



MONITORING REPORT 2016

European Declaration on Paper Recycling 2016-2020



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PAPER RECYCLING CHAIN ON TRACK, BUT 2020 TARGET WILL BE DIFFICULT TO REACH

1

Since 2000, the European paper value chain has been committed to the two-fold aim of increasing recycling and joining efforts to remove obstacles hampering paper recycling in Europe. The signatories of the new European Declaration on Paper Recycling have declared their commitment to reach 74% paper recycling by 2020.

In 2016, 72.5% of all paper consumed in Europe was recycled. Relative to 2015, the collection of paper for recycling increased by 0.9%, reaching 59.5 million tonnes. In parallel, paper consumption slightly decreased, totalling 82.1 million tonnes.

These two factors drove a considerable increase in the recycling rate: from 71.9% in 2015 to 72.5% in 2016. Significantly, this means collection and recycling of paper has increased by 0.5 million tonnes compared to the base year of the Declaration (2015).

Clearly, an important step has already been taken towards reaching the 2020 target of 74% paper recycling.

However, we are now fast approaching our maximum potential, since 22% of paper consumption can neither be collected nor recycled.

Changing consumption patterns are affecting the most recycled paper products. Newspaper consumption continued to decline in 2016. Increased consumption of corrugated boxes, the other most recycled paper product, is only partly compensating

the challenge to the overall recycling rate of declining graphic (printing and writing) paper consumption.

For the commitment period 2016 to 2020, recycling rate calculations have been independently verified by Deloitte.

2016 also features positive achievements at regional level. The number of countries with a recycling rate below 60% has further dropped to nine. Equally, 17 countries now have recycling rates exceeding 70%, an increase of three, since 2015.

On an international level, Europe continues to be the world champion in paper recycling, followed by North America. Other world regions' paper recycling rates are improving, but coming from lower levels. In Europe, paper fibres are recycled 3.6 times on average, significantly outperforming the world average of 2.4 times.

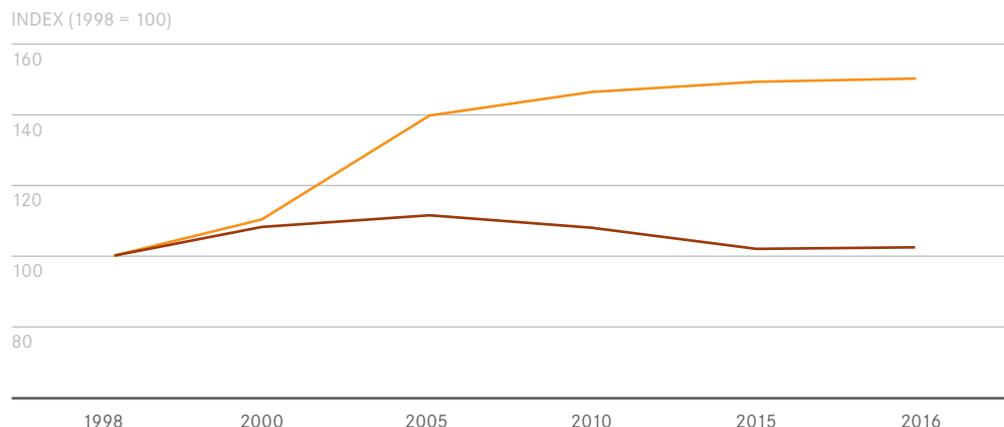
While the EU is discussing how to transition to a circular economy, the paper fibre loop can serve as a model for circularity. Paper recycling is an industry 'Made in Europe'. It prolongs value creation and creates job opportunities in Europe from a renewable, predominantly European resource, wood.

Driving year-on-year improvements in the ease and simplicity of recycling requires a huge effort from the paper value chain.

Our report details these continuing efforts, underlining our pride in the progress we have made.

PAPER RECYCLING VS PAPER CONSUMPTION

— Paper Recycling
— Paper Consumption



RECYCLING RATE 2016: 72.5%

The recycling rate in Europe increased to **72.5%** in 2016.

In a year to year comparison, the total amount of paper collected and recycled in the paper sector increased by 0.9% to 59.5 million tonnes, while consumption of paper decreased by 0.1%.

On a longer-term perspective, recycling has increased by 49% (19.5 million tonnes) since 1998, the base year for the first voluntary commitment set in the European Declaration on Paper Recycling.

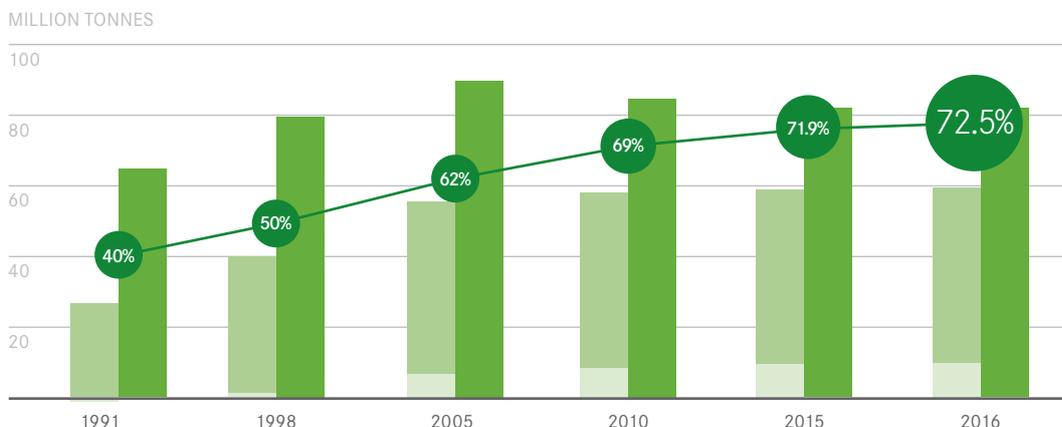
In strong contrast, consumption since 1998 increased until 2007, dropped back to its initial level in the following years, and has only slightly recovered since 2014.

A net volume of 9.8 million tonnes (16.5%) of the total 59.5 million tonnes was bought by third countries for recycling outside the commitment region of EU-28 plus Norway and Switzerland, mainly China.

EUROPEAN RECYCLING 1991-2016

Source: CEPI 2016

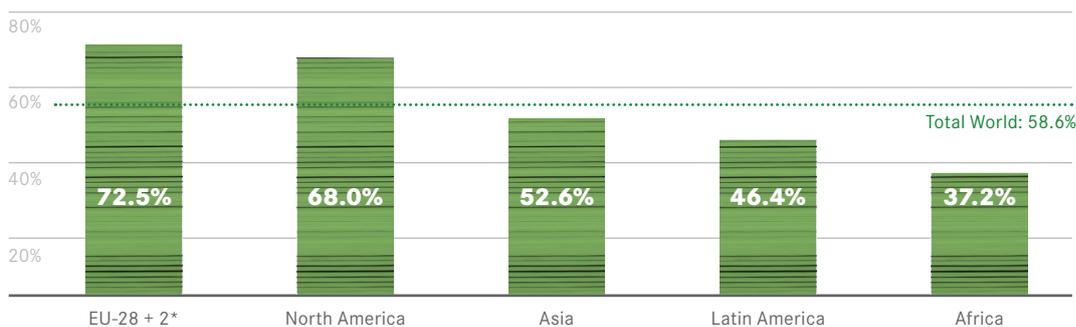
- Recycling outside Europe
- Recycling inside Europe
- Paper and Board consumption in Europe
- Recycling Rate



RECYCLING RATE IN WORLD REGIONS IN 2016

Source: CEPI, RISI - 2016

* EU-28 + 2: EU-28 + Norway and Switzerland



Europe is the paper recycling champion!

NATIONAL RECYCLING RATES IN EUROPE

17 European countries exceeded the 70% recycling rate (14 in 2015). 9 European countries were below 60% (10 in 2015).

Source: CEPI 2016

PROGRESS IN QUALITATIVE TARGETS

3

EPRC members, representing 12 sectors along the paper value chain, have committed to improving the recycling rate by 2020. By joining the European Declaration on Paper Recycling, they have demonstrated their commitment to qualitative targets. EPRC members are actively involved in initiatives to facilitate the recycling process and increase recycling activity. These notably include collection and applying ecodesign to paper products.

COLLECTION

Four main elements have helped improve paper collection in Europe: Promoting the collection of all packaging in legislation, national initiatives on paper collection, as well as measures to improve quality control and the EU project IMPACTPapeRec (see Education and Information, page 6).

CEPI has been actively involved in IMPACTPapeRec¹, an EU-funded Horizon 2020 programme with a two-fold aim: On the one hand, to further increase the separate collection of paper for recycling. On the other hand, to promote appropriate schemes to avoid landfilling and incineration.

A consortium has been formed to cooperate on this issue, made up of 19 partners from municipalities, companies in the waste management, paper and retail industry, extended producer responsibility schemes, research institutes and NGOs.

CEPI and INGEDE played a leading role in building the consortium. It focuses on countries with paper recycling rates below 60% such as Poland, Romania and Bulgaria, as well as countries where used paper from households is mainly collected through comingled systems rather than separated at source.

The project was launched in February 2016, scheduled to run until the end of January 2018. It marks an evolution from the commitment on separate paper collection in the European Innovation Partnership on Raw Materials “IMPACT – Introduction and Improvement of Separate Paper Collection to avoid landfilling and incineration”.

FEPE was strongly involved in the creation of an EU Ecolabel for paper carrier bags and stationery products, including paper envelopes. This label has been available for certification since late 2014. FEPE has closely supported members in the process of certification, and promotes the uptake of this EU Ecolabel to envelope manufacturers and stationery companies. In support of this, FEPE is continuing with its ongoing media campaign to promote the EU Ecolabel to paper converters.

National initiatives on paper collection have also continued, such as the “Pajaritas Azules” (Blue Birdies) campaign by Spanish CEPI member association ASPAPEL. Blue Birdies is a tool developed by ASPAPEL for Spanish municipalities aimed at improving the separate collection of paper and board and achieving the recycling targets set by the Waste Directive.



Paper fibre is reused 3.6 times on average in Europe

EUROPEAN FIBRE LOOPS 2016

Source: CEPI 2017

Each municipality is assessed according to the number of aims achieved per year, and rewarded with a certain number of Blue Birdies (paper birds). Municipalities receive special recognition consisting of one, two or three Blue Birdies based on an objective scoring system. These rewards may be kept, increased or lost the following year.

ACE has actively promoted the collection of all packaging to secure its recycling, notably in the framework of the review of EU waste laws. ACE members are committed to supporting and promoting beverage carton recycling across Europe. They ensure that all the materials used in their packaging are recyclable and facilitate and promote recycling by sharing best practice among recyclers. In parallel, they support the development of recycling solutions, and help packaging recovery organisations and local authorities set up collection schemes, e.g. various Green Dot schemes in Europe. ACE members initiate and support communication to consumers about how best to recycle used beverage cartons.

INGEDE and CEPI continue to work on establishing standards for sampling from and quality assessment of paper for recycling.

INGEDE started activities to safeguard the supply of graphic paper for recycling, primarily through analysis of existing data which is then discussed in technical committees within the paper industry.



IMPACTPAPER REC

Boosting separate paper collection



Funded by the EU Horizon 2020 research and innovation programme under grant agreement No 690182

1 www.impactpaperec.eu

ECODESIGN

Important developments included the review process of the EU Ecolabel for printed paper, as well as an annex to the EPRC deinking scorecard listing exemptions to the deinkability test.

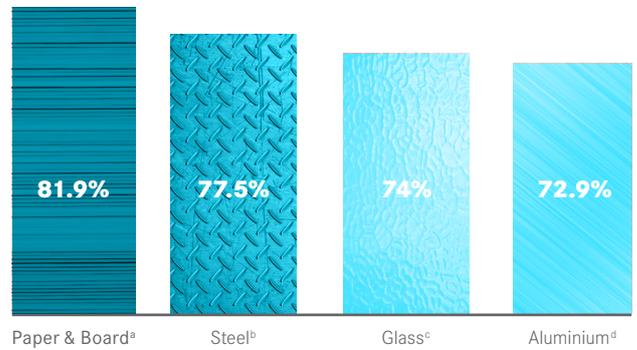
INGEDE continued working on the ISO standardisation level to develop a standard for guiding and/or assessing deinkability. In addition, INGEDE proposed its deinkability test method, INGEDE Method 11, as DIN SPEC 55700, to prepare ISO standardisation. INGEDE Method 11 will also be updated; the preliminary work to achieve this is already underway. The annex to the EPRC deinking scorecard developed by INGEDE, INTERGRAF and EUPIA was finalised. Listing exemptions to the deinkability test, the annex takes into account the printing techniques and material combinations that have delivered good deinkability results. Testing remains a requirement for processes and material combinations where there is still insufficient data on their deinkability behaviour.

INGEDE, together with the German member of FEICA, continued to work on the annex to the Scorecard for the removal of adhesive applications.

INGEDE used the opportunity of the drupa fair to address the importance of good recyclability at seminars and individual talks.

The German member of EuPIA hosted the annual Technical Committee on deinking, organised by INGEDE and dealing with issues in the recycling of graphic products.

Paper and board is the most recycled packaging material in Europe



2016 PAPER PACKAGING RECYCLING RATES

Sources:
^a Paper: CEPI
^b Steel: APEAL
^c Glass: FEVE
^d Aluminium: aluminium beverage cans, data from 2014

RESEARCH AND DEVELOPMENT

The main developments in R&D include: funding and monitoring research work on printing and finishing technologies during entry inspection of paper for recycling, as well as the EPRC deinking scorecard listing exemptions to the deinkability test.

INGEDE continued funding and monitoring research work on the use of Fourier Transform Infrared Spectroscopy for identification of printing and finishing technologies during entry inspection of paper for recycling. Additionally, they monitored third-party funded research projects, e.g. mineral oil-free coldset printing, and influence of process water quality on deinking. INGEDE also supported a master thesis on the sustainability of print-on-demand.

INGEDE/IVK-AFERA RESEARCH PROJECT

In co-operation with INGEDE, the German Adhesives Association (IVK - Industrieverband Klebstoffe), a member of AFERA, carried out a research project to determine objective parameters which allow meaningful statements on the behaviour of adhesive applications in paper products.

This aimed to meet the requirements of the EU Ecolabel for printed paper. Criterion 3 states that “non-paper components of the printed paper product shall be easily removable”, i.e. adhesives may only be used if their removability can be proved.

The INGEDE Method 12 or equivalent test methods form the reference test method for the determination of the removability of non-soluble adhesives. Different non-water-soluble hot-melt adhesive applications were tested according to INGEDE Method 12. The adhesive formulation, corresponding softening point, and layer thicknesses of the adhesive applications were systematically varied.

The test results clearly showed a strong correlation between the parameters that determine the removability of non-water-soluble adhesives, namely the cohesion of the adhesive application, the softening point of the non-water-soluble adhesive, and the adhesive-layer thickness.

Based on the test results, requirements for an adhesive-layer thickness and a softening point for non-water-soluble adhesives have been defined. These will guarantee that the removability of non-water-soluble adhesives is always achieved, according to INGEDE Method 12.

These results will be incorporated in the EPRC “Removability Scorecard” in 2018 to avoid unnecessary tests in obtaining the Ecolabel for printed paper products.

ACE members are permanently involved in innovation. The beverage carton industry has been instrumental in the development of recycling solutions for multi-layered materials. ACE members also innovate their packaging design, taking into account circularity and design for the environment across the entire value chain.

In 2016, FINAT finalised a study on the recycling of release liner in Europe, reporting on the volumes recycled, the legislative situation, potential logistical hubs and solution providers. This study will be used to set up an action plan to further increase liner recycling in the coming years.

EDUCATION AND INFORMATION

ACE members are supporting awareness campaigns and exchange of best practices on recycling technologies via the national beverage cartons associations present in 8 member states, or as companies. In some cases, national associations also support collection schemes.

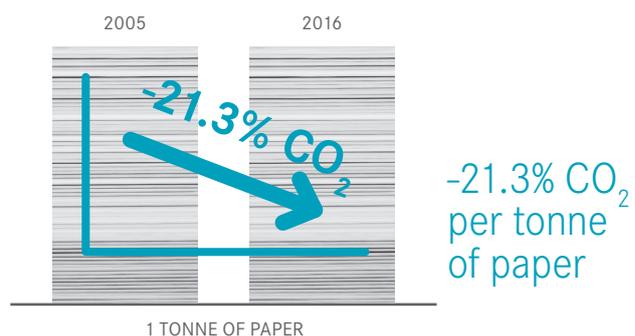
FEPE promotes awareness about paper recycling through active participation in the Two Sides Campaign, including the distribution of related communications material.

The IMPACTPapeRec project will create Good and Best Practice Factsheets: guidelines with concrete steps that communities can take in order to start implementing the good or best practices identified by the project.

A workshop was organised in 2016 with the municipalities that are project partners to define these practices and select those most likely to bring value to municipalities.

EuPIA and its members are promoting the deinking scorecard to customers and other stakeholders.

INGEDE held a workshop in 2016 on recyclability issues focussing on deinkability of inkjet prints at the Specialty Papers Europe conference. They were also involved in a panel discussion on UV cured printing with the German member of INTERGRAF.



REDUCTION OF SPECIFIC EMISSIONS OF CO₂ PER TONNE OF PAPER PRODUCTION IN EUROPE 2005-2016

Source: CEPI 2016

DATA QUALITY: 2016 DATA

The data used to calculate the recycling rate is collected by CEPI (Confederation of European Paper Industries). It comes from the questionnaire sent by CEPI to its national member associations in 18 countries (Austria, Belgium, Czech Republic, Finland, France, Germany, Hungary, Italy, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, and the United Kingdom). National associations supply the data, collected from their member mills and companies as well as official sources where appropriate.

The data in this report includes paper for recycling utilisation and trade plus paper and board production, trade and consumption for non-CEPI members of the EU-28 (Bulgaria, Croatia, Cyprus, Denmark, Estonia, Greece, Ireland, Latvia, Lithuania, Luxembourg and Malta) and Switzerland. This data is obtained from Pöyry Consulting.

After submission to CEPI, the data may be adjusted by the source, in particular the trade data obtained from customs authorities. CEPI takes the adjustments into account, with the figures being considered as final and published in the subsequent report, e.g. 2015 figures in this report.

Following this rigorous process, the 2015 recycling rate has been confirmed at 71.9% as opposed to the initially lower figure of 71.5%.

For certain countries¹, the calculation of the mass of recycled paper and board based on paper for recycling utilisation and net trade has not produced a result considered to adequately reflect reality. Consequently, recycling in these cases has been based on actual paper and board collection for the specific purpose of recycling. Other countries² have adjusted their paper and board consumption figures. All historical annual recycling rates have been recalculated based on the revised calculation methodology.

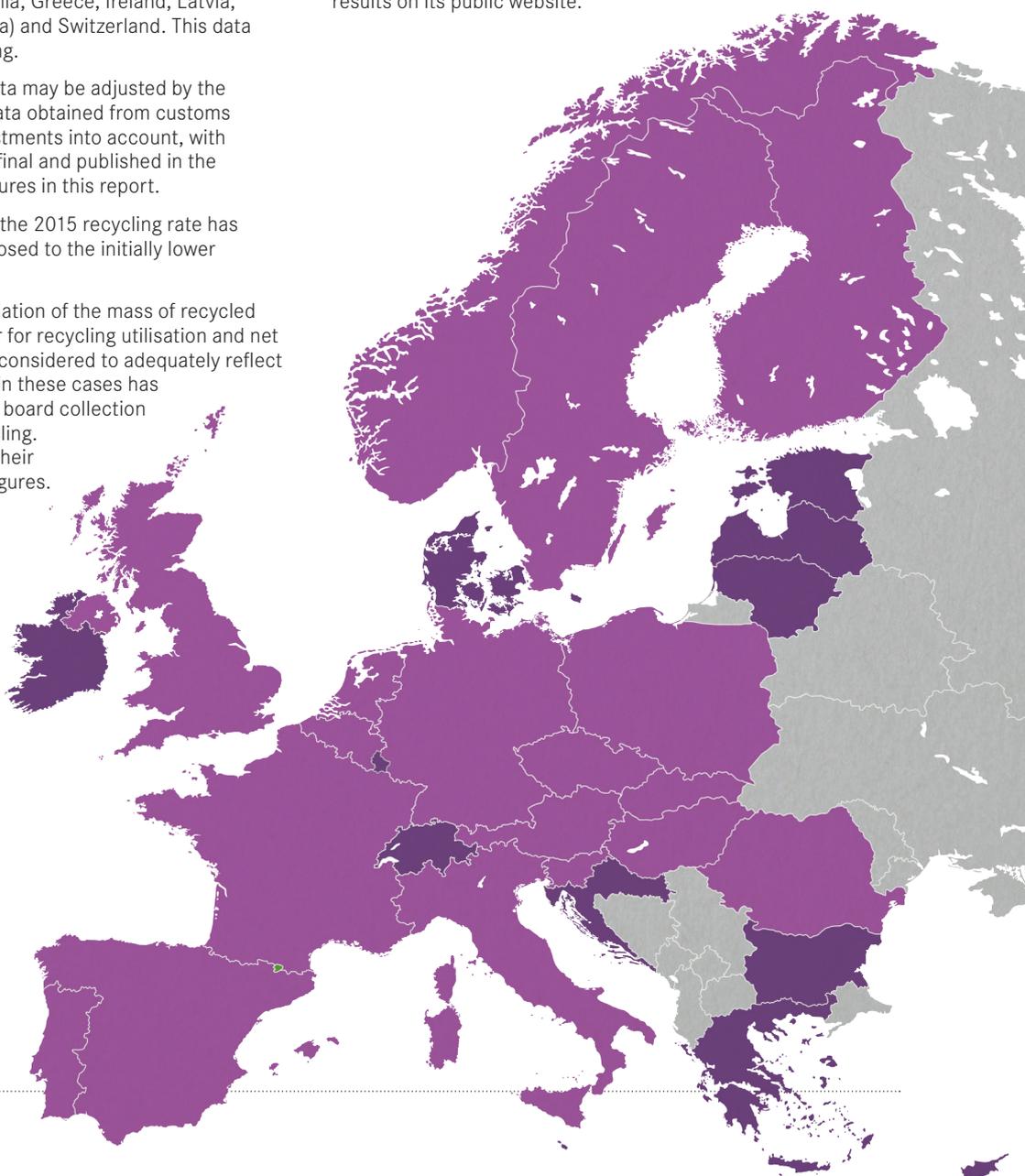
CEPI has commissioned an external verification of the recycling rate calculation since 2000 (see Assurance Reports 2011-2015 by EY, 2006 - 2010 by PricewaterhouseCoopers and 2000-2005 by Pöyry in the respective Annual Reports).

For the ongoing five-year period, CEPI has decided to work with Deloitte to further improve data quality. As an annual exercise, data quality will be assessed using a method recently adopted by the European Commission for organisation and product environmental footprints. Specifically, this will cover geographical representativeness, time-related representativeness, completeness and the uncertainty parameter. CEPI will publish the assessment results on its public website.

- Data collected by CEPI members
- Data obtained from Pöyry Consulting

1 Finland, France, Hungary, Sweden

2 Belgium, Finland, Sweden, UK



The European Paper Recycling Council (EPRC) was set up as an industry self-initiative in November 2000 to monitor progress towards meeting the paper recycling targets set out in the 2000 European Declaration on Paper Recycling. Since then the commitments in the Declaration have been renewed every five years.

The EPRC committed itself to meeting both a voluntary recycling rate target of 74% in the EU-27 plus Switzerland and Norway by 2020 as well as qualitative targets in areas such as waste prevention, ecodesign, and research and development.

Signatories



www.cepi.org



www.citpa-europe.org



www.emfa.eu



www.europeantissue.com



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