally to landfills; and the relative importance of the main collection channels. These issues will be systematically handled over the coming years.

# 4. Development in the Political Field

The paper industry, a very capital-intensive industry, requires stable and predictable operating conditions. In this respect, the political and legislative framework has a big influence on paper recycling and the achievable recycling rates.

At the moment, the most topical issues are:

### Revision of the Packaging and Packaging Waste Directive (94/62/EC)

Without question, the issue of the year in the recycling field has been the revision of the Packaging and Packaging Waste Directive. The Commission finalised its proposal in December 2001, after which the European Parliament and the Council have started to process it.

The paper and paper packaging industries' biggest concerns are the proposed material-specific minimum recycling targets, promotion of reusable packaging over recyclable, and the enforcement of prevention.

The material-specific minimum recycling targets proposed by the Commission differ greatly between the packaging materials. As there are always costs involved in every recovery system, differentiated targets may well influence the competition between the packaging materials. This is an aspect that has so far not been looked at in the different background studies.

The industry also believes that recycling and reuse systems should be equally encouraged – reusable packaging should not be encouraged regardless of the environmental justifiability. In many applications, recyclable packaging has proven to be superior to reusable packaging, especially when packaged goods are transported over long distances.

When defining prevention, the perspective must be broad. Quantitative prevention targets based on weight reduction would compromise the functionality of the packaging, and lead to undesired substitution between different packaging materials. When it comes to paper and board, it would also be in contradiction with higher recycling targets, seeing that at a given packaging performance, higher recovered paper utilisation in a paper substrate is generally equal to greater weight.

### Waste definition

The Commission has not taken the process further with regard to the study of the waste definition of scrap metals and "waste" paper, since it was started in spring 2000. This is a pity, as the issue is becoming more and more difficult for the paper recycling industry: for instance, there are problems with recovered paper transports, and paper mills using recovered paper have to apply for the waste permits. CEPI and ERPA have together made a proposal to clarify the interpretation of waste definition when it comes to recovered paper, which will hopefully lead to a continuation of the process initially started by the Commission.

### Thematic strategies

Within the auspices of the 6th Environmental Action Programme, the Commission will draft thematic strategies on several subjects. The thematic strategy on the Sustainable Use of Resources, as well as the one on Waste Recycling are expected to be the most relevant ones from the paper recycling industry's point of view. The borderline between these two strategies is a tenuous one, as waste and recycling should be seen as part of the resource policies. The industry hopes the Commission will use these thematic strategies to analyse the achievements of the existing legislation. Only then can there be an efficient analysis of new legislation, and a proper amendment of the existing one. It is also expected that the thematic strategies would take the environmental policies of the Community towards a more holistic approach.

### Directive on promotion of electricity produced from renewable energy sources (2001/77/EC)

This Directive was approved in September 2001. It defines recovered paper as a renewable energy source, the burning of which can receive public subsidies. This could lead to a potential threat to future availability and impact on the price of recovered paper. As a result, certain recovered papers that would have otherwise gone to recycling could in the future go to energy generation.

### Standardisation of solid recovered fuels

In general the standardisation of waste to be recycled or recovered as energy is important. The standardisation of solid recovered fuels is planned to cover used paper as well. Naturally, there are certain fractions of used paper that are not suitable for recycling, but could well be incinerated. However, the raw material availability for recycling must be safeguarded by excluding paper separately collected and suitable for recycling as defined in the Standard List of Recovered Paper and Board (EN643). Combined with the above mentioned Directive on producing electricity from renewable energy sources, the implications of the solid recovered fuels standardisation could be very detrimental to paper recycling.

### Food contact

The Council of Europe has published the annex to its resolution on paper and board for food contact, which seeks to regulate the use of recovered fibre. Whilst accepting the need for restrictions based on public health criteria, the industry continues to oppose the arbitrary restriction, as mentioned in the annex, on certain grades intended to form part of short-term contact packaging. An industry-funded R&D project is currently in progress to support this case.

The revision of the European List of Standard Grades of Recovered Paper and Board (EN643) is welcomed in the food contact context too. Its exclusion of mixed municipal waste adds additional emphasis to the prohibition of other materials, detailed in the Council of Europe annex.

### 6th Framework Programme for Research

The 6th Framework Programme for Research (FP6) that will start in January 2003 is intended to integrate research efforts on a European scale. FP6 comprises 7 Priority Areas. One of these areas, entitled "Sustainable Development" encompasses R&D activities in "recycling within the integrated forestry/wood chain", which is an explicit statement of the importance of research connected with paper and board recovery and recycling. Another area, devoted to "Materials and Processes", also gives room for research aiming at improving recycling processes. The paper industry certainly hopes that the emphasis now given to recovery and recycling in the FP6 will be maintained and be part of the final programme.

# 5. Conclusions

2001 was a very exceptional year. Paper consumption decreased, to 80.7 million tonnes (-3.3 million tonnes), as did paper production which went down to 88.2 million tonnes in 2001 (-2.5 million tonnes). Despite this, recovered paper collection and utilisation continued to grow – the latter to 42.0 million tonnes (+0.3 million tonnes). This, we believe is at least partly due to the European Declaration on Paper Recovery. As a result of this mixed development, the recycling rate – which is a relation of paper consumption and recovered paper utilisation – increased by 2.4 percentage points resulting in a 2001 recycling rate of 52.1%.

With respect to the other commitments set out in the European Declaration, the work is on its way, both at European and national level. After setting up the European Recovered Paper Council – the monitoring mechanism, whose role is essential in ensuring credible and transparent reporting on the achievements – a more systematic and active plan of action has been set out. It covers the issues of recovered paper quality, where progress has been achieved together with recovered paper buyers and sellers. This facilitates the achievement of the higher recycling rate, as well as the reduction of the residues generated during the recovery chain. A guide to improve the recyclability of the printed graphic papers has also been adopted. And data-reporting guidelines have been prepared and adopted in order to improve the credibility of the recycling rate calculation. All in all, the work is under way, and several actions to better contribute to the achievement of the set targets are being prepared.

Development in the area of Community policies and legislation has been fairly active during the past year. However, many questions are still open: for example, would material-specific minimum recycling targets – if adopted in connection with the revision of the Packaging and Packaging Waste Directive as the Commission proposes – influence the competition between the packaging materials? Will the lack of progress on the issue of waste definition really restrict paper recycling, and will there be subsidies for burning recovered paper as a renewable energy source? All these will have an impact on paper recycling and the levels that are achieved in the coming years.

# Annex

Final Report 4 June 2002

Jaakko Pöyry Consulting
Monitoring European Paper Recovery

## Contents

1. Summary
2. The Recycling Rate Calculations
3. Stages of the Study Preparation Process
4. Conclusions and Recommendations

## 1. Summary

### Background

The main objective of this paper is to support the monitoring of the European Declaration on Paper Recovery. This report is the second progress report after the signing of the European Declaration, and the purpose of the report is to describe and analyse the paper recovery development in 2001. This report also tries to give recommendations about issues that should be taken into account in achieving the set target recycling rate of 56%.

Data in this study are based on answers received from the European national paper industry associations in 2002 and Jaakko Pöyry Consulting's (JPC) estimates. The definition of Europe (CEPI countries) covers 19 countries, which are members of CEPI.

### Definitions

**Recovery:** Principle of waste management policy including reuse, material recycling, composting and energy recovery, as well as exports for similar purposes.

**Recycling:** Reprocessing of recovered paper in a production process for the original purpose or for other purposes, including composting but excluding energy recovery.

**Collection:** Separate collection of paper and paper products from industrial and commercial outlets, from households and offices for recovery. (Collection includes transport to the sorting or recycling plant/paper mill.)

**Collection rate:** The ratio between collection and consumption of paper.

**Recovered paper utilisation:** Utilisation means use of recovered paper as raw material, to produce new products.

**Utilisation rate:** The ratio between recovered paper utilisation and paper and board production.

**Recovery rate:** The ratio between paper and paper products recovered and paper consumption.

**Recycling rate:** The ratio between recovered paper utilisation and paper and paperboard consumption.

**CEPI countries:** Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece[10], Hungary[11], Ireland, Italy, the Netherlands, Norway, Portugal, Slovak Republic[12], Spain, Sweden, Switzerland, United Kingdom.

## 2. The Recycling Rate Calculations

In 2001, European (CEPI countries) paper and paperboard production was 88.2 million tonnes. During the same year the European paper and paperboard industry utilised 42.0 million tonnes of recovered paper as raw material. The average recovered paper utilisation rate was 47.7%. In 2001, the total European consumption of paper and paperboard was 80.7 million tonnes, of which 55.4% or 44.7 million tonnes were collected.

The European recycling rate in 2001 was 52.1%, which is 2.4 percentage units above the corresponding figure of the previous year. It can therefore be stated that the recycling rate has grown considerably and the direction of the change supports the achievement of the set declaration target. The industry demand for recovered paper increases continuously, which also increases collection.

When comparing the 2001 figures with the corresponding ones of the previous year, the following statements can be made:

- paper consumption down by 3.3 million tonnes
- paper production down by 2.5 million tonnes
- recovered paper collection up by 0.8 million tonnes
- recovered paper utilisation up by 0.3 million tonnes

(10) Data on Greece is also included even though it is not officially a CEPI member.
(11) Hungarian data included since 2000.
(12) Slovak Republic data included since 1999.

- collection rate up by 3.1% units
- utilisation rate up by 1.7% units
- recycling rate up by 2.4% units

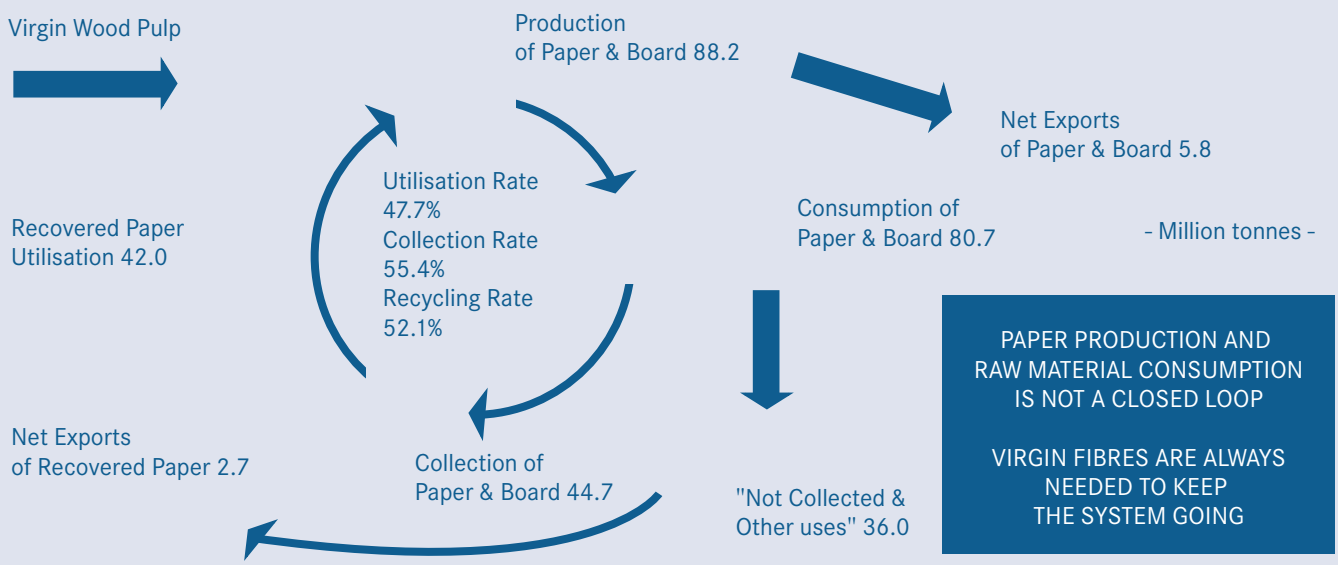
The big reduction in paper consumption in 2001 compared with 2000 can be explained by the slower economic growth in 2001 and exceptionally high paper consumption in 2000.

A summary of the historical development of the basic variables during the period 1998-2001 is shown in Table 2-1. The relation between paper and paperboard and recovered paper is shown in Figure 2-1.

**Table 2-1: Basic Statistics, Total CEPI Figures 1998-2001**

| Million tonnes | 1998 | 1999 | 2000 | 2001 |
|---|---|---|---|---|
| Paper and Paperboard Consumption (A) | 78.4 | 79.7 | 84.0 | 80.7 |
| Paper and Paper Production (B) | 83.3 | 86.0 | 90.7 | 88.2 |
| Recovered Paper Collection (C) | 38.9 | 41.8 | 43.9 | 44.7 |
| Recovered Paper Utilisation (D) | 37.6 | 39.2 | 41.7 | 42.0 |
| Collection Rate (%) (C/A) | 49.6 | 52.4 | 52.3 | 55.4 |
| Utilisation Rate (%)(D/B) | 45.1 | 45.7 | 46.0 | 47.7 |
| **Recycling Rate (%) (D/A)** | **48.0** | **49.2** | **49.7** | **52.1** |

**Figure 2-1: CEPI Countries - Fibre Flows in Paper and Paperboard Production in 2001**



The statistical description of the paper, paperboard and recovered paper situation is based on actual CEPI statistics received from the national paper industry associations.

In those countries where the actual figures for 2001 were not available the figures were estimated. These countries were Denmark, Greece and Ireland. The total recovered paper utilisation in these countries was 1.9% of the total CEPI recovered paper utilisation.

The input material for the year 2001 includes the following variables and grade definitions:

- **Paper and paperboard production** by grade (newsprint, printing and writing paper (4 grades), case materials, cartonboards, wrappings, other paper and paperboard for packaging, household & sanitary, others, total paper & paperboard).
- **Paper and paperboard consumption** by grade (same grade deviation as above).
- **Recovered paper utilisation by sector.** Recovered papers are divided into four groups (mixed grades, corrugated and kraft, newspapers and magazines, high grades). Recovered paper end-use sectors are newsprint, other graphic papers, case materials, cartonboards, wrappings up to 150g/m$^2$, other paper & paperboard for packaging, household & sanitary, others, total paper and paperboard and de-inked market pulp. The volumes and shares of different recovered paper grades of the total RP consumption were:

| | | |
|---|---|---|
| Mixed Grades | 8.7 million tonnes | 20.7% |
| Corrugated | 16.6 million tonnes | 39.6% |
| News & Magazines | 11.2 million tonnes | 26.7% |
| High Grades | 5.5 million tonnes | 13.0% |
| **Total** | **42.0 million tonnes** | **100.0%** |

- **Apparent collection of recovered paper.**
- **Recovered paper trade** (total recovered paper imports and exports from/to other CEPI countries and from/to countries outside CEPI). In 2001, the CEPI countries exported 11.5 million tonnes and imported 8.8 million tonnes. The recovered paper net exports amounted to 2.7 million tonnes. This means an increase of 0.5 million tonnes from the previous year's net export level of 2.2 million tonnes[13].
- **Volume of non-collectable/non-recyclable paper and paperboard** (e.g. household & sanitary paper, cigarette paper)[14].
- **Recovered paper utilisation for other uses** (outside the paper industry, e.g. composting, production of insulation materials). Answers were received from 8 countries only. This material does not make it possible to estimate a total figure for the whole region. Attention has to be paid also to this issue in future studies because recovered paper consumption for other uses can be regarded as recovered paper utilisation.

The European production and consumption of paper and paperboard as well as the utilisation and collection of recovered paper by country in 2001 are shown in Table 2-2.

(13) If the net exports had been taken in the calculation, the recycling rate would have been 55.4% in 2001.
(14) Only 10 countries out of 19 were capable of answering this question. In the 10 countries, the average share of non-collectable or non-recyclable papers and paperboards was 12.7% of the total paper and paperboard consumption. These countries represent 64% of the total European paper and paperboard production. If the corresponding figure was used as an estimate for the whole of Europe, and given the fact that the total European paper and paperboard consumption was 80.7 million tonnes in 2001, the volume of non-collectable/non-recyclable papers and paperboards could be estimated at 10.2 million tonnes.

**Table 2-2: CEPI – European Paper and Paperboard and Recovered Paper Statistics by Country in 2001**

'000 tonnes

| | Paper & Paperboard | | Recovered Paper | | | | |
|---|---|---|---|---|---|---|---|
| Country | Production | Consumption | Utilisation | Collection | Net Trade | Utilisation | Collection |
| **Austria** | 4,250 | 1,954 | 1,890 | 1,274 | -616 | 44.5% | 65.2% |
| **Belgium** | 1,662 | 3,064 | 605 | 1,569 | 964 | 36.4% | 51.2% |
| **Czech Republic** | 874 | 992 | 393 | 426 | 33 | 45.0% | 42.9% |
| **Denmark** | 361 | 1,395 | 377 | 633 | 256 | 104.4% | 45.4% |
| **Finland** | 12,502 | 1,004 | 698 | 716 | 18 | 5.6% | 71.3% |
| **France** | 9,625 | 11,365 | 5,566 | 5,358 | -208 | 57.8% | 47.1% |
| **Germany** | 17,879 | 18,767 | 11,526 | 13,947 | 2,421 | 64.5% | 74.3% |
| **Greece** | 495 | 1,247 | 380 | 380 | 0 | 76.8% | 30.5% |
| **Hungary** | 494 | 728 | 350 | 331 | -19 | 70.9% | 45.5% |
| **Ireland** | 43 | 490 | 47 | 134 | 87 | 109.3% | 27.3% |
| **Italy** | 8,922 | 10,735 | 5,089 | 4,680 | -409 | 57.0% | 43.6% |
| **Netherlands** | 3,174 | 3,826 | 2,320 | 2,430 | 110 | 73.1% | 63.5% |
| **Norway** | 2,219 | 842 | 439 | 555 | 116 | 19.8% | 65.9% |
| **Portugal** | 1,419 | 1,011 | 347 | 445 | 98 | 24.5% | 44.0% |
| **Slovak Republic** | 696 | 402 | 266 | 156 | -110 | 38.2% | 38.8% |
| **Spain** | 5,132 | 6,402 | 4,196 | 3,496 | -700 | 81.8% | 54.6% |
| **Sweden** | 10,534 | 2,202 | 1,832 | 1,431 | -401 | 17.4% | 65.0% |
| **Switzerland** | 1,718 | 1,687 | 1,109 | 1,169 | 60 | 64.6% | 69.3% |
| **UK** | 6,204 | 12,560 | 4,612 | 5,552 | 940 | 74.3% | 44.2% |
| **Total CEPI** | **88,203** | **80,673** | **42,042** | **44,682** | **2,640** | **47.7%** | **55.4%** |

Table 2-3 shows the consumption of different recovered paper grades by end-use sector in 2001.

**Table 2-3: CEPI – Utilisation of Different Recovered Paper Grades by End-use Sector**

'000 tonnes

| | | RP Utilisation | | | | | |
|---|---|---|---|---|---|---|---|
| **Total CEPI 2001** | **Paper Production** | **Mixed** | **Corrugated** | **News & Mags.** | **High Grades** | **Total RP** | **Utilisation rate** |
| Newsprint | 10,723 | 220 | 0 | 7,129 | 77 | 7,426 | 69.3% |
| Other Graphic | 32,995 | 56 | 24 | 1,949 | 801 | 2,830 | 8.6% |
| **Total Newsprint + O.G.P** | **43,718** | **276** | **24** | **9,078** | **878** | **10,256** | **23.5%** |
| Case Materials | 20,318 | 4,109 | 13,379 | 269 | 707 | 18,464 | 90.9% |
| Carton boards | 7,339 | 1,665 | 700 | 710 | 826 | 3,901 | 53.2% |
| Wrappings | 3,510 | 323 | 480 | 106 | 386 | 1,295 | 36.9% |
| Other P & B for Packaging | 3,977 | 1,484 | 817 | 234 | 94 | 2,629 | 66.1% |
| **Total Packaging papers** | **35,144** | **7,581** | **15,376** | **1,319** | **2,013** | **26,289** | **74.8%** |
| **Household & Sanitary** | **5,400** | **394** | **87** | **700** | **2,307** | **3,488** | **64.6%** |
| **Others** | **3,941** | **429** | **1,178** | **116** | **286** | **2,009** | **51.0%** |
| **TOTAL** | **88,203** | **8,680** | **16,665** | **11,213** | **5,484** | **42,042** | **47.7%** |
| **Share of RP Grades** | | **20.7%** | **39.6%** | **26.7%** | **13.0%** | | |

## 3. Stages of the Study Preparation Process

For the calculation of the 2001 recycling rate, the following procedures and stages were used:

1. checking the format of answer tables
2. informing national associations about the contents and timetable
3. reliability check of the received data
4. sending reminders in case of missing data
5. estimating figures in case of unobtainable data
6. final reliability check of the received data
7. analysis of the received data, producing summary tables and conclusions
8. writing the draft report, commenting on it and accepting the final version of the report

## 4. Conclusions and Recommendations

2001 was a special year because both paper production and consumption volumes decreased from the previous year's level. Different rates (e.g. utilisation rate and recycling rate) are the result of relationships between different variables (e.g. paper consumption, etc). This is why utilisation and recycling rates in 2001 may be artificially high due to the special nature of the year in question.

Utilisation of recovered paper keeps on growing in Europe. At the same time, the structure in the demand of the different recovered paper grades is expected to change towards two specific grade-groups, i.e. old newspapers and magazines, and high grades. There will inevitably be a shortage of certain recovered paper grades. As a consequence, more sorting of mixed grades is needed to satisfy the changing demand structure. This work is very challenging because together with increased collection activities the average quality of collected paper is expected to go down. This is why special attention should be paid to developing the collection and sorting systems and improving the sorting techniques in Europe, in order to develop an optimal utilisation of the European recovered paper resources.

Indicators like the collection rate (55.4% in 2001) are misleading as such because the divisor is the total paper and paperboard consumption. According to the findings of this study the real average European paper collection rate would already be about 59.6%, if the volume of non-collectable and non-recyclable papers was deducted from paper and paperboard consumption.

When calculating the recycling rate, other uses (like composting, insulation, egg trays) and exports for similar purposes outside the CEPI countries can be added to the utilisation figure (according to the definition). This would naturally have an upward-moving effect on the recycling rate. In the coming years these statistics should be put into order. However, only a small share of the countries is currently capable of delivering this data.

Due to increased recycling, the quality of recovered paper deteriorates. A comprehensive study should be made to estimate the increasing demand in recovered fibre caused by the fibre degeneration. In the previous study it was estimated that the value of the degeneration variable would be 1.5 percentage units in 2005.

With a better analysis and development of the statistics (other uses), as well as optimisation of the European recovered paper potential (collection, sorting and co-operation between the end users and collectors), it seems that the recycling rate of 56% is possible to achieve by 2005. In any case, the European paper recycling industry has to take an active role both in developing this optimising process, as well as in informing the general public.

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