

Material Flow Analysis of Plastics in Europe 2018

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Content

- The company BKV GmbH
- Production, conversion, demand and recovery of plastics in EU 2018
- Material flow and use for recyclates today
- Plastic Demand vs. Post-consumer Waste
- Deeper dive to Agriculture
- Key learnings and final remarks

The Company

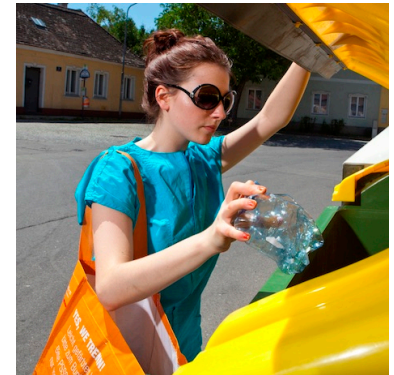
- BKV GmbH
 - Foundation: Sep. 1993 in the course of the packaging regulations coming into force
 - Shareholders
 - Plastics manufacturers
 - Plastics convertors
 - Plastics machine suppliers
- } The plastics industry
- Share capital: 14,1 Mio.€
 - Registered office: Frankfurt am Main



VCI building in Frankfurt am Main

Object

- Protecting the interests of the plastics industry in the field of resource efficiency of plastics with a focus on end-of-life issues
- Providing of data and facts for all stakeholders



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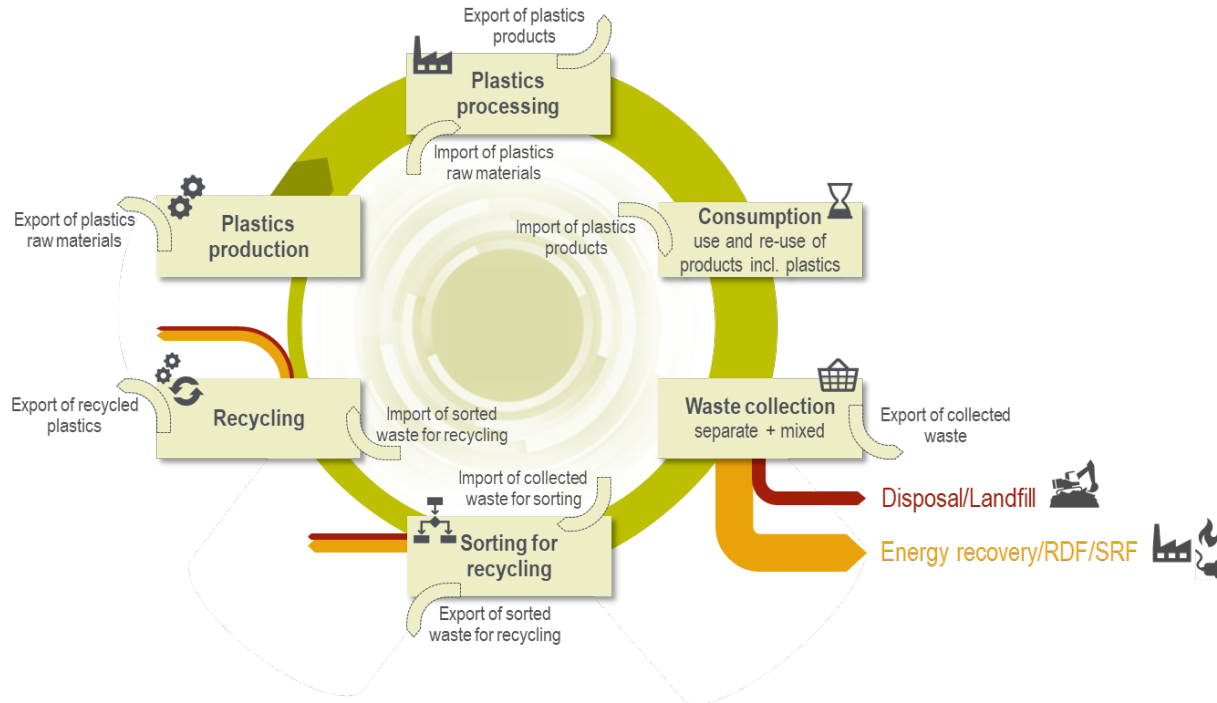
Main Area of Focus

- Legal framework with focus on plastics and environment
- Marine Litter
- Market data with focus on plastics waste and plastics-rich waste streams
- Standardization with focus on plastics and environment
- Resource efficiency / Circular economy
- Recovery technologies

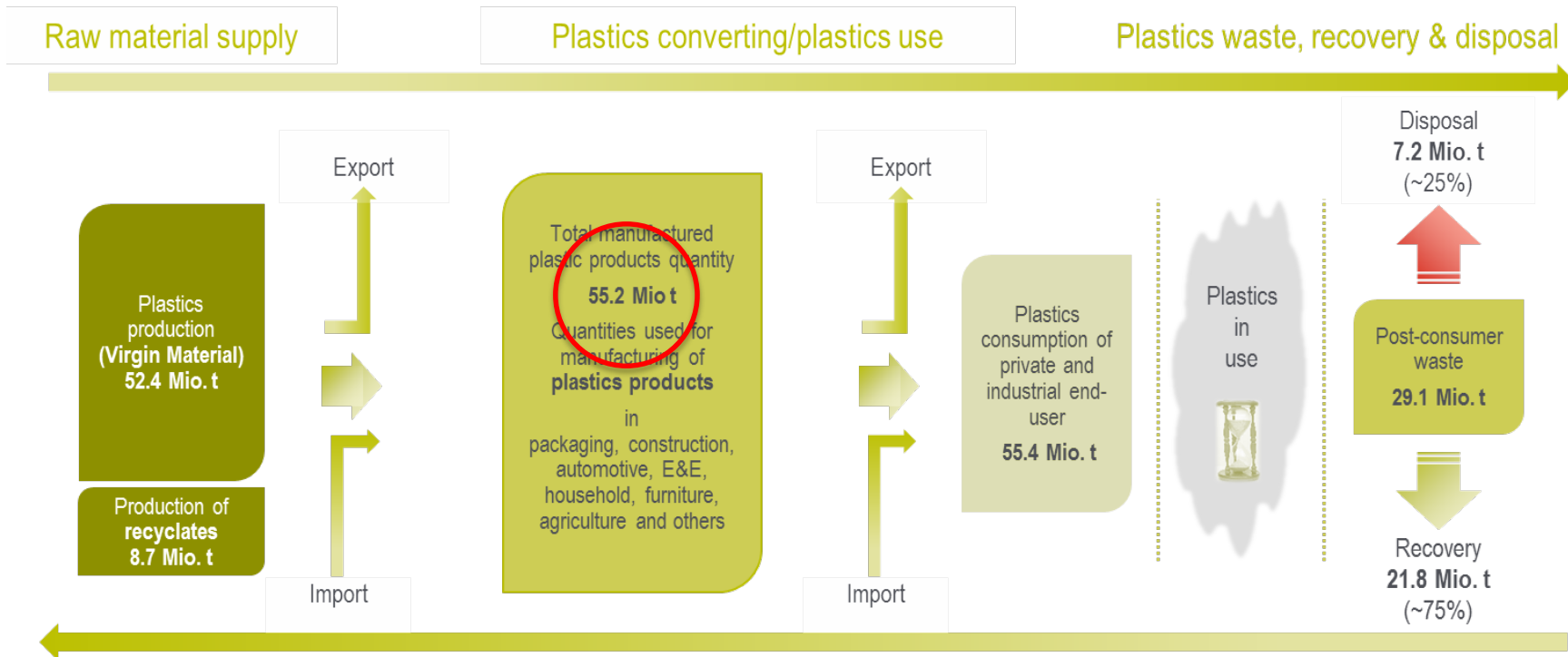
Sources

- Plastics – the Facts 2019, PlasticsEurope, Brussels, 2019
- Material flow analysis plastics in Germany 2017, Conversio Market & Strategy GmbH, Mainaschaff, 2018
- Circular Economy of Plastics 2018 EU28+2, Conversio Market & Strategy GmbH, Mainaschaff, 2019
- The Circular Economy for Plastics – A European Overview, PlasticsEurope, Brussels, 2019
- BKV GmbH, Frankfurt

Circular Economy for Plastics in EU28+2 Countries

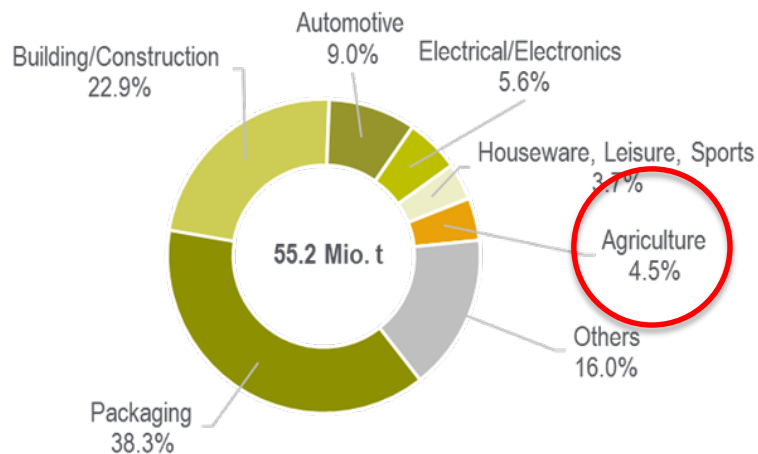


Production, Converting, Consumption und Treatment of Plastics 2018

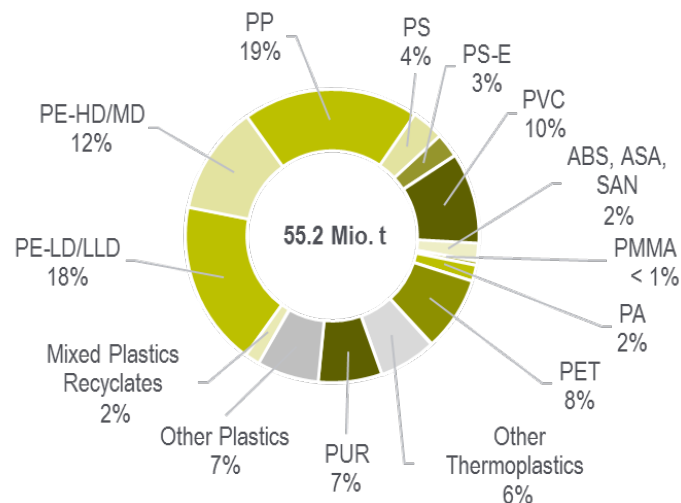


Plastics Demand 2018

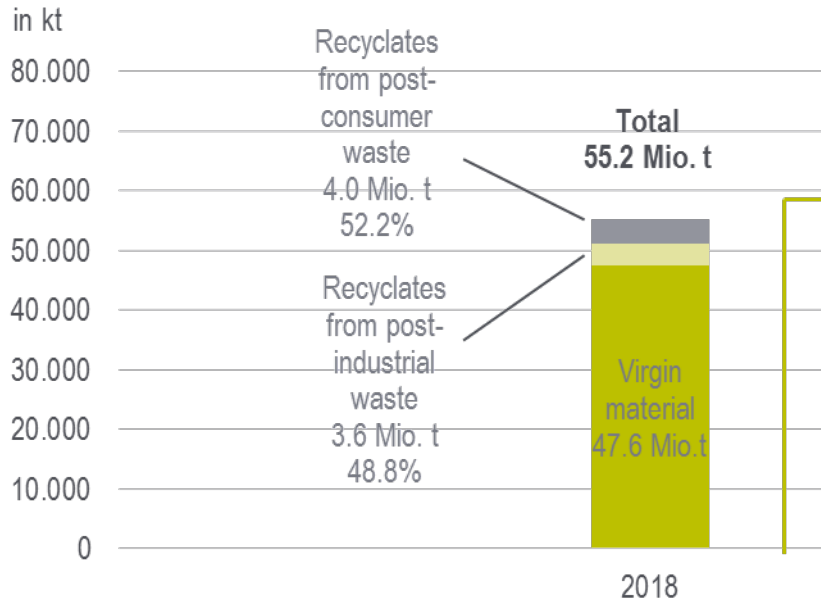
Plastics converting
(virgin material & recyclates)



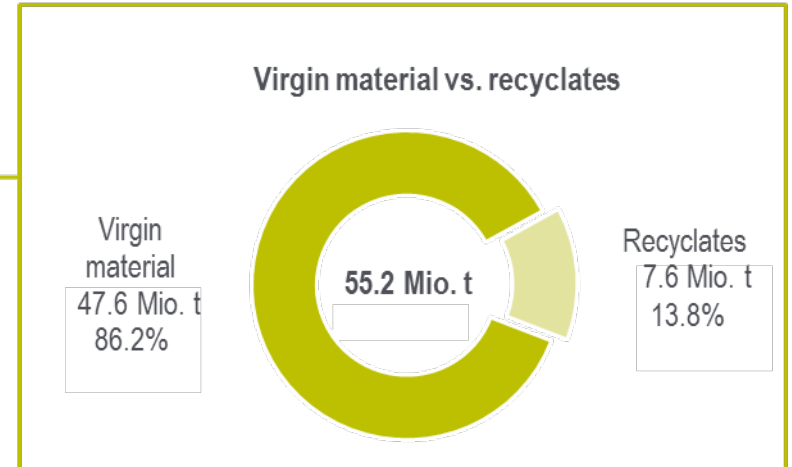
Plastics converting
(by polymer types)



Converting of Plastics into Products 2018



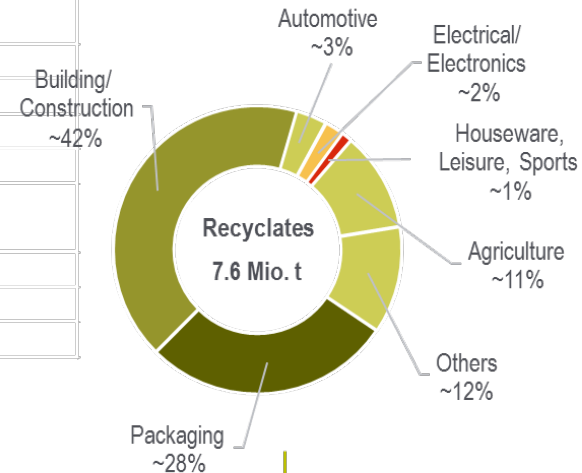
2018 first
analysis of
amount of
recyclates



Converting of Plastics into Products 2018

Plastics converting	Total (Virgin & recyclates) (kt)	Recyclates		
		(kt)	(%)	
Packaging	21,123	2,134	10.1%	
Building/Construction	12,622	3,201	25.4%	
Automotive	4,956	262	5.3%	
Electrical/Electronics	3,116	164	5.3%	
Houseware, Leisure, Sports	2,060	91	4.4%	
Agriculture	2,463	849	34.5%	
Others	8,859	917	10.4%	
Total	55,199	7,619	13.8%	

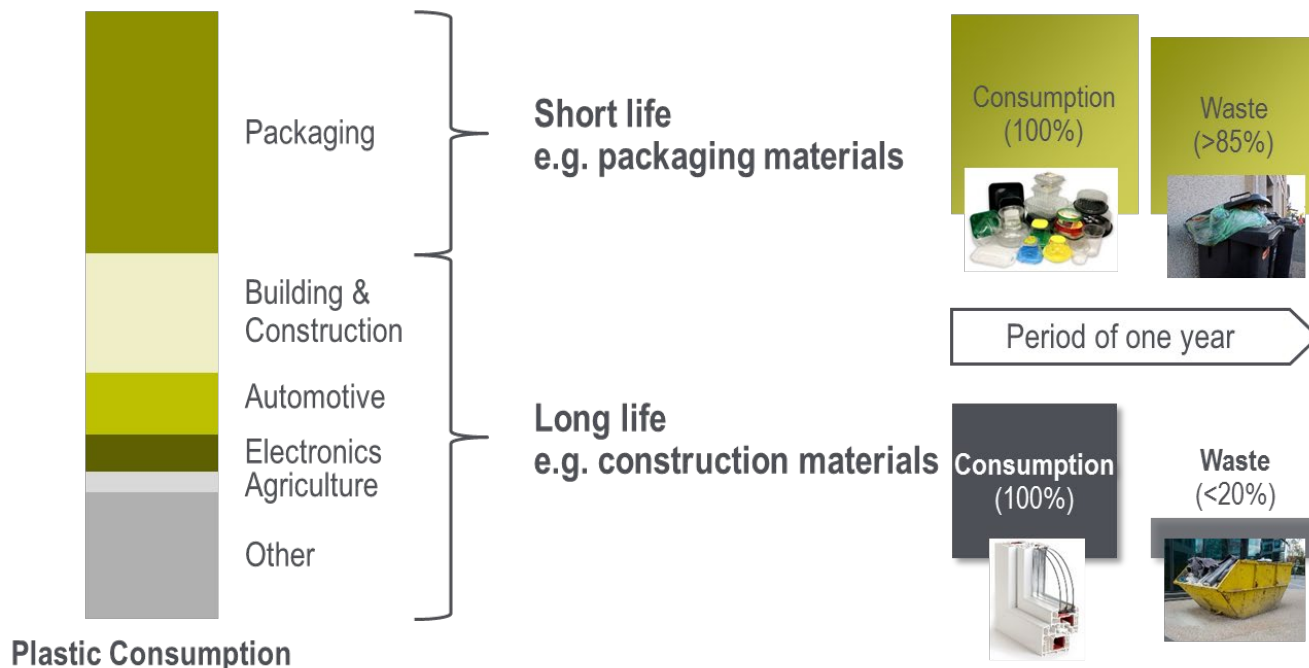
Converting of plastics recyclates
by applications 2018



Examples of Products for Using Plastic Recyclates in Agriculture (Gardening)

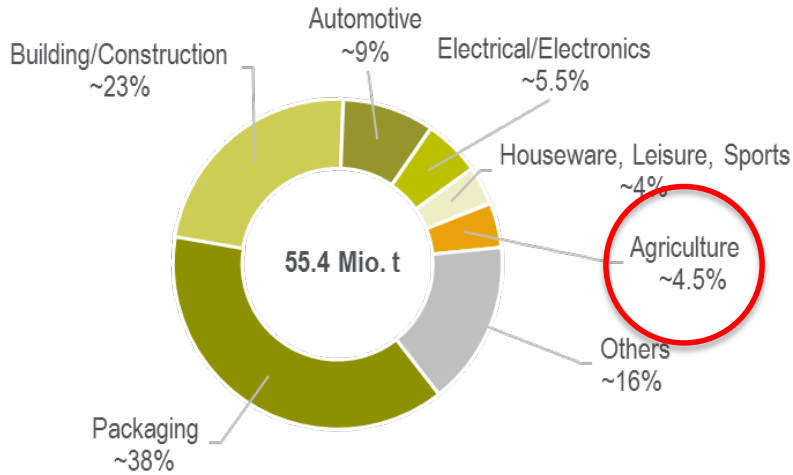


Life Time of Plastic Products

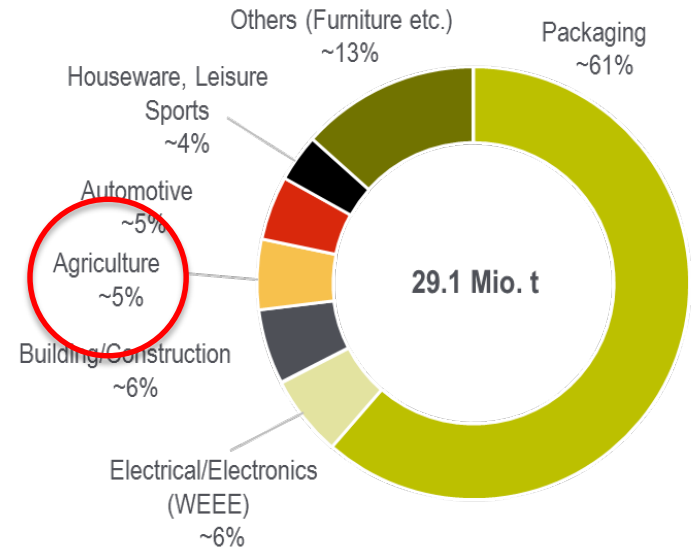


Plastic Demand vs. Post-consumer Waste 2018

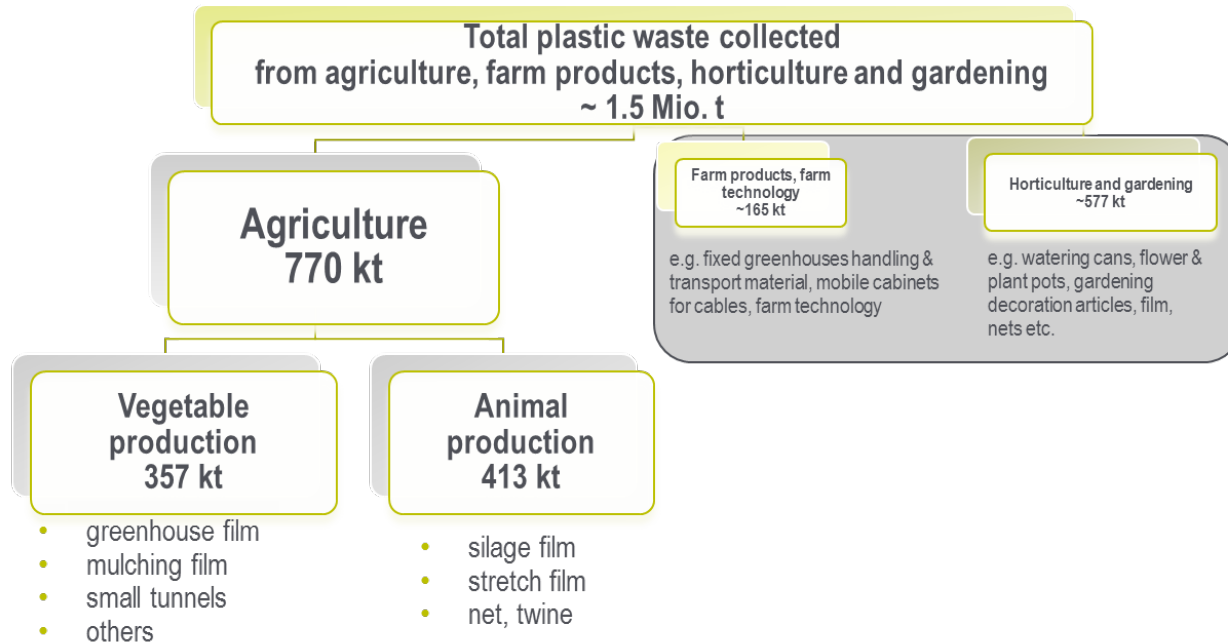
Plastics consumption



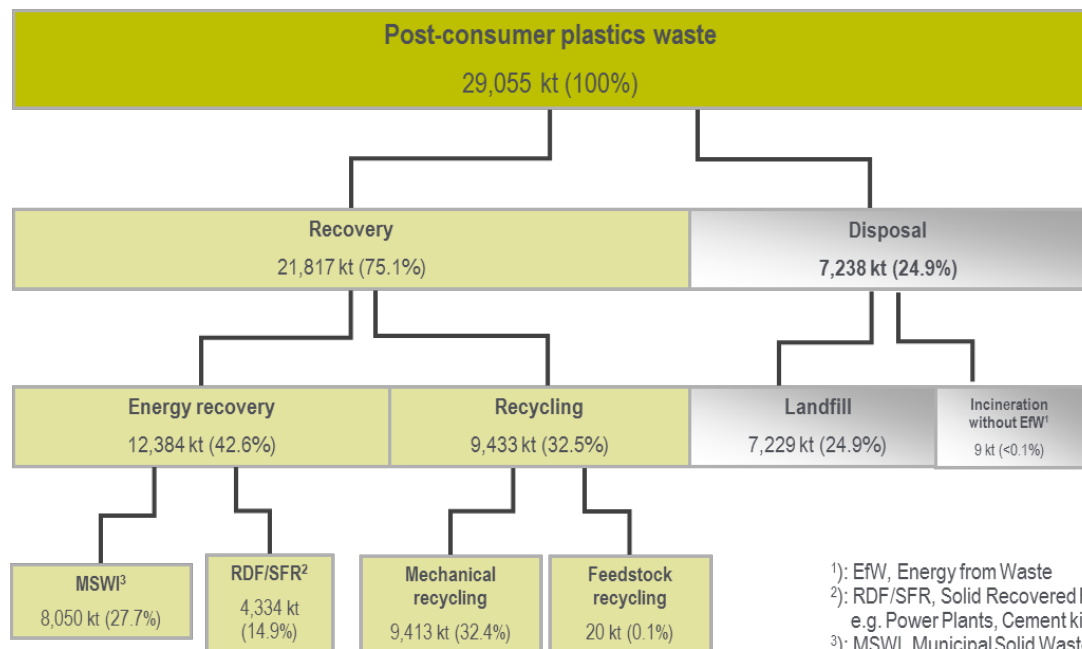
Collection of post-consumer plastic waste



Post-consumer Waste from Agriculture



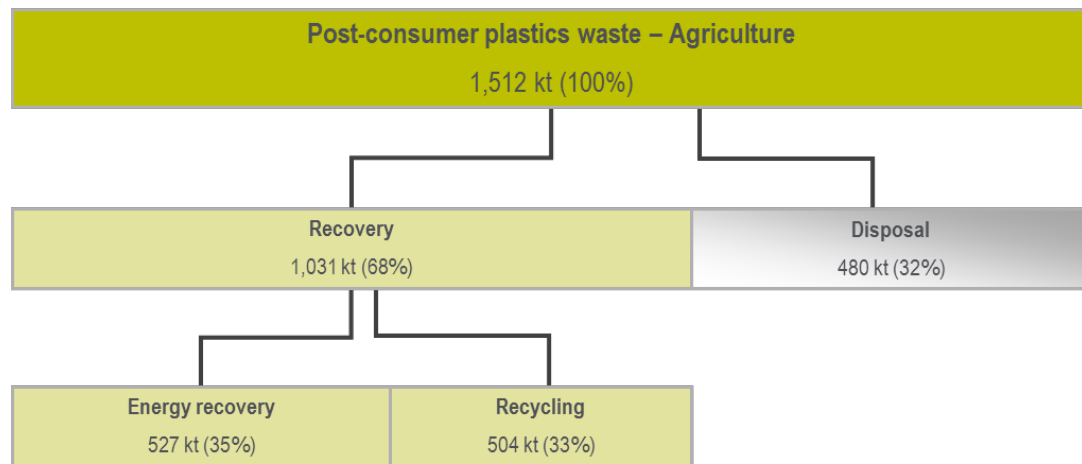
Recovery of Plastic Waste 2018



Recovery Rate	75.1%
• Recycling Rate	32.5%
- Mechanical Recycling	32.4%
- Feedstock Recycling	0.1%
• Energy Recovery	42.6%
Disposal Rate	24.9%

- 1): EfW, Energy from Waste
 2): RDF/SFR, Solid Recovered Fuel / Refuse Derived Fuel,
 e.g. Power Plants, Cement kilns, Waste derived fuel
 3): MSWI, Municipal Solid Waste Incineration

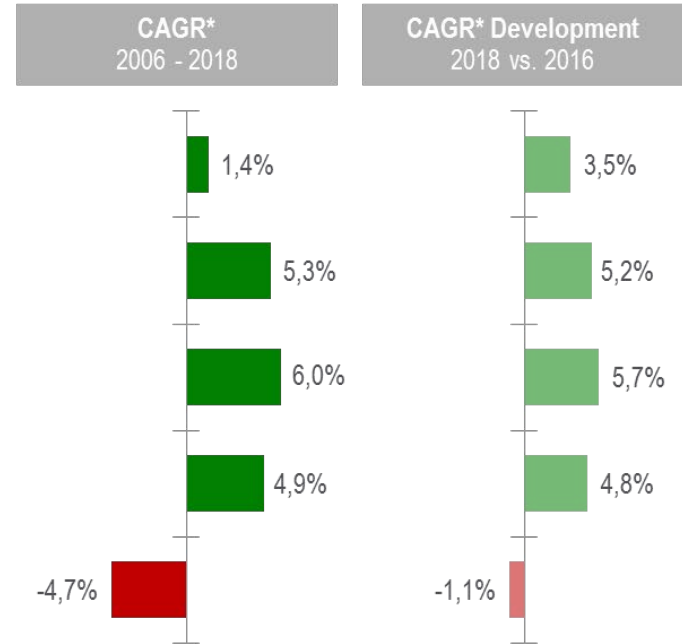
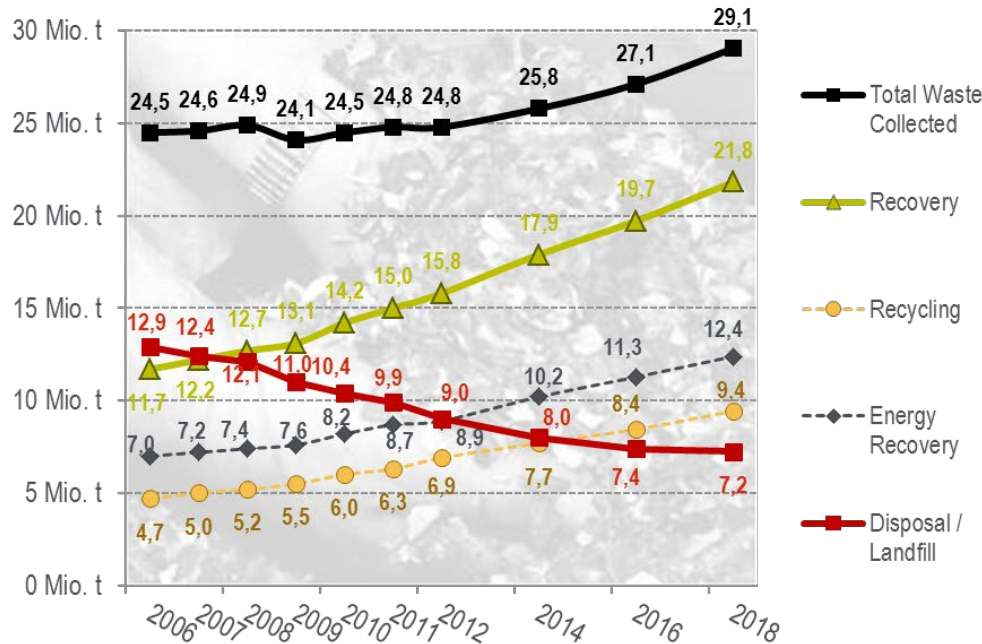
Recovery of Plastic Waste 2018



Recovery Rate	68%
• Recycling Rate	33%
• Energy Recovery	35%
Disposal Rate	32%

Recovery of Plastic Waste 2018

– Development Post-consumer Waste



Recycling of Post-consumer Plastics Waste for Re-use 2018

Post-consumer waste



Collection, sorting, pre-treatment and recycling of post-consumer waste

Disposal
7.2 Mio. t

Energy recovery in MSW plant:
8.1 Mio. t

Energy recovery as substitute fuels:
4.3 Mio. t

Mechanical recycling:
9.4 Mio. t
(~32%)

... for input in recycling plants
in EU: 7.5 Mio. t
(~26%)

... for feedstock recycling
0,02 Mio. t

Export surplus
for recycling
(post-consumer
waste)
1.9 Mio. t

Process loss
2.6 Mio. t

Output of post-consumer recyclates
for production of plastics products :
4.9 Mio. t (~17%)

... abroad

Export surplus
for post-consumer
recyclates
~1.0 Mio. t

Usage of virgin material and recyclates in converted plastics

Plastics converting in total
55.2 Mio. t

Virgin material
47.6 Mio. t
(86.4%)

Recyclates from post-industrial
waste: ~3.6 Mio. t
(6.6%)

Recyclates from post-consumer
waste : ~4.0 Mio. t
(7.2%)

... in Eu28+2
countries

Key Learnings and Final Remarks

- EU strategy on plastics calls for re-introduction of 10 Mio. t of recycled plastics by 2025, which is a share of 18% for recyclates in total conversion
- Total substitution rate with recyclates in 2018 is at 14% resp. 7.6 Mio. t
- Substitution rate with recyclates from post-consumer waste is at 7% resp. 4 Mio. t
- Total substitution rate with recyclates in Agriculture is at 35% resp. 849 kt
- Substitution rate in Agriculture with recyclates from post-consumer waste is at 20% resp. 501kt
- Increasing recycling rates is prerequisite for higher substitution rates

Key Learnings and Final Remarks

- Diversion from landfill all over Europe encourage more recycling
- Improvements in collection schemes and in sorting technologies are key
- Separate waste collection schemes in all countries will help to achieve higher waste recycling targets
- Eco friendly design of products will improve recyclability further
- Increasing the quality of recyclates will boost their use in the market and widen the scope of applications (e. g. by standardization, quality certification)
- Additional recovery options like e. g. chemical recycling can further close the carbon circuit in the future

Thank you for your attention !

BKV Newsletter:

<https://www.bkv-gmbh.de/en/info-zone/bkv-newsletter.html>

Newsletter „Marine Litter“:

<https://www.bkv-gmbh.de/en/info-zone/marine-litter-newsletter.html>

Studies:

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