

RUNNING IN CIRCLES

How the paper industry is the epitome of the circular economy

Even before extended producer responsibility (EPR) was mandated by Government in May 2021, the paper manufacturing and recycling sector had been embarking on process and production innovation to reduce its environmental footprint, divert waste from landfill and stay ahead of the circular economy curve.

The circular economy is a closed loop; taking, making and re-using, as opposed to the linear “take-make-waste” approach. When we treat raw materials (such as wood and water) and energy as infinite, we end up with waste. Waste costs money – the costs of landfilling, the loss of reusable materials, and livelihoods that could have been supported. The environment also loses out – greenhouse gases are emitted when waste degrades.

The principles of the circular economy include reducing waste by design, retaining materials in circulation and restoring the systems from which resources are extracted. The forest products industry has adopted the circular nature of doing business for many years.

By increasing our sector’s circularity, we increase our contribution to society, the economy and employment, and are part of the solution to climate change and green economic recovery.

Circles in the forest

We all know that paper comes from wood – even fibres in recycled paper came from a tree at some point. In South Africa’s case, such trees are sustainably farmed in plantations, with stringent management of their impact on water, soil, indigenous landscapes and biodiversity.

Gone are the days of detrimental, wall-to-wall afforestation. Today, forestry companies work in tandem with high conservation value areas to create a mosaic of planted trees and protected spaces.



Sustainable forestry is circular in nature with planting, harvesting and replanting happening in rotation.

Sustainable forest management balances economic, social and environmental needs. While forestry practices optimise the land’s ability to mitigate climate change through carbon sequestration, they also act as buffers for protected indigenous areas.

Depending on the species – usually eucalyptus or pine – these trees take around seven to 10 years to reach maturity. The reason we use exotic species is because they are fast-growing and we cannot – and will not – use indigenous trees for productive purposes.

Currently, South Africa has 850 million trees growing over 676 000 hectares reserved for pulp and papermaking. Less than 10% of this area is harvested during the year. The same area is replanted with new trees – saplings – often at a ratio of two trees for each one harvested.

This is the first circle: *plant, grow, harvest, replant...*

Circles of life

The circular economy then extends to leaving forest residues as a mulch for the next generation of trees. After harvesting, bark, limbs, and leaves are left behind to offer sustenance and refuge for creatures that aid in the decomposition of organic matter, which in turn attracts birds and other critters – and so we have another circle.

In addition, through photosynthesis, trees remove carbon dioxide from the atmosphere and convert it into food for growth. They also take

up water, from the ground or rainfall. They keep carbon locked up in their fibres and give us back oxygen, and some water is also returned to the atmosphere through transpiration.

Circles in the mill

Pulp and paper mills operate closed loop processes, by using natural resources efficiently – often more than once.

Process water is recycled, lost fibre is recovered and reused, and spent chemicals are recovered for energy production. Even bark – a biomass – is used to power boilers, producing steam that generates electricity.

This makes us better at using more of the tree, ensuring little goes to waste.

Circling the bin

Once pulp and paper are made into office paper, magazines, books, pizza boxes, cereal boxes, cardboard boxes, newspapers, milk and juice cartons, the circle starts to hit home. Office paper can be printed on both sides, and boxes can be reused as storage. Magazines and newspapers are used by school children for projects and posters.

Importantly, paper fibres can be recycled; how we dispose of paper products creates another

circle. With a four-year average recovery rate of 70%, paper is the second most recovered material in South Africa.

By putting them in our rubbish bin, paper products go to landfill – or if retrieved by a waste collector, they might get to a recycling mill.

Ideally, we want paper products separate from wet waste. Even the simple act of placing clean recycling in a separate bag or box for a waste collector makes a considerable difference.

Recovered paper is reprocessed and made into packaging and tissue that comes back into our homes, and which we use and recycle. And so the paper “circle” continues. The carbon also stays locked up for longer when paper is recycled.

Circles in the laboratory

Some wood-based products are already in circulation in everyday life. Dissolving wood pulp is used in food, pharmaceutical and textiles. Cellulose binds and emulsifies – low-fat yoghurt, cheese and ice cream; lipsticks and vitamins. Wood can produce xylitol, a non-nutritive sweetener.

We also make bricks and bio-composites from paper sludge, leftovers from paper recycling when fibres become too short for use, and biodegradable alternatives to fossil fuels from lignin.

BE PART OF THE CIRCLE

Consumers can play their part too: by using pulp and paper products that are certified and responsibly sourced and produced. By separating paper products for recycling, we can practise sound environmental stewardship and be part of the circle.

Recycle your paper!

Watch our video



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