

Plastics Recycling

The only solution?

Annabe Pretorius – 12 July 2017



AFRICAN
MARINE
WASTE
CONFERENCE

Plastics | SA

PLASTIX
911



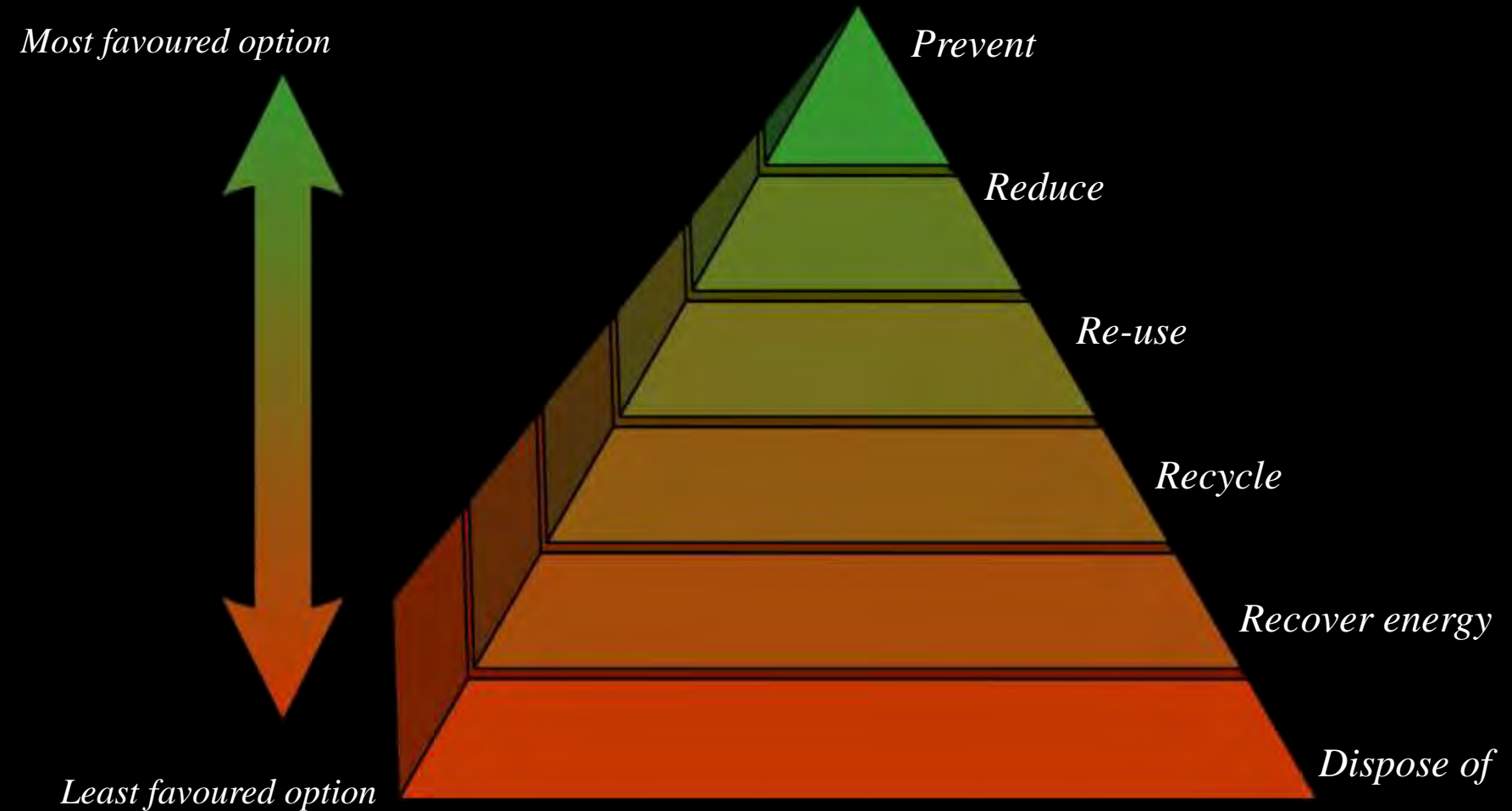




National Environmental Management: Waste Act, No 59 of 2008 / 2013



Waste hierarchy

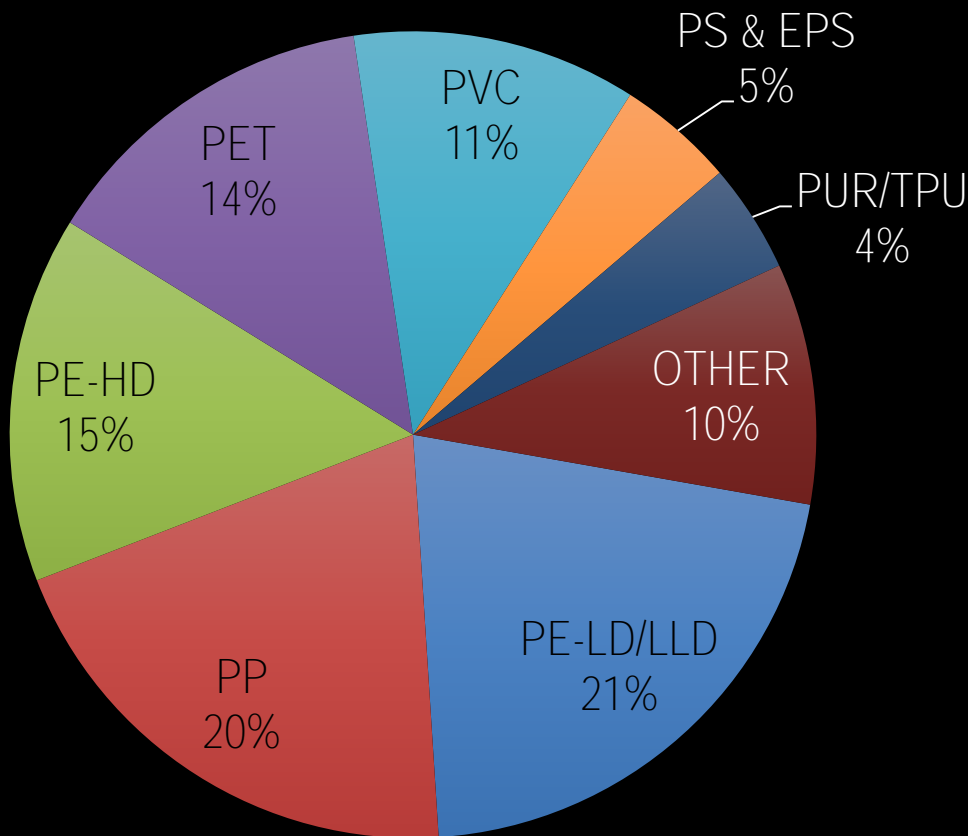


Direct impact on industry?

- Definition of waste
- Registration and licensing issues
- Pricing strategy
 - Generate revenue
 - Grow secondary waste industry
- Priority waste streams – Industry Waste management plans

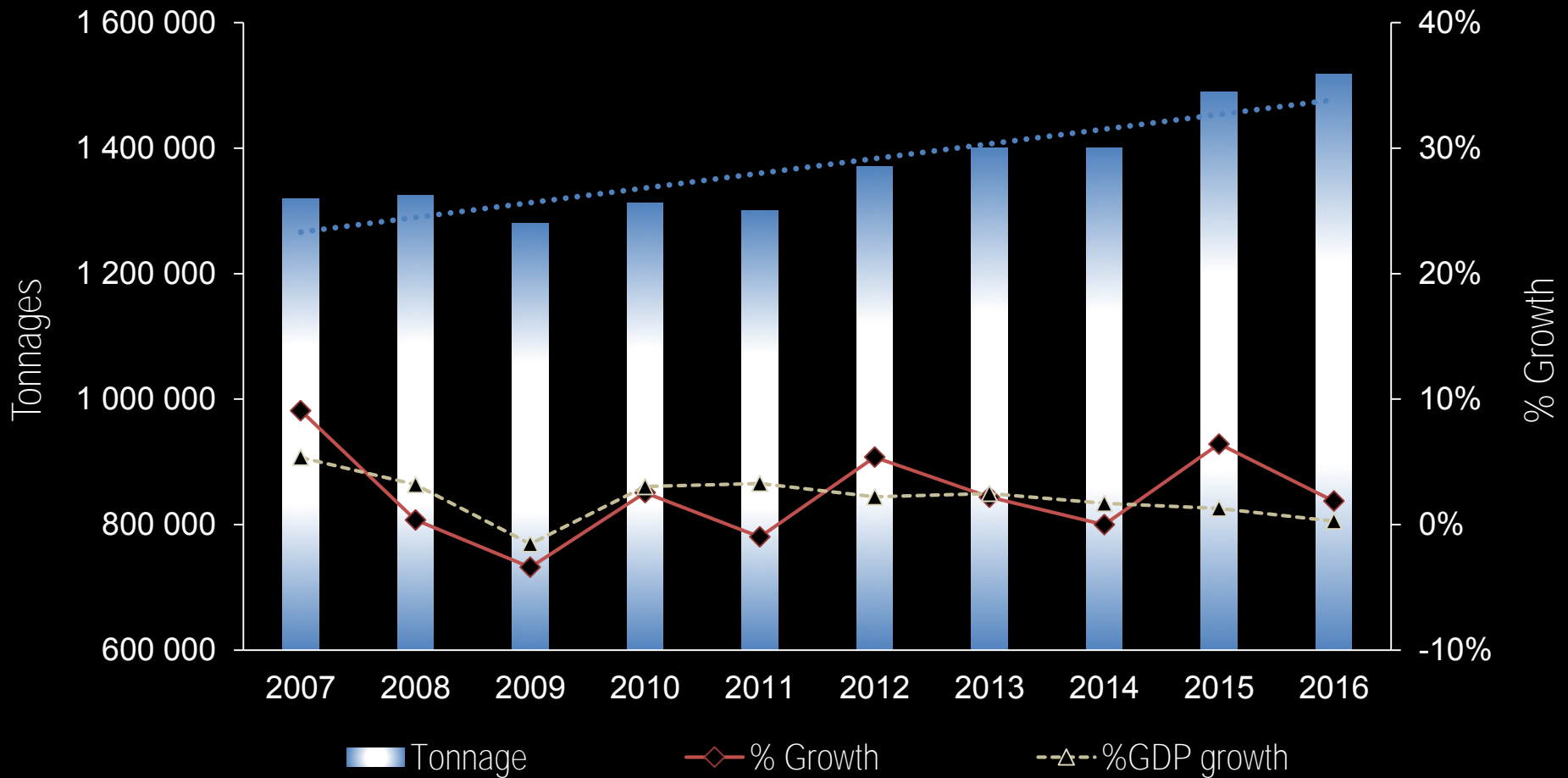


Plastics Industry in SA

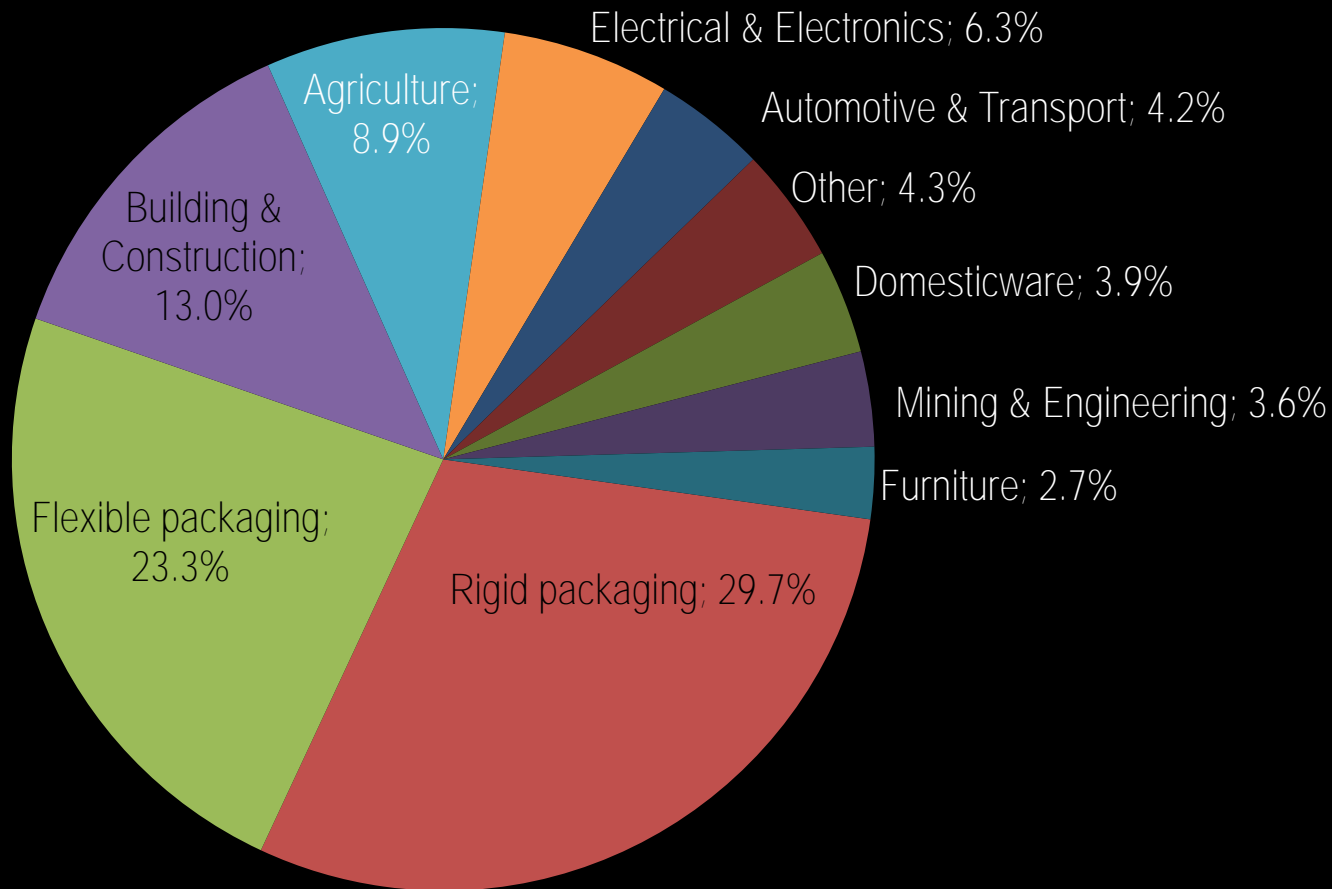


- 1,4 million tons
- PP exports
- 1800 converters
- 1,9 % to GDP
- 16 % to Manufacturing GDP

Plastics Industry in SA



Plastics Industry in SA



What is industry
doing to reduce
plastics waste?

Less material to landfill





Less material to landfill





- PE-HD bottle – recycled content
- Multi-layer refill pouch
- Keep the bottle, and refill
- Less material to landfill



W

Consumer education / info

- Clearly inform consumer
- Take effort to be correct

SOURCE		RINSE BEFORE RECYCLING		
SLEEVE	TRAY	SLEEVE	FILM	TRAY
 FSC MIX FSC® C000000	MADE FROM A MINIMUM 35% PLASTIC THAT YOU RECYCLED			
		PAPER WIDELY RECYCLED	PLASTIC NOT RECYCLED CURRENTLY	PLASTIC WIDELY RECYCLED

WWW.WOOLWORTHS.CO.ZA/RECYCLE

www.woolworths.co.za/recycle



Internal information

- Intensive information put together to inform packaging designers

Design for recycling





VALPRÉ™
SPRING WATER

Petrochemical → Biomass

- Researched and replaced petrochemical feedstock with bio-mass



W

Petrochemical → Biomass

- Replaced 30% petrochemical feedstock with biomass from Brazilian sugar-cane



Coca-Cola Virgin → Recycled content

- Engaged with local recycler
- Completed trials for 10% inclusion of post consumer recyclate
- Ongoing trials





Industry managed organisations funded by industry to promote recycling of their packaging

Extended Producer Responsibility

Six Reasons Why Plastic Is Bad for the Environment

Plastic Not-So-Fantastic: How the Versatile Material Harms the Environment and Human Health

The chemical building blocks that make plastics so versatile are the same components that might harm people and the environment. Greener solutions, however, are becoming available.

Why Plastic is Bad!

Adverse Health Effects

Can cause cancer, birth defects, genetic changes, chronic bronchitis, ulcers, skin diseases, deafness, vision failure, indigestion, and liver dysfunction



plastic sucks!

Study: All Plastics Are Bad for Your Body



5 Disturbing Facts about Plastic

Recycling

Recycling ?



Recycling sequence

1. Collection
2. Sorting
3. Compression
4. Transport
5. Sorting and size reduction
6. Washing and drying
7. Extrusion / Pelletising
8. Cooling / Drying
9. Bagging

Collection

Waste pickers



Collection

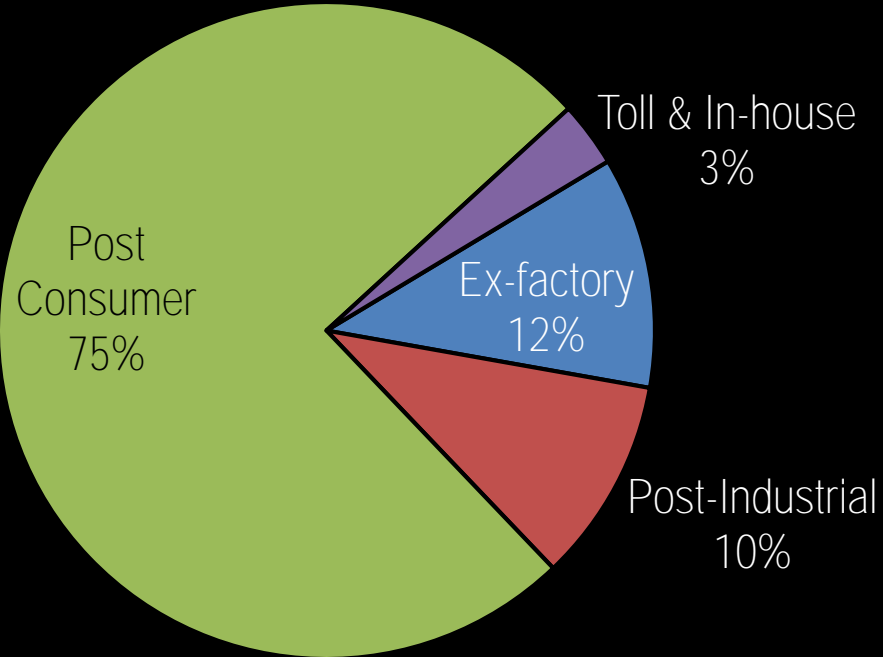
Primary Collectors



Σ Waste pickers and primary collectors
 $\approx 51\ 000$

Only economically viable if involved with
all materials

Source of recyclables







Size reduction

- Bales opened
- Material conveyed into granulators
- Manual intervention



Wash and Dry

- Continuous wash line
- Settling tanks
- Drying
- Electricity costs!!
- Residue / sludge to landfill





Bagging

- Cooling
- Blending
- Intermediate storage
- Bagging
 - Bulk bags \approx 1000kg
 - Smaller bags 25kg
- Despatch



What is currently being recycled?

Plastics Recycling - 2016

- 309 520 tons of plastics mechanically recycled in SA
- 1 813 000 tons of new products have been made in 2016

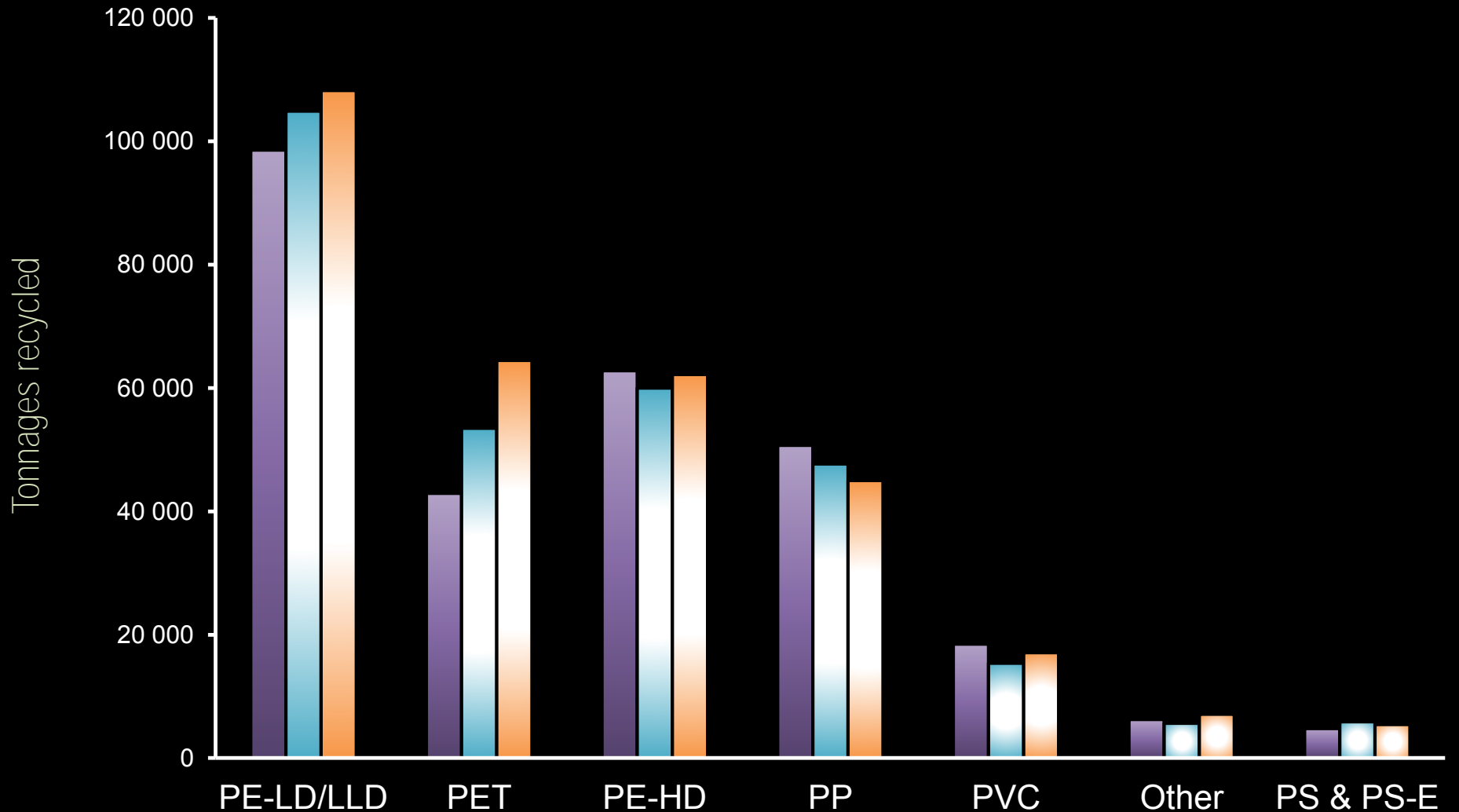
Plastics Recycling - 2016

- 309 520 tons of plastics mechanically recycled in SA
- 1 813 000 tons of new products have been made in 2016
- More than 1 ½ million tons is still out there somewhere

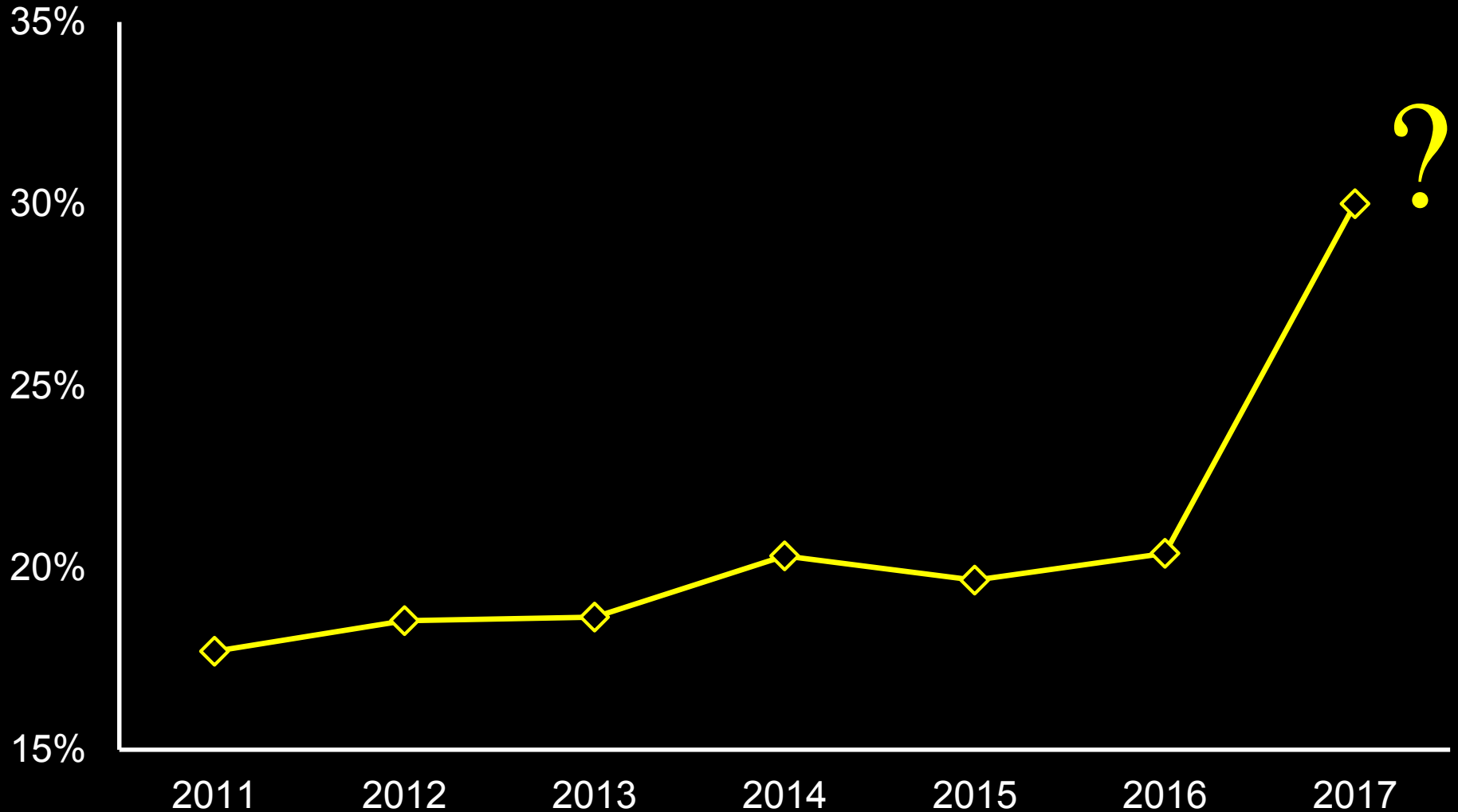
Plastics Recycling - 2016

- 309 520 tons of plastics mechanically recycled in SA
- 1 813 000 tons of new products have been made in 2016
- More than 1 ½ million tons is still out there somewhere

Plastics tonnages recycled (2014-16)



How to increase the recycling rates?







How to increase recycling rates ?

- Separation at Source
- Design for recycling

How to increase recycling rates ?

- Separation at Source
- Design for recycling
 - Material identification codes



How to increase recycling rates ?

- Separation at Source
- Design for recycling
 - Material identification codes
 - Oxo-biodegradable and Biodegradable plastics
 - End-of-life



“Going Green” with “100% biodegradable poly-wrap bag”

Eco / Econo Packaging



- Seldom the cheaper option
- Residual contents
- Non-recyclable sachet vs. fully recyclable bottle
- Imported materials

How to increase recycling rates ?

- Separation at Source
- Design for recycling
 - Material identification codes
 - Oxo-biodegradable and Biodegradable plastics
 - End-of-life
- Additives / cost-drivers



Levels of CaCO_3 added to polymer – specific gravity $\gg 1 \text{ g/cm}^3$

How to increase recycling rates ?

- Separation at Source
- Design for recycling
- Additives / cost-drivers
- Recycled content



Best Recycled Product Competition





How to increase recycling rates ?

- Separation at Source
- Design for recycling
- Additives / cost-drivers
- Recycled content
 - Market education
 - Consumer education



How to increase recycling rates ?

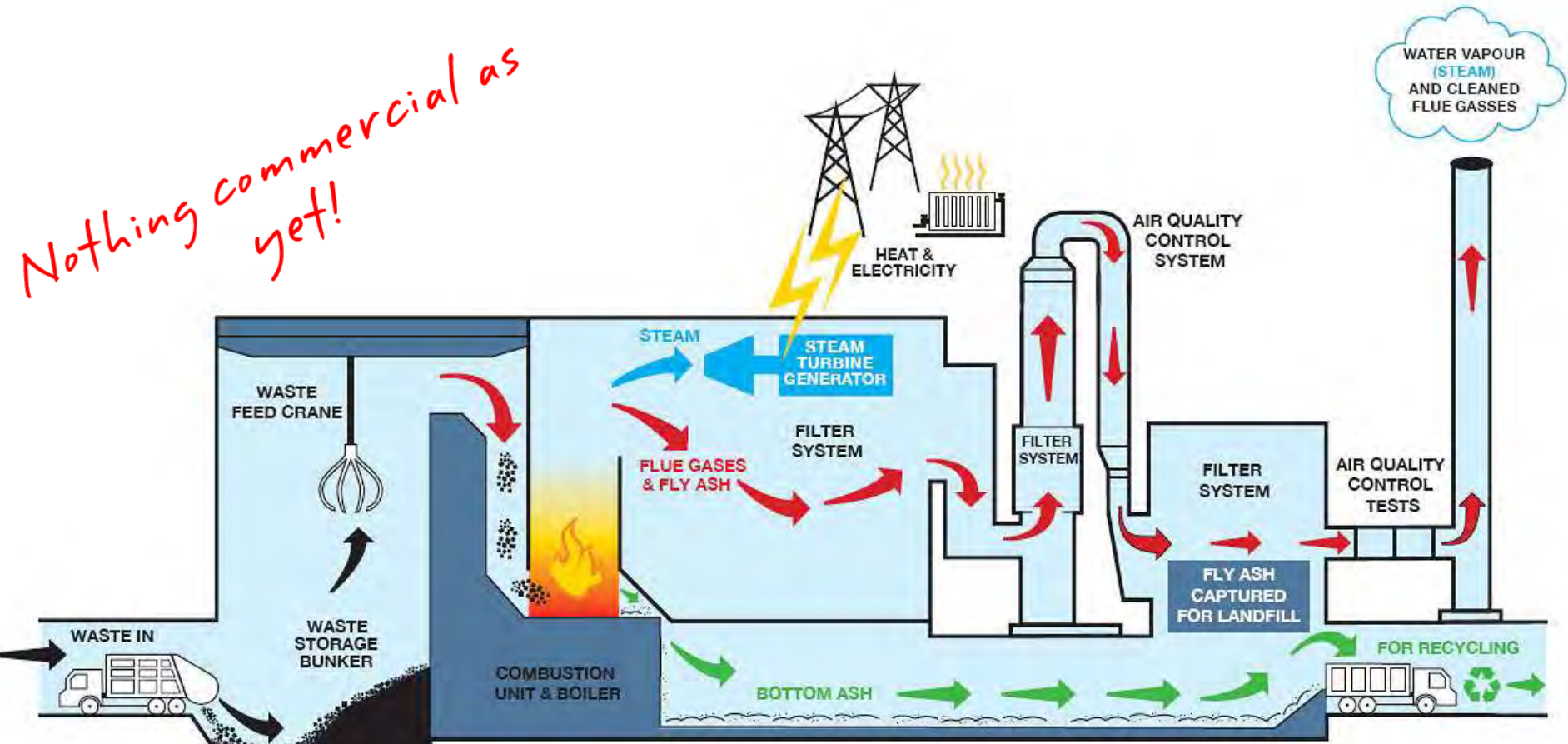
- Separation at Source
- Design for recycling
- Additives / cost-drivers
- Recycled content
- Alternative technologies

Alternative waste beneficiation



Alternative waste beneficiation

Nothing commercial as yet!



The EfW Process (Direct Combustion)

Thank you!



Annabe Pretorius

annabe@absamail.co.za

Tel +27 83 654 8967



**AFRICAN
MARINE
WASTE**
CONFERENCE



Plastics | SA

**PLASTIX
911**