

# 2021

# SOUTH AFRICAN PULP AND PAPER INDUSTRY SUMMARY

Full year 2021

## A SECTOR AS RELEVANT AS EVER

Society is far from being paperless. Despite the everyday use of electronic communication, wood-based pulp and paper products are woven into the fabric of everyday life. The world is changing and so is the way we use paper, or broadly, fibre.

It was for this reason that PAMSA commissioned a short online survey which drew responses from 1 976 people across South Africa with the largest proportion coming from people aged between 25 and 49 years old.

What we learnt is that paper – in its countless forms – holds a prominent place in people’s lives. Asked which three products came to mind first at the mention of “paper”, office paper scored 65%, books 63% and school books and stationery 58%.

Magazines and newspapers came in at 56%. Despite being made of paper and being part of everyday life, cardboard boxes, toilet paper and tissue products

scored quite low. This tells us that many people don’t associate paper with these products or perceive paper very differently.

Moving to more quantitative results, this production summary seeks to share the annual statistics for the South African pulp and paper sector. We have included information on 2021 full year, and in some places, where relevant, the first half of 2022.

**Jane Molony**

EXECUTIVE DIRECTOR

*Paper Manufacturers Association of South Africa*

### WHICH PRODUCT IS MOST ASSOCIATED WITH THE WORD “PAPER”?



**65%**  
Office paper



**63%**  
Books



**58%**  
Schoolbooks, exam pads and textbook



**56%**  
Magazines and newspapers



**31%**  
Marketing and sales leaflets



**28%**  
Paper bags



**28%**  
Toilet paper

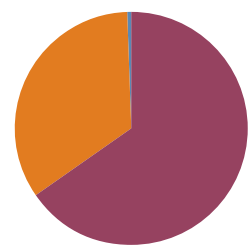


**25%**  
Cardboard box



**24%**  
Tissue

### WHEN READING FOR FUN



- 65.5% prefer paper books, magazines and newspapers
- 34% prefer digital or e-reader formats
- 0.5% don't read for leisure



# Growing a greener economy

The myths around paper production causing deforestation still exist. There is also a disconnect between knowledge and opinion. People recognise that wood and paper are sustainable materials and that we should be using more of them. At the same time, they also believe that all trees - natural or planted - need to be kept in the ground to help our planet.

PAMSA, along with its members and international counterparts, invests a lot of time and resources into countering misinformation about the use of wood-based products. Simply put, the use of harvested wood products (HWPs) in the form of pulp, paper and paper packaging should not be frowned upon as bad for the environment.

A new report by Dalberg – *The growing role of forest products in climate change mitigation* – launched at COP27 in Egypt, highlights that forestry and HWPs should not be overlooked as key drivers of a climate-resilient planet and green economic growth.

Forestry critics argue that all types of trees should be kept in the ground, regardless of their type and purpose,

and perpetuate the myth that wood production leads to deforestation.

Many do not realise that without a thriving forestry sector, the climate change goals outlined in the Paris agreement will be tough to meet. Sustainable forest management sits at the root of a climate positive sector, along with the production of HWPs, including paper, serving to prolong the duration for which carbon is stored.

South African pulp and paper mills only use wood fibre from sustainably managed plantations. After mature trees have been harvested, new trees are planted, ensuring sustainable supply and increased carbon uptake and, of course, storage of carbon in HWPs.

**The Dalberg report presents a 3S Framework of Sequestration, Storage and Substitution, highlighting the role of HWPs in the carbon cycle and ultimately climate regulation.**



**S**equstration takes place during photosynthesis. Trees absorb carbon dioxide (CO<sub>2</sub>) for growth, storing the carbon and releasing the oxygen. Carbon then accumulates in the form of biomass, deadwood, organic litter and soils.



**S**torage is maintained when trees are harvested, and wood products become a pool of stored carbon. With half of the dry weight of timber as carbon, the carbon storage potential in long-life wood products and reductions of emissions from use of wood products is significant.



**S**ubstitution occurs when wood-based products replace carbon-intensive materials. To keep the goal of limiting warming to 1.5°C in play, countries need to use more timber in construction, more wood-based fibre in packaging, and more sustainably sourced cellulose in a vast range of products from biofuels to clothing to car parts and even pharmaceuticals.





## ENERGY CONSUMPTION AT MILL LEVEL EXPLAINED

No two mills are the same in terms of their energy needs and consumption.

The energy consumed by the pulp and paper mills in South Africa is influenced by the following factors: production capacity (mill size), production (tonnages produced), mill type (integrated or non-integrated), raw material type (timber, recycled fibre, purchased pulp and other sources of biomass), product type (white paper, kraft etc.), process employed (chemical or mechanical pulping) and whether the mill generates its own electricity or is fully reliant on the national electricity grid. Unless adjustments can be made for all these factors, there is no value in benchmarking the mills against each other.

Many pulp and paper mills generate their own electricity to keep their operations going, sourcing approximately 92% of the energy from a variety of fuels and energy sources such as black liquor (a by-product from the pulping process), biomass (bark), Heavy Fuel Oil (HFO), coal and natural gas.

Coal constitutes 49% of the energy from fuels. Black liquor constitutes 43% of the energy from fuels. Black liquor is classified as renewable. The remaining 8% is sourced from the national grid.



## Contribution to the economy

### BALANCE OF TRADE

In 2021, the South African pulp and paper sector contributed R8.4 billion to the country's balance of trade (trade surplus) with pulp exports offsetting the value of paper and board imports.



### BALANCE OF TRADE EXPLAINED

Balance of trade is calculated by subtracting Rand value of products imported from Rand value of products exported. A negative amount, in the case of paper and board, indicates that more product was imported, thus more money exited South Africa while a positive amount indicates that more was exported than imported, representing earnings for the country.

# Production Summary | 2021 full year



**3.5 million**  
**PRODUCTION TONNES**  
 TOTAL PAPER AND PULP



**960 000**  
**IMPORT TONNES**  
 TOTAL PAPER AND PULP



**1.7 million**  
**EXPORT TONNES**  
 TOTAL PAPER AND PULP

TONNES OF PRODUCT PRODUCED	2019	2020	2021
Pulp	1 937 000	1 721 000	1 591 000
Tissue	248 000	227 000	266 000
Printing and writing	448 000	322 000	387 000
Packaging papers	1 463 000	1 343 000	1 342 000

PRINTING AND WRITING SUB-CATEGORIES	2019	2020	2021
Uncoated Paper	341 000	265 000	307 000
Newsprint and Telephone Directory Paper	107 000	57 000	80 000

*Coated paper and super-calendered mechanical and light-weight coated paper is no longer produced locally.*

PACKAGING PAPERS SUB-CATEGORIES	2019	2020	2021
Linerboard	791 000	705 000	675 000
Fluting	505 000	494 000	476 000
Kraft wrapping and packaging	11 000	7 000	13 000
Folding boxboard	87 000	71 000	94 000
Other kraft paperboard and fibreboard	69 000	66 000	84 000

## HOW WE CALCULATE APPARENT CONSUMPTION

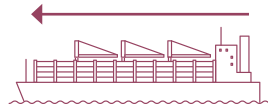
Apparent consumption = (Production + imports - Exports)



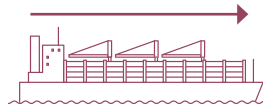
# PULP | 2021 FULL YEAR



**1.59 million**  
PRODUCTION TONNES



**199 000**  
IMPORT TONNES



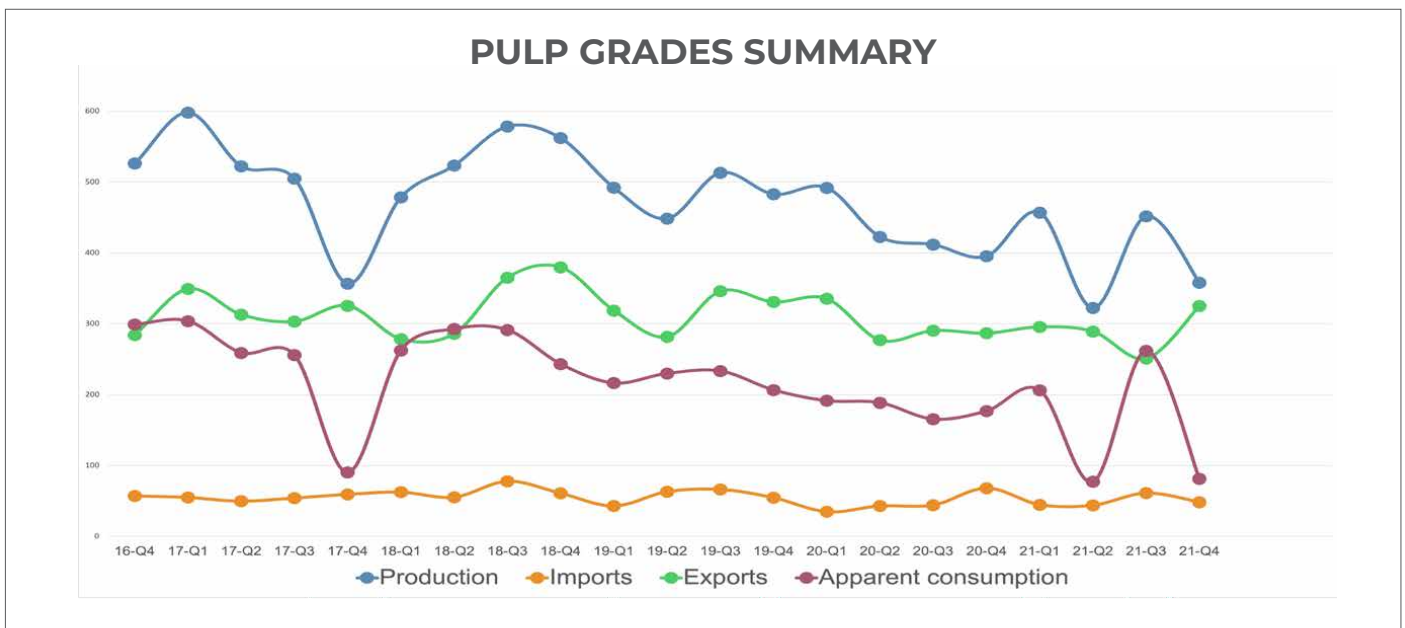
**1.16 million**  
EXPORT TONNES



**629 000**  
APPARENT CONSUMPTION

Pulp grades are used to make the two major paper types – wood-containing and woodfree (lignin removed, such as A4 copy paper), as well as dissolving woodpulp which makes cellulose/rayon products.

While pulp production has rebounded since Covid-19, it hovered marginally below more recent highs, with both production and domestic consumption remaining significantly lower than 2016 levels. Although there is little evidence of a recovery in domestic pulp consumption, there are signs of rising production focused on export demand for specific grades such as dissolving wood pulp.



MECHANICAL PULP	CHEMICAL PULP	SEMI-CHEMICAL PULP	DISSOLVING WOOD PULP
<p><b>2020</b> 49 000 TONNES</p> <p><b>2021</b> 72 000 TONNES</p> <p><b>Mechanical pulp</b> is largely used in newsprint, tissue and paperboard, as there are no coated grades made locally.</p>	<p><b>2020</b> 653 000 TONNES</p> <p><b>2021</b> 566 000 TONNES</p> <p><b>Chemical pulp</b> is used in white paper grades such as A4 copy paper and whitetop liner (the white printable layer on paper packaging)</p>	<p><b>2020</b> 201 000 TONNES</p> <p><b>2021</b> 188 000 TONNES</p> <p><b>Semi-chemical pulp</b> is used to make corrugated paperboard, cardboard roll cores, and containers</p>	<p><b>2020</b> 818 000 TONNES</p> <p><b>2021</b> 765 000 TONNES</p> <p><b>Dissolving wood pulp</b> is used to make man-made cellulosic textile fibres (viscose)</p>

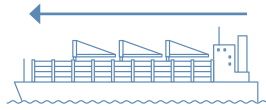


# PRINTING AND WRITING GRADES | 2021 FULL YEAR

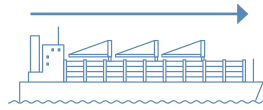
Newsprint, office papers and coated grades (used for magazines, brochures, and marketing materials)



**387 000**  
PRODUCTION TONNES



**504 000**  
IMPORT TONNES



**152 000**  
EXPORT TONNES



**739 000**  
APPARENT CONSUMPTION

During 2021, apparent consumption remained satisfactory at around 739 000 tonnes, an improvement on the lows experienced during Covid-19, but still well below the industry's highs in 2015 and 2019.

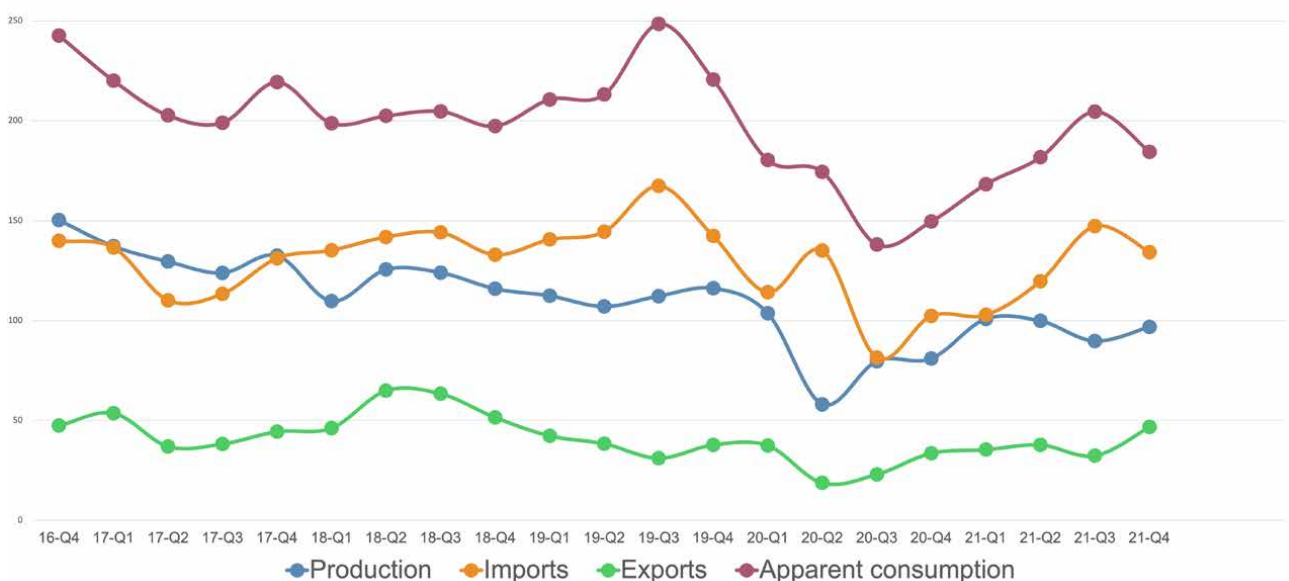
Printing and writing grades have not returned to previous levels due to the global trend of continued office automation, electronic media consumption and digital migration.

According to the Q2 2022 report by the Audit Bureau of Circulations (ABC) South Africa's figures show a steady ship and some growth in the Free and Local newspapers categories. ABC noted the continuation of the digital migration to paid-for newspapers, echoing the PAMSA statistics.

The April 2022 flood damage in KwaZulu-Natal negatively affected production at some mills resulting in supply chain issues. The sector remains optimistic that domestic consumption will continue to improve.



## PRINTING AND WRITING SUMMARY

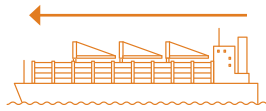


# PACKAGING PAPER GRADES | 2021 FULL YEAR

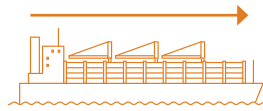
Corrugated case material, white top liner and smaller volume kraft grades



**1.3 million**  
PRODUCTION TONNES



**239 000**  
IMPORT TONNES



**350 000**  
EXPORT TONNES

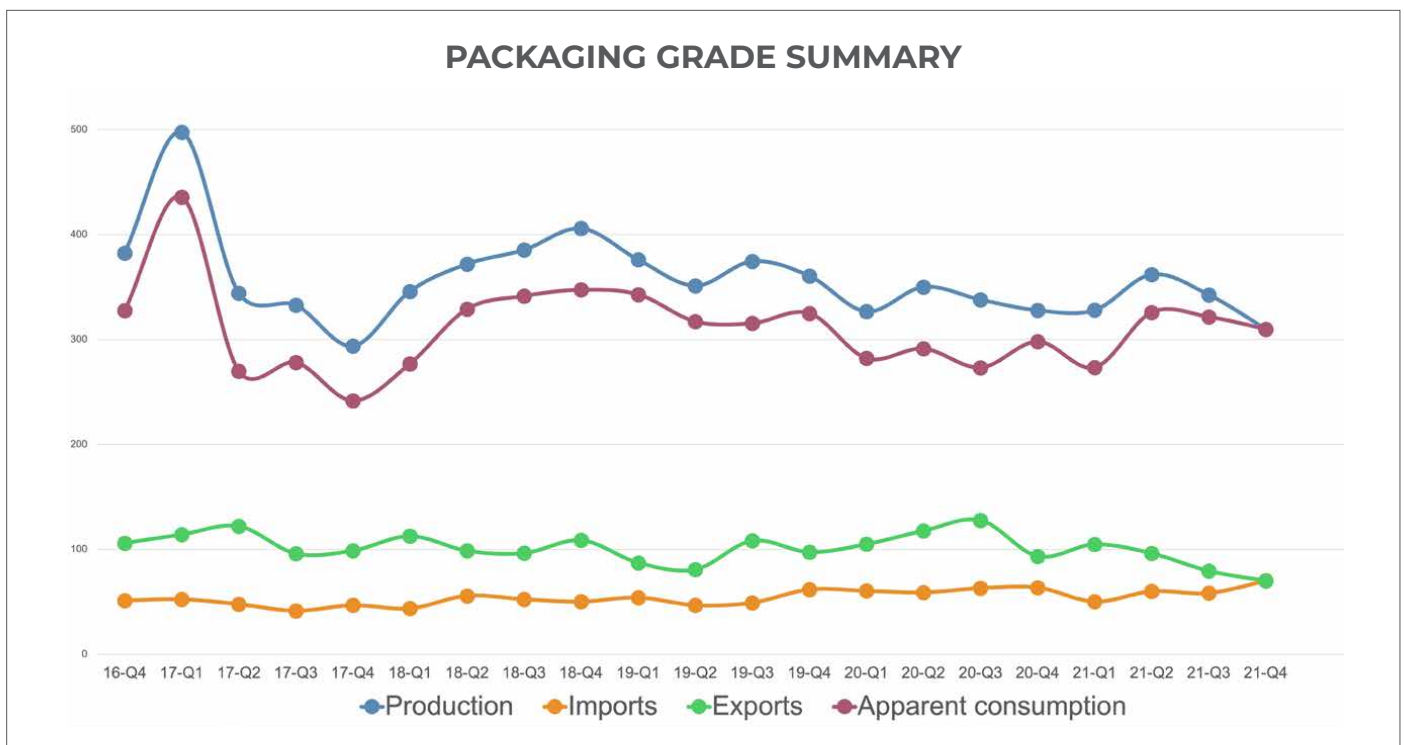


**1.2 million**  
APPARENT CONSUMPTION

Production of packaging papers recovered from the dip during the latter part of 2020 and apparent consumption bounced back from Covid-19 knocks. Despite a sustained rise, consumption of packaging grades has remained well below previous highs, only just returning to 2011 and 2012's 360 000 tonnes per quarter. This could be attributed to manufacturers' efforts to produce lighter boxes (light weighting) as well as the effects of the 2021 riots, April 2022 flooding and the instability of national electricity grid, among other factors. There also would have been significant restocking of goods by retailers after the riots, which drew more packaging into the market.

Tonnes destined for the export market again compensated for weakened local consumption, indicative of relatively high operating costs.

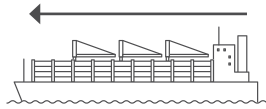
Imports, assumed to be more specialised grades for local conversion into a variety of paper packaging products, are rising gradually. This could be attributable to packaging substitution of plastic to paper-based substrates where such packaging papers are not produced locally.



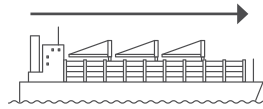
# TISSUE GRADES | 2021 FULL YEAR



**266 000**  
PRODUCTION TONNES



**18 000**  
IMPORT TONNES

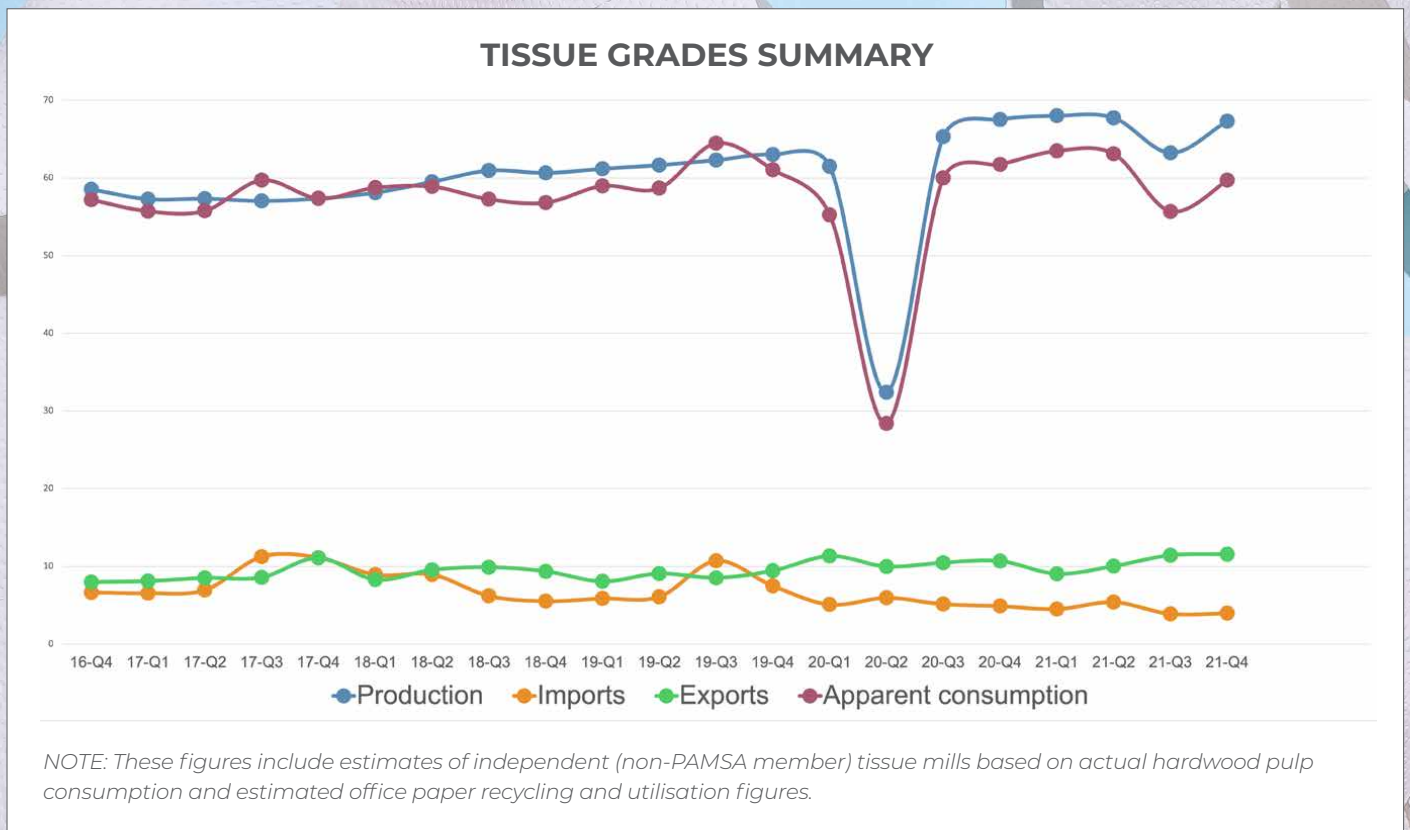


**42 000**  
EXPORT TONNES



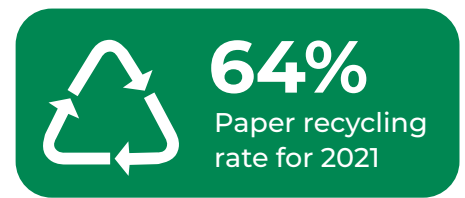
**242 000**  
APPARENT CONSUMPTION

Tissue production and consumption rose strongly and sustained higher levels. Apparent consumption was marginally higher in 2021 on 2020's numbers, with exports remaining healthy and making up the difference in production and local consumption. Imports were somewhat lower, while the gradual rise seen in exports is expected to continue in the long run.

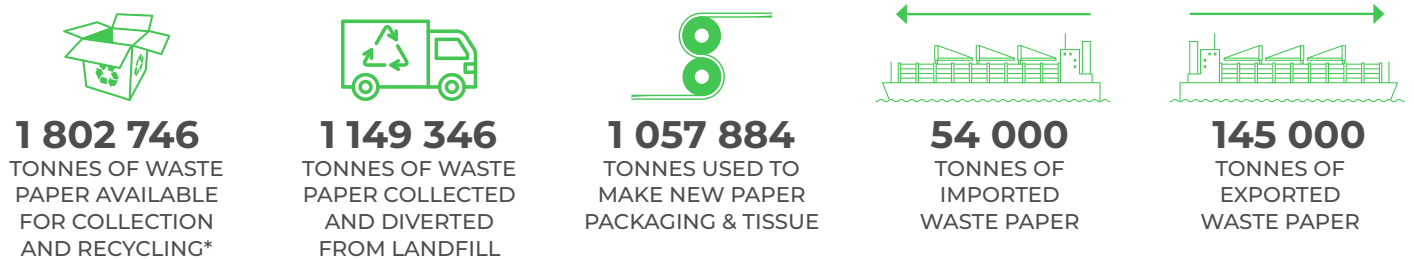




# Paper recycling and recycled fibre use



Waste paper is used paper that is intended for recycling or disposal. This includes items like office paper, newspapers, magazines, and cardboard boxes. Waste paper is an alternative raw material is collected, processed, and made into new paper products, reducing the amount of waste going to landfill.



South Africa has a largely successful paper recycling economy – with a five-year average paper recovery rate of just under 70%. The country has been using recycled paper as a raw material in tissue and packaging products since as early as 1920.

Waste paper is a commodity and subject to market dynamics and cycles, both locally and abroad. Pre-pandemic, there was an oversupply of waste paper. South African recyclers and manufacturers secured warehouse space for their surplus waste paper so that they could continue to buy stock and meet market demands. We entered the pandemic period with this surplus of waste paper which was able to absorb some of the shock of disrupted supply chains and waste paper collection.

As businesses and schools opened their doors again towards the end of 2020 and into 2021, paper demand and consumption increased. There was also a shift in buying trends (such as online shopping), and more brands started their shift from plastic to paper packaging. As a result, there was an 11% increase in consumption in 2021.

This increased the pool of waste paper available for collection and recycling from 1.6 million tonnes in 2020 to 1.8 million tonnes in 2021. However, only 4% more waste paper was collected from this pool in 2021 compared to 2020 i.e. 1.15 million tonnes compared to 1.1 million tonnes.

As a result, there was 6% drop in the paper recycling rate from 2020 to 2021.

## A MOVING TARGET

PAMSA is cautiously optimistic about the 2022 recycling statistics. According to more recent data, white grade (used in office and scholastic paper) volumes continue to slide gradually, matching the gradual decline in consumption.

Exports of waste paper – primarily of office paper and packaging grades – remained relatively high in the 2021 as the international demand and weaker Rand made exporting attractive for waste traders. This however put pressure on supply for local paper recycling and beneficiation.

That said, the exported packaging grades (containing export produce and goods) were offset by imports of the secondary and tertiary packaging (corrugated containers) which helped to level the volumes available for collection and recycling.

## SEPARATION-AT-SOURCE IS VITAL

Key to the success of paper recycling is separation-at-source by consumers, including households, businesses, schools and academic institutions, and the infrastructure to support the collection from consumers. Clean and dry paper is essential as informal recycling collectors and waste traders will earn a better rate if the paper is of good quality.

As a sector and country, investment is needed to close the gaps between technical capacity to recycle, infrastructure to recover and collect, and importantly awareness, education and behaviour change among consumers.

*\* Papers unavailable for collection and recycling include tissue products (such as toilet paper) and cigarette papers due to their function. Tissue paper dissolves and degrades, and cigarette paper is incinerated on consumption making them unavailable for collection and recycling.*



RECYCLING RATES	2019	2020	2021
<b>Paper recycling rate (paper recycled as a % of available paper)</b>	<b>68.5%</b>	<b>69.8%</b>	<b>63.8%</b>
% of recycled content in all papers produced in South Africa	53.5%	55.1%	53.0%

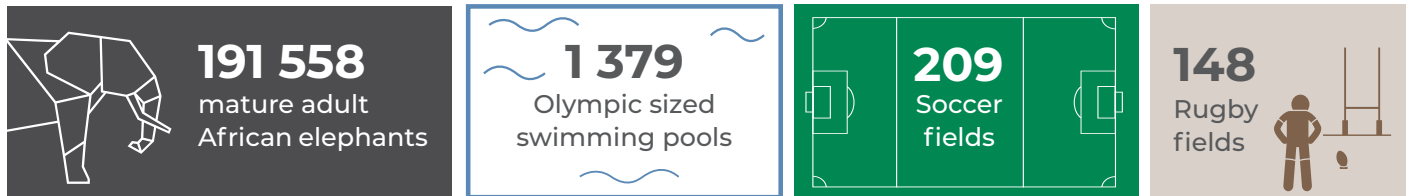
## Recycled fibre and virgin fibre explained

Recycling of waste paper and packaging enables certain environmental benefits. Depending on the requirements of the actual paper packaging applications, recycled fibres can be used in combination with or to replace virgin fibres. However, recycled fibres and virgin fibres are not two separate streams but are interconnected and interdependent. With every paper-making (re)cycle, the fibres gradually deteriorate until they may be rejected during preparatory pulp-cleaning process.

According to Kreplin, Schabel and Putz (December 2019), thanks to low losses during recycling, fibres from corrugated boxes can be recycled 25 times without experiencing signs of a “recycling collapse”. Depending on the specific fibre-based product/fibre type and the corresponding recycling processes and losses during recycling, the average number of cycles can be lower. Introducing virgin fibres helps to maintain pulp volume, quality and mechanical properties.

Source: *Circularity by Design for Fibre-Based Packaging, 4evergreen*

## The waste paper diverted from landfill in 2021 is equivalent to:



Based on the estimated number of one tonne bales (two cubic metres per bale)

### How we calculate consumption, paper available for recovery and recycling and the paper recycling rate:

Available paper = Apparent consumption / less papers unavailable for collection (toilet paper, cigarette papers). We also exclude exports (corrugated boxes that leave our shores along with the fruit, wine and other exports) from paper available for collection and recycling. The paper recycling rate is calculated as a percentage by dividing the tonnes received at our mills divided by the tonnes available for collection.

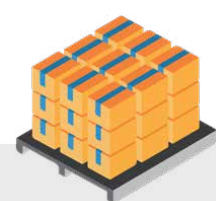
$$\begin{array}{r}
 \text{Tonnes of waste paper} \\
 \text{received by our mills} \\
 \hline
 \text{Tonnes of waste paper} \\
 \text{available for collection and recycling}
 \end{array}
 = \frac{1\ 149\ 346\ \text{tonnes}}{1\ 802\ 746\ \text{tonnes}} = \mathbf{63.8\% \text{ paper recycling rate}}$$



**Primary packaging** is the packaging that contains the product. It is usually in direct contact with the usable or consumable product.



**Secondary paper packaging** includes boxes encasing specific quantities of primary packages.



**Tertiary (or transport) paper packaging** includes large corrugated containers for handling, storing and warehousing.

“Old technologies have a habit of enduring. We still use pencils and candles. The world still produces more bicycles than cars.”

TIM HARFORD, *'Fifty Things that Made the Modern Economy'*

## About PAMSA

The Paper Manufacturers Association of South Africa (PAMSA) lives and breathes all things paper. We look after the education, environment, research and recycling interests of the pulp and paper sector in South Africa.

Watch our video



Visit our new website at [www.thepaperstory.co.za](http://www.thepaperstory.co.za)

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