



The plastic recycling journey and the use of recycled plastics in manufacturing

Stuart Foster

# THE COLLINS WORD OF THE YEAR 2018 IS...

## SINGLE-USE

'Single-use', a term that describes items whose unchecked proliferation are blamed for damaging the environment and affecting the food chain, has been named Collins' Word of the Year 2018.

**Single-use** refers to products – often plastic – that are 'made to be used once only' before disposal. Images of plastic adrift in the most distant oceans, such as straws, bottles, and bags have led to a global campaign to reduce their use.

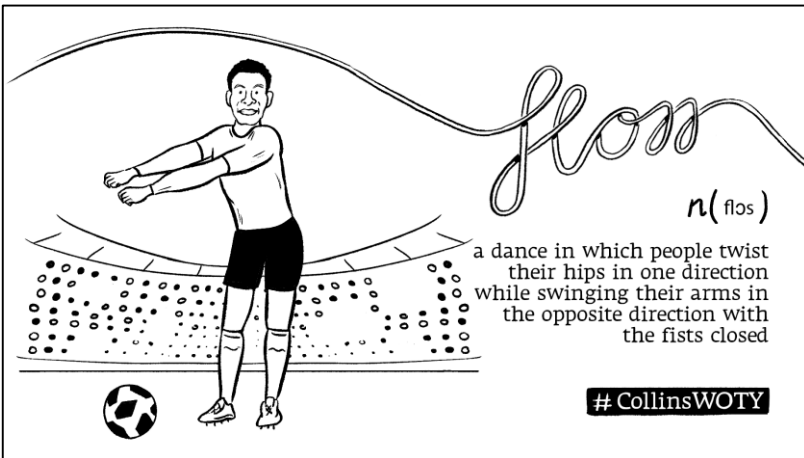
The word has seen a four-fold increase since 2013, with news stories and images such as those seen in the BBC's Blue Planet II steeply raising public awareness of the issue.

## SINGLE-USE



adj (ˈsɪŋɡəlˈjuːs)  
made to be used  
once only

#CollinsWOTY



n (ˈflɒs)

a dance in which people twist  
their hips in one direction  
while swinging their arms in  
the opposite direction with  
the fists closed

#CollinsWOTY



n (sometimes vɪː)  
abbreviation for  
video assistant  
referee

#CollinsWOTY



n (ˈplɒɡɪŋ)  
the activity of  
picking up litter  
while jogging

#CollinsWOTY



Professor David Bellamy OBE,  
RECOUP Patron and Environmental Campaigner

“Ensuring that this valuable resource is recycled is a key part of developing a circular economy, improving resource security, and achieving environmental responsibility.”



#### Charitable Objectives

a) To advance the education **of the public** on the subject of recycling plastics so as to protect the environment

b) To preserve and protect the physical and natural environment **for the public** benefit through the promotion of waste reduction and recycling of plastics

#### AIMS

- Lead and inform the continued development of plastics recycling and resource management.
- Be the UK's plastic value chain co-ordinators and the voice of reason.
- Educate the public and businesses on the recycling of plastics to protect the environment.



**2019**  
Driving the sustainable  
development of Plastics recycling  
**RECOUP**



Stakeholder  
engagement including  
annual conference



Plastic films and  
flexibles



Consumer  
engagement



Plastic collections



Encouraging use of  
recycled plastics in  
manufacturing



Pot, tub and tray  
recycling

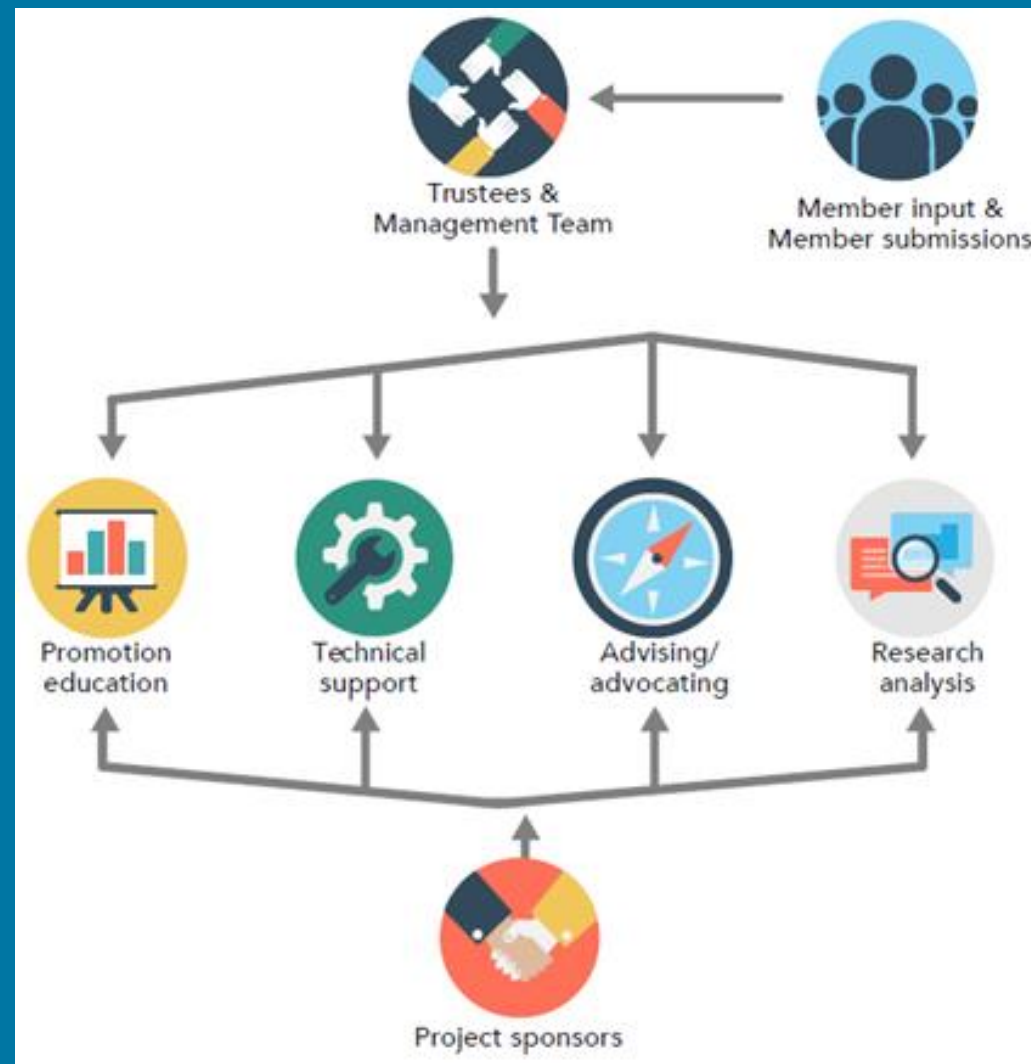


Design for recycling /  
eco-design



Special projects

# How RECOUP Works







# A European Strategy for Plastics in a Circular Economy

- Aims at reducing the leakage of plastic in the environment by transforming the way products are designed, manufactured, used and recycled
- Make better use of taxation and other economic instruments to reward the uptake of secondary plastics
- Put in place well-designed EPR schemes, including introducing deposit return incentives, in particular for beverage containers
- Raise the cost of landfilling and incineration and promote plastic recycling and prevention
- Develop a global response to the increase in marine litter
- Plus a proposal for a directive on the reduction of the impact of certain plastic products on the environment

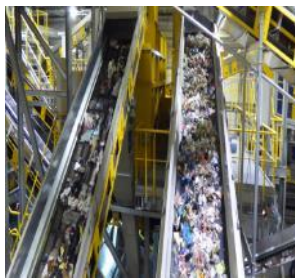
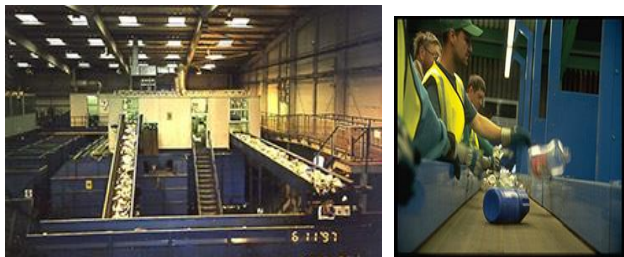
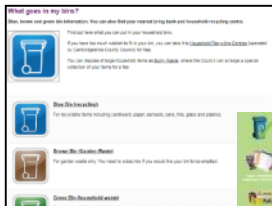
# Legislation & Consultations - UK

## Policy & Consultations

- 25 Year Environment Plan - eradicate all avoidable plastic waste by 2042
- Single use plastics call for evidence – closed 18<sup>th</sup> May
- Resources & Waste Strategy – December 2018
- Consultations – Feb to May 2019
  - HMT Plastic Packaging Tax
  - Deposit Return Schemes
  - Consistency in collections
  - Extended Producer Responsibility









# Plastics converter demand main market sectors

Distribution of European (EU28+NO/CH) plastics converter demand by segment in 2016.

Source: PlasticsEurope Market Research Group (PEMRG) and Conversio Market & Strategy GmbH

Total  
converter demand  
**49.9 m t**

39.9  
%

PACKAGING

19.7  
%

BUILDING  
& CONSTRUCTION

10  
%

AUTOMOTIVE

6.2  
%

ELECTRICAL  
& ELECTRONIC

4.2  
%

HOUSEHOLD,  
LEISURE  
& SPORTS

3.3  
%

AGRICULTURE

16.7  
%

OTHERS

Includes appliances,  
mechanical engineering,  
furniture, medical etc.

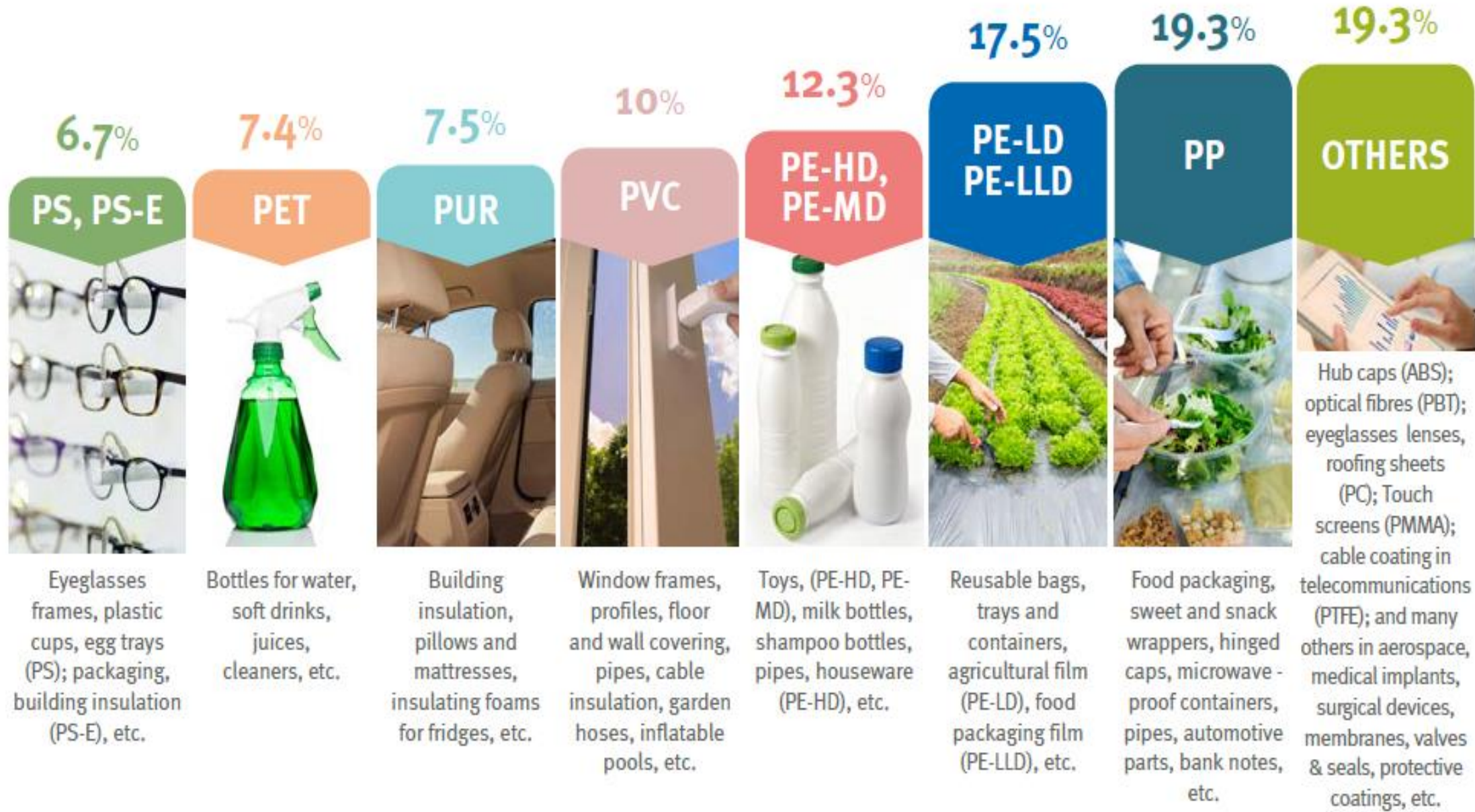




# European plastics converter demand by polymer types in 2016

Data for EU28+NO/CH

Source: PlasticsEurope Market Research Group (PEMRG) and Conversio Market & Strategy GmbH

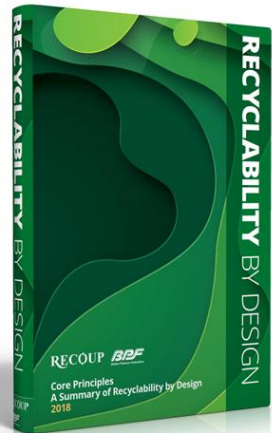


# Summary

- 1000 separate uploads per version
- Product and pack reviews
- Support for assessment tools
- Genuine independence, track record, transparency and expertise



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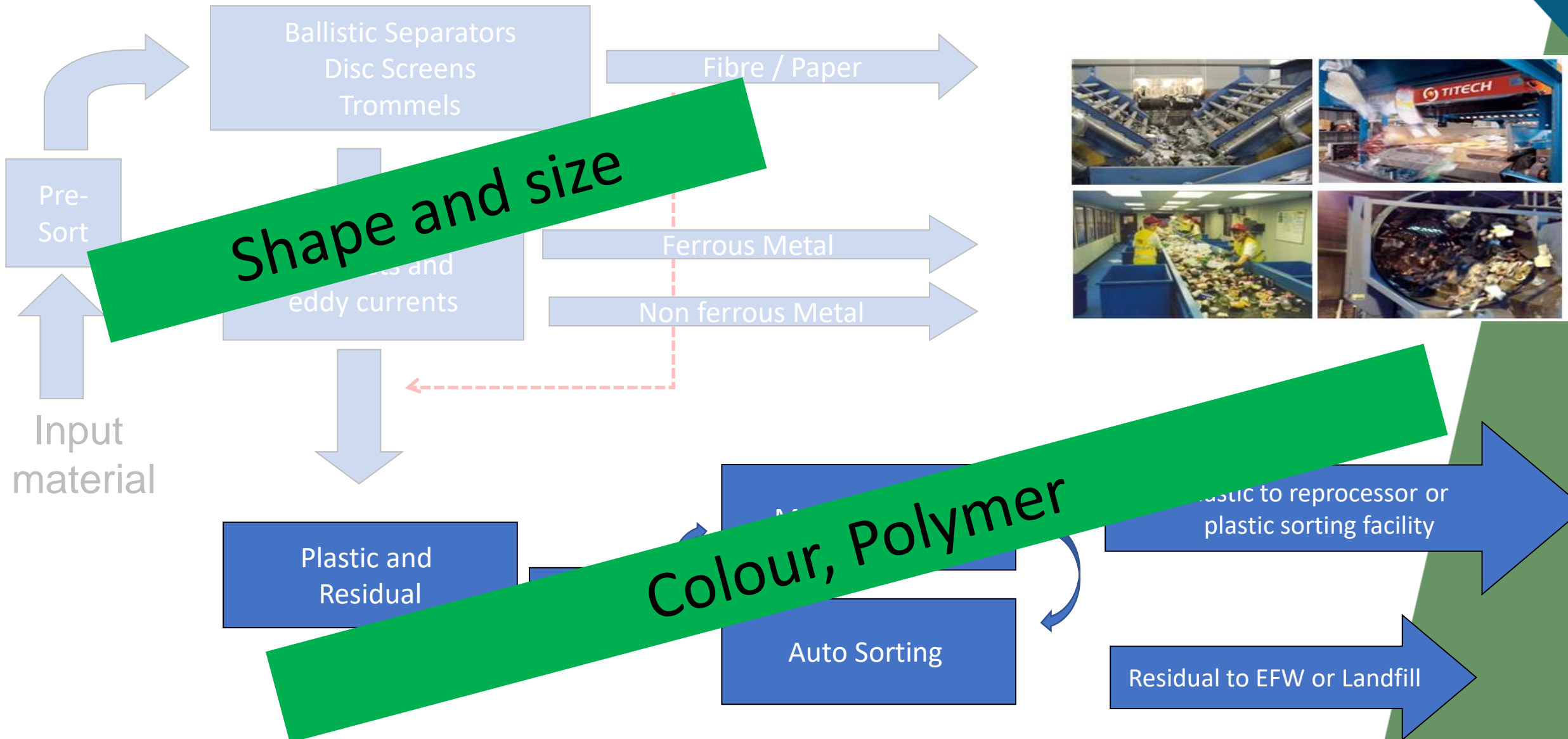


## Programme Plan 2019 Key Activities

- Assess principles on which guidance is provided, and align assessment tools
- Sector specific guidelines / case studies
- Recyclability by design of re-use products
- Anti-litter by design
- Guidance for the public – how to spot a recyclable pack.



# Sorting of plastic packaging for recycling



# Reprocessing



Polymer Type, Adhesive, Ink,  
Components, Laminates

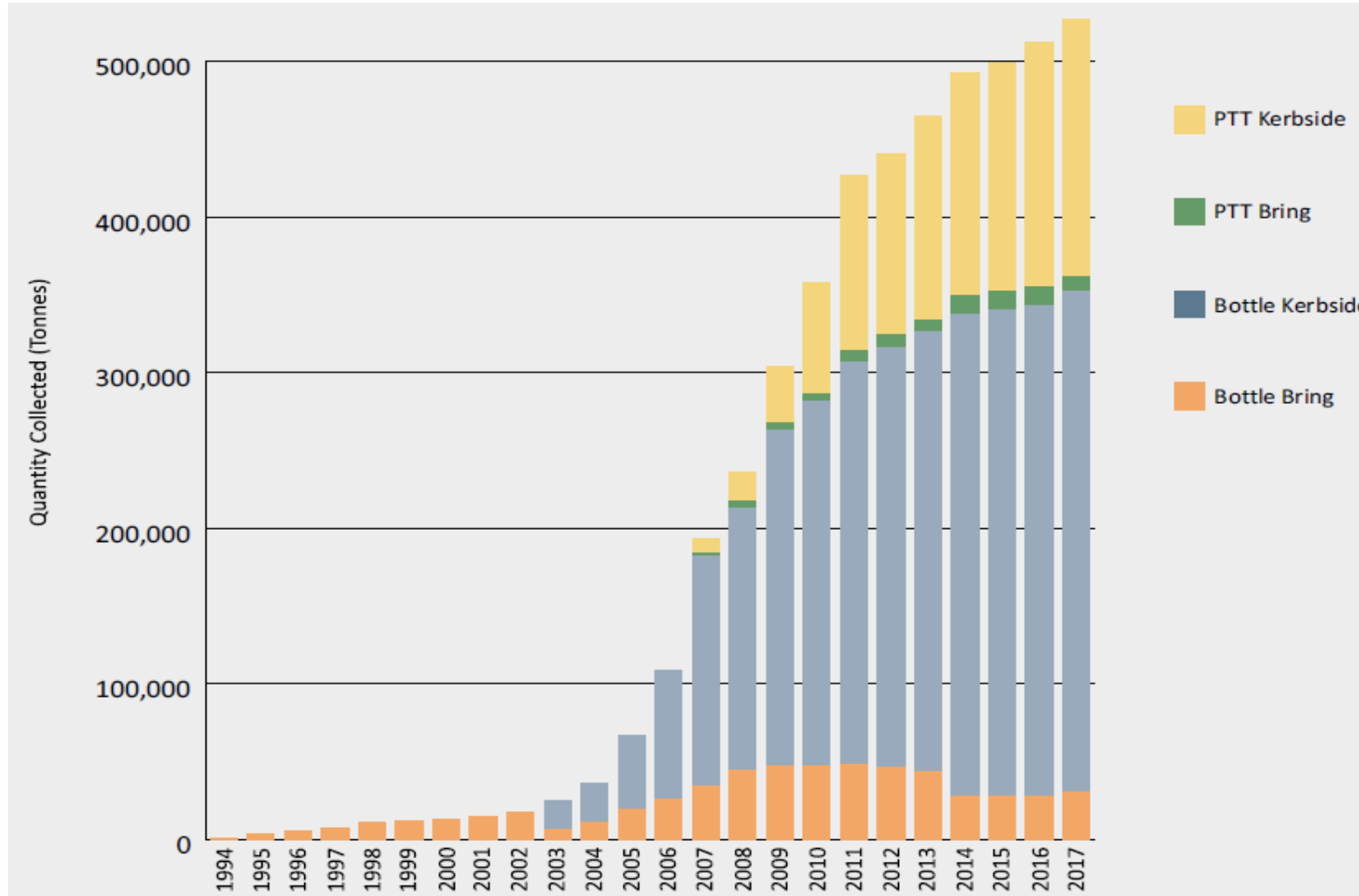
Flaking, washing  
and compounding



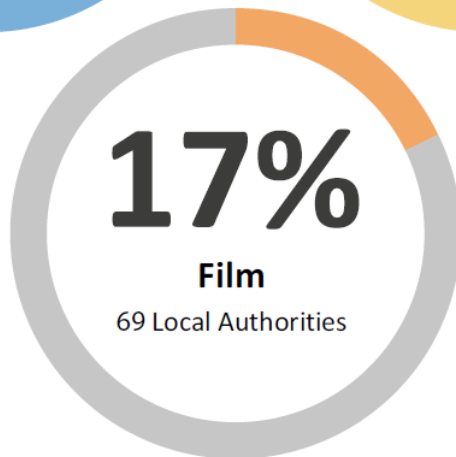
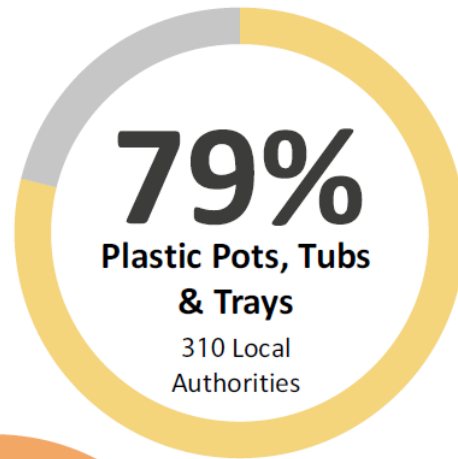
Float Sink systems widely used



# UK Plastic Packaging Collection Data



# Collection Service Provision



Plastic Bottles	
Consumption Quantity	594,000
Collection Quantity	351,907
Collection Rate	59%

Pots, Tubs & Trays	
Consumption Quantity	525,000
Collection Quantity	175,103
Collection Rate	33%

Household Plastics Packaging	
Consumption Quantity	1,119,000
Collection Quantity	527,010
Collection Rate	47%



# Disposal 'On-the-Go' Behaviour

- **85%** consider severity of litter to be 'manageable'
- **Fly-tipping** an increasing challenge
- **Problem locations** – town /city centre night life, sea fronts & roads
- **Operational demands** – collections, maintenance, communications





## BPF YOUNGOV SURVEY

Thinking about when you are NOT at home (e.g. at the park, in town etc.)... Which ONE, if any, of the following would encourage you to recycle on-the-go packaging MOST, when you are outside of your home?



**58%**

If there were more recycling bins in public places



**16%**

If I had to pay more when I buy an item in a recyclable container, with the option to have the extra money refunded when I return the empty container to a drop off point



**15%**

If I received discount vouchers as a reward for taking items home to recycle



**11%**

None of these

Don't know

## Collection Quantities

Only a small number of Local Authorities were able to provide estimated collection quantities from recycling 'On-the-Go' units. There is also limited data available for litter and / or street sweepings.

The reasons cited for this by Local Authorities are:

**70%** OF MATERIAL IS MIXED WITH KERBSIDE COMMINGLED COLLECTIONS

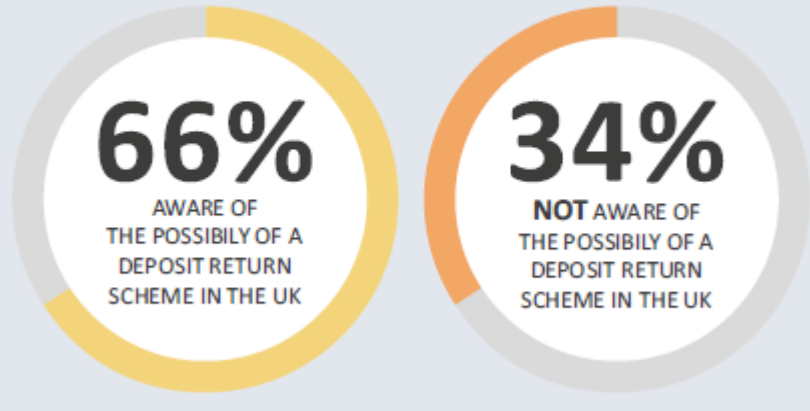
**18%** THE MATERIAL IS TOO CONTAMINATED AND IT ENDS UP IN THE RESIDUAL WASTE STREAM

**12%** RESOURCE AND TECHNOLOGICAL REASONS

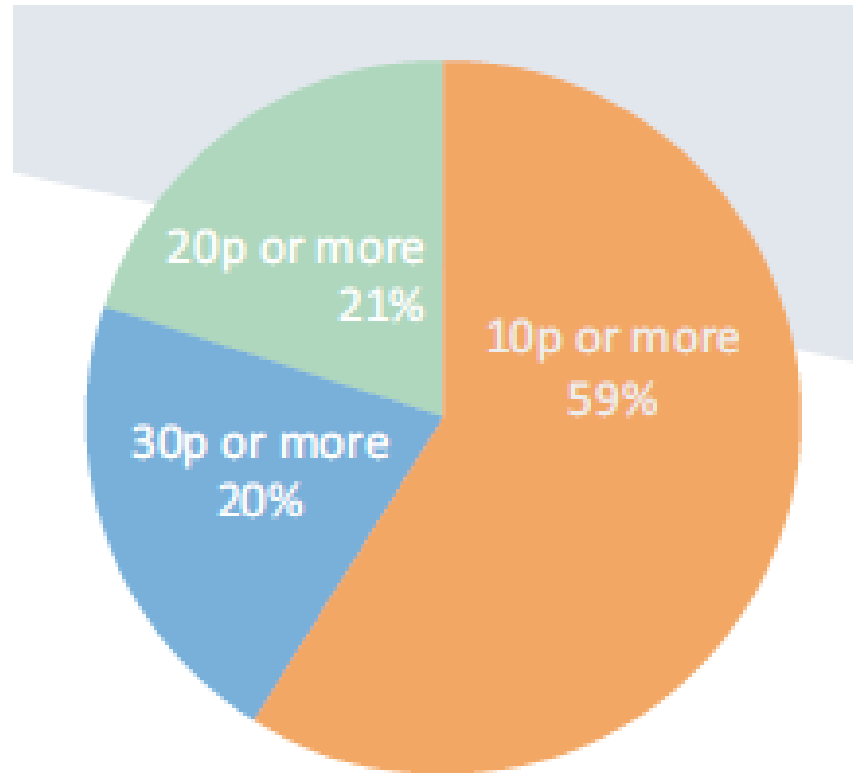


# Deposit Return Systems

Have you heard about the possibility of a Deposit Return Scheme being implemented in the UK?



What would be a sufficient deposit level to encourage you to take bottles back to a convenient collection point?





Consumer facing brand for RECOUP **recycling & anti-litter communications & campaigns**

## Aims

- Boost plastic packaging recycling in the UK
- Achieve real behaviour change through consistent and simple messages

## Mission

- Promote consistency, remove confusion and increase plastics collected for recycling through education, communication and mobilisation

[www.pledge2recycle.co.uk](http://www.pledge2recycle.co.uk)



## Tools and Support For Consumer Engagement

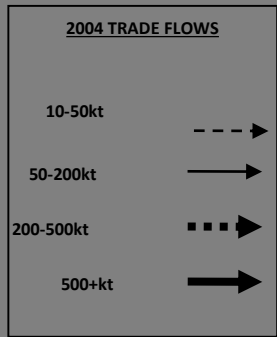
- **Free Toolkit** - Provides all resources needed to run a plastics recycling communications campaign
- **Plastic Info Hub** – education point for plastic and plastic recycling
- **Communication Visuals** – posters, social media, public transport ads, press ads, banners
- **Written Content** – for social media, websites & leaflets
- **Education pack** – assembly presentation and activities, factsheets, lesson plan, video
- Free roadshow / consumer engagement support
- New resources released Sept 2018
- Support from the RECOUP team
- Funding support opportunities

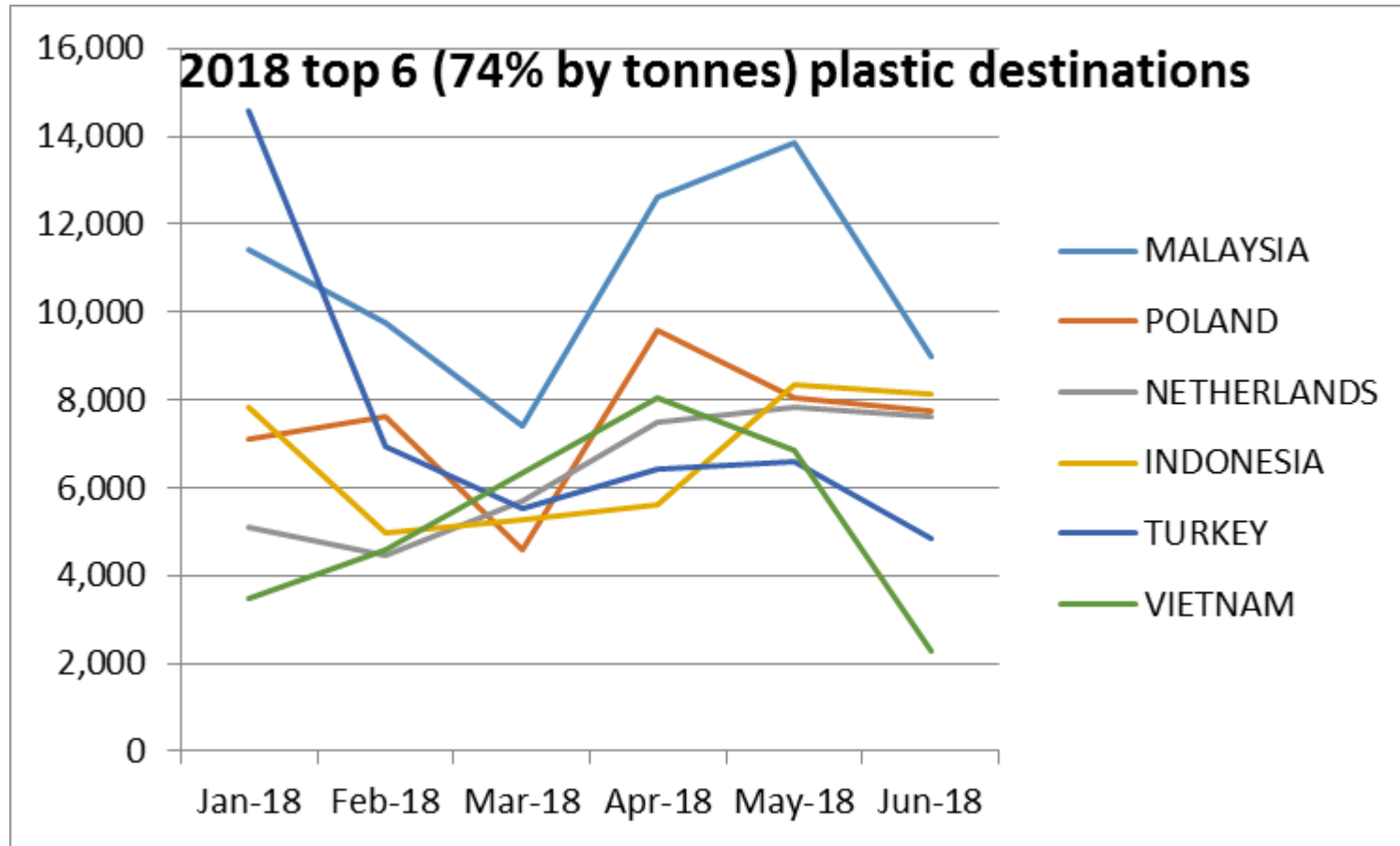




# EU 28 Plastic Waste Export Trends

	Ktonnes / Year				
Country	2014	2015	2016	2017	2018
Malaysia	101	135	153	249	555
Others	229	223	225	295	415
Vietnam	88	88	134	249	401
Turkey	29	19	33	126	315
India	160	139	127	108	173
Indonesia	26	32	42	49	94
Hong Kong	906	770	765	409	177
China	1731	1640	1636	1057	81

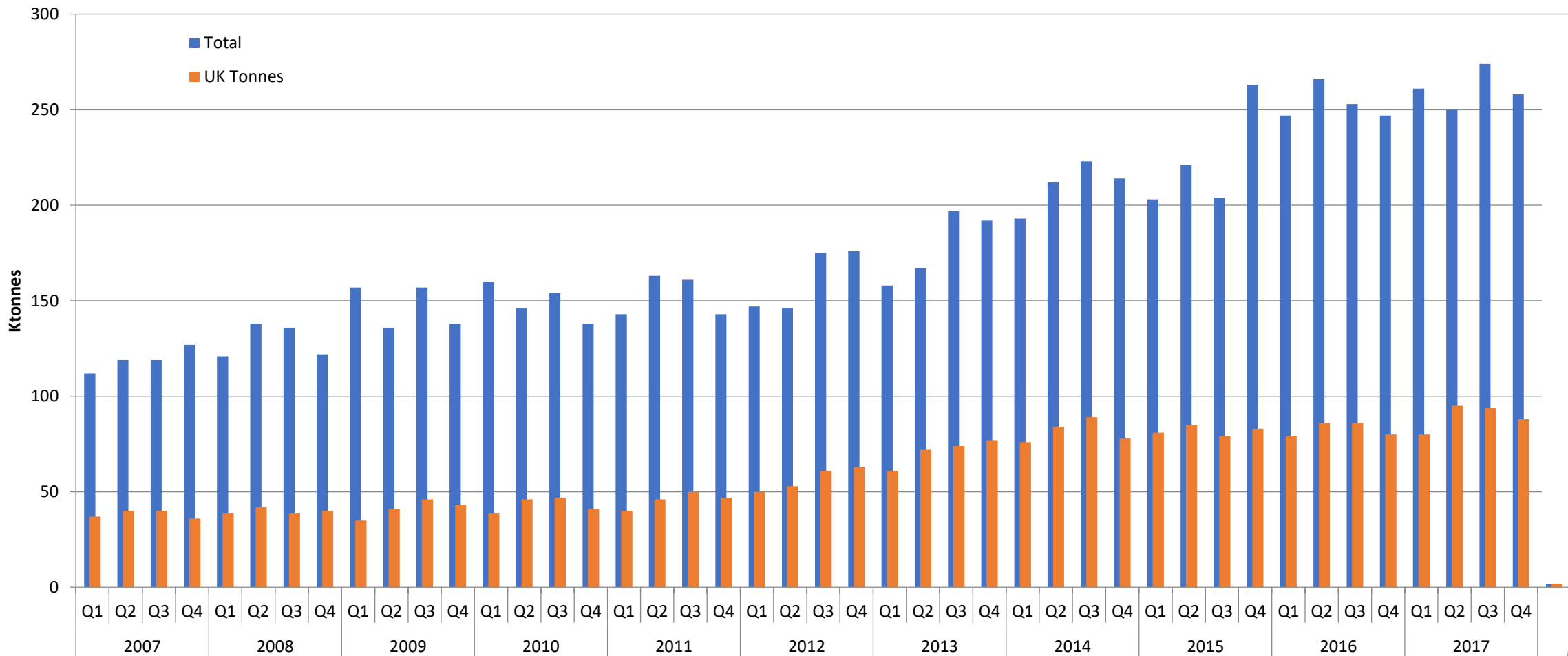




Increasingly, it looks like we will have a situation where recycled materials are processed into pellet in the UK before being exported. This will require more investment in UK infrastructure.

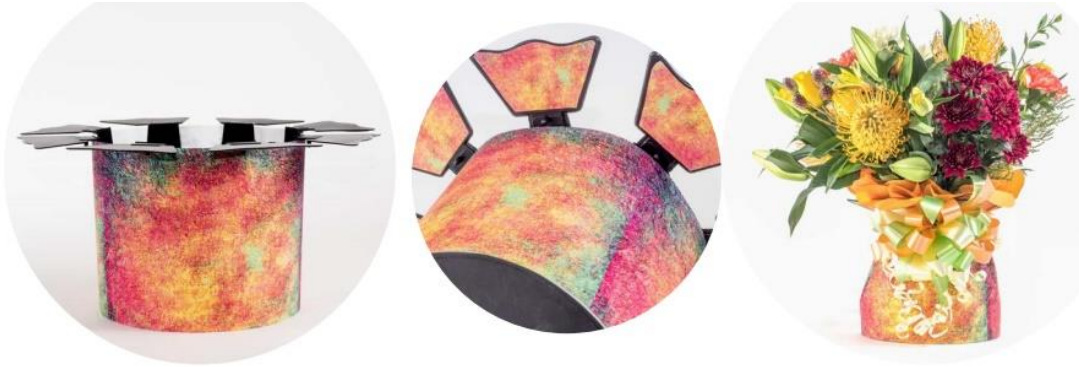
[www.rebnews.com/intelligence/](http://www.rebnews.com/intelligence/)

# Quarterly plastic PRN UK vs export





# UK Best Recycled Plastic Product Award 2018



Bloom-in-Box Ltd  
Bloomie Floristry Box



RPC M&H Plastics  
Garçon Wines' rPET Flat Profile Wine Bottle



Straight Manufacturing Limited  
Triple Stack System



Marmax Recycled Products  
Rain Garden



# European Best Recycled Plastic Product Innovation award

- BARBIER - LOW FUSION FILM with 20% of PCR
- RPC bpi protec - X-EnviroShrink made with Sustane
- **Alpla Werke, Alwin Lehner GmbH & Co KG - The Simple one**
- G2B srl - "Polyethylene-derivative" silk from Galleria Mellonella cocoons



# European Best Recycled Plastic Product Sustainability award

- Mappy Italia SpA - THERMO-ACOUSTIC COMPOSITE SYSTEM WITH LOW ENVIRONMENTAL IMPACT FOR LIVING QUALITY
- **Orkla Home & Personal Care - Jordan Green Clean**
- Ecoplen Srl - Technical and Ecological Bottle and Jerry Cans
- Multiport GmbH - MPO Kunststoffkabelkanal (MPO Plastic Cable Duct) size I and II
- RPC M&H Plastics - Garçon Wines' rPET Flat Profile Wine Bottle





# MARMAX

- Based in Stanley
- Opened in 1998, manufacturing produce boxes and picnic benches; all made from 100% HDPE recycled plastic.
- Started with black and brown, moving into the education industry for different coloured benches and also play equipment.
- Manufacturing a range of outdoor furniture to suit all ages and was also the beginning of the play range.
- Wide range of products from playboats, cars and pirate ships, to our award winning SEN (Special Educational Needs) range which promotes social inclusion for all.
- Approached by the Dogs Trust to manufacture dog agility equipment range.

<https://marmaxproducts.co.uk>





# IMPACT / RRR Polymers Plastic Reprocessing

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- Based in Wallsend
- Exclusive licence on separation technology for mixed polyolefin waste
- Able to separate PE from PP in a mechanical process - BOSS
- Separation based on density separation
- Independently verified purity of 99%
- 100% removal of non PO contamination
- Whole process takes place in a closed loop water system
- Constantly increasing supply of feed stock

<http://www.impact-recycling.com/>





Crates



Plant Pots



Garden Furniture



Buckets



Kids Toys



Trays



Watering Can



Large Plastic  
Containers



Plastic Hangers



Large Outdoor  
Toys



Traffic Cones /  
Barriers



Wheelie Bins



Pipe Fittings



Plastic Pallets



Storage Boxes



Water Butts



Washing Basket



Flexitubs



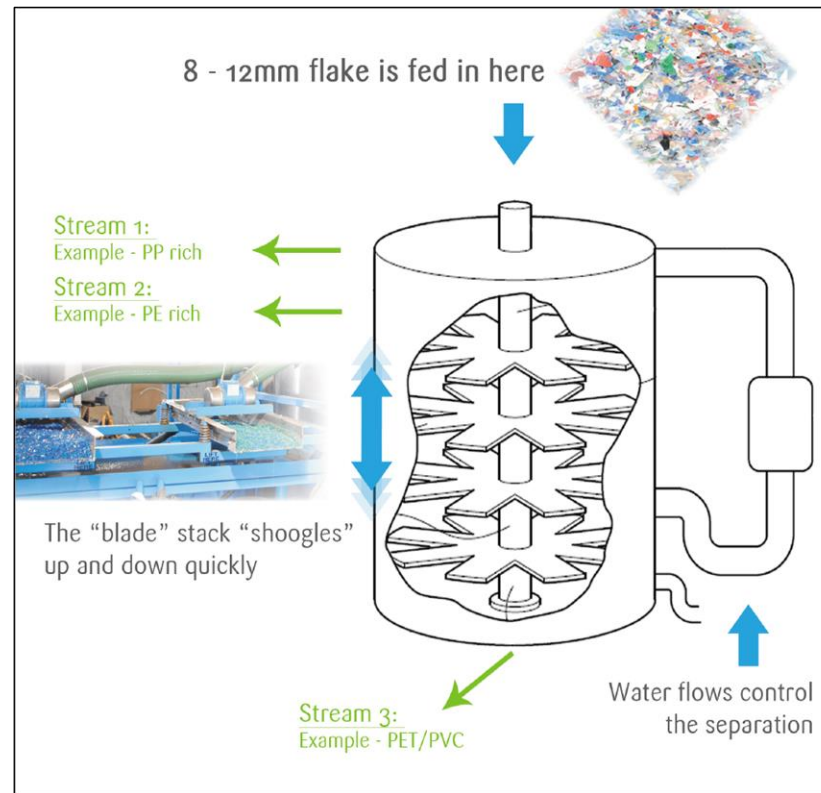
Pet Carriers



Tubs



Recycling Boxes





# ReNew ELP

## A new business in Teesside

- Converting 20,000 tonnes each year end of life plastic into hydrocarbon products
  - A new hydrothermal up grading process using supercritical water
  - Chemical recycling end of life plastic to hydrocarbon feedstock
  - Increasing recycling rates for waste plastic

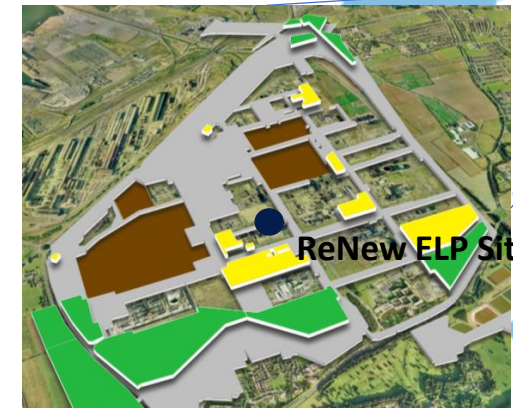


### Cat-HTR PROCESS

Naphtha

Distillate gas oil

Waxes



Sembcorp  
Wilton  
International

ReNew ELP Site



13 APRIL 2016

by Will Date

## Biffa to double HDPE milk bottle recycling capacity

Biffa Polymers is investing £6.5 million to double the capacity of the plastic milk bottle recycling line at its Redcar plant in Cleveland.

The investment will increase the amount of HDPE milk bottles that the plant can take in for sorting from its current level of around 15,000 tonnes per year to close to 30,000 tonnes, whilst also increasing the output of recycled HDPE from 10,000 to 20,000 tonnes per year.



Milk bottle recycling at Biffa Polymers' Redcar facility

### Production

Output material from the Redcar plant is used to manufacture new milk bottles as well as HDPE trays for food, while the material can also be used in the production of cosmetics packaging.

HOME

## Biffa Polymers relaunched plastics recycling facility with new feedstock

5 DECEMBER, 2013 | BY TOM KENNING



COMMENT



A mixed plastics recycling facility has been relaunched as a polypropylene (PP) recycler to make it more economically viable.



# Biffa gets the green light for new £15m plastics recycling plant in Durham

Biffa / Current News / [Biffa gets the green light for new £15m plastics recycling plant in Durham](#)

*New facility to create 70 full time jobs and process 3 million plastic bottles every day*

The UK's leading national recycling and waste management provider, [Biffa](#), received planning approval from Durham County Council last night (Tuesday 5<sup>th</sup> February) for a £15m plastics recycling plant near Seaham.

Biffa will make use of a 130,000 sq ft vacant warehouse at Foxcover Distribution Park to create a polymer processing plant capable of recycling more than one billion plastics drinks bottles a year. The facility will be in operation 24/7, processing 3 million bottles a day into new food and drink packaging and creating around 70 new full-time jobs.





Collections



Legislation



Materials



Infrastructure



Markets



Guidance



Media



Consumers



Value Chain



# Stuart Foster

Tel: 01733 390021

Email: [stuart.foster@recoup.org](mailto:stuart.foster@recoup.org)

Website: [www.recoup.org](http://www.recoup.org)



@Recoup\_uk



**REcycling Of Used Plastics Limited**

1 Metro Centre, Welbeck Way, Woodston, Peterborough, PE2 7UH

Telephone: +44 (0) 1733 390021 | Email: [enquiry@recoup.org](mailto:enquiry@recoup.org) | Website: [www.recoup.org](http://www.recoup.org)

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