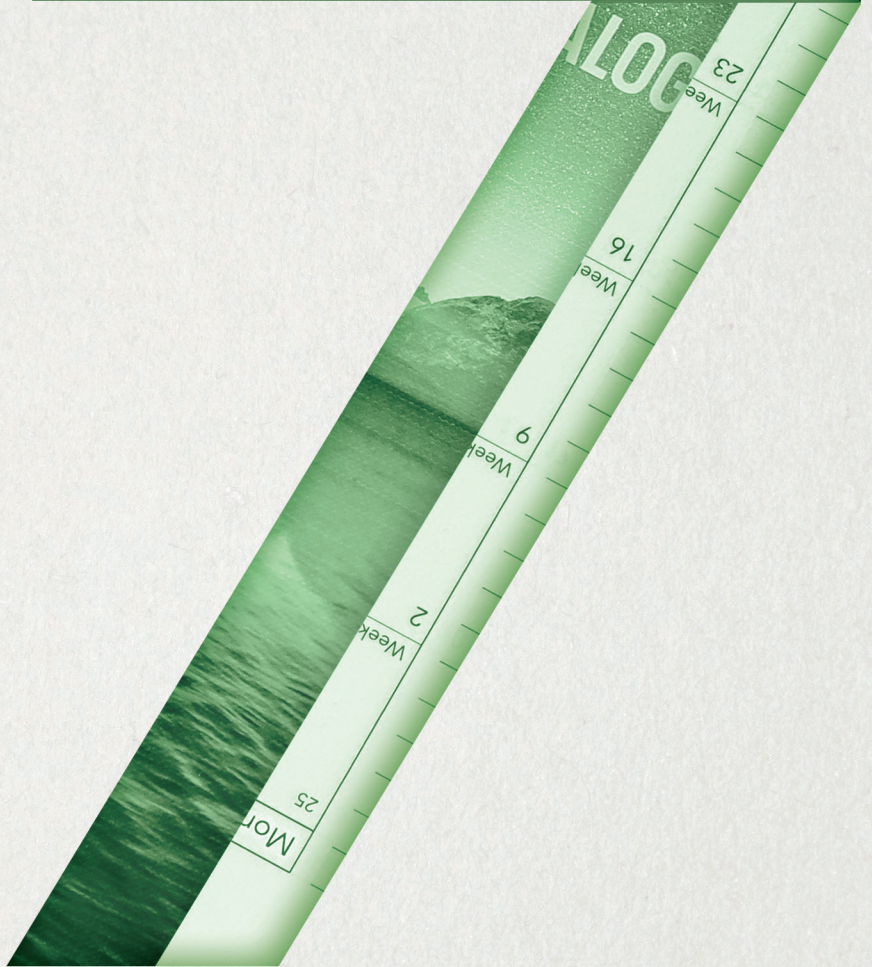




HIC	OCTOBER 1998	POPULATION • MIGRATION • WOMEN • FOOD SUPPLY • LEWIS & CLARK • PERFUME • ANTARCTIC
HIC	SEPTEMBER 1998	VALLEY OF THE KINGS • ROMANIA • SHARKS • VERMONT • CATHERINE THE GREAT • BORNEO CAV
HIC	AUGUST 1998	3-D • MARS • ORANGUTANS • CHINATOWN • BOTTLENOSE WHALES • DAWN OF HUMANS • FIRES •
PHIC	AUGUST 1998	3-D • MARS • ORANGUTANS • CHINATOWN • BOTTLENOSE WHALES • DAWN OF HUMANS • FIRES
HIC	JULY 1998	NATURAL HAZARDS • FROGFISH • DENMARK • ORIGIN OF BIRDS • YUKON RIVER • INCA MUMMI
HIC	JUNE 1998	TRANS-SIBERIAN RR • QUETZALS • ORKNEY • STOCK CARS • RAJI • KAIKOURA CANYON • ADIRO
HIC	MAY 1998	PHYSICAL WORLD • CASCADIA • CLIMATE • GRAY WOLVES • PRINCE EDWARD ISLAND • WHITBR
HIC	MAY 1998	PHYSICAL WORLD • CASCADIA • CLIMATE • GRAY WOLVES • PRINCE EDWARD ISLAND • WHITBR



MONITORING REPORT 2017

European Declaration on Paper Recycling 2016-2020



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RESILIENT EUROPEAN PAPER RECYCLING IN CHALLENGING INTERNATIONAL CONTEXT

1

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

In 2017, 72.3% of all paper consumed in Europe was recycled. The collection of paper for recycling has increased by 0.8% compared to 2016 and reached 59.6 million tonnes. Paper consumption has slightly increased compared to 2016 and reached 82.5 million tonnes. Therefore the recycling rate increased from 72.0% in 2016 to 72.3% in 2017. Compared to the base year of the Declaration (2015), collection and recycling of paper has increased by 0.5 million tonnes of paper.

A strong step towards the 2020 target of 74% has already been taken. We are however starting to reach the maximum potential, as about 22% of paper consumption cannot be collected or recycled.

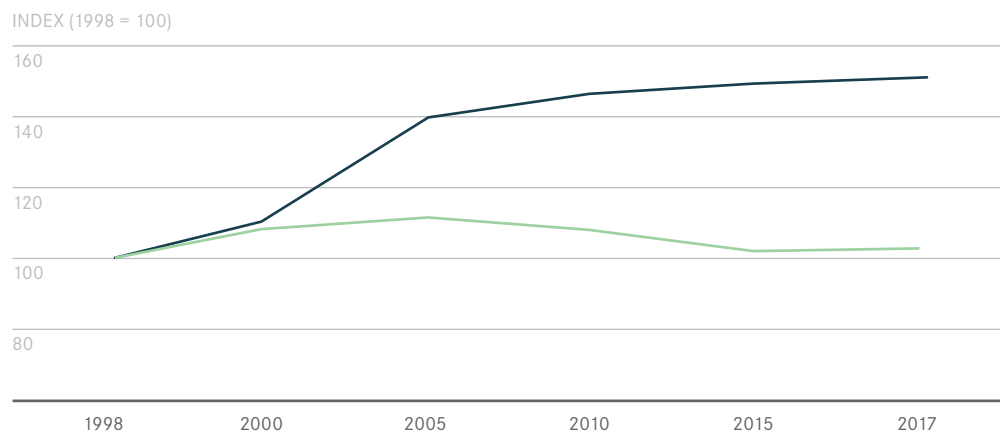
This situation is linked to changing consumption patterns affecting the most recycled paper products. Newspaper consumption has continued to decline in 2017. The increased consumption of corrugated boxes, the other most recycled paper product, is only partly compensating the challenge of declining graphic (printing and writing) paper consumption for the overall recycling rate.

A second challenge stems from the international context: Following Chinese announcements of import restrictions for certain waste streams, Chinese imports of paper for recycling have started to decline. While this decline has been balanced by stronger European use of paper for recycling, it may more strongly affect collection and the recycling rate in 2018.

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

PAPER RECYCLING VS PAPER CONSUMPTION

— Paper Recycling
— Paper Consumption



In 2017 we also notice good achievements at regional level, despite differences continuing to exist. The number of countries with a recycling rate below 60% has further dropped to 7. Over the last year, the number of countries exceeding recycling rates of 70% was 15.

On an international level, Europe continues to be the world champion in paper recycling followed by North America. The paper recycling rates of other world regions are improving, but from lower levels. In Europe, paper fibres are used 3.6 times on average, while the world average is 2.4 times.

The EU has increased its targets for the recycling of municipal waste and packaging waste, it is clear that the functioning paper recycling chain is a key driver for meeting these targets. Paper recycling is an industry “Made in Europe”. It prolongs value creation and job opportunities in Europe from a renewable, predominantly European resource, wood.

Making recycling easy and simple year after year requires a huge effort by the paper value chain. We explain these efforts in our reports and are proud of the progress made.

RECYCLING RATE 2017: 72.3%

2

The recycling rate in Europe increased to **72.3%** in 2017.

In a year to year comparison, the total amount of paper collected and recycled in the paper sector has increased by 0.8% to 59.6 million tonnes, while consumption of paper has increased by 0.5%.

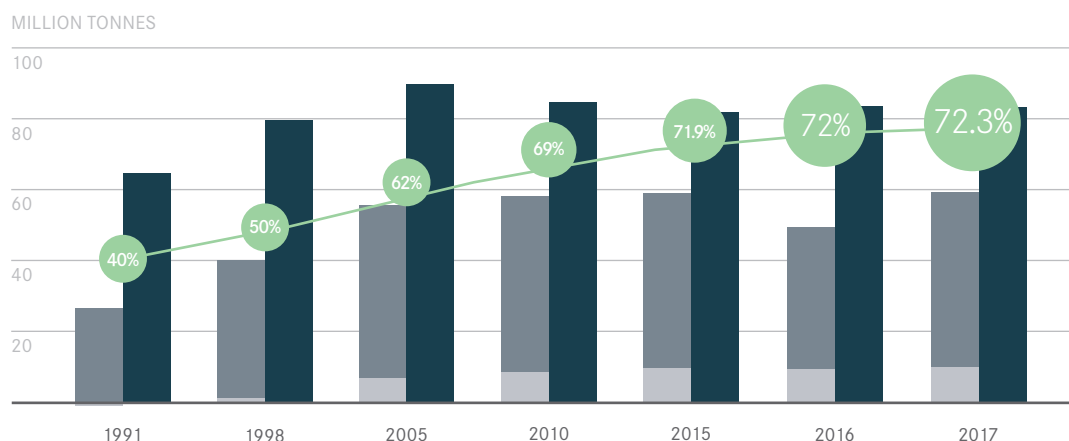
From a longer term perspective, recycling has increased by 49% (19.5 million tonnes) since 1998, the base year for the first voluntary commitment set in the European Declaration on Paper Recycling. In strong contrast, consumption since 1998 also increased up until 2007, dropped back to the initial level in the following years, and has only slightly recovered in the last four years.

A net volume of 9.5 million tonnes (15.9%) of the total 59.6 million tonnes was bought by third countries, mainly China¹, outside the commitment region of the EU-28, Norway and Switzerland. In August 2017, China announced import restrictions for certain waste streams, including paper for recycling. As a consequence, Chinese imports of paper for recycling have decreased in 2017. It can be expected that a further decrease of Chinese imports will take place in 2018. The 2018 paper recycling rate will depend on continued high collection as well as the capacity of European paper recycling to absorb the volumes which China no longer imports.

EUROPEAN RECYCLING 1991-2017

Source: CEPI 2017

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

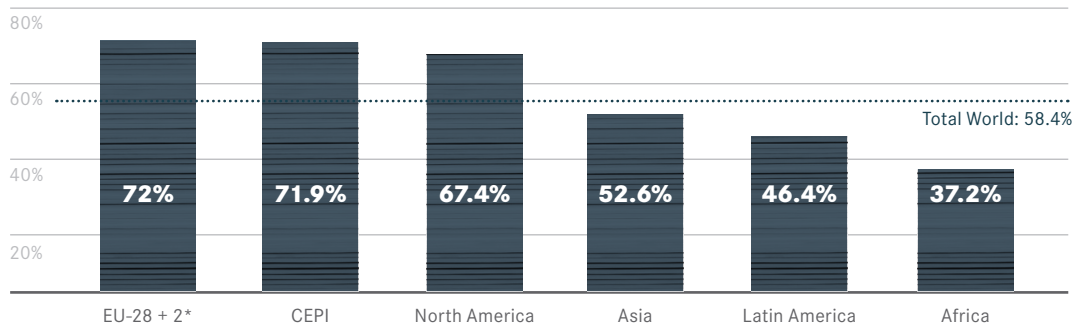


¹ The net trade of paper for recycling is included in the European paper recycling rate (72.3% in 2017). The recycling rate is defined as the ratio between used paper recycling including net trade of paper for recycling, and paper and board consumption. Without considering the net trade of paper imported by third countries for recycling outside Europe, the 2017 European paper recycling rate would have been 60.8% (up from 60.4% in 2016).

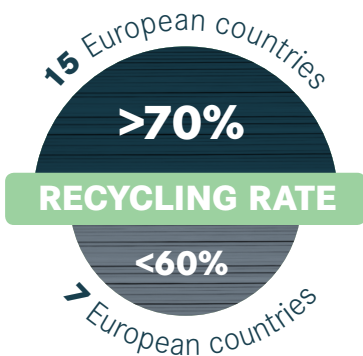
RECYCLING RATE IN WORLD REGIONS IN 2016

Source: CEPI, RISI – 2016

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



Europe is the paper recycling champion!



NATIONAL RECYCLING RATES IN EUROPE

15 European countries exceeded the 70% recycling rate (17 in 2016).
7 European countries were below 60% (9 in 2016).

Source: CEPI 2016

PROGRESS IN QUALITATIVE TARGETS

3

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

COLLECTION

INGEDE, the European deinking industry association and CEPI, the Confederation of European Paper Industries were engaged in the IMPACT commitment on separate paper collection in the European Innovation Partnership on Raw Materials. This engagement has led to the IMPACTPapeRec project funded under the Horizon 2020 programme. IMPACTPapeRec has delivered a wealth of useful tools and documents for municipalities to improve their collection systems. A [Handbook](#) containing good and best practices has been published. Municipalities can use online training tools and be informed about how to adapt best practices to their own circumstances. Member companies from INGEDE, the European association on

deinking, who were engaged in the External Support Group of IMPACTPapeRec, spoke at the project's mid-term conference and attended regular workshops. Project partner PROPAKMA, also running the INGEDE office, carried the project results on to technical committees of INGEDE and Zellcheming.



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

In addition to the separate collection of all packaging mandated by the newly adopted Packaging and Packaging Waste Directive, very much welcomed by industry, ACE has continued to work with national beverage carton associations to support recycling performances across Europe. The members of ACE, BillerudKorsnäs, Elopak, SIG, Stora Enso and Tetra Pak, have prepared the launch of a new association to coordinate the industry's engagement across Europe.

The new dedicated pan-European platform, which will start to deliver early 2019, will coordinate and drive EU-wide, as well as country specific solutions to optimise beverage carton collection and recycling. It will actively seek for alliances and partnerships with industry actors sharing similar needs to ensure and scale recycling solutions.

CEPI has started engagement in a new European project, COLLECTORS, by serving on its advisory board. COLLECTORS is assessing waste collection systems beyond paper and board and intends to build on the outcomes from IMPACTPapeRec.

FINAT has started a pilot for the collection of release liner in northern Italy.

ECODESIGN

Important developments included a new version of the EPRC deinking scorecard, listing exemptions to the deinkability test and the review process of the EU Ecolabel for printed paper products.

The EPRC's deinkability scorecard now includes an annex listing exemptions to the deinkability test. With this annex, the widely-used deinkability scorecard takes account of those printing technologies and material combinations that are sure to deliver good deinkability results, based on past experiences. Testing remains a requirement for processes and material combinations for which there is not enough experience on their deinkability behaviour. The annex will be subject to future revisions based on new data.

The EU Ecolabel for printed paper products, originally adopted in August 2012, is due to be reviewed in 2018. INTERGRAF, the European Federation for Print and Digital Communication prepared for this review process.

The EU Ecolabel flower logo appears on printed paper products that meet strict environmental criteria. These include a recycled paper criterion and a recyclability criterion. Regarding recyclability, printed paper applying for the EU Ecolabel should be recyclable and the non-paper components shall be easily removable. It also has to prove deinkability according to the EPRC deinking scorecard. The EU Ecolabel for printed paper products goes beyond existing high environmental standards and promotes environmental excellence. More than 120 licences of the EU Ecolabel for printed paper products have been granted at European level, covering more than 330 printed products.

CEPI and ETS, the European Tissue Symposium together with other associations, raised concerns at the highest level about a potential discontinuation of EU Ecolabel product groups, which could have affected the ecolabels for tissue and printed paper products. They have highlighted the success of the ecolabel for these product groups and the environmental benefits. Further to this, the European Commission has not gone forward with the removal of EU Ecolabel product groups.

EuPIA, the European Printing Ink Association and the German Paint and Printing Ink Association, VdL, provided expertise to the revision process of the criteria of the German Blue Angel Ecolabel for printed matter.

AFERA, The European Adhesive Tape Association's German member IVK, together with INGEDE, finalized a test series of different applications of non-water-soluble, non-redispersible hot-melt adhesive according to INGEDE Method 12 and discussed the results. As there is a strong correlation between some parameters of the application – cohesion and layer thickness of the adhesive application as well as the softening point of the hot melt adhesives – and their removability, an annex has been incorporated to the the "Removability Scorecard" of the European Paper Recycling Council (EPRC) in order to avoid unnecessary tests for obtaining the eco-label for printed paper products.

INGEDE was heavily involved in carrying the recyclability discussion beyond European borders by lifting a deinkability test based on a modernised INGEDE Method 11 to ISO level and developing a deinkability assessment and/or guidance on print product design in an ISO working group.

RESEARCH AND DEVELOPMENT

INGEDE started a survey on the deinkability of 26 mixtures of printed products by testing them with the updated INGEDE Method 11 and assessing with the EPRC deinkability scorecard.

Together with CEPI's German member, VDP, as the main sponsor, INGEDE was involved in a project to determine the suitability of different devices for moisture measurement of paper for recycling.

Next to its benefits for the recycling loop, moulded fibre also performs well with respect to other environmental criteria. EMFA, the European Moulded Fibre Association commissioned a study comparing the product cycle of moulded fibre to egg packaging made from recycled PET (rPET), which revealed that moulded fibre exceeds rPET across the board, whether the comparison is measured by weight or carton.

The comparison also shows better results for moulded fibre with respect to greenhouse gas emissions, non-renewable primary energies, eutrophication (the over-enrichment of water by nutrients such as nitrogen phosphorus), photochemical ozone creation and SO₂.

In the context of recycling and food safety, EMFA has commissioned Innventia, an independent testing institute in Sweden to carry out different types of tests on the potential for mineral oils to migrate from moulded fibre packaging to eggs.

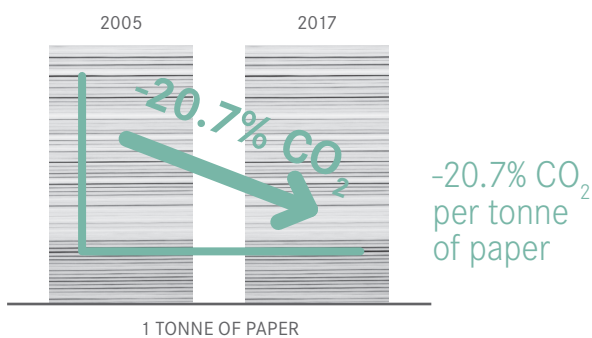
The test results showed zero or non-detectable migration of Mineral Oil Aromatic Hydrocarbons (MOAH), measured both inside whole eggs and in food simulant, packed moulded fibre packaging produced by EMFA members.

EDUCATION AND INFORMATION

FINAT, the European association for the self-adhesive label industry, has developed a short animated video to quickly explain the concept of release liner recycling to interested parties. The [video](#) will also be translated into other languages. During LabelExpo, the largest exhibition for the self-adhesive label industry, FINAT had a dedicated release liner recycling desk to show visitors the process, the recyclable materials and the new end-products. At the exhibition, FINAT also presented the latest developments in a separate seminar.

EuPIA actively contributed to the planned revision of the EPRC Guide to an Optimum Recyclability of Printed Graphic Paper.

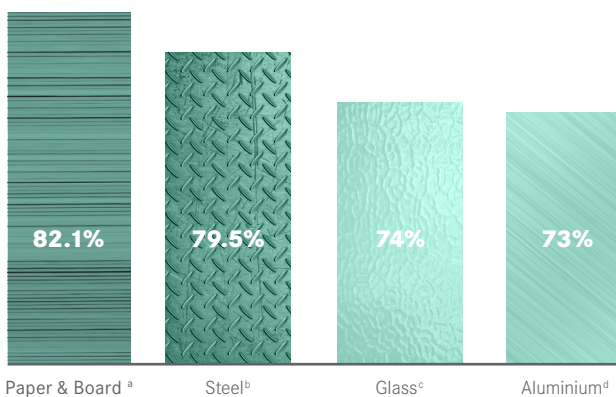
EuPIA provided information to interested stakeholders relating to the suitability for food packaging of paper and board made from recycled fibres.



REDUCTION OF SPECIFIC EMISSIONS OF CO₂ PER TONNE OF PAPER PRODUCTION IN EUROPE 2005-2017

Source: CEPI 2017

Paper and board is the most recycled packaging material in Europe



2017 PAPER PACKAGING RECYCLING RATES

Sources:

^a Paper: CEPI, data from 2016

^b Steel: APEAL, data from 2016

^c Glass: FEVE, data from 2014

^d Aluminium: aluminium beverage cans, source: European Aluminium, data from 2016

FEPE, the European Federation of Envelope Manufacturers promoted awareness about paper recycling through active participation in the Two Sides Campaign, including the distribution of related paper booklets.

The deinking scorecard was promoted by EuPIA and its members to customers and other stakeholders.

INGEDE attended several events within the paper value chain giving presentations at some of them. "Trends in the quality of paper for recycling" focused on collection systems and used material from the IMPACTPapeRec project. Other presentations such as "Known and New Challenges for the Deinking Process" and "Recyclability of printed paper products" both touched upon collection but mainly dealt with deinkability.

EUROPEAN PAPER RECYCLING AWARDS 2017

The European Paper Recycling Council organized the bi-annual European Paper Recycling Awards identifying the best and most innovative paper recycling projects in Europe. In the Innovative Technologies and R&D category, the project "Remake" by Italian paper company Favini was ranked the highest by the jury. "Remake" integrates paper for recycling with waste streams from other industries to produce paper. In the Information and Education category, the the Spanish pulp and paper association, ASPAPEL was the winner, the. It's Blue Birdies project raised awareness of the separate collection of paper among Spanish municipalities thanks to an award system.

The award ceremony took place on 18th October in the European Parliament and was hosted by Italian MEP Simona Bonafè, rapporteur of the Circular Economy package and by Spanish MEP Ayala Sender.



DATA QUALITY: 2017 DATA

The data used to calculate recycling rates is collected by CEPI (the Confederation of European Paper Industries). It comes from a 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's 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. 2016 figures in this report).

Following this rigorous process, the 2016 recycling rate has been confirmed at 72.0% as opposed to the initial figure of 72.5%.

For certain countries, 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.

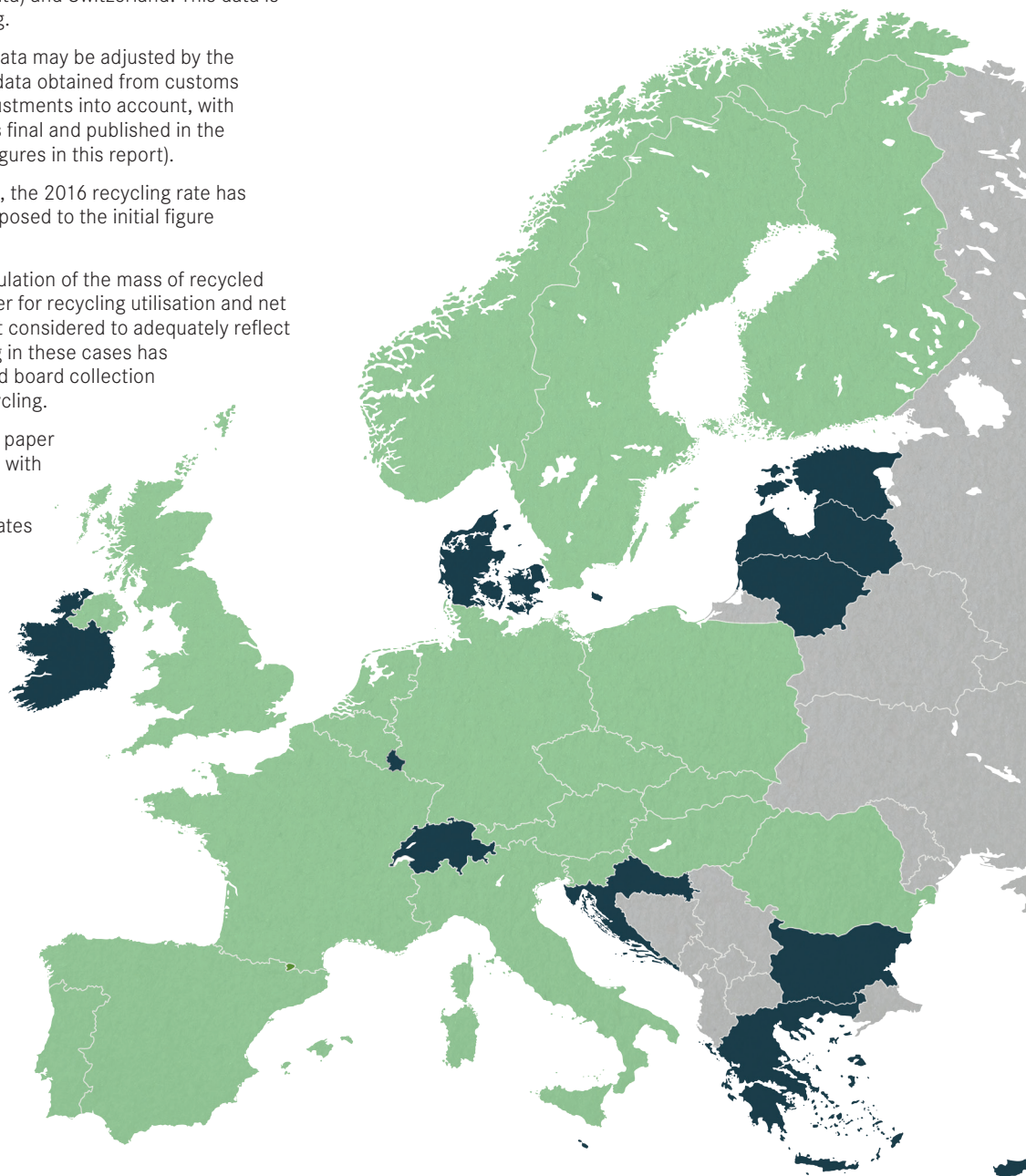
Other countries² have adjusted paper and board consumption figures with the opposite impact.

All historical annual recycling rates have been recomputed 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 environmental footprints and product environmental footprints. Specifically, this will cover geographical representativeness, time-related representativeness, completeness and the uncertainty parameter. CEPI will publish the assessment's results on its website.

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



¹ Finland, France, 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 are 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.

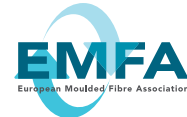
Signatories



www.cepi.org



www.citpa-europe.org



www.emfa.eu



www.europeantissue.com



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