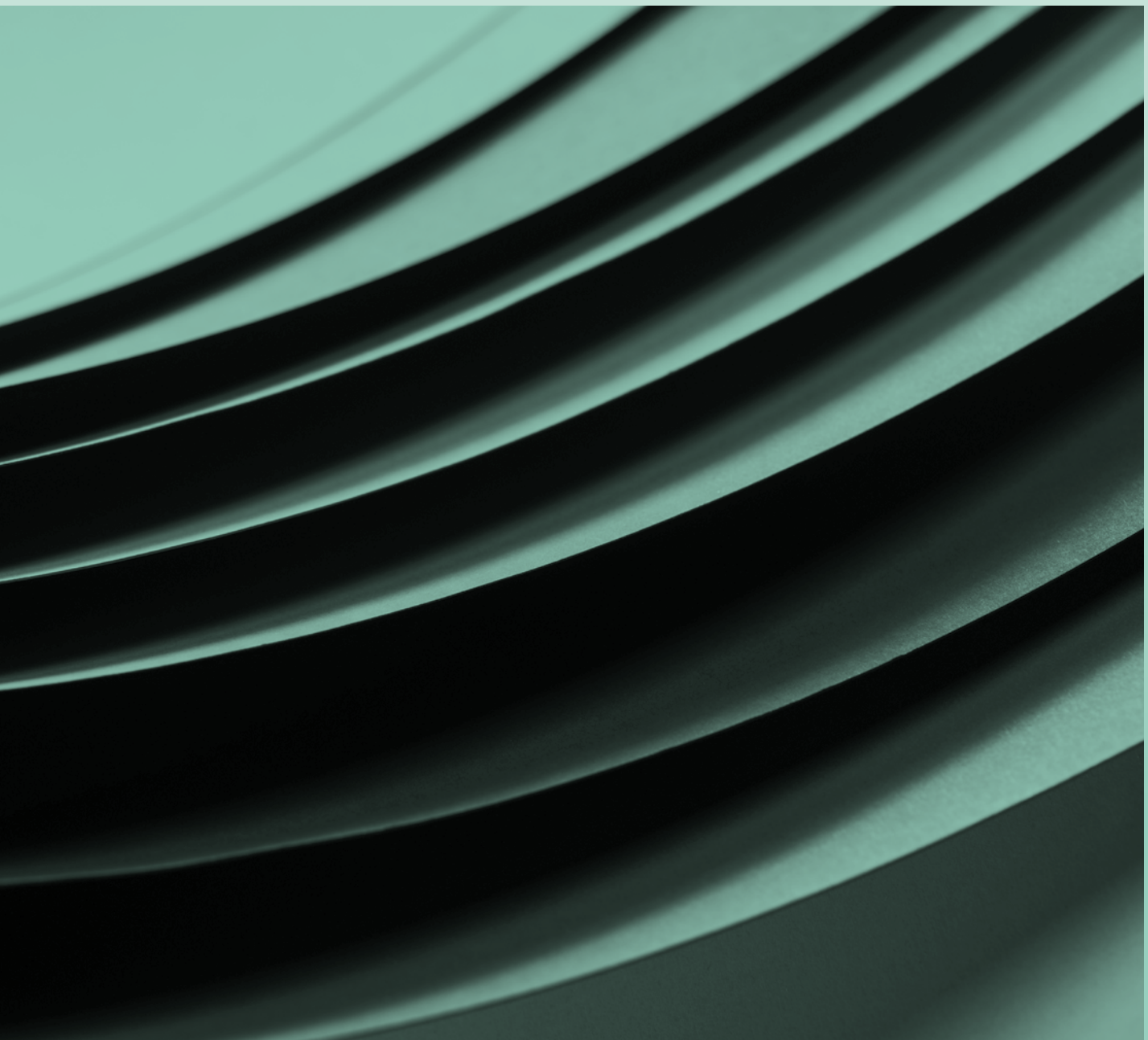


The Economic Value of the UK's Paper-based Industries 2022



Paper – the sustainable, renewable choice

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About CPI

01 The Confederation of Paper Industries (CPI) is the leading trade association for the UK's Paper-based Industries. CPI was formed in 1999 as a confederation of the individual trade associations for the steps in the paper supply chain.

02 CPI represents 79 companies in that supply chain. These include paper and board manufacturers and converters, corrugated packaging producers, makers of soft tissue papers, and collectors and processors of paper for recycling.

03 CPI is working to promote:

- a positive image for paper;
- secure energy supplies at competitive prices;
- resource efficiency within a coherent waste strategy;
- the benefits of packaging;
- a sustainable UK Paper Industry;
- manufacturing as a vital part of a balanced economy; and
- a competitive, level playing field for the UK's Paper-based Industries.

Defining the Industry

04 Papermaking in the UK has been in existence for hundreds of years, dating back to the 15th century, and the principles of making paper and some of the skills that were used back then are still evident today.

05 In a fiercely competitive global market, innovation, quality, design, and service levels are critical to maintaining market share. The industry must retain and develop the skills required to sustain not only the traditional methods of papermaking, but to operate as a modern hi-tech industry.

Scope of the Industry today

06 The scope of this report covers the following areas of the UK's Paper-based Industries:

- The manufacturing of paper
- The conversion of paper into corrugated packaging
- The conversion of paper into tissue for hygiene products
- The recovery and recycling of paper from both business and consumers

Customer Groups

07 Paper is a ubiquitous product. Products made of paper and board are sought after by a wide variety of customer groups. Some customers, such as printers, use paper as an intrinsic part of their final product. For others, paper-based packaging is essential in ensuring that their own products get to market undamaged.

08 The following list is a small sample of the key customer groups for paper products and the products that they use.

- The NHS:
 - a. Surgical masks
 - b. Surgical clothing
 - c. Disposable sanitary products
- Food manufacturers:
 - a. Transit and shelf-ready packaging for food products
 - b. Cereal boxes, egg boxes
 - c. Tea bag papers
 - d. Greaseproof papers
- Industrial manufacturers:
 - a. Electrical insulation
 - b. Battery separators
 - c. Plasterboard liner for construction
 - d. Engine filter papers
 - e. Industrial hygiene products
- Online retailers:
 - a. Corrugated boxes for delivery shipments
- Supermarkets:
 - a. Point of sale packaging and promotional materials
- Printers and publishers:
 - a. Newsprint for newspapers and magazines
 - b. Graphic papers for posters and promotional materials
 - c. Papers for book and document printing
- Fast Moving Consumer Goods (FMCG):
 - a. Packaging for high-end consumer goods
- Domestic consumers:
 - a. Toilet tissue
 - b. Kitchen paper
 - c. Nappies
 - d. Hygiene products
 - e. Stationary and school books
 - f. Passports

Introduction



Andrew Large
CPI Director General

“ In a changing world, the importance of the UK's Paper-based Industries remains unmoved – the industry employs tens of thousands of people and invests well over a billion pounds into the UK economy each year.

09| The past few years have seen the word ‘unprecedented’ used more than ever before, with a number of significant national and international events changing the social, political, and economic landscape. Brexit, the pandemic, and then the war in Ukraine have all resulted in economic challenges which have moved the UK economy towards recession.

10| In a changing world, the importance of the UK's Paper-based Industries remains unmoved – the industry employs tens of thousands of people and invests well over a billion pounds into the UK economy each year.

11| The new Government has significant challenges to address as it steers the country through a difficult economic and political landscape. In November 2022 the Chancellor's statement set out some of the tough choices which Government has had to make to bring stability and restore confidence.

12| Foundation Industries, such as the Paper-based Industries, need long term certainty and support, particularly in respect of ever-increasing energy costs and in making the transition to net zero affordable. CPI would urge Government not to abandon the longer-term pursuit of growth. Indeed, CPI would call on Government to establish a green industrial strategy which makes the UK a competitive country for investment, creating sustainable jobs for the future.

13| This report presents key industry statistics from 2022, and also looks to the future and addresses some of the barriers to growth.

The headlines

£11.5
billion

ANNUAL TURNOVER

The UK's Paper-based Industries are significant players in the UK economy.

56,000
direct

93,000
indirect

JOBS

The number of employees the industry accounts for.

3.6
million tonnes

PRODUCTION

The amount produced by the UK's Paper-based Industries in 2021

73%
reduction

THE ENVIRONMENT

Working to net zero -
Between 1990 and 2019, emissions of fossil CO₂ from UK paper mills fell from 6.6 million to 1.8 million tonnes.

UK paper consumption and production

What we use and what we create...

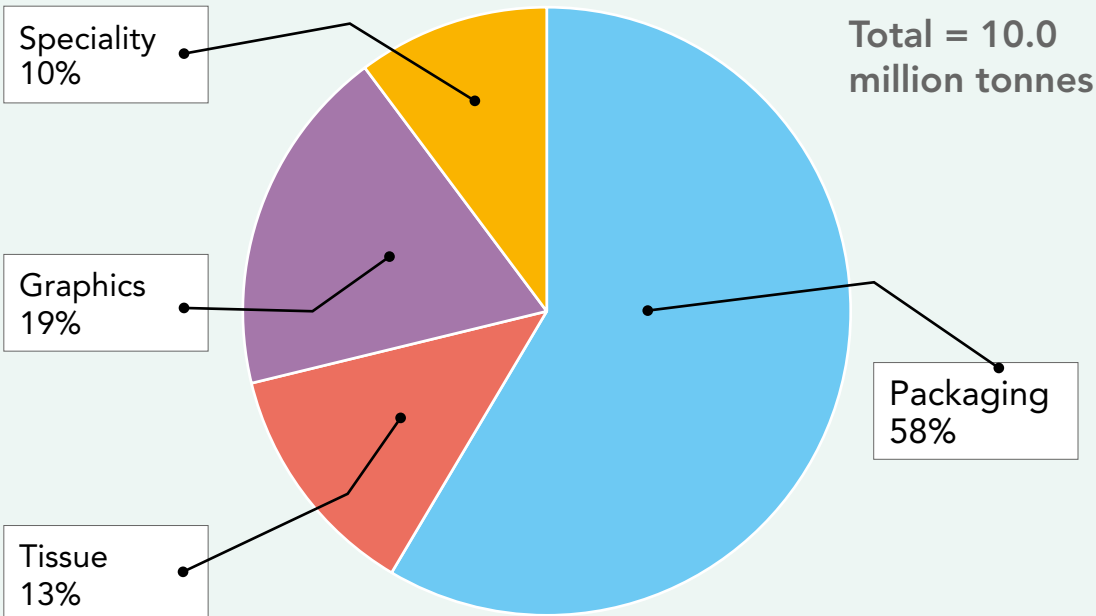
Consumption

Paper usage in UK households is close to the European average

14| The UK population uses substantial volumes of paper and board – from cardboard boxes

to toilet rolls, paper-based products are in daily use. In 2022, a total of 10 million tonnes of paper were placed on the UK market.

Chart 1 | UK consumption of papers and boards 2021



Sources: CPI; HM Revenue & Customs; NPWD

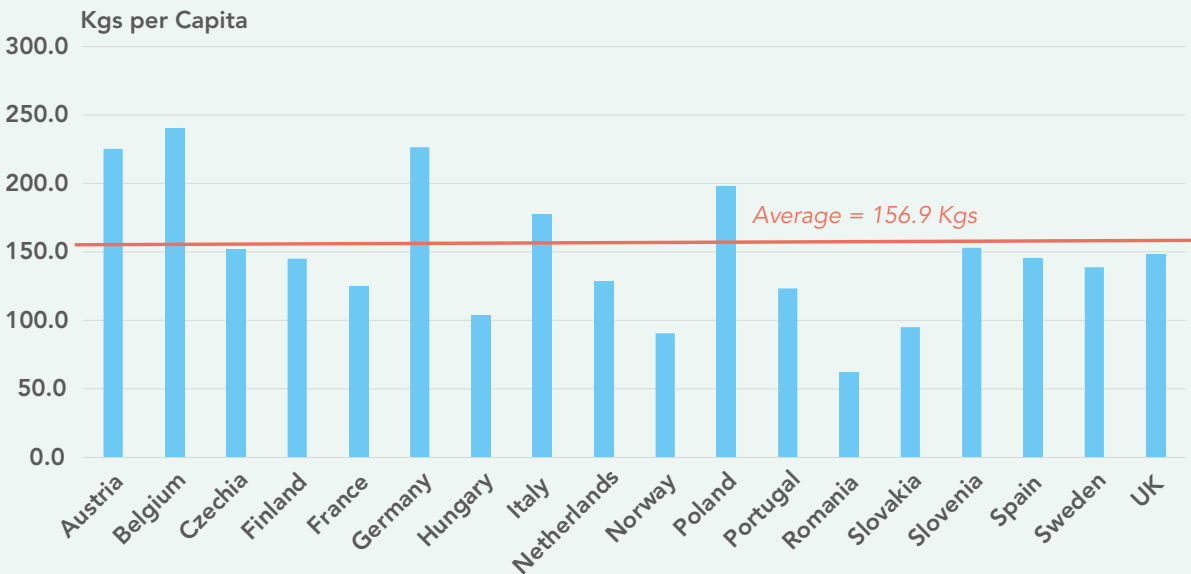


15| Chart 1 shows that over half (58%) of all the paper and board placed on the UK market is for packaging. Other types of paper and board products placed on the market include 19% for graphics, 13% for tissue, and 10% for speciality paper.

16| The UK is one of the top ten European Countries in its per-capita consumption of paper, as chart 2 shows. This number has slightly decreased over the past year, with the European average rising to 156.9 Kgs per person - to put this in perspective this is about the weight of a baby elephant.

UK paper consumption and production

Chart 2 | European per capita consumption of paper and board 2021



Sources: CPI; Cepi

Chart 3 | Global top 10 paper and board consumers 2020

(Tonnes)	COUNTRY	CONSUMPTION*
1	China	109.9 million
2	USA	65.9 million
3	Japan	22.4 million
4	Germany	18.1 million
5	India	14.6 million
6	South Korea	9.9 million
7	Italy	9.8 million
8	Brazil	9.2 million
9	Mexico	8.3 million
10	France	8.0 million
...		
12	UK	7.3 million

*Excludes converted products and transit packaging

Sources: Cepi

UK paper consumption and production

The UK is a significant destination for paper and board production

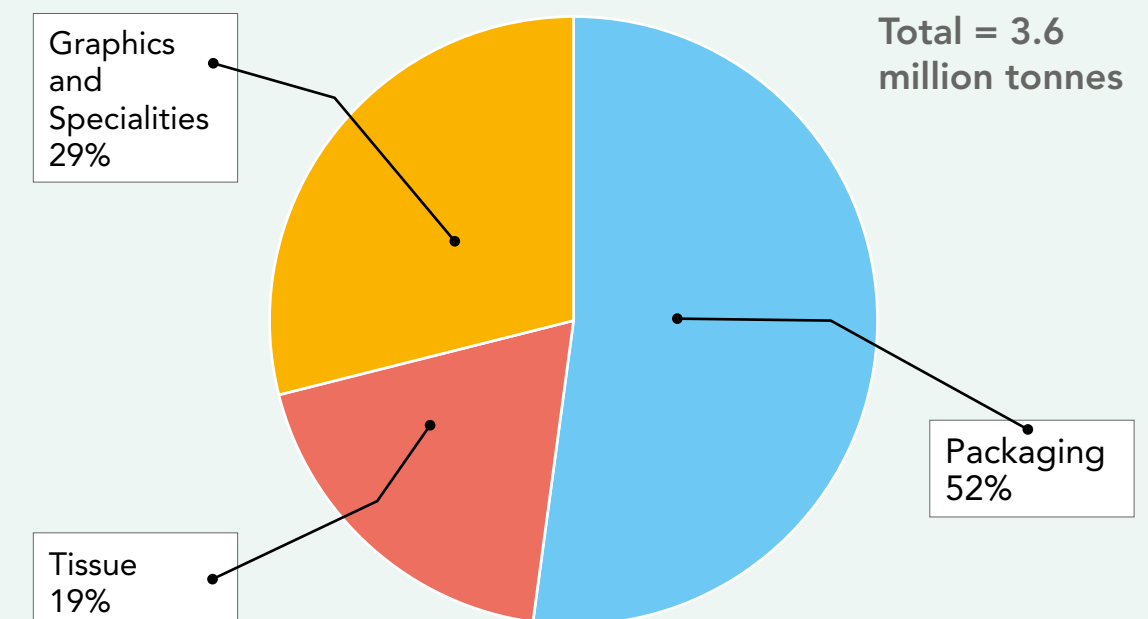
17 The UK remains a significant producer of paper and board, as the 23rd largest manufacturer of paper globally, although in the post-pandemic world there was a small decrease in UK production. 2021 statistics show that the UK produced some 3.6 million tonnes of material, of which half was for packaging, nearly a quarter was graphic paper, and the remainder was divided between tissue and speciality papers. Global production in the same year was 410 million tonnes.

Potential for increased production

18 The UK remains the world's largest open economy importer of paper and board. Over time, there has been a decline in UK production, however UK consumption remains high.

19 As the representative body for the UK's Paper-based Industries, CPI supports an increase in the volume of paper and paper-based products produced here in the UK – this means more jobs and more investment in the UK economy. Increased UK production would also reduce current and future carbon leakage and ensure that more of the carbon emissions linked to UK paper were under the UK's strict regulatory regime and on track for net zero by 2050.

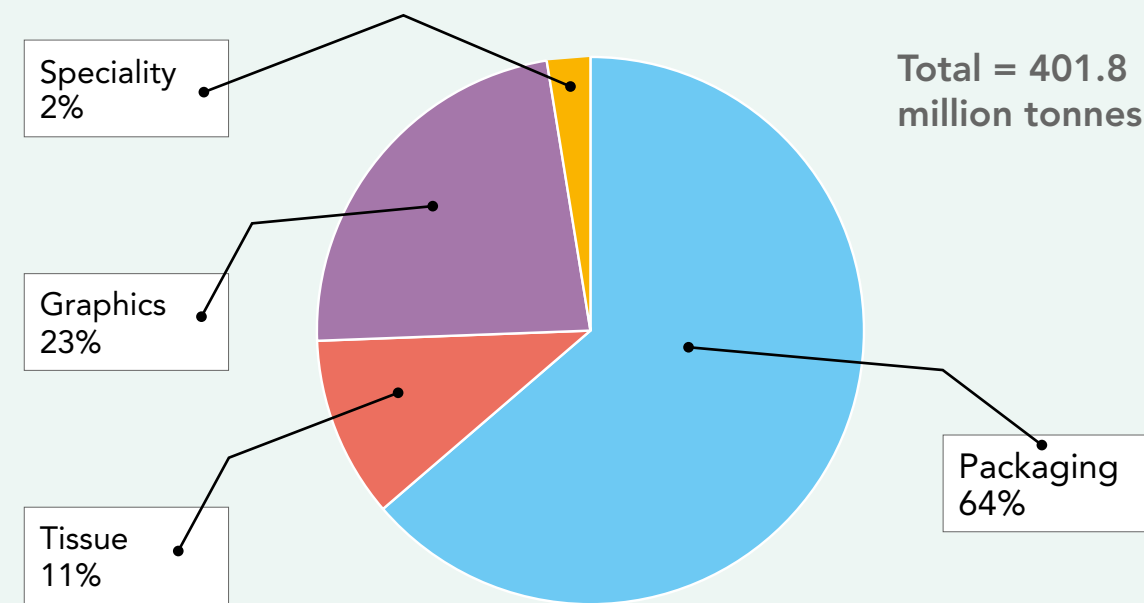
Chart 4a UK production of papers and boards 2021



Source: CPI

UK paper consumption and production

Chart 4b | Global production of papers and boards 2020



Source: Cepi

Chart 4c | Global Top 10 paper and board producers 2020

(Tonnes)

	COUNTRY	PRODUCTION
1	China	104.0 million
2	USA	68.0 million
3	Japan	22.9 million
4	Germany	21.4 million
5	India	14.5 million
6	Indonesia	13.0 million
7	South Korea	11.3 million
8	Brazil	10.3 million
9	Russia	9.4 million
10	Sweden	9.3 million
...		
23	UK	3.6 million

Source: Cepi

UK paper consumption and production

Chart 5 | Global Top 10 net importers 2020

The UK is the world's largest open economy importer of paper and board

(Tonnes)

	COUNTRY	NET IMPORTS
1	China	5.9 million
2	UK	3.6 million
3	Mexico	2.3 million
4	Poland	1.8 million
5	Belgium	1.8 million
6	Turkey	1.7 million
7	Malaysia	1.3 million
8	Italy	1.2 million
9	Philippines	1.2 million
10	France	1.1 million

Source: Cepi



Impact of the industry on the UK economy

Providing jobs across the UK



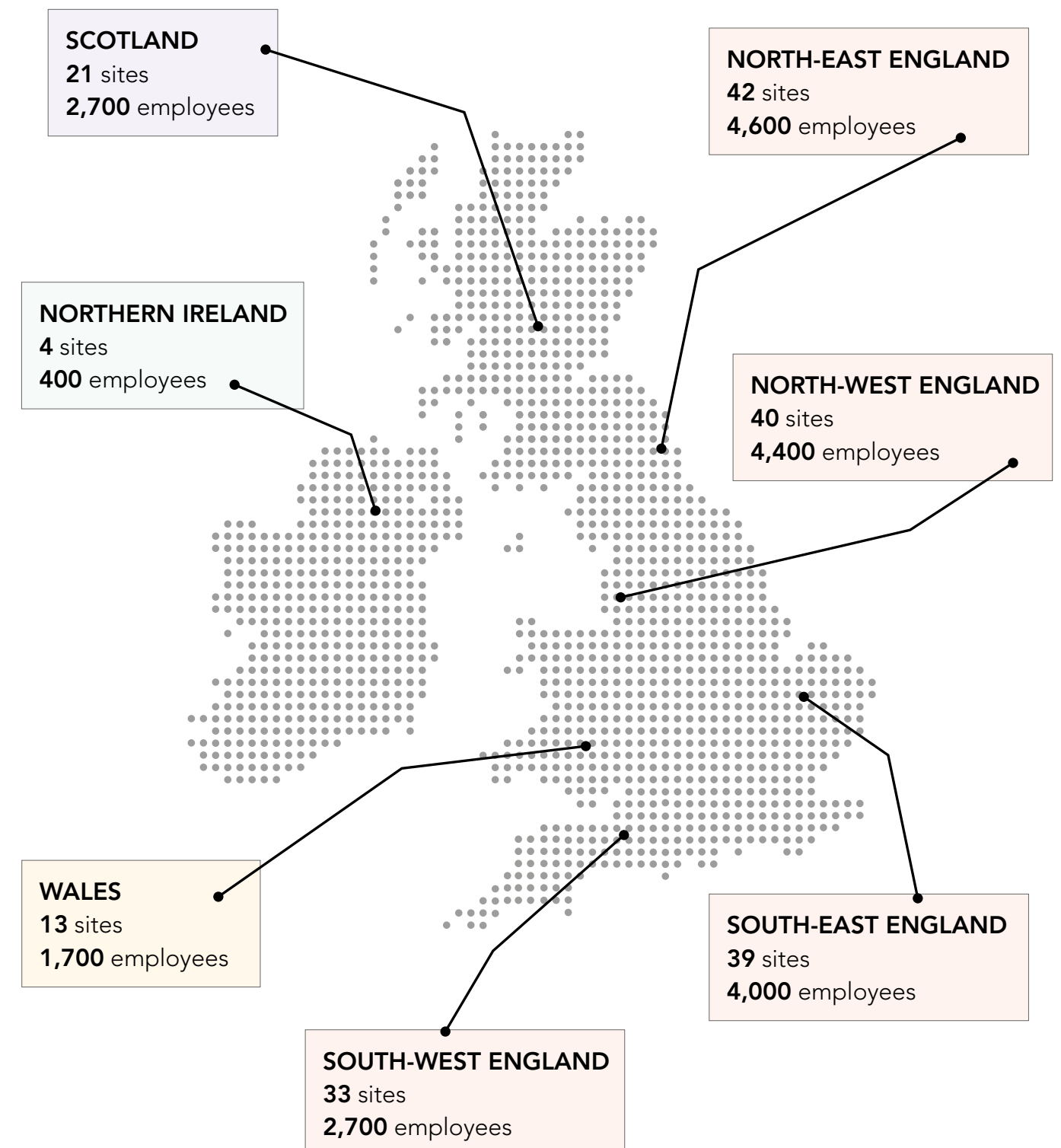
20 | As an industry with a £11.5 Billion turnover (As shown in Chart 6), the UK's Paper-based Industries provide tens of thousands of jobs across the UK. Indeed, the Office of National Statistics reports that there are 56,000 direct jobs, and the wider supply chain for paper manufacturing and processing supports a further 93,000 jobs in the UK economy.

21 | CPI represents the companies where many of these employees work. In 2021 the total direct employment in the CPI membership was 20,551, with 9,000 in paper and board manufacturing (including tissue), 11,000 employed in manufacturing corrugated board and boxes, and 1,000 employed in the collection and processing of recovered paper for recycling.

22 | The employment map shows that whilst the industry is spread across the UK there is a higher concentration in the UK's manufacturing heartlands, which formed the political background of the 2019 election and are a focus of much of this Government's levelling up agenda. Retaining these essential jobs and ensuring their long-term sustainability is vital, particularly as the OBR predicts a drop in employment across the UK. Energy intensive industries and the jobs they create have traditionally played a role in supporting communities, often employing generations of members of the same family, and investing in the local economy.

Impact of the industry on the UK economy

Integrated paper, packaging, tissue, and recycling in the UK 2021



Source: CPI

Investing in a modern industry

Pushing for productivity

23 To drive growth, productivity needs to increase. This is something that the UK's Paper-based Industries have acknowledged and have been working on for some time with targeted investments.

24 However, papermaking productivity improvements have been hard won. This is because of several factors, notably increased energy costs, which not only make the UK a less attractive location for further investment, but also mean that available funds are often allocated to operating costs such as energy, and therefore are not available for investment in UK operations.

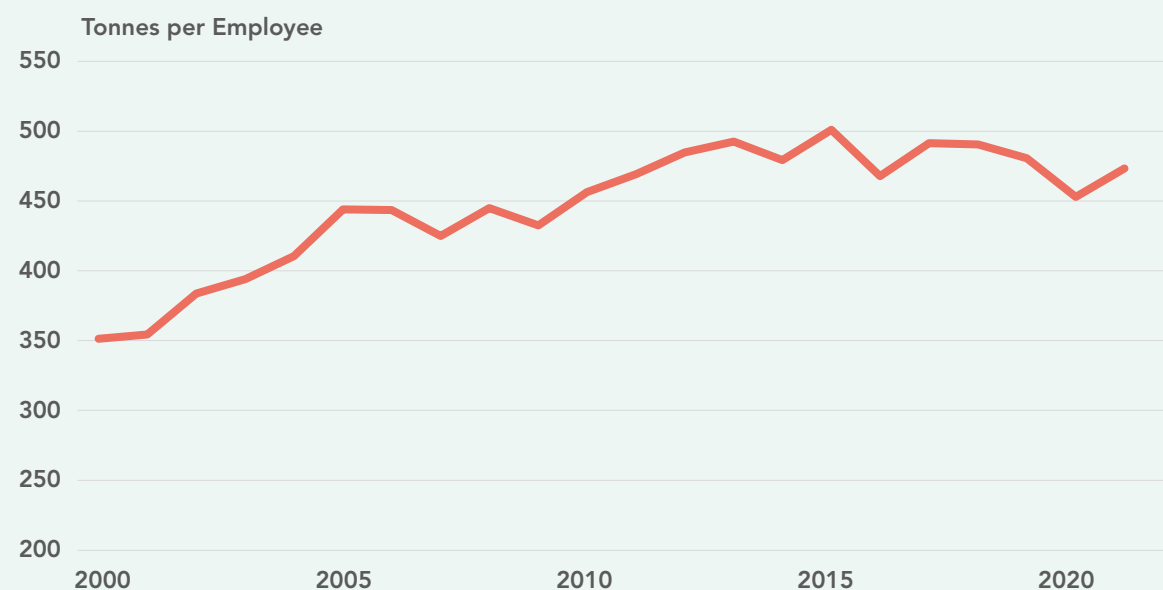
25 Another other major issue has been policy volatility and Government action that appears to downplay the importance of, and take for granted, the UK's manufacturing industries. Rapid policy swings, such as the uncertainty over energy network charges, the treatment of CHP, and the indecision over linking the UK and EU ETS schemes has led Boardrooms outside the UK to the conclusion that policy will not support them in making profitable investments in the UK. As a result, investment has been funnelled to more

supportive environments, which have therefore seen productivity gains. Policy certainty and a competitive investment environment for businesses is required for long term growth and increased productivity in the UK's Paper-based Industries.

26 In contrast, corrugated board manufacture has seen marked improvements in productivity, as shown in chart 7b. The corrugated industry has seen growth in both automation and sophisticated board processing equipment.

27 To build upon productivity across the industry investment is required in the workforce, and further technological innovation is required to improve efficiency. Further to this there needs to be a competitive backdrop to enable UK manufacturing to thrive and grow, including low tax and comparatively affordable energy costs. A growing industry is good news for the UK economy. The United States Inflation Reduction Act, and the likely EU subsidy response, put into sharp focus the risks to the UK economy of a green manufacturing investment drain in the event of an unsatisfactory UK policy response.

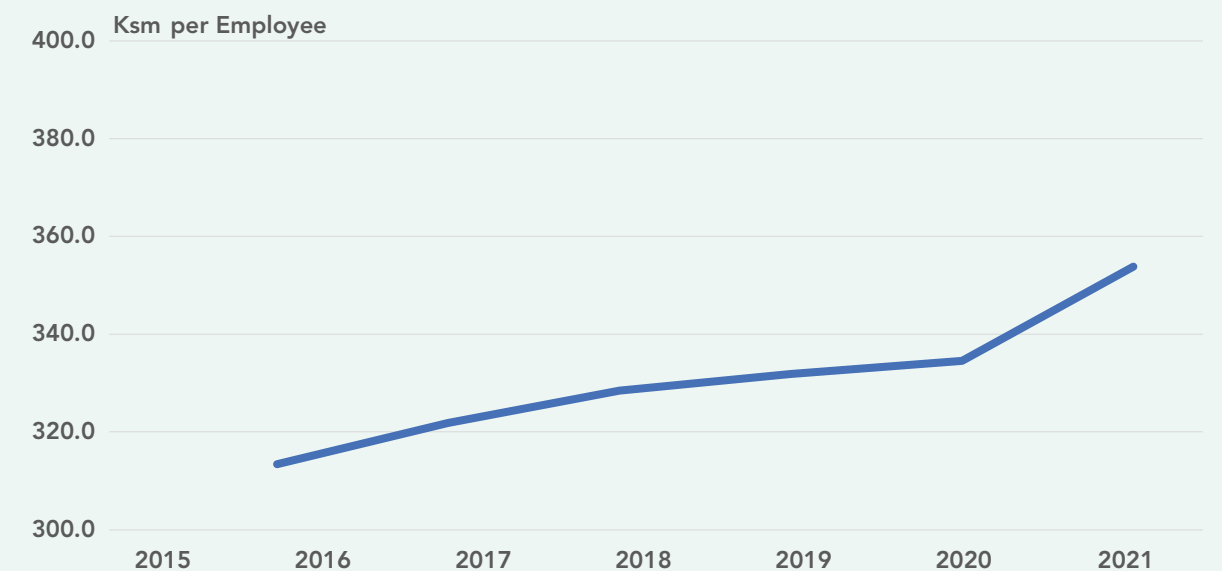
Chart 7a Papermaking productivity



Source: CPI

Investing in a modern industry

Chart 7b Corrugated board productivity



Source: CPI

Investing in the Industry

28 To secure the long-term viability of the UK Paper Industry investment is vital. Investors need the continued confidence to invest following trends of recent years.

29 In the context of a Paper Industry that is largely owned outside the UK, a key challenge is in encouraging and retaining investment. Investment is vital to make the industry fit for the future. At the heart of this challenge is ensuring that the UK is a competitive destination for investment in terms of taxation, long term business certainty, and competitive energy costs.

30 Private enterprise and Government need to work together to create the best possible environment for business to invest. CPI recognises the challenges faced by Government with rising inflation and the pressures with energy costs, largely as a result of the conflict in Ukraine. However, CPI would appeal to Government to recognise the importance of retaining and attracting business, particularly in the foundation industries at this difficult time.

31 CPI would like to see:

- Government's continued commitment through the British Energy Security Strategy to lower industrial energy prices compared to costs in competitor nations;
- the establishment of an innovation fund paid for by higher than expected UK ETS allowance auction receipts (total income from UK ETS is already over £6 Billion);
- measures to curb excessive rises in carbon taxes; and
- a coherent UK industrial strategy, rebalancing the economy and promoting UK industrial growth as a desirable outcome.

Investing in a modern industry

Chart 8 | UK paper and board imports by sector 2021

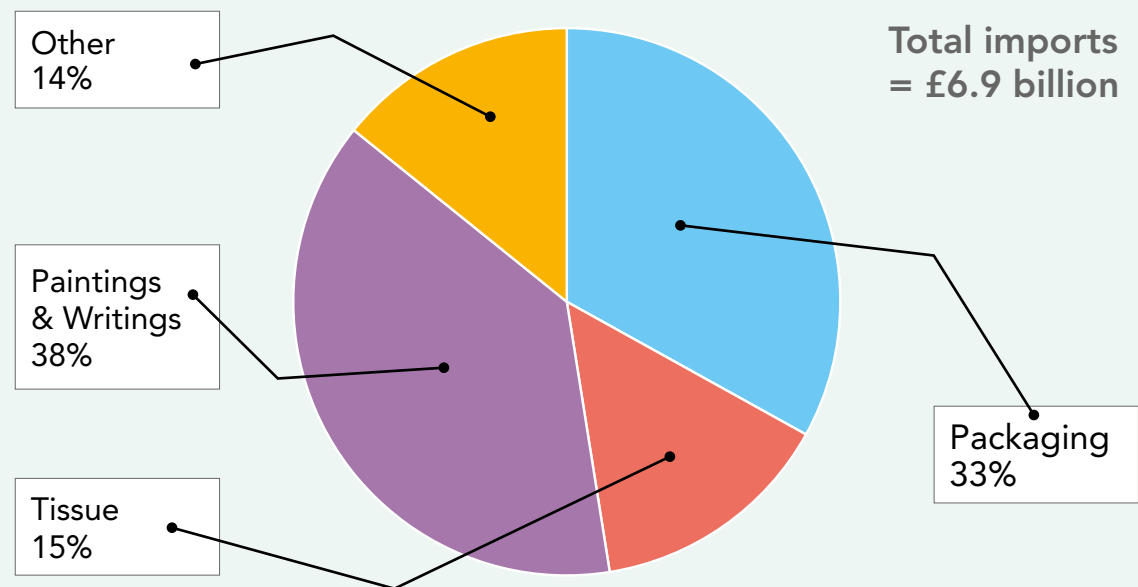


Chart 10 | Recovered paper exports by destination 2021

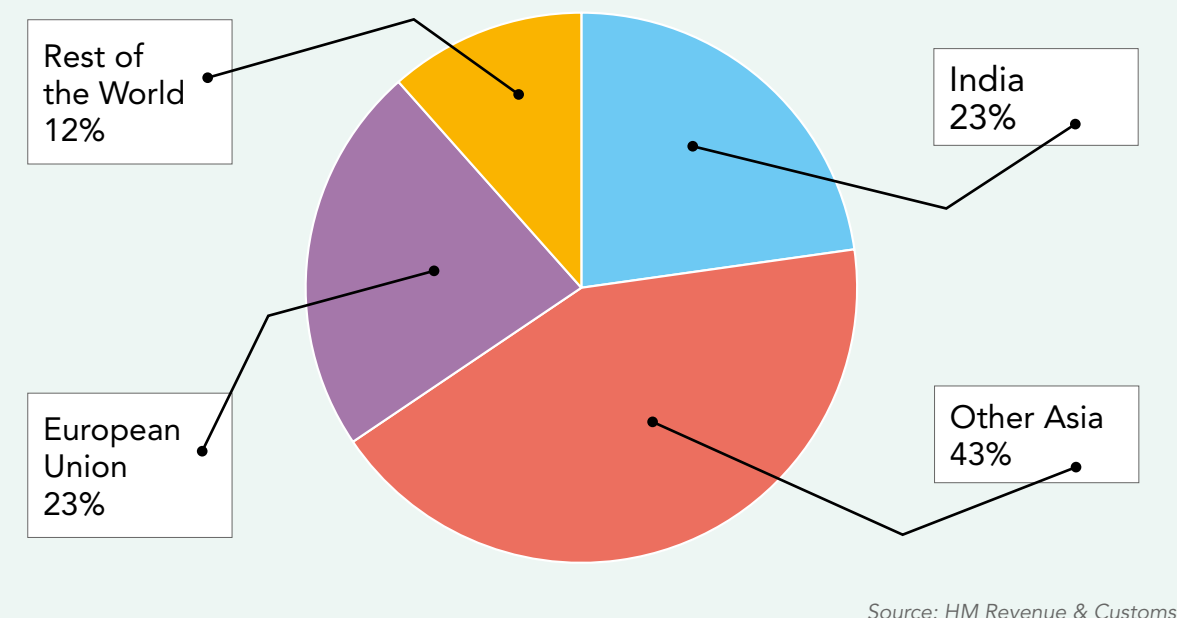
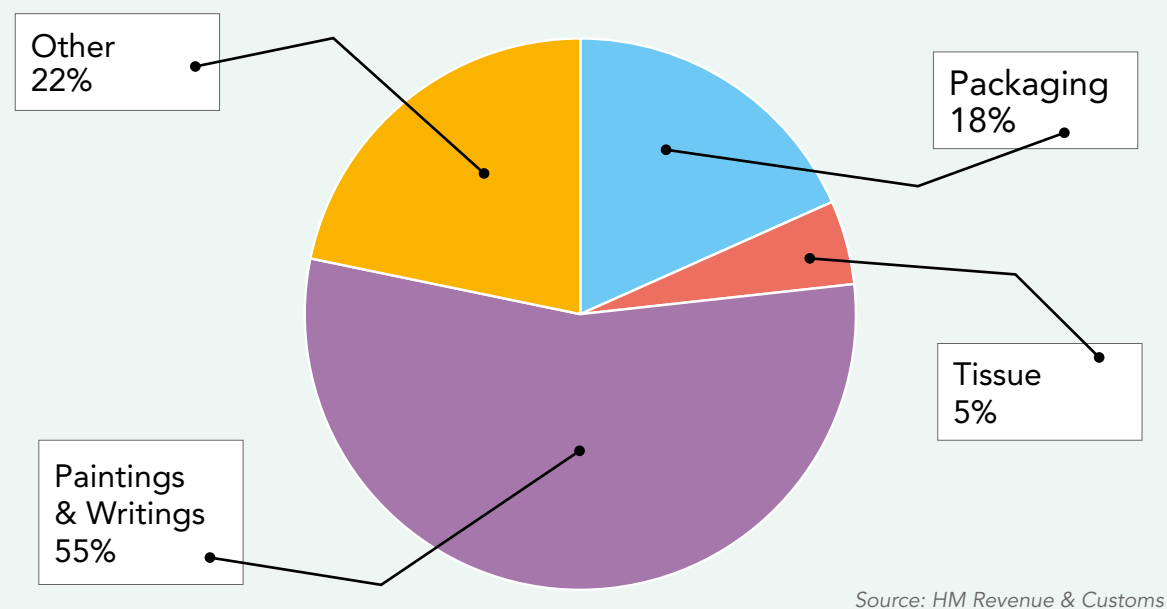


Chart 9 | Paper and board exports by sector 2021



Investment success stories

Eren Holdings

- 32| An exciting example of a paper-based company successfully investing in the UK economy is Eren Holdings.
- 33| Eren Holdings made its first significant investment in the UK in 2021. The Turkish company signed an agreement to purchase the newsprint mill site and all related assets of UPM in North Wales (Shotton Mill).
- 34| Eren is taking steps to integrate the Shotton site into its existing business unit Modern Karton, and plans to make further significant investment at the site. The proposals include a state of the art 750,000 tonnes per year container board machine, new warehouse and dispatch facilities, a 110,000 tonnes per year corrugated box manufacture plant, and a new anaerobic effluent treatment plant with biogas capture technology. There will also be investment in a gas CHP that will have the capability to utilise a supply of hydrogen gas when it is available locally.
- 35| In addition to the containerboard development, Eren also plan to use additional land within the mill boundary to develop a new Tissue business. At full capacity, 210,000 tonnes per year of parent reel tissue for further converting at other facilities in the UK, as well as manufacturing of the final product on site, will be possible.
- 36| The company is not only investing in the UK economy but promoting sustainability. The proposals for the site will allow significant volumes of recycled material that is currently exported from the UK to remain and be processed into new products using the latest resource-efficient papermaking processes and technologies.



The green growth revolution

Putting the industry at the heart of a green growth revolution

A sustainable industry – recycling for a century

- 37|
- 80% of UK-made paper utilises recovered (used) paper
 - 7.1 m tonnes of used paper and card were recovered in the UK for recycling in 2021
- 38| As renewable and recyclable materials, paper and board are sustainable. Indeed, the recycling of paper has been a national success story for over a century and a half ever since cotton rags were first picked for papermaking. Fast forward to today and recovered paper is a globally traded, high quality product, the backbone of the circular bio-economy.
- 39| Recycling is required for the operation of the UK Paper Industry and this integral role requires sophisticated infrastructure to support it. Around 80% of UK-made paper utilises recovered (used) paper, which is by far the biggest volume of material recycled from domestic waste streams – around 3 million tonnes of recovered paper are recycled in the UK annually.
- 40| CPI has been at the forefront of promoting the importance of recycling. It is vital for the paper-based industries that we optimise the quality of material entering the recycling supply chain. The industry would like to see significant reductions in the contamination of paper for recycling to further increase recycling rates in the UK.

- 41| Proposed legislative changes introducing an Extended Producer Responsibility System (EPR), a Deposit Return Scheme (DRS), and Consistency of Recycling Collections are set to be implemented under the Environment Act 2021. Collectively, these proposals will have a profound effect upon packaging, paper, and recycling industries, and if implemented together could increase quality recycling in the UK. CPI has published 'Design for Recyclability Guidelines' to support members and producers in ensuring their products are recyclable.

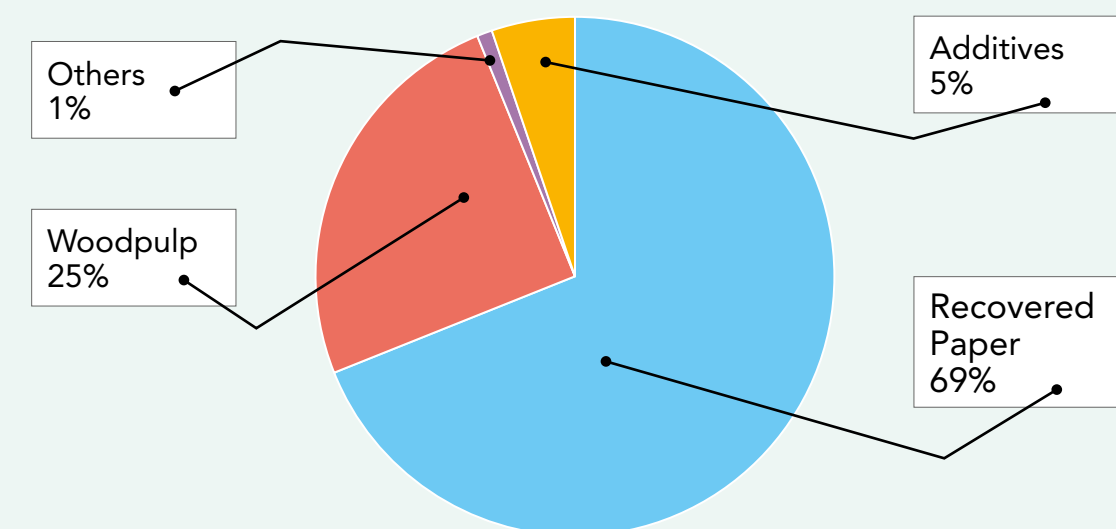
Scan the QR code to read the guidelines in full.



Sustainable Packaging

- 42| There is significant potential growth in sustainable packaging materials such as corrugated cardboard, with its excellent environmental performance and convenience, as demonstrated by the dependence upon the material for increased deliveries during lockdown. While their renewability and recyclability are the most important environmental benefits of fibre-based packaging, many can also be reused, and if they are littered, then they will completely biodegrade in a short space of time.

Chart 11 | Papermaking raw materials 2021



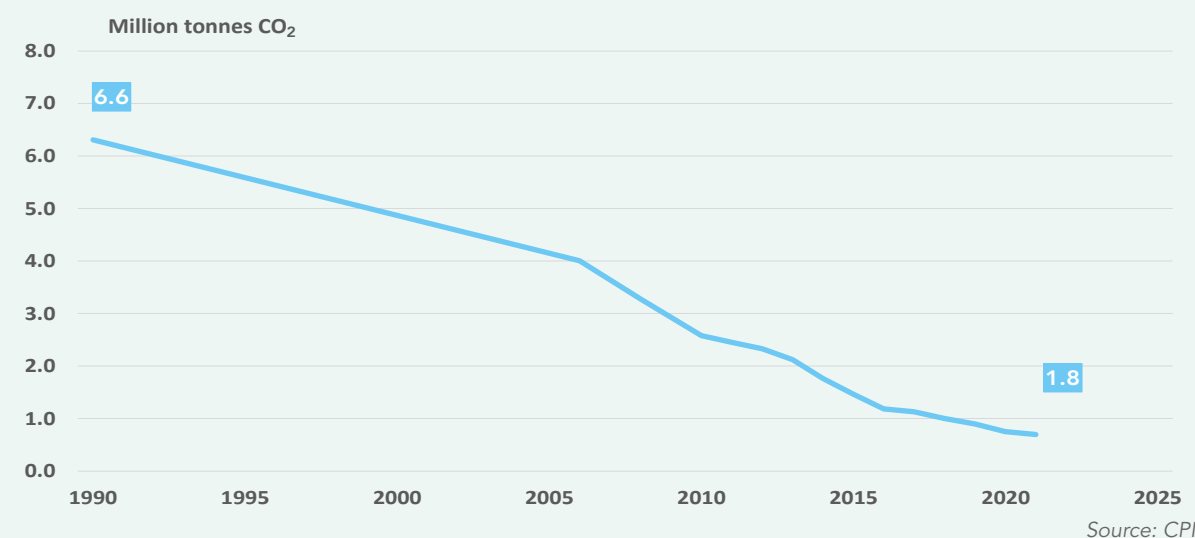
Source: CPI

Achieving net zero

43| When it comes to tackling climate change, actions speak louder than words. Between 1990 (the base year for the UK Climate Change Act) and 2019, emissions of fossil CO₂ from UK paper mills fell from 6.6 million to 1.8 million tonnes – a total reduction of 73%. Considerable improvements have been delivered by a combination of new plant and equipment,

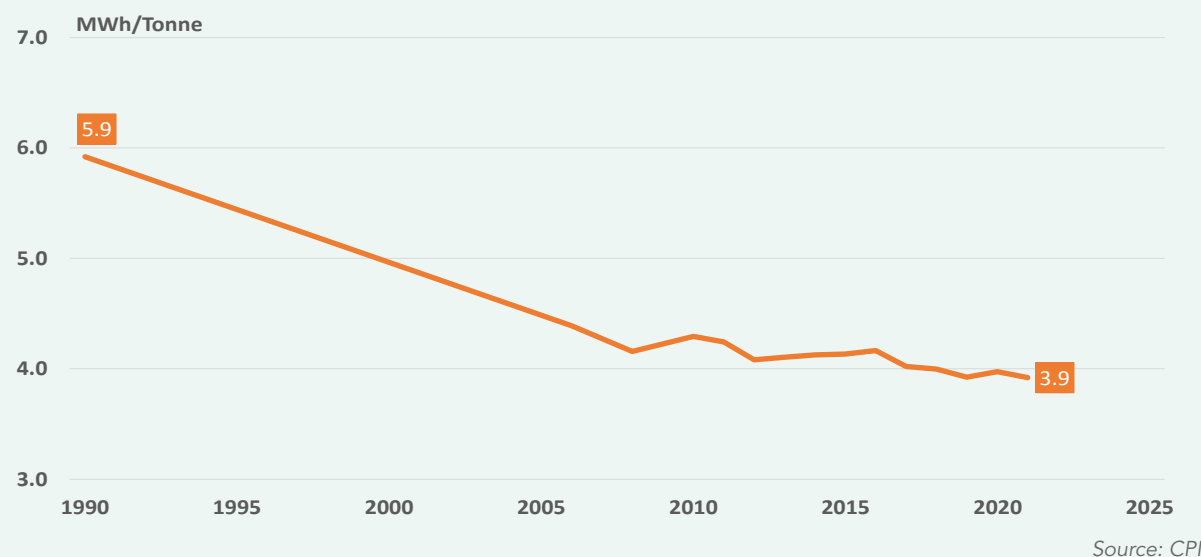
investment in CHP, improvements in energy efficiency, fuel switching to lower carbon energy sources and, in recent years, a reduction in the carbon content of UK electricity. It should not be overlooked that paper itself, as a substitute material for fossil oil-derived and difficult to recycle plastics, also intrinsically contributes to reducing carbon emissions.

Chart 12| Fossil fuel carbon dioxide emissions for papermaking



44| As this data shows, the UK's Paper-based Industries are actively working to achieve net zero and have established a roadmap in partnership with Government to plan for further emissions reductions in the sector to play their part in delivering the national target.

Chart 13| Specific energy consumption for papermaking



The energy cost challenge

45| Papermaking in the UK is a significant and intensive consumer of energy. Despite strong support and proactive steps being taken, there are considerable challenges to decarbonising for the industry in respect of both cost and effectiveness.

46| The cost of energy in the UK has become a growing issue and has been made even more acute as a result of the conflict in Ukraine and its impact on the energy market. The new Government has intervened with an energy cost relief scheme for non-domestic users. However, at the time of writing these assurances have only been given for six months, which does not provide businesses with the long-term stability required, or ability to plan, for the future.

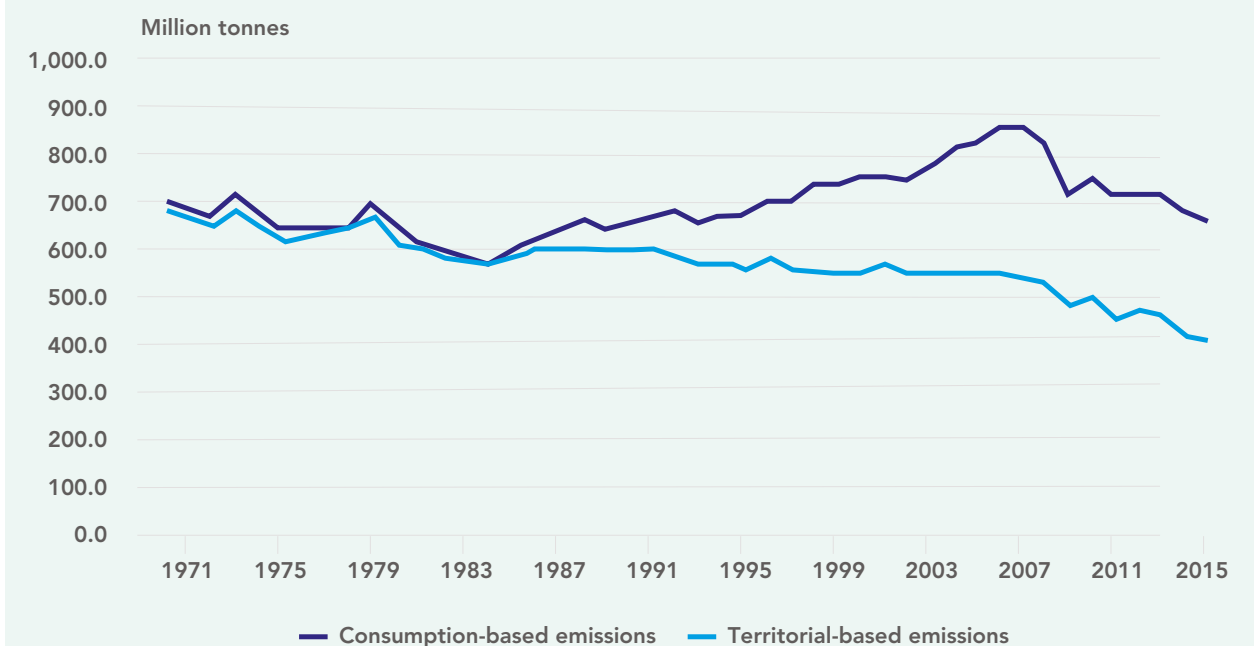
47| Further emphasis is needed on supporting industries that are put under the most pressure by spiralling energy costs. Whilst CPI welcomes previous Government initiatives like the Industrial Strategy Challenge Fund, there needs to be a greater focus on decarbonising existing foundation industries, safeguarding jobs across the UK.

A level playing field for emissions

48| The current UK decarbonisation policy mix acts as an incentive to offshore emissions, and import products from nations where emissions for production are higher. CPI calls again on Government to reform the mandate of the Committee on Climate Change to ensure that there is a level playing field, considering carbon emissions embedded in imported products in the same way as carbon emissions from UK production.

Chart 14| Consumption based on territorial emissions (EORA 2018)

Decoupling of GDP per head from CO₂ emissions.



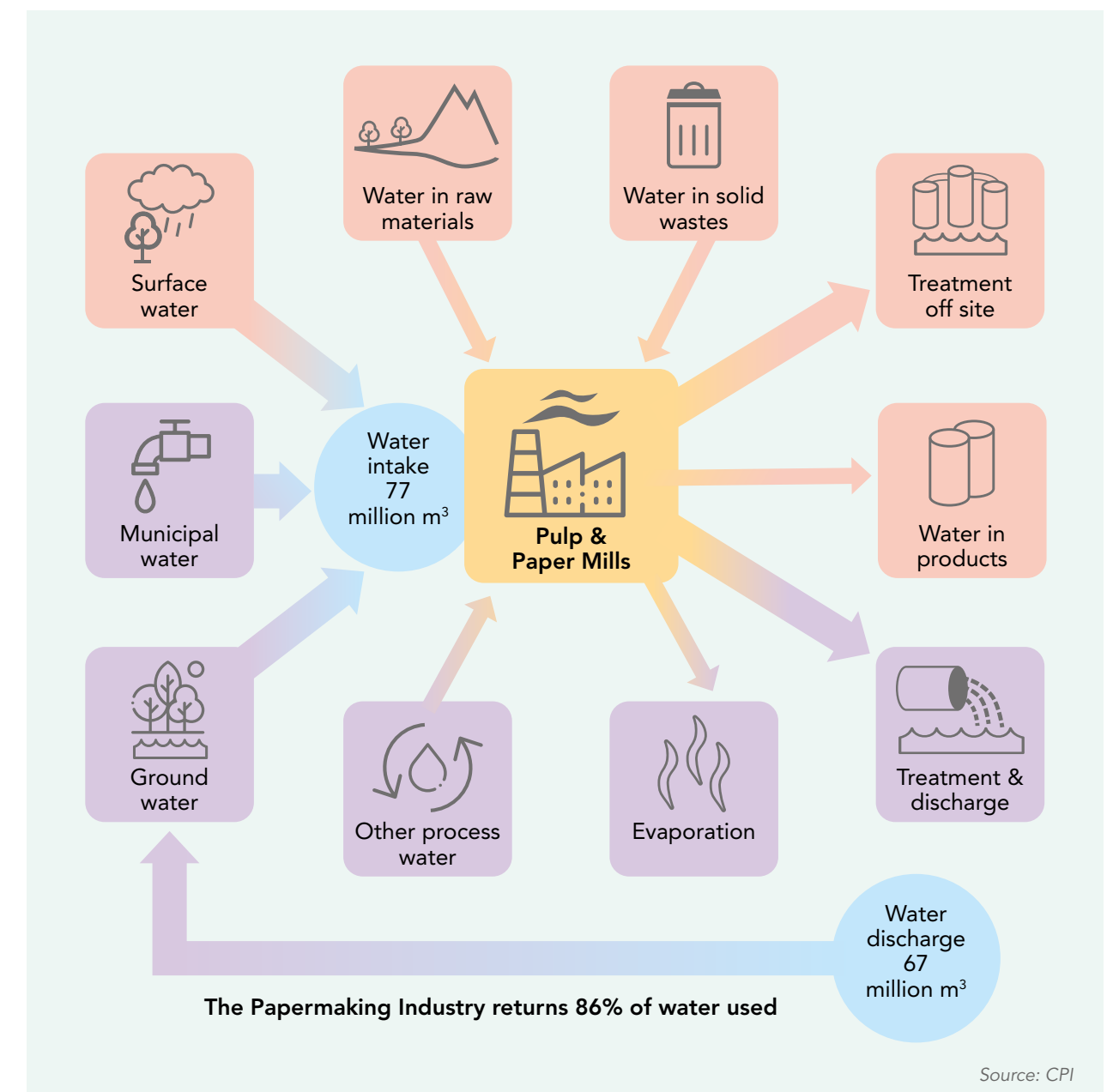
Source: Euro, 2019, World Resource Institute 2017 and BEIS
<https://www.ons.gov.uk/economy/nationalaccounts/uksectoraccounts/compendium/economicreview/october2019/thedecouplingofeconomicgrowthfromcarbonemissionsukevidence>

Water consumption

Using and discharging water for paper production

49 It should also be highlighted that the UK's Paper-based Industries are a major user of water in the production process. As an industry, we work with Regulators to ensure sustainable abstraction and best practice in efficient water use. Annually, the UK industry takes in (or more accurately borrows) 77 million m³ of water. The water is abstracted from a variety of sources, including natural water sources as well as embedded water within raw materials.

50 However, it should be stressed that the industry does not consume all this water, as some 67 million m³ of water is discharged back to rivers and other water courses every year after treatment. In fact, the sector directly returns some 86% of all water used in our processes back into the environment. The following diagram illustrates this process.



Supporting and growing industry

51 The UK's Paper-based Industries are core British manufacturing industries. As well as having a positive economic impact on the UK, they produce essential products. In the pandemic they proved their importance by helping to keep the country moving in a time of national emergency.

52 The pandemic and the subsequent international instability, with a war in Ukraine and growing tensions with China, as well as economic challenges domestically have shown the importance of being nationally more self-sufficient. The production of essential goods here in the UK is important in terms of maintaining and creating UK jobs. For this to be achieved sustainable growth of industry is required.

53 Trends have shown that overall, industry growth has stagnated somewhat in recent years. The most pressing issues limiting growth and challenging industry at present are:

- **Energy Costs** - As shown, energy costs are a huge issue and becoming ever more acute. Even before the situation in Ukraine, UK industrial electricity prices for large users were the highest in Europe. These costs must come down to stimulate investment in the UK.

- **Supply Chain Resilience** - The pandemic showed a need to strengthen supply chains and reshore business back to the UK. The UK has continued high demand for paper and its products, as well as high exports of recovered paper for others to recycle. This combination of product demand and abundant raw materials should encourage renewed growth in UK manufacturing capacity.

- **Skills** - Like many energy intensive industries, the UK's Paper-based Industries have a skills gap and there is a challenge to bring in the right skills. Levers such as opportunities for apprentices and targeted immigration for industry need to be utilised.

Opportunities for growth in the UK

54 Recent years have brought uncertainty and challenges for the UK's Paper-based Industries, however as we strive towards economic recovery, we must be ambitious and work to unleash opportunities for growth.

55 As we build on the outcomes of recent COP conferences, it is clear that the UK can build a successful circular bio-economy and ensure we are manufacturing more here in the UK – producing more of what we consume.



Health and safety

56 For the successful operation of the UK's Paper-based Industries, Health and Safety is paramount. CPI sees Health and Safety as one of the highest priorities for the industry at large.

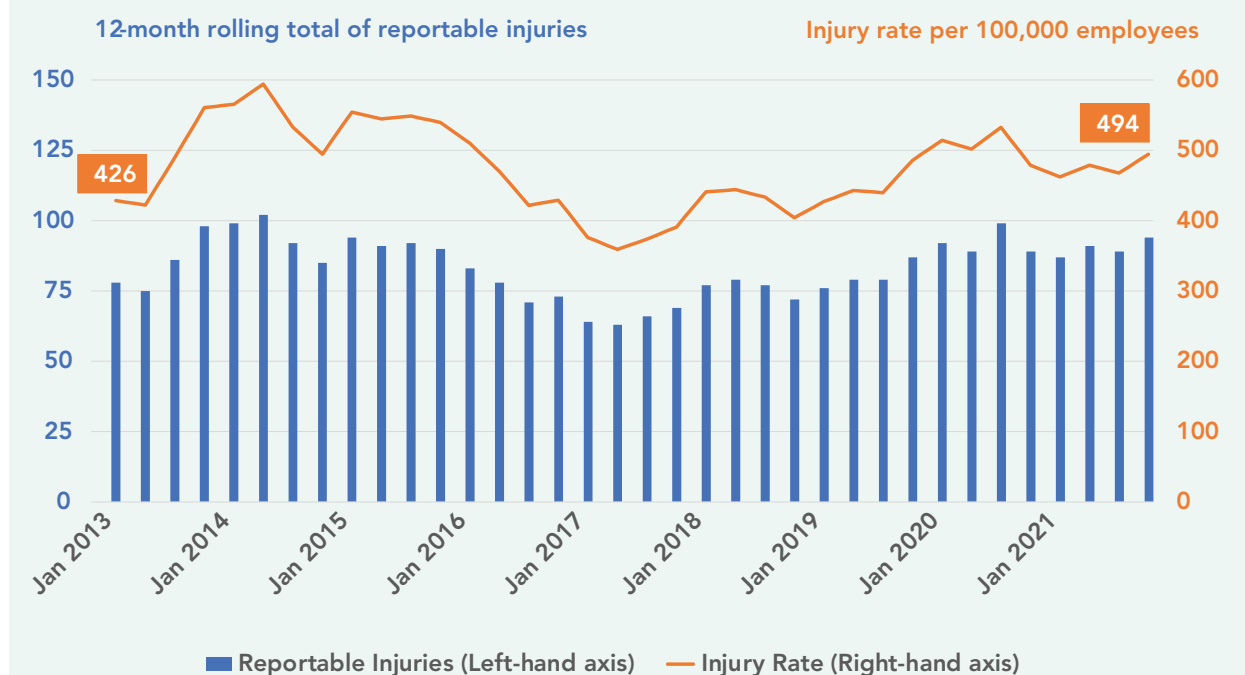
57 The Paper and Board Industry Advisory Committee (PABIAC), with CPI playing a leading part, has played a critical role in the efforts to improve standards in the industry and reduce the levels of incidents and injuries.

58 In the early years of the 21st Century the industry, supported by the PABIAC process, made a very significant improvement in its health and safety performance. Since then, while that

advance has been maintained, continued reductions in incidents and injuries have proven more difficult to secure. The following chart shows the sustained lower rate of incidents and injuries in recent years. In 2023, PABIAC will relaunch under industry chairmanship, with a renewed mandate to making the industry as safe and healthy as it can be.



59 In 2022 CPI hosted a Health and Safety conference bringing industry leaders together, to discuss, inform and educate on this important issue.


Chart 15 Safety in the paper-based industries



Source: CPI

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