The South African Plastics Recycling Industry – Progress

Waste Management Colloquium

Good Hope Chamber, Good Hope Building, Parliament
Plastics
used everywhere and in any way
Who are we?

Plastics SA, the umbrella organisation for the South African plastics industry is registered as a Non Profit Company (NPC), and is funded by membership fees based on sales of locally manufactured and imported plastics raw material; sponsorships from industry associations and other contributions. Most of the income is from own accredited training activities to the Plastics Industry.

Plastics SA is a Federation of Associations. Together with our industry associations we play an active role in the growth and development of the South African Plastics Industry. We strive to address plastics related issues, influence role players and to make plastics the material of choice for today and the future.

Plastics SA represents all sectors of the South African Plastics Industry including polymer producers and importers, converters, machine suppliers, fabricators and recyclers.
Integration of Waste Steams in the PPIWMP
Strategic Initiatives for the Industry

- Zero Plastics to Landfill 2030
- Growth through Exports and Import Replacement
- Innovation and Skills Development
- Industry support through Public–Private Partnerships
Plastics waste treatment by country in 2014

In 2014, landfilling was still the 1st option in many EU countries. In general, countries with landfill ban achieve higher recycling rates.

Source: Consultic

In perspective (EU average):
- 46.3 m tons converted
- 25 m tons collected
- 53.9% collected
- 26% recycled
- 36% energy recovery
- 38% landfilled
Plastics recycling is the preferred option – however energy recovery is needed as well.
South Africa Paper and Packaging in Perspective - CSIR Roadmap study

<table>
<thead>
<tr>
<th>Category</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solid waste generated</td>
<td>108</td>
</tr>
<tr>
<td>Solid waste landfilled</td>
<td>98</td>
</tr>
<tr>
<td>General waste</td>
<td>58</td>
</tr>
<tr>
<td>Municipal waste</td>
<td>20</td>
</tr>
<tr>
<td>Net paper &amp; packaging</td>
<td>&lt; 2</td>
</tr>
</tbody>
</table>

( million tonnes )
**BMI Packaging Recycling Report**

### Total Collected Packaging Materials 2015

<table>
<thead>
<tr>
<th>Packaging Material</th>
<th>Packaging and Paper Waste Collected Tons</th>
<th>Total Industry Tons (including imports, excluding exports)</th>
<th>Collected Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glass</td>
<td>278.6</td>
<td>680.0</td>
<td>41.0%</td>
</tr>
<tr>
<td>Metal</td>
<td>152.3</td>
<td>216.8</td>
<td>70.2%</td>
</tr>
<tr>
<td>Paper (Pack &amp; Print)</td>
<td>1,196.0</td>
<td>1,793.7</td>
<td>66.7%</td>
</tr>
<tr>
<td>Plastic Packaging</td>
<td>365.2</td>
<td>800.2</td>
<td>45.6%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1,992.1</strong></td>
<td><strong>3,490.7</strong></td>
<td><strong>57.1%</strong></td>
</tr>
</tbody>
</table>

### Tonnage Collected Comparison 2014 vs 2015

<table>
<thead>
<tr>
<th>Packaging Material</th>
<th>2014</th>
<th>2015</th>
<th>% Change p.a</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glass</td>
<td>286.0</td>
<td>278.6</td>
<td>-2.6%</td>
</tr>
<tr>
<td>Metal</td>
<td>154.0</td>
<td>152.3</td>
<td>-1.1%</td>
</tr>
<tr>
<td>Paper (Pack &amp; Print)</td>
<td>1,063.1</td>
<td>1,196.0</td>
<td>12.5%</td>
</tr>
<tr>
<td>Plastic Packaging</td>
<td>351.5</td>
<td>365.2</td>
<td>3.9%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1,854.6</td>
<td>1,992.1</td>
<td>7.4%</td>
</tr>
</tbody>
</table>
SA PLASTICS RECYCLING INDUSTRY in 2015

- South Africa RECYCLES approx. 293 ktpa
- South Africa DIVERTS approx. 310 ktpa
- Approx. 224 recycling companies
- Employs 6 234 people formal sector
- Employs 48 820 in informal sector

- Growth, 3% more waste recycled
- Collection rate of 45.6% of all plastics packaging material for recycling (diverted from landfill)
- % amongst highest mechanical recycling in the world
Growth of Plastics Recycling over last 10 years

<table>
<thead>
<tr>
<th>Year</th>
<th>Tons Recycled (Thousands)</th>
<th>Recycling Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>122,316</td>
<td>13.3%</td>
</tr>
<tr>
<td>2005</td>
<td>172,253</td>
<td>15.1%</td>
</tr>
<tr>
<td>2009</td>
<td>215,199</td>
<td>16.8%</td>
</tr>
<tr>
<td>2010</td>
<td>228,101</td>
<td>17.4%</td>
</tr>
<tr>
<td>2011</td>
<td>230,111</td>
<td>17.7%</td>
</tr>
<tr>
<td>2012</td>
<td>254,054</td>
<td>18.5%</td>
</tr>
<tr>
<td>2013</td>
<td>260,930</td>
<td>18.6%</td>
</tr>
<tr>
<td>2014</td>
<td>284,521</td>
<td>20.3%</td>
</tr>
<tr>
<td>2015</td>
<td>292,917</td>
<td>19.7%</td>
</tr>
</tbody>
</table>
Estimated Landfill saving by plastics

In 2015 alone, plastics saved an equivalent of 45% of the Cape Town stadium in landfill space!

Total volume saved = 1 669 633 m³
Mechanical Recycling – Oil saved in 2015

3 142 020 barrels of oil

Keep 166 496 cars on the road for one year
Plastics Mechanical Recycling – CO$_2$ saved in 2015

Plastics Saved 196 422 tons of CO$_2$

Offset the carbon footprint of $\approx$16 360 average urban citizens
Plastics Mechanical Recycling – Energy saved in 2015

4938 kWh

The energy saved would have kept a 100W light bulb burning every evening for 32.5 years
Plastic Materials Tonnages Mechanically Recycled over the last 5 years

<table>
<thead>
<tr>
<th></th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>PE-LD/LLD</td>
<td>95,852</td>
<td>98,971</td>
<td>97,778</td>
<td>98,563</td>
<td>104,881</td>
</tr>
<tr>
<td>PE-HD</td>
<td>38,979</td>
<td>45,950</td>
<td>50,519</td>
<td>62,809</td>
<td>59,992</td>
</tr>
<tr>
<td>PET</td>
<td>30,690</td>
<td>35,786</td>
<td>41,302</td>
<td>42,911</td>
<td>53,493</td>
</tr>
<tr>
<td>PP</td>
<td>40,282</td>
<td>47,080</td>
<td>46,331</td>
<td>50,718</td>
<td>47,685</td>
</tr>
<tr>
<td>PVC</td>
<td>16,704</td>
<td>16,812</td>
<td>16,205</td>
<td>18,488</td>
<td>15,363</td>
</tr>
<tr>
<td>PS &amp; PS-E</td>
<td>3,213</td>
<td>3,394</td>
<td>3,796</td>
<td>4,801</td>
<td>5,873</td>
</tr>
<tr>
<td>Other</td>
<td>4,388</td>
<td>6,060</td>
<td>4,998</td>
<td>6,231</td>
<td>5,631</td>
</tr>
</tbody>
</table>
PET Recycling Company NPC (PETCO)

Consistant Growth in PET Bottle Recycling

- 2005: 16%
- 2006: 9,840 tonnes
- 2007: 9,840 tonnes
- 2008: 9,840 tonnes
- 2009: 9,840 tonnes
- 2010: 9,840 tonnes
- 2011: 9,840 tonnes
- 2012: 9,840 tonnes
- 2013: 9,840 tonnes
- 2014: 9,840 tonnes
- 2015: 9,840 tonnes
- 2016: 9,840 tonnes
- 2017-2021: 90,000 tonnes
- 2022: 70%
Growth in Polyolifins Recycling Tonnages

Polyolifins Recycling Tonnages

- 2009
- 2010
- 2011
- 2012
- 2013
- 2014
- 2015

Polyolifins Tons Recycled
Recycling rate
PS Packaging Recycled 2015

- Tonnages diverted from landfill
- Energy from waste
- PS waste exported
- PS packaging recycled
- PS Packaging diversion rate

Graph showing the diversion rate of PS packaging from 2011 to 2018, with a steady increase in recycling and diversion rate over the years.
Sustainability Council Activities

• **Waste Management and Recycling**
  - **Plastics recycling training** to government, waste industry and entrepreneurs (including youth development e.g. Tembisa, KZN)
  - **Marine debris**
    - signatory to the Global Plastics Alliance Declaration on Marine Litter
    - African Marine Waste Network – Founder and supporter
  - **Clean-up and Recycling campaigns** – support national events such as Clean-up and Recycle SA Week, International Coastal Clean-up Day, Sport Events, Clear Rivers, Operation Clean Sweep ...
  - **Education** – development of plastics education materials for use in schools, exhibitions and society
Clean up and recycling events

Plastics SA
Proud event greening partner of

Cycle Tours
Festivals
Marathons and
Clean-up and Recycling Events

When **you** recycle, we **all win**!

Supported by petco POLYCO SAVA Polystyrene Keep South Africa Beautiful

www.plasticsinfo.co.za
THE SOLUTION: INCENTIVISE RECYCLING

Paper, metal, plastic and glass is remunerated for money.
Recycling PVC at hospitals

- Separate hazardous waste from non-hazardous and recover PVC for recycling
  - IV bags, tubing, oxygen masks, blister packs for medicines
- Recycled into shoe soles, pipes, door mats, hoses, gum boots, traffic cones

Street Sleeper Project

- Convert used billboards into waterproof, windproof survival sleeping bags

www.savinyls.co.za
www.streetsleeper.org
PS Projects

Project Care

Project Decor

Project Build

Project Beads

www.polystyrenepackaging.co.za
What do we all want?

- Clean up the environment;
- Maximise the diversion of waste from landfill;
- Increase our collection & recycling rates;
- Create a 2\textsuperscript{nd} resources economy & many jobs;
- Remove pickers off landfills & create better working conditions for the informal sector;
- Provide manufacturing with a consistent stream of good quality & clean recyclables;
- Find & develop new markets for recyclables;
- Reduce resource consumption by driving the increased use of recyclables;
- Encourage transformation within the Sector
Proposed EU Paper and Packaging Targets

The proposed EU targets for reuse and recycling are as follows:

- 65% collected by 2025
- 75% collected by 2030
- Paper and Packaging industry is considering adopting the EU targets however it needs to be aligned and adjusted to be appropriate for the South African conditions and infrastructure, e.g. separation at Source, MRF’s, job creation
- CSIR conducted study
CSIR Study – “upper realistic collection ceilings”

Initial study results indicated that:

• To achieve proposed EU targets
  – 2025 target: 546 additional tons to be collected
  – 2030 target: 1,077 additional tons to be collected
• Roughly 685 jobs can be created with every 1% increase in collection
• Estimated 4,300 to 8,500 jobs could be created
• Evident that Paper and Packaging recycling will not able to resolve high unemployment in South Africa
Requirements for adopting proposed EU targets

- Industry and Government jointly working together to solve environmental waste problem by implementing workable solutions
- Progress with the implementation of properly functioning separation at source and material recovery facilities and programmes
- Government support in taking care of free riders – all must belong to PPIWMP
- Development of new markets
More requirements for adopting proposed EU targets

• The PRO’s continue to be industry managed;
• Ensure that the many successful industry initiatives (PRO’s) in place are not compromised;
• Ensure that ALL stakeholders in the supply chain from raw material supplier to manufacturer to brand owner to retailer are involved;
• Includes ensuring that all imports of both packaging & products that are wrapped in packaging are included
Last few comments…

• We need to harvest tomorrows energy today through the effective collection and recycling of packaging waste, we cannot do it without plastics

• Question is how do we jointly solve the packaging in the environment problem without destroying what currently exist?

• Plastics industry is part of the solution, not the problem
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Executive Director

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