



Swedish Waste Management in the light of European Legislation and Waste Mitigation

Gunilla Carlsson

PA Director, South Scania Waste Company

Board Member of ISWA 2020-2024



The Triple Planetary Crisis

Climate Change



Air Pollution



Biodiversity loss



European union

1st Circular economy action plan (2015)

- Transition towards a Circular Economy
- Boost global competitiveness
- Foster sustainable economic growth
- Generate new jobs

In 2019 54 actions was delivered

[Eurostat – Circular economy monitoring progress](#)



European union

European Green Deal (2019)

- A Growth Strategy
- To make European Union climate-neutral by 2050
- Making EUs economy sustainable, turning climate and environmental challenges into opportunities,
- A transition just and inclusive for all



European union

Green Deal – Fit for 55 package (2020)

Target to reduce green house gases with 55 percent to 2030!

- Energy efficiency and renewable energy
- Energy taxation
- CO2 emission standards for cars and vans
- REfuelEU aviation and FuelEU Maritime
- Social Climate fund
- Carbon Border Adjustment Mechanism
- Land Use and Forestry –LULUCF
- Effort sharing regulation
- EU Emission Trading system



European union

2nd Circular Economy Action Plan (2020)

- Sustainable products Initiative/Ecodesing for Sustainable products
- Strategy for sustainable and circular textiles
- Revised construction products regulation
- Industrial Emissions Directive
- Revision on Packaging and Packaging Waste
- Policy framework for biobased, biodegradable, compostable plastics
- Green Claims by companies
- Measures to reduce impact of microplastics pollution



Green Deal – latest initiatives

- Clean Air and Water/Cut down deforestation worldwide
- Reduce pollutant emissions from vehicles, improve air quality
- Voluntary certification on high quality carbon removals
- Packaging and packaging waste regulation
- EU ETS includes aviation sector, sharpens the goal to reduction of 62%
- New Deal for pollinators
- Green Industrial Plan to speed up the innovative clean tech industries to net-zero



Time to Act!

EU is well in the forefront in setting the agenda for the transformation needed,

Climate action is in focus in all legislation, directives, regulations, strategies and packages,

The transformation from take-make-disposal to circularity is highly on its way,

→ **The structural legislation is in its place, now its time for the business industry to change its own structure.**





The Modern Swedish Waste Management
-in the light of the European Legislation

*"We see the opportunities where other sees
garbage!"*

Swedish Waste Management Developments over 50 years



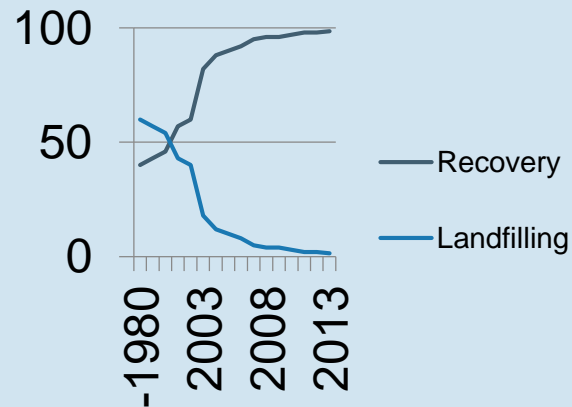
Before 1970



The 80ies



The 90ies



The 00ies



The 10ies



The 20ies

European Waste Hierarchy





The Swedish Model

”Clear responsibilities”

National responsibility

National waste plans including
Targets for recycling
Climate goals

Municipalities responsibility (300)

Municipal plans, including targets for waste management
Collection of household waste (curbside, recycling centers)
Treatment of household waste
From 2024 collection of household and EPR waste

Business Industry

Collection, transport, recycling

EPR

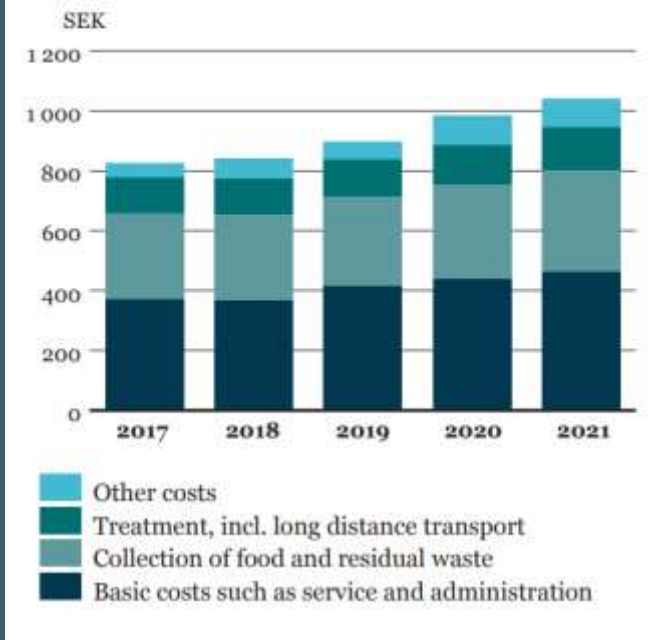
From 1992 - Extended Producer Responsibility on
packaging, glass, batteries, electronics, tires

Swedish Waste Management Facilities in Sweden

Plants

38 Biological Treatment
35 Waste to Energy
48 Landfills

**Waste management costs,
SEK per person excl. VAT, 2017–2021**



Collection Systems

- Every municipality decide collection system.
- Approx 70ie Municipalities offer a 8-fraction system (two bins) as voluntary service
- Municipalities could offer collection of EPR packaging as extra service.
- NEW SWEDISH REGULATION - Obligatory curbside collection for all household waste
- Implemented at the latest 2027

Most common collection systems for single-family houses



Two separate bins
(one for food waste and one for residual waste)
52%



Only one bin
12%



Multi-compartment bins
(Mainly 4-compartment)
23%



Different coloured bags for optical sorting
(usually food waste+residual waste, but there is also residual waste+food waste+newspapers/packaging waste)
13%

Recycling targets EU

To 2025

55 %

To 2030

60 %

To 2035

65 %

To 2025

65 %

To 2030

70 %

All packaging

50 %

55 %

Plastic

25 %

30 %

Wood

70 %

80 %

Metal (iron)

50 %

60 %

Aluminium *

70 %

75 %

Glas

75 %

85 %

Paper and cardboard

Swedish - National target

75% of food waste should be biologically treated in 2024

Sweden - Municipal target

Decrease household waste to 100 kg per person 2030

EU demands separate collection of

Hazardous waste from households 2022

Organic waste/food waste 2023

Textiles 2025

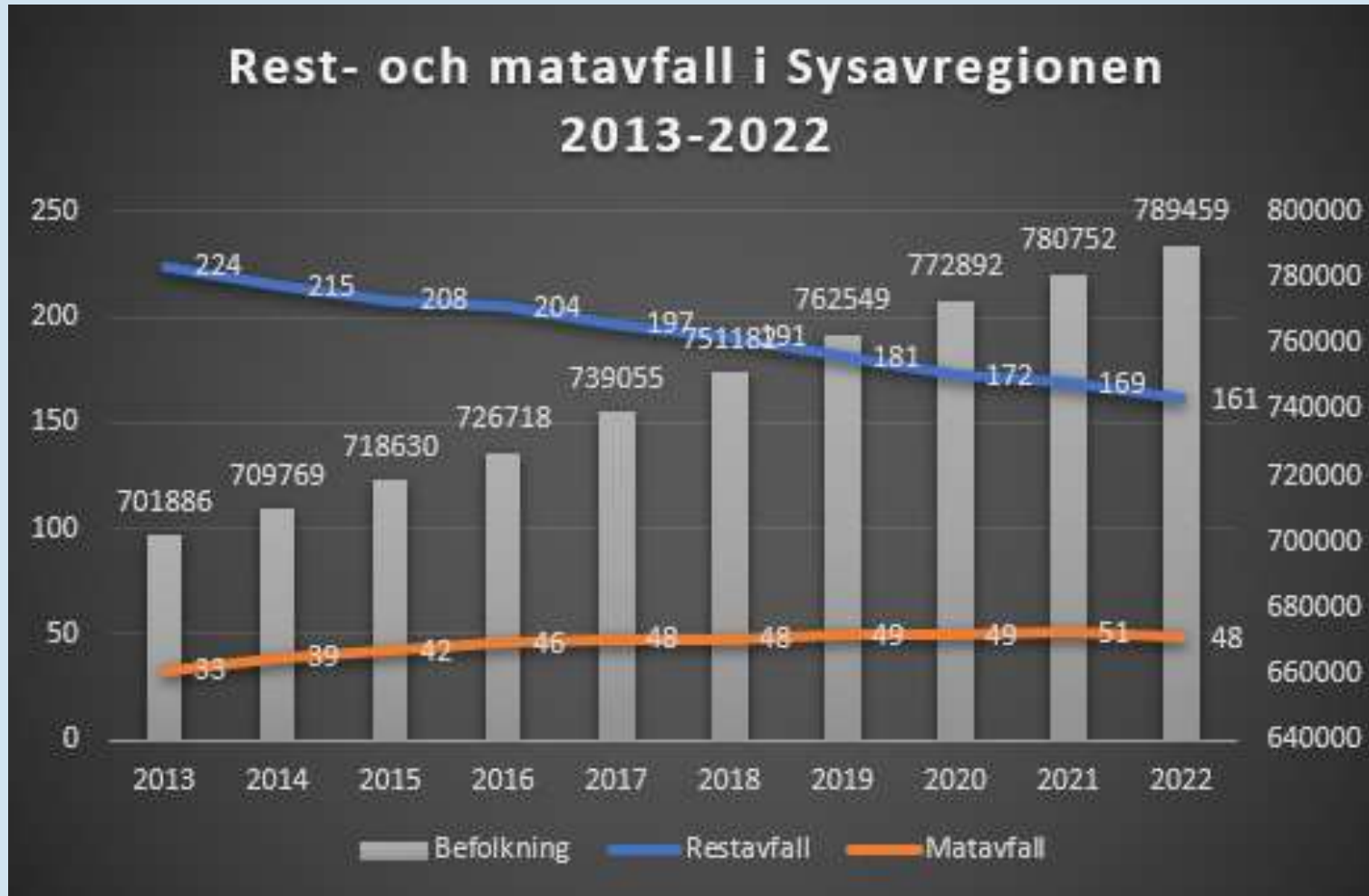
Waste Minimization

Less food to waste 30 % 2025

Less food to waste 50 % 2030

Residues and food waste

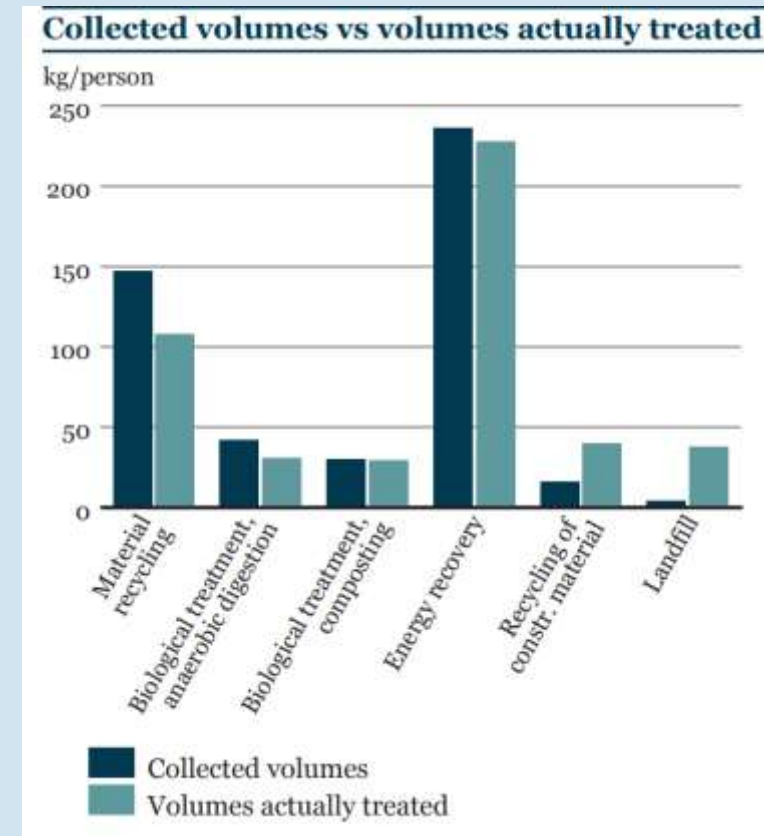
South Sweden



Swedish Waste Management

Household waste – per person and treatment method

- In total and average 475 kg per person
- 72 kg food waste sent to biological treatment
- 163 kg to materials send to recycling
- 236 kg sent for Energy Recovery
- 4 kg sent to Landfill




Plastic fantastic! Or not?


Bra plastförpackningar



Förpackningar med så få och små etiketter som möjligt.


Förpackningar som består av samma plastsort i alla delar av förpackningen.



Förpackningar med etiketter som täcker hela eller stora delar av förpackningen.


Förpackningar där etiketten eller delar av förpackningen (t.ex. korken) består av en annan plastsort eller annat material.


Använd hellre ljus färg än mörk blått vid tryck på förpackningen.

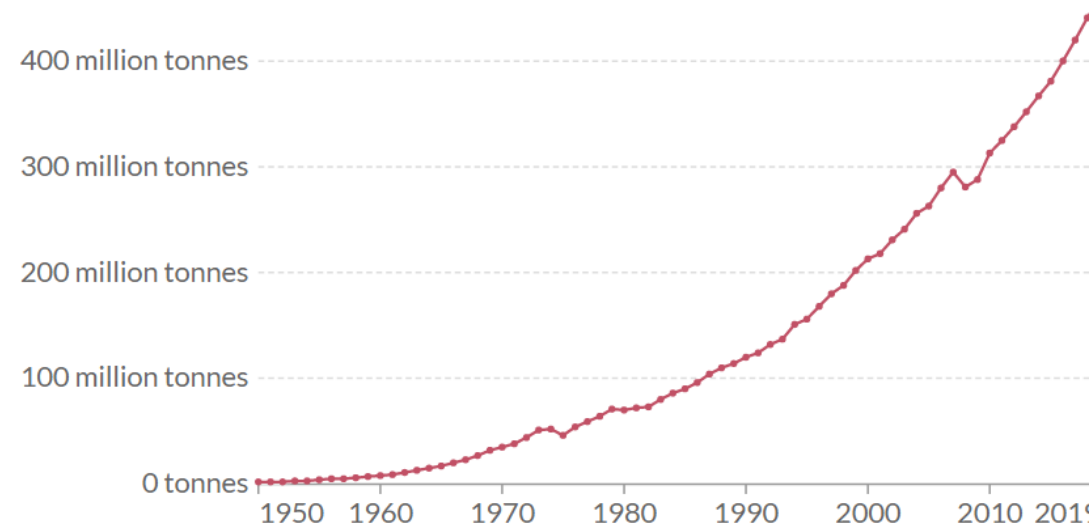

Förpackningar som är transparenta och ljusa är lättare att detektera.


Förpackningar med mörkt blått är svårare att detektera i vårt optiska system och kan även misstäckas som återvunna plastavfall.


Svart och mörk plast är svårt att detektera i vårt optiska system.

Global plastics production

Plastic production refers to the annual production of polymer resin and fibers.

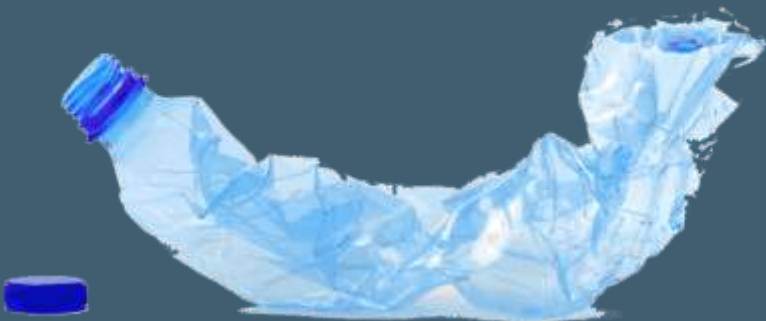


Source: Our World in Data based on Geyer et al. (2017) and the OECD Global Plastics Outlook
[OurWorldInData.org/plastic-pollution](https://www.ourworldindata.org/plastic-pollution) • CC BY

▶ 1950

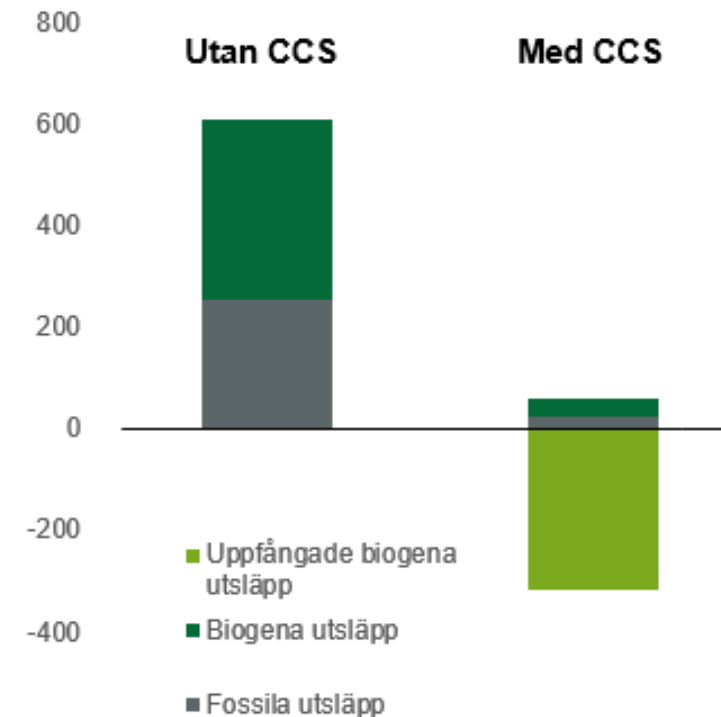
Actions for reducing plastics

- Communication and Awareness
- Sorting at the source
- Differentiated treatment fees
- Sorting facility after collection for removing plastics



Carbon Capture Utilization and Storage

Koldioxidutsläpp och inlagring med och utan CCS



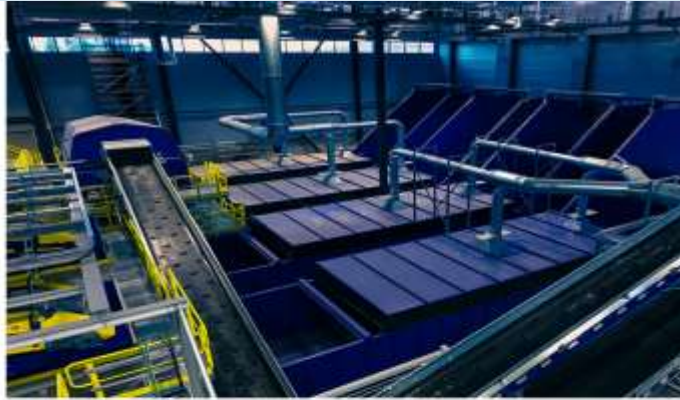


Example 1 Textile sorting facility South Sweden

- **Capacity:** 4,5 tonnes per hour
(24 000 tonnes/year)
- 16 different fractions
- ReFab by Sysav – sorted
textiles with quality checked
fiber content
(95% light cotton)

Example 2

Plastics sorted from unsorted residues



Brista- sorting facility, Stockholm, Sweden

- 10 000 tonnes of plastics sorted
- 2 500 tonnes of metals
- Small amount of food waste

Recycling rates

Metals	70-80 percent
Plastics	30-40 percent



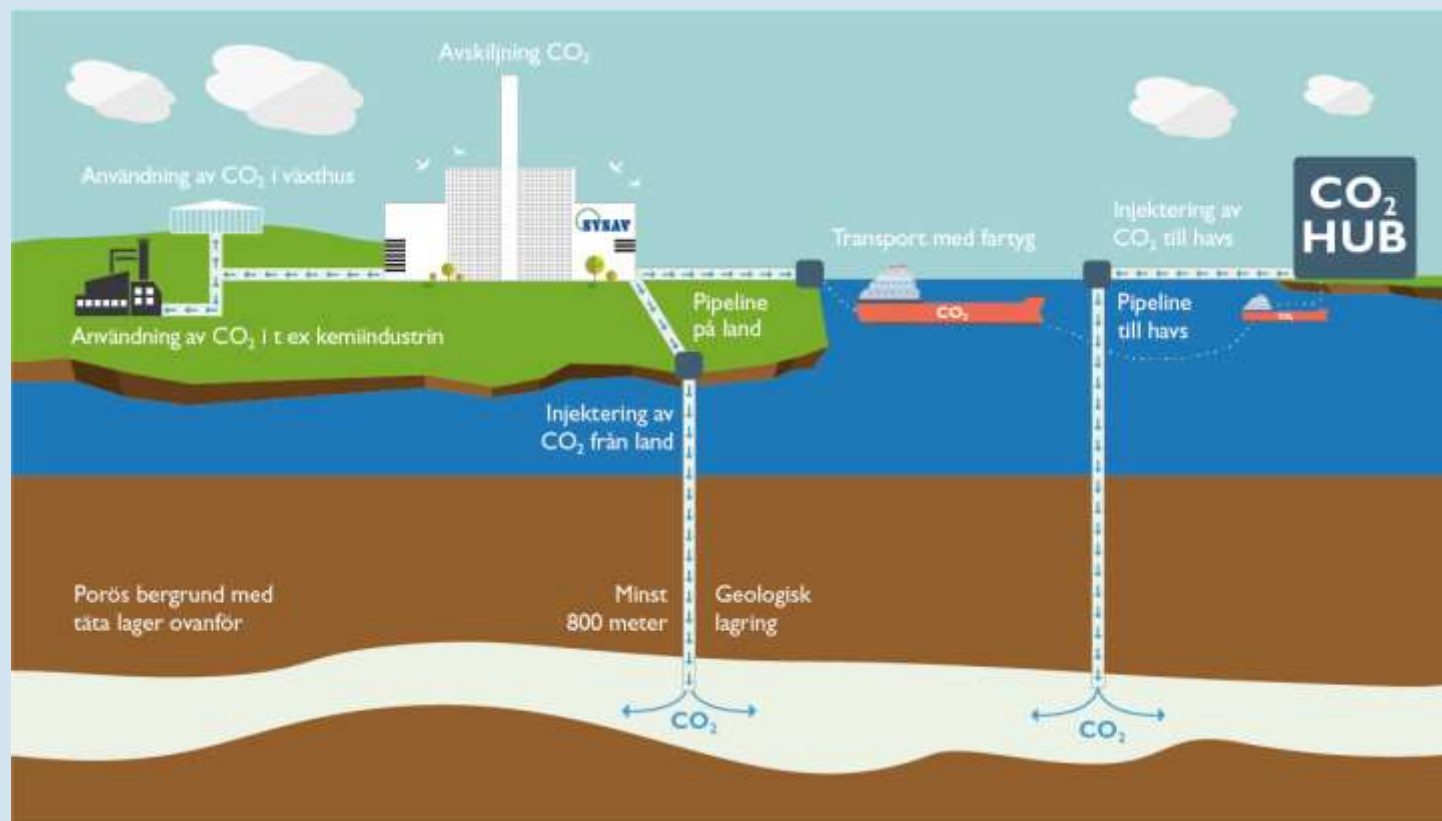
Example 3

Sorting of packaging and plastics from residues

Site Zero, Motala Sweden

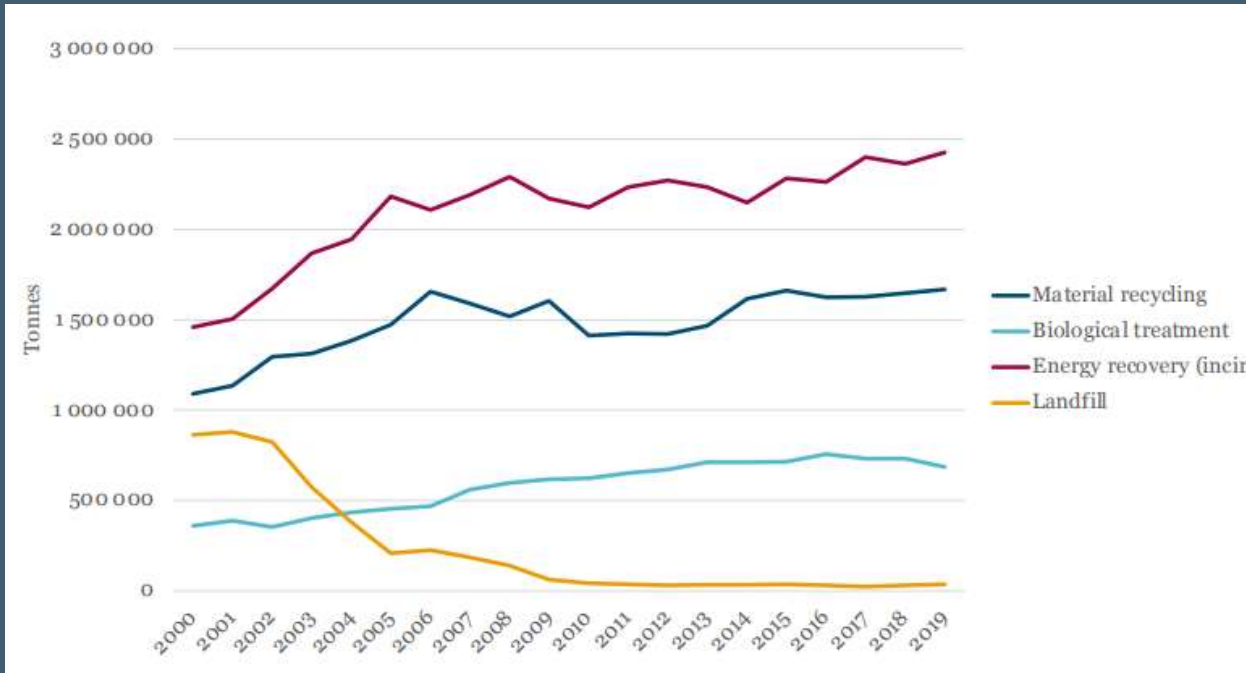
- 20 000 tonnes of plastic packaging for recycling 2021
- Recycling rate - 18,1 percent
- Special line for treating sorted plastics from the residues from ex. Brista-facility

Carbon Capture Storage/Utilisation



The Swedish Model

Recycling goes "hand in hand"



Sweden – less than 1 percent to landfill of household waste.


Energy recovery, biological treatment goes hand in hand with recycling, as not all waste can be recycled.

Success factors

- Clear responsibilities
- Legislation
- Engaged Citizens

3

Climate Mitigation and Waste Management

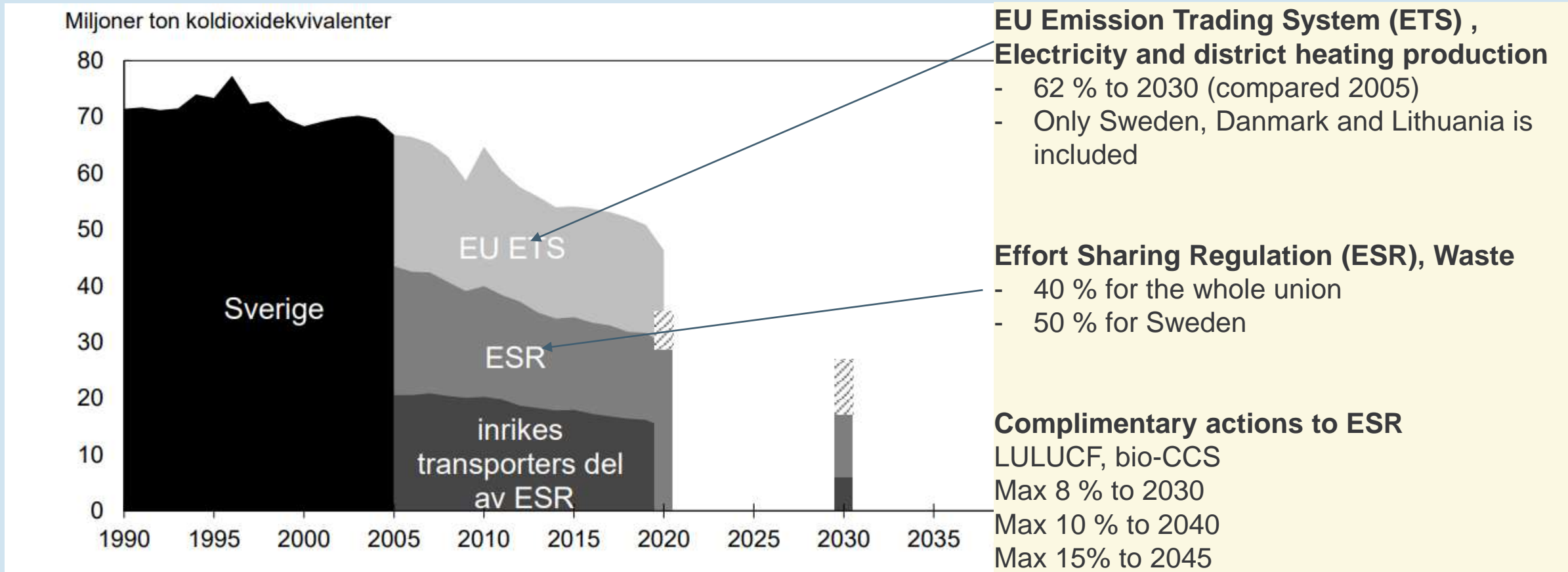
A stylized graphic of a globe on the left side of the slide, showing the outlines of continents in a light blue color against a darker blue background.

Sysav, Sweden Climat positive 2030

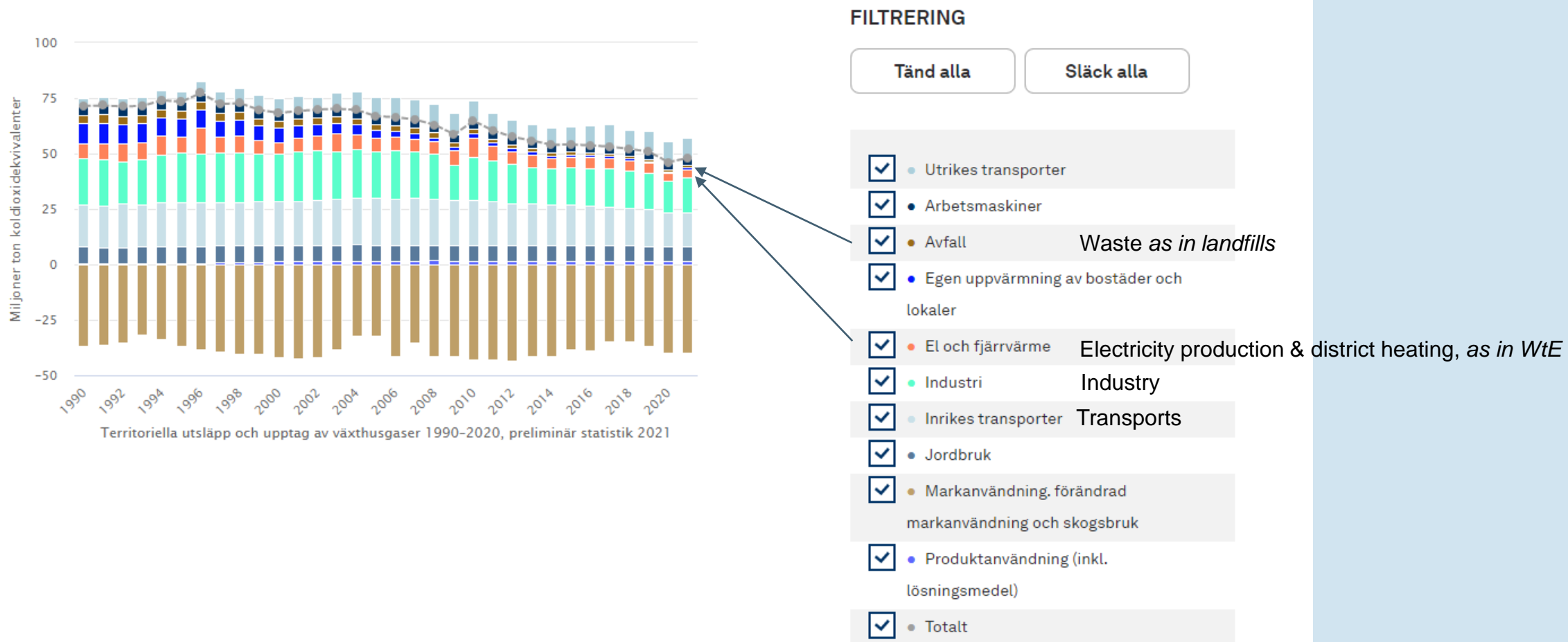
“We will not only become climate neutral until 2030, we are going to deliver negative emissions by then.”

Climate targets in the Sweden and European Union

European Union shall decrease carbon emissions with at least 55 % to 2030 (compared to 1990)
Sweden aims to be climate neutral 2045

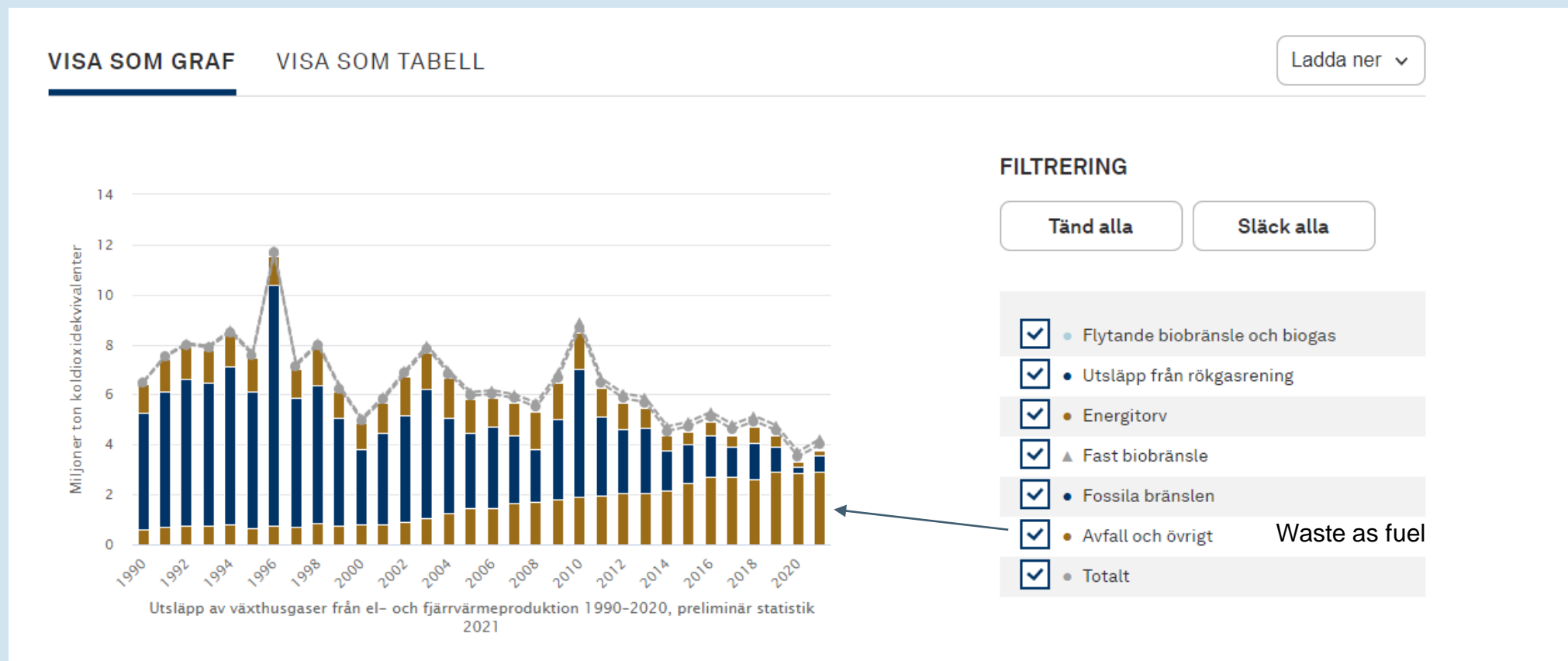


CO2 from waste and energy recover



Electricity and District heating

Fossile origin in waste has not decreased, it has increased



A woman wearing a blue hard hat with the SYSAV logo and the name 'LIRI KYLHAMMAR' on it, and safety glasses, is looking intently at a control panel in a factory setting. The scene is dimly lit with a warm, orange glow from the panel. The background shows industrial equipment and a blurred figure of another person.

Concluding Remarks and Trends for the future

How to tackle Climate Change!

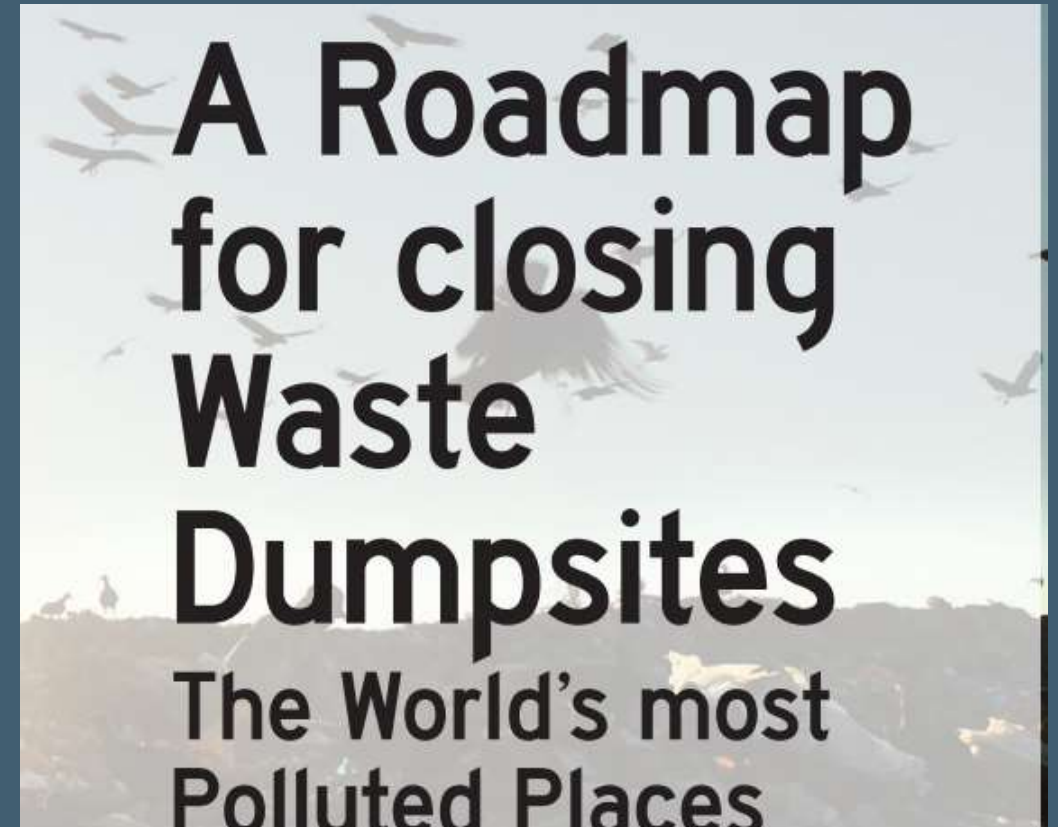
- Legislation and clear responsibilities
- Focus on methane reduction
- Stop open burning and open dumpsites
- Curbside collection at the source, sorting facilities for fine-tuning already sorted waste
- Qualitative recycling, Data research and Monitoring
- Communication,

The right to a clean healthy and sustainable environment is a basic human right.

Stakeholder in Plastic Pollution Treaty



Closing the worlds biggest dumpsites





THANK YOU!

for your attention!