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Downstream Separation of Mixed Waste as Part of Attainment of the Envionmental & Climate Objectives

CASE STUDIES FROM EUROPE

Anna Larsson,
Director, Circular Economy Development, Reloop Platform


Reloop Programme 1
Meaningful Measurement
Packaging measurable via fully transparent and accurate data.
Reloop Programme 2
Reuse Revolution
Packaging which is designed for circularity.
Meaningful Measurem
Revolution Programme
MIXED WASTE SORTING x MIXED WASTE SORTING x
Reloop Programme 5
Closing the loop
Packaging made with mandated high levels of recycled content.
Closing the loop Programme

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Separate collection has its limitations:

- In spite of the comprehensive communication efforts, still many recyclables end up in the bin for ”residual” waste bins
- Separate collection is not feasible for achievement of the numerous types of specs

Downstream separation has already been deployed:

- To capture recyclables from mixed waste
- To ensure quality and desired granulation of specifications of secondary materials
- To reduce carbon footprint

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SITUATION DESCRIPTION – CASE SWEDEN

Major incentive for municipalities to invest in downstream separation has been **ETS for waste incineration** as well as possibility for **higher recovery** of recyclables.
Until end of 2023, source separation of packaging waste was responsibility of the PROs.
Since 2024, municipalities have managed separate collection and got reimbursement from the PROs.
From 2027, separate collection will have to be organized curbside and new collection methodology has emerged.

Photos: Anna Larsson

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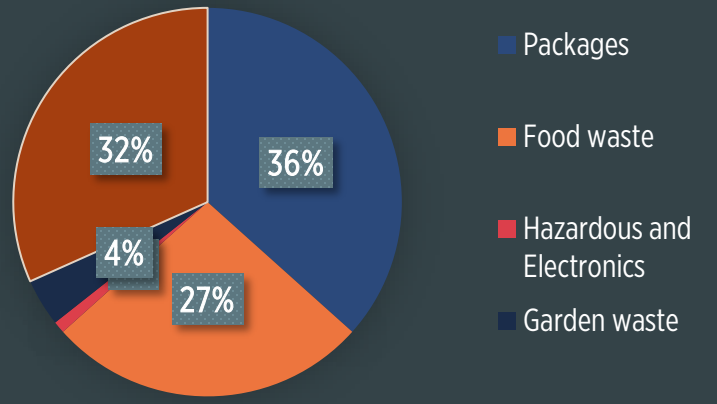
CASE SÖRAB

SÖRAB represents population of 525000 citizens and has responsibility for collection of mixed municipal waste and treatment of waste in environmentally sound manner.

In addition to source separation of packaging waste, SÖRAB has built and has been operating a central sorting plant from mixed municipal waste with the objective to increase recycling and reduce climate impact from incineration.

Household waste



Year	Input	Recovered plastic	Recovered metal
2022	98000	7425	1739
2023	100000	7294	1670
Total	198000	14719	3409
	Total % recovered recyclables (by weight)		**9,19%**

REDUCED CO_{2e} from recyclables recovered from mixed waste **29438 ton** (2022-2023)

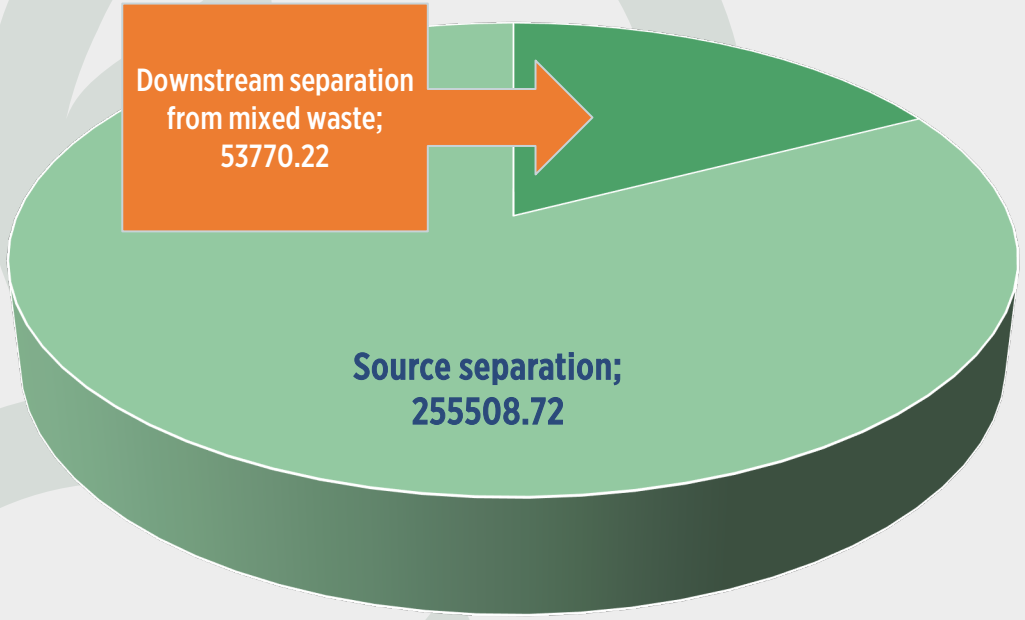
SITUATION DESCRIPTION – CASE POLAND

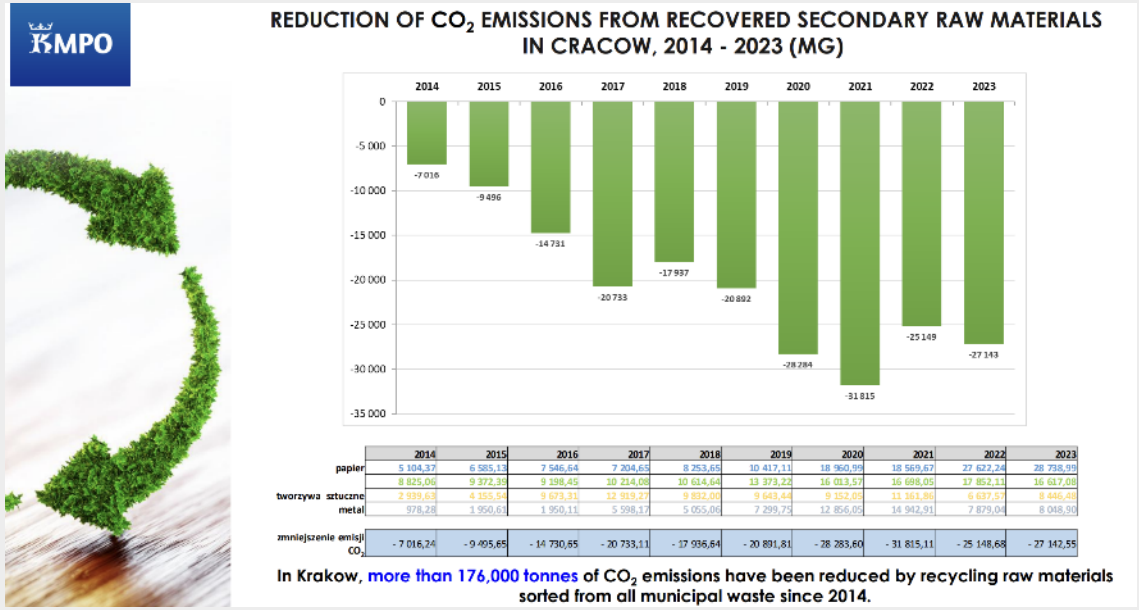
Photo: MPO Krakow

Photos: Anna Larssoncy

- Source separation of packaging waste has been responsibility of municipalities since 2013.
- Dysfunctional EPR system covers only 10% of the collection costs.
- Attaining the overall recovery targets is imposed on municipalities.
- There is no direct cost coverage from PROs to municipalities.
- Source separation is based on curbside collection.

CASE POLAND (CRACOW)





	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
papier	5 104,37	6 585,13	7 546,64	7 204,65	8 253,65	10 417,11	18 960,99	18 569,67	27 622,24	28 738,99
tworzywa sztuczne	8 825,06	9 372,39	9 198,45	10 214,08	10 614,64	13 373,22	16 013,57	16 698,05	17 852,11	16 617,08
metal	2 939,63	4 155,54	9 673,31	12 919,27	9 832,06	9 643,44	9 152,05	11 161,86	6 637,57	8 446,48
	978,28	1 950,61	1 950,11	5 598,17	5 055,06	7 299,75	12 856,05	14 942,91	7 879,04	8 048,90
zmniejszenie emisji CO_2	- 7 016,24	- 9 495,65	- 14 730,65	- 20 733,11	- 17 936,64	- 20 891,81	- 28 283,60	- 31 815,11	- 25 148,68	- 27 142,55


Photo: MPO Krakow

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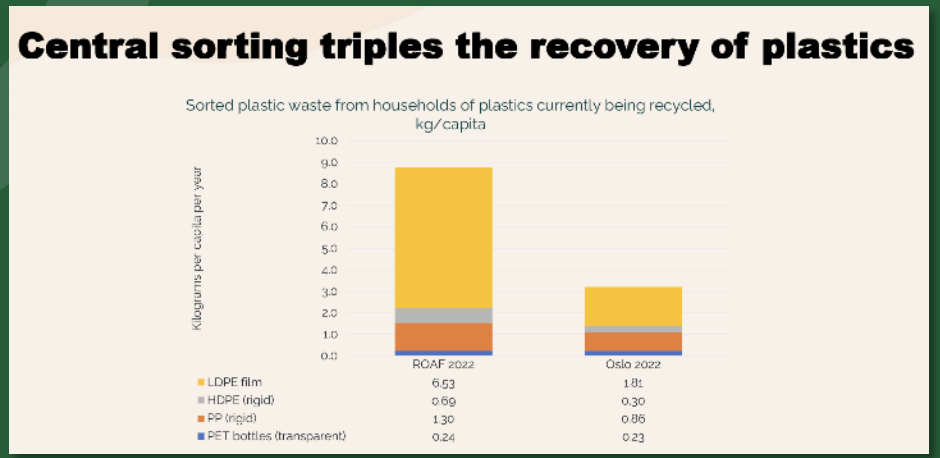
SITUATION DESCRIPTION – NORWAY

- Source separation of packaging waste has been responsibility of municipalities.
- Source separation used to be based on curbside collection and bring systems.
- Ambition to increase circularity has stimulated development of mixed waste sorting.
- Over 50% of the Norwegian population lives in municipalities which have decided to phase out separate curbside collection of plastic packaging.



Picure credits: Mepex AS

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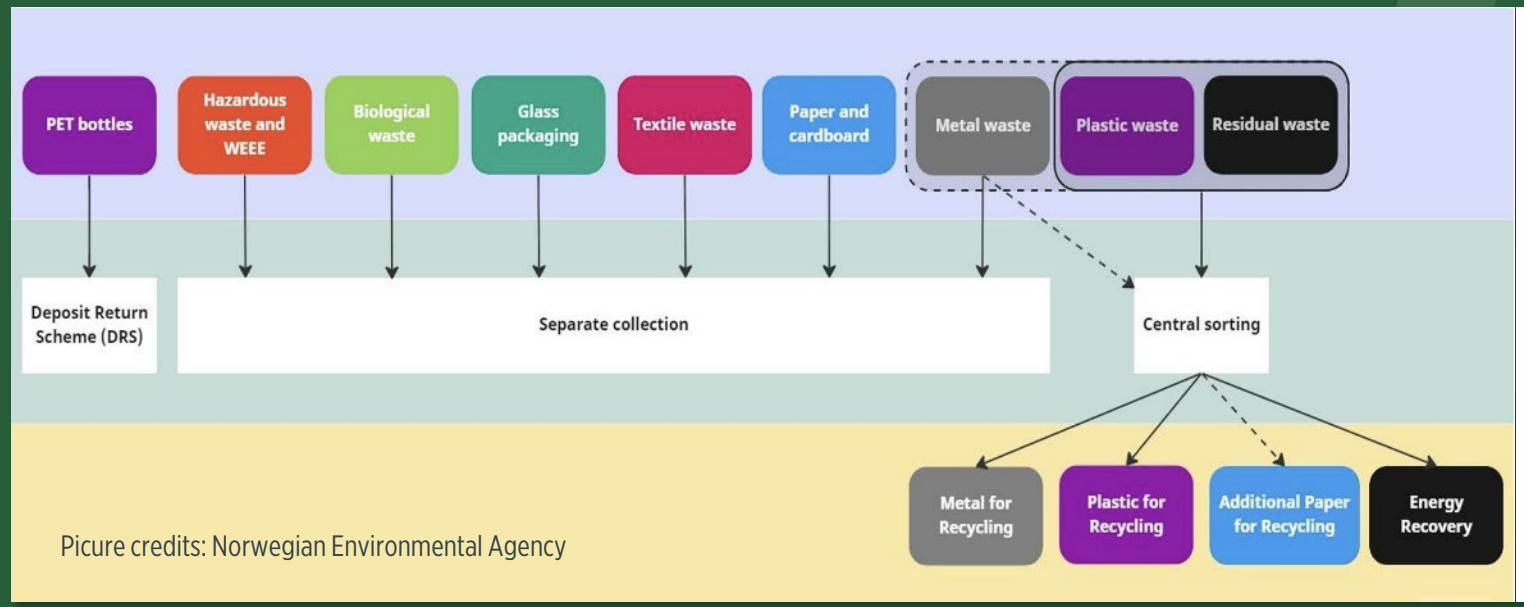
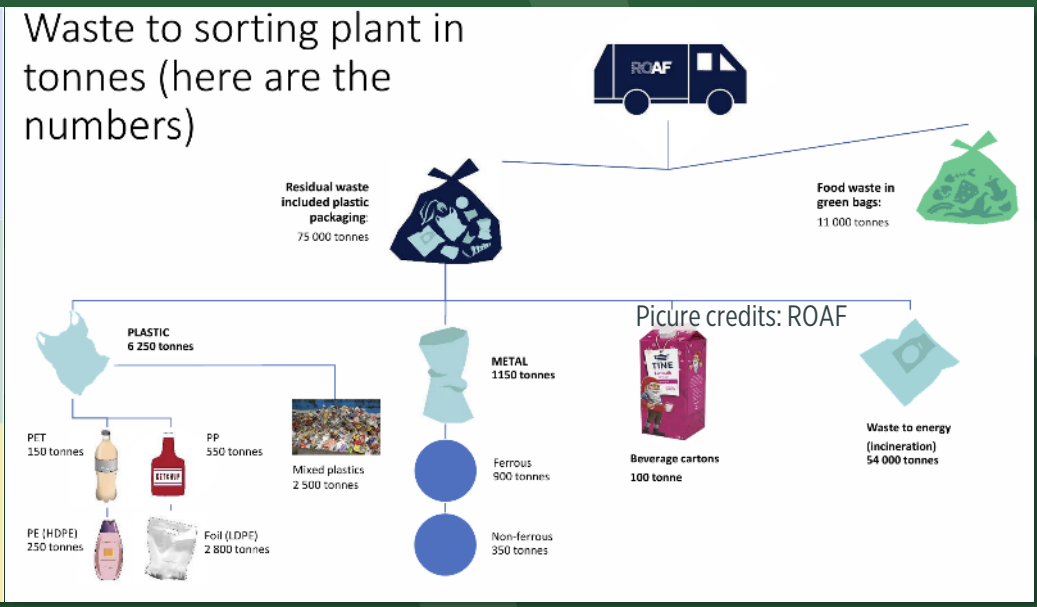
CASE NORWAY

Report commissioned by Avfall Norge, 2011
highlighted potential of downstream separation in terms of increased yild (from 40-50 to 65-80%)
and lower cost than source separation (Population density, 15p per Km²)



Picure credits: Norwegian Environmental Agency



Picure credits: ROAF

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CASE NETHERLANDS

ROTTERDAM

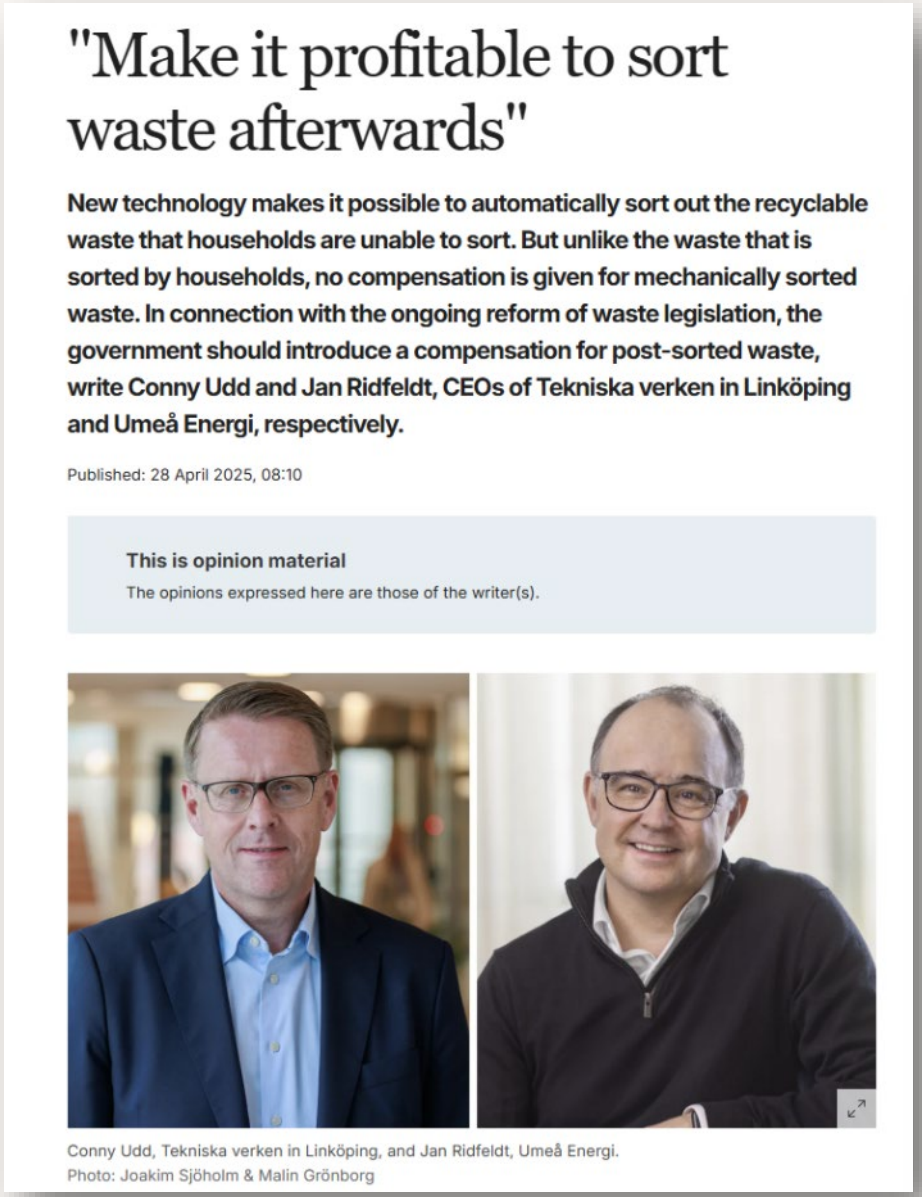
PLASTIC PACKAGING SEPARATION	
Orange bin (before 2018)	Downstream sorting (from 2018)
2 kg/habitant	27 kg/habitant

Why?




Sweden	Norway	Netherlands	Poland
	Downstream separation secures cost efficiency because of low population density	Downstream separation secures cost efficiency because of high population density	
Auxiliary to source separation	Replacing source separation	Replacing source separation	Auxiliary to source separation
Overall recovery target attainment	Overall recovery target attainment	Overall recovery target attainment	Overall recovery target attainment
ETS cost reduction through downstream separation			

What's the problem?



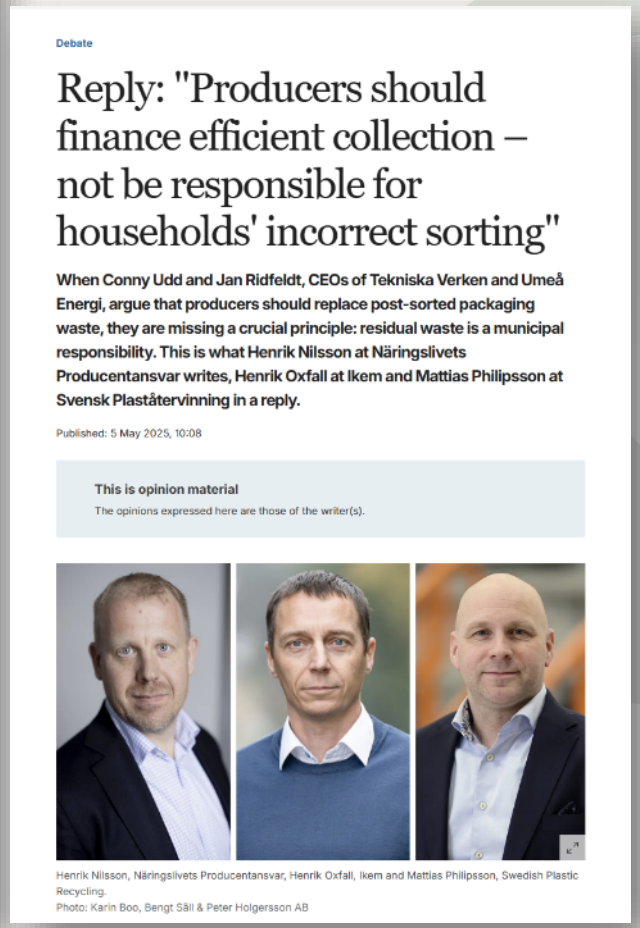
"Make it profitable to sort waste afterwards"

New technology makes it possible to automatically sort out the recyclable waste that households are unable to sort. But unlike the waste that is sorted by households, no compensation is given for mechanically sorted waste. In connection with the ongoing reform of waste legislation, the government should introduce a compensation for post-sorted waste, write Conny Udd and Jan Ridfeldt, CEOs of Tekniska verken in Linköping and Umeå Energi, respectively.

Published: 28 April 2025, 08:10

This is opinion material
The opinions expressed here are those of the writer(s).

Conny Udd, Tekniska verken in Linköping, and Jan Ridfeldt, Umeå Energi.
Photo: Joakim Sjöholm & Malin Grönborg



Debate

Reply: "Producers should finance efficient collection – not be responsible for households' incorrect sorting"

When Conny Udd and Jan Ridfeldt, CEOs of Tekniska Verken and Umeå Energi, argue that producers should replace post-sorted packaging waste, they are missing a crucial principle: residual waste is a municipal responsibility. This is what Henrik Nilsson at Näringslivets Producentansvar writes, Henrik Oxfall at Ikem and Mattias Philipsson at Svensk Plaståtervinning in a reply.

Published: 5 May 2025, 10:08

This is opinion material
The opinions expressed here are those of the writer(s).

Henrik Nilsson, Näringslivets Producentansvar, Henrik Oxfall, Ikem and Mattias Philipsson, Swedish Plastic Recycling.
Photo: Karin Boo, Bengt Säll & Peter Holgersson AB

Reply: "The packaging industry's responsibility should not end in the event of incorrect sorting"

Today's system risks disadvantage innovation and investments in Swedish waste management, write Conny Udd and Jan Ridfeldt, CEOs of Tekniska verken and Umeå Energi, respectively.

Published: 9 May 2025, 13:16

While the lighthouse projects have **proven** extremly promising results in terms of fullfilment of the environmental and climate objectives, **current undertakings experience challenges** with insufficient EPR contributions as well as legislative barriers.
Unlocking more downstream separation of mixed waste relies on legislation addressing:

- **Climate & enviornmental** impact
- Development of the **demand** for post consumer waste
- **Financial support**

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remain
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THANK YOU ☺

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