Environmental pressures on packaging: Some inconvenient realities

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March 2019
Packaging is not waste…
It is part of the solution

1. **30%** of all food produced in South Africa is lost or wasted annually.

2. **R66.7bn** extrapolated loss in 2018, valued by CSIR (~2% of GDP) in 2013.

3. **R21.7bn** average annual cost of household food waste in South Africa.

4. **12m** (~20%) of all South Africans go to bed hungry every night.

“As much as half of all food grown globally is lost or wasted before and after it reaches the consumer.”
Packaging reduces food waste going to landfills

Resources used in food production are wasted

1. 60% of SA's scarce water is used for irrigation.
2. Energy to produce wasted food could power JHB for 16 weeks.
3. Olympic-sized swimming pools can be filled with the water from producing wasted food.

Environmental impact

1. 90% of SA's waste ends up in landfill sites.
2. 2/3 contains biodegradable organic waste, releasing CO₂ and methane.
3. CO₂ emissions from production, transportation and storage to bring food to end-consumer over life-cycle.

With a key role in optimising food supply, packaging is part of the solution, not the problem, if handled properly after use.

Source: CSIR, WWF, Statistics SA
Great Pacific Garbage Patches raised environmental awareness... but we have a problem.

Estimated surface area of garbage patches is 1,600,000 km², which equals...

5 zones where offshore plastic is accumulating

1. 8% microplastics
2. 92% large plastics

1.8 trillion pieces of floating plastic

Fishing nets account for 46% of the mass

China's ban on importing certain waste in 2018 highlighted the global lack of recycling infrastructure.

56% of global exported plastic waste ended up in China for recycling in 2012.

Source: The Ocean Cleanup Foundation
Packaging is a modest part of the waste challenge

Waste
- 6% of SA's waste sent to landfill sites comes from packaging.

Weight
- 9% of the weight of the packaged product is packaging.

Energy
- 8% of the energy required to produce and deliver all products to the household is used by packaging.

Source: Packaging SA
Commitment to review use of packaging

Major brand-owners and retailers committed to reduce plastic use

Major users of packaging moving away from use of plastic

<table>
<thead>
<tr>
<th>Major user</th>
<th>Vision:</th>
<th>By 2020:</th>
<th>By 2025:</th>
<th>By 2030:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coca-Cola</td>
<td>World without waste</td>
<td>Plan to use PlantBottle™ packaging for all PET bottles</td>
<td>Offer 100% recyclable packaging</td>
<td>Create packaging with at least 50% recycled material. Collect and recycle a bottle or can for every one sold</td>
</tr>
<tr>
<td>Woolworths</td>
<td>ZERO packaging waste to landfills</td>
<td>No plastic shopping bags – phasing out single-use plastics</td>
<td>Lightweight plastic bag levy introduced in 2003 has not curbed consumption. In WC: piloting cheaper locally-made reusable bags from recycled material</td>
<td>All packaging recyclable or reusable</td>
</tr>
</tbody>
</table>

Other active brand owners include: [Kellogg's](#), [McDonald's](#), [Nestle](#), [Spar](#)
## Beverage cans

**1**
Aluminium is valuable...

**R600m**
into SA economy by converting from steel to aluminium cans.

**Valuable**
to informal sector collecting cans for recycling.

**2**
Aluminium is infinitely recyclable...

>90% recycling rates and increasing each year.

78% of aluminium ever produced still in circulation.

95% energy savings than for primary conversion.

**3**
Aluminium is lightweight...

5% – 6% Bevcan weight reduction on 330ml slender and 500ml cans.

1 320 tons of raw materials spared, saving R62m.

From 2012 all beverage cans converted from steel to aluminium.
Paper is re-emerging as a substrate of choice for liquid packaging.

**Paper**

1. ~66% recycling rates.
2. ~100% recycled from corrugated cardboard and shredded paper.
3. Renewed interest from consumers for innovative new products.
4. <50% GHG emissions vs PET and HDPE bottles.
5. 87% from renewable sources, also eco-friendly and cost competitive.
6. ~30%–40% improved recycling rates expected.

New, growing trees absorb more CO₂ than older trees.
There is a place for plastics...

**Rigids**

1. Plastic is lightweight...
   - 14% – 44% weight reduction in 500ml PET bottles (~20% in bottles >500ml).

2. Plastic has positives...
   - ~ >50% of PET is recycled, leading HDPE and other polymer variants.

3. Plastic is recyclable...
   - ~45% plastic recycling rates as SA invests in recycling assets.

**Flexibles**

- 2 900 tons PET raw materials saved in 2018.

- high product-to-package ratio and extended shelf-life of food.

- ~43% better than global recycling rates.
Ultimately we must use and collect end packaging responsibly…
Reduce, reuse, recycle

1. Design
   - Benefits of lightweight
     - Environmental impact reduced compared to steel (water and energy savings)
     - Lightweight HDPE bottles are easy to transport
   - Packaging is reusable

2. Collection
   - Increase of collection rates
     - No waste collection for 31% of households
   - Separation at source
   - Higher recycling rates
     - Multiple use of PET bottles with 100% recycled content
   - Recycled materials:
     - Lower carbon footprint
     - Save scarce resources

3. Close the loop
   - Increase recycled content in manufacturers’ raw materials input
   - Reduced waste extends lives of landfill sites
Packaging waste is not (only) a producer problem
...we all have a role to play

Choose to reduce and reuse, separate waste at source

Be environmentally responsible e.g. Woolworths and Coca-Cola

Adopt designs to suit light-weighting and recycling

Collect and keep waste separated from consumer to recycling sites

Separate recyclables to avoid sorting at landfills, send to packaging companies to close the loop

Package design and light-weighting, increase use of recycled content

Consumers

Municipalities

Recycling bodies

Manufacturers

Brand owners

Retailers

Circular economy

Source: Packaging SA
Local industry is doing a world-class job

Producer responsibility organisations include:

1. **Metal**
   - ETPAC-SA
   - COLLECT-A-CAN
   - Recycling rate: >90%
   - Global rate: 69%

2. **Plastics**
   - petCO
   - Plastics SA
   - Polyco
   - Recycling rate: 46%
   - Global rate: 43%

3. **Paper**
   - recyclepaperza
   - MANUFACTURERS ASSOCIATION OF SOUTH AFRICA (PAMSA)
   - Recycling rate: 66%
   - Global rate: 58%

4. **Glass**
   - the Glass Recycling Co.
   - Recycling rate: 44%
   - Global rate: 46%

Source: Packaging SA, BMI, Nampak analysis, Resource Recycling Systems, PAMSA
Recent developments expected to improve recycling rates

1. City of Johannesburg recently introduced separation at source.

2. Further rollout of PACKA-CHING trailers in Johannesburg.

3. New cartons recycling plant in Springs: Improve recycling rate from ~20% to ~30% – 40%.

4. Packaging SA – ERP Plan to increase recycling rates over five years.
A word of warning

1. SA’s recycling voluntary programmes work well, initially funded and promoted by packaging producers
   - Recycling PROs run on a break-even-basis and generally self-funded

2. Regulations propose Waste Bureau be funded by packaging producers
   - Unintended result of levy
     - Packaging producers may pull back on voluntary programmes
     - Collapse of recycling circular economy
     - Worst affected will be 60 000 to 90 000 informal waste collectors/sorters who enable and are majority of recycling programmes

Source: WSU
Thank you