



Plastic packaging - How do we get to where we want to be?

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Sustainable Solid Waste Management,**

Scope

Sponsored by the Leeds Social Sciences Institute via an Impact Acceleration Award in collaboration with Defra (UK)

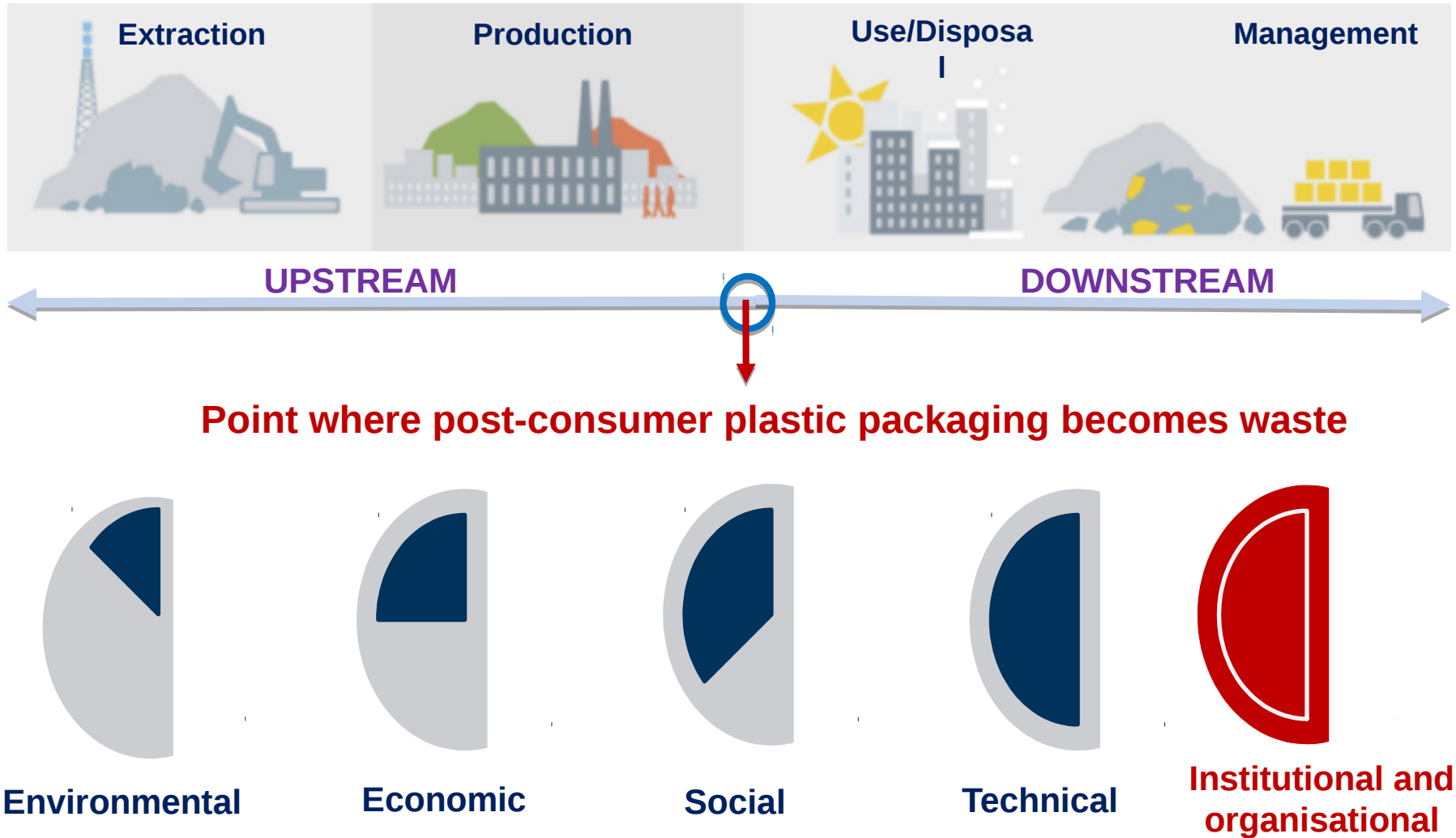


Department
for Environment
Food & Rural Affairs

To assess the plastic packaging waste system by:

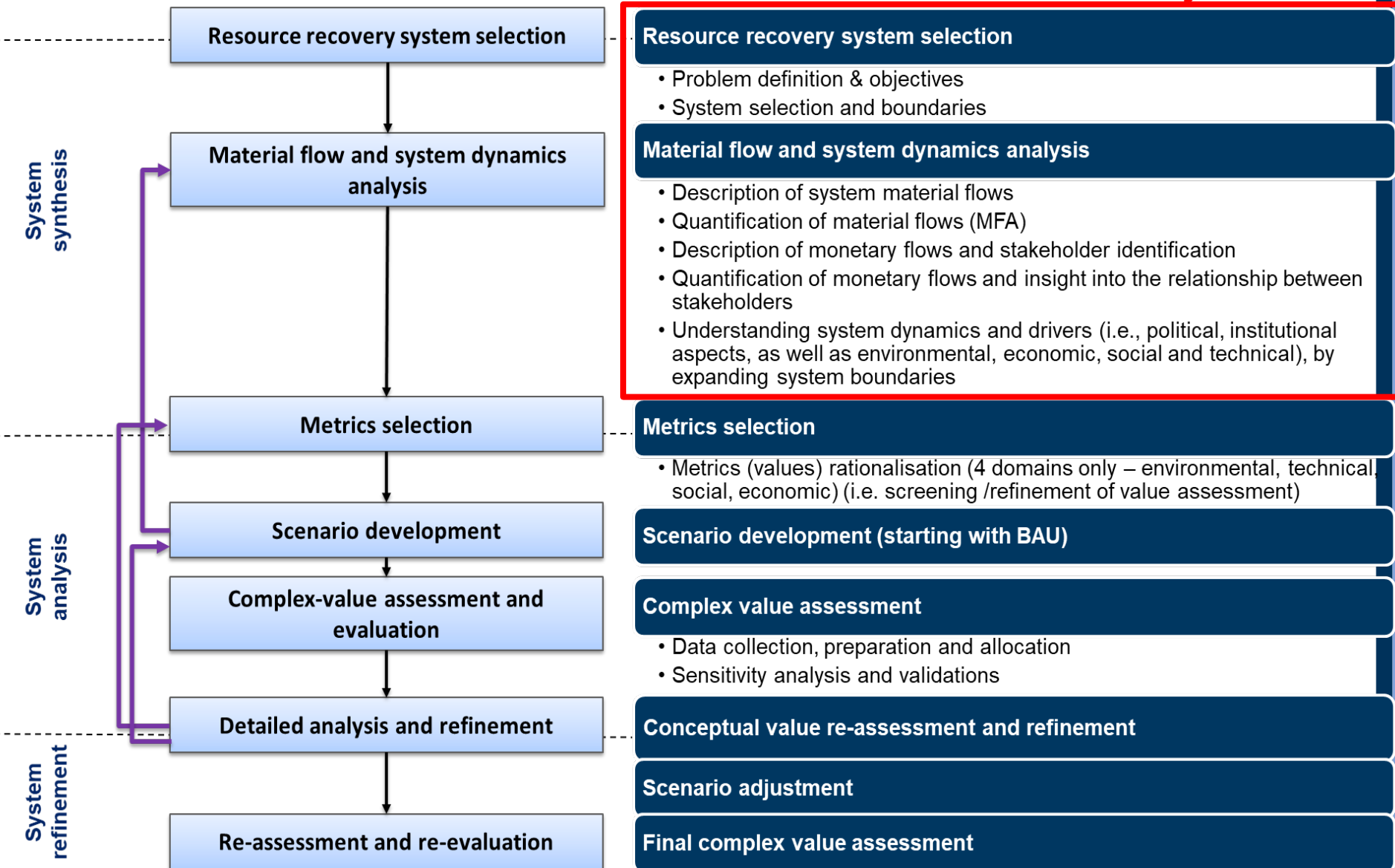
- Applying the **CVORR approach** to get an insight into system processes, actors and values
- Identifying the challenges in the plastic packaging waste system
- Rationalise value and identify/develop key strategic metrics for RR system assessment and monitoring

Whole systems analysis: the only way to bring change



The updated CVORR framework

CVORR baseline analysis



Resource recovery system selection

Problem definition and objectives:

UK to increase the:

- Recycling of plastic packaging waste to 70% by 2025,
- Average recycled content in all plastic packaging to 30% by 2025.

System selection and boundaries:

Plastic packaging system in England.

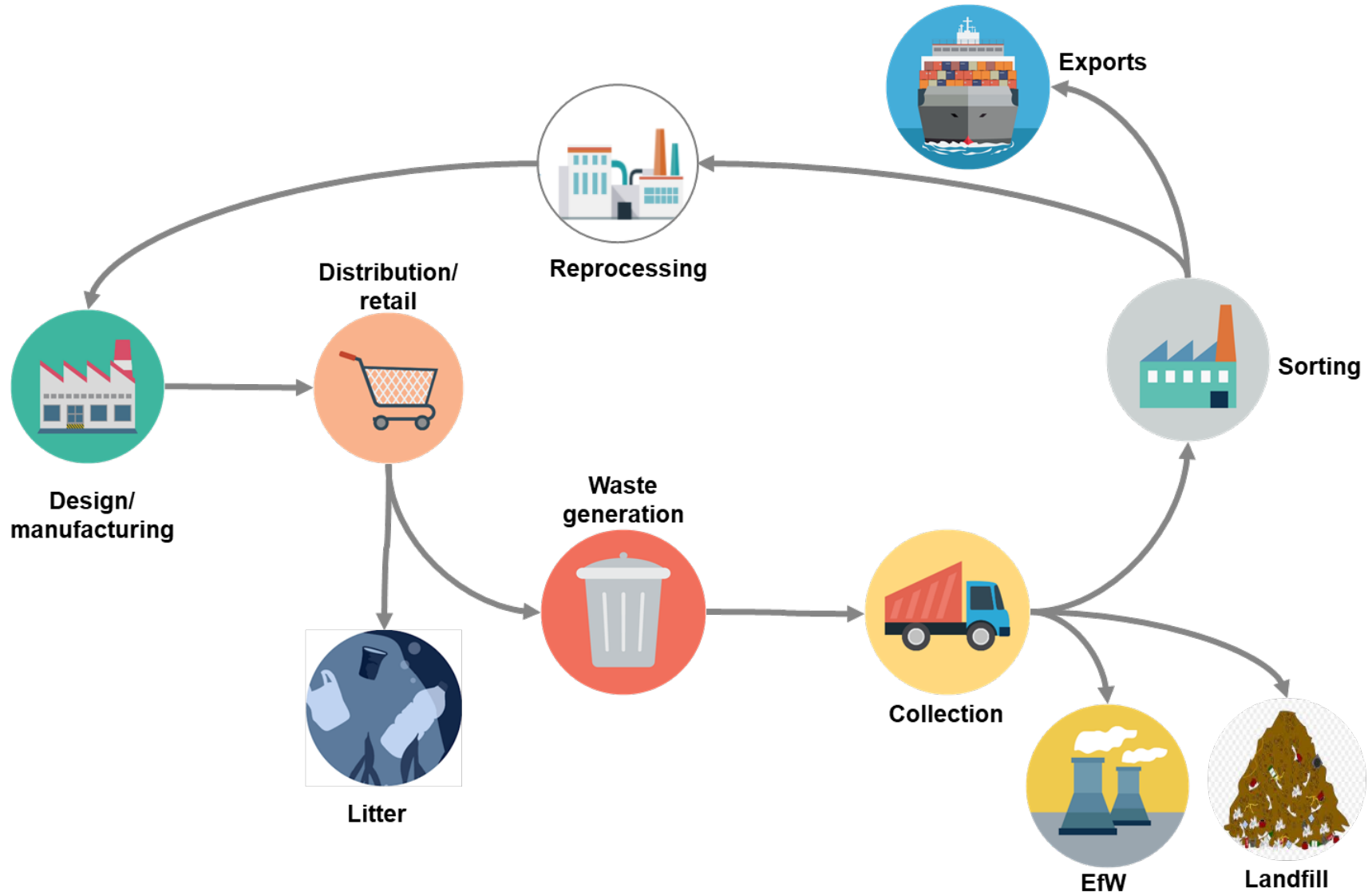
Focus:

Petrochemical-based plastic packaging that is collected by local authorities (LACMW)

Scope:

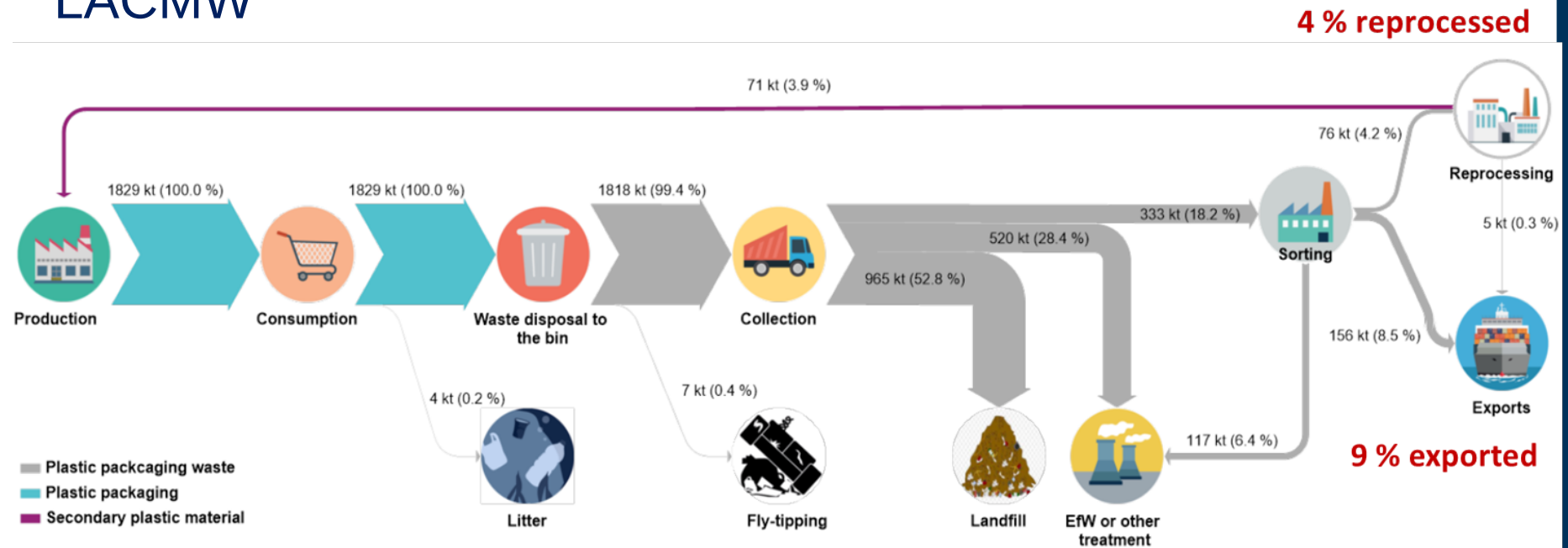
Propose metrics for its assessment and monitoring.

Description of system material flows



Quantification of material flows (i.e. MFA)

In 2010/11 around **1,829 kt of plastic packaging waste** was collected in England (incl. household and household-like), i.e. LACMW



- 18% of collected plastic packaging waste sent to recycling.
- 28% sent to energy from waste (EfW) facilities (incl. MBT), ~35% total.
- 53% disposed of to landfill.

Why is the recycling rate so low?

Multi-layered PET trays, sleeves and in-mould labels, use of different coloured polymers together; no information on recyclability of the product

Confusion over recycling – commingled/separate? inconsistency in the types of plastic packaging collected across England; collectors may refuse to collect plastic streams that are contaminated - rejection!

Contamination (designed and created) is often a problem; aging equipment; low innovation and capability of MRFs/PRFs to sort different types of plastic packaging

Cross-contamination of one polymer by another compromises the quality of the polymers sorted for reprocessing; changes the properties, affects recyclability and value.

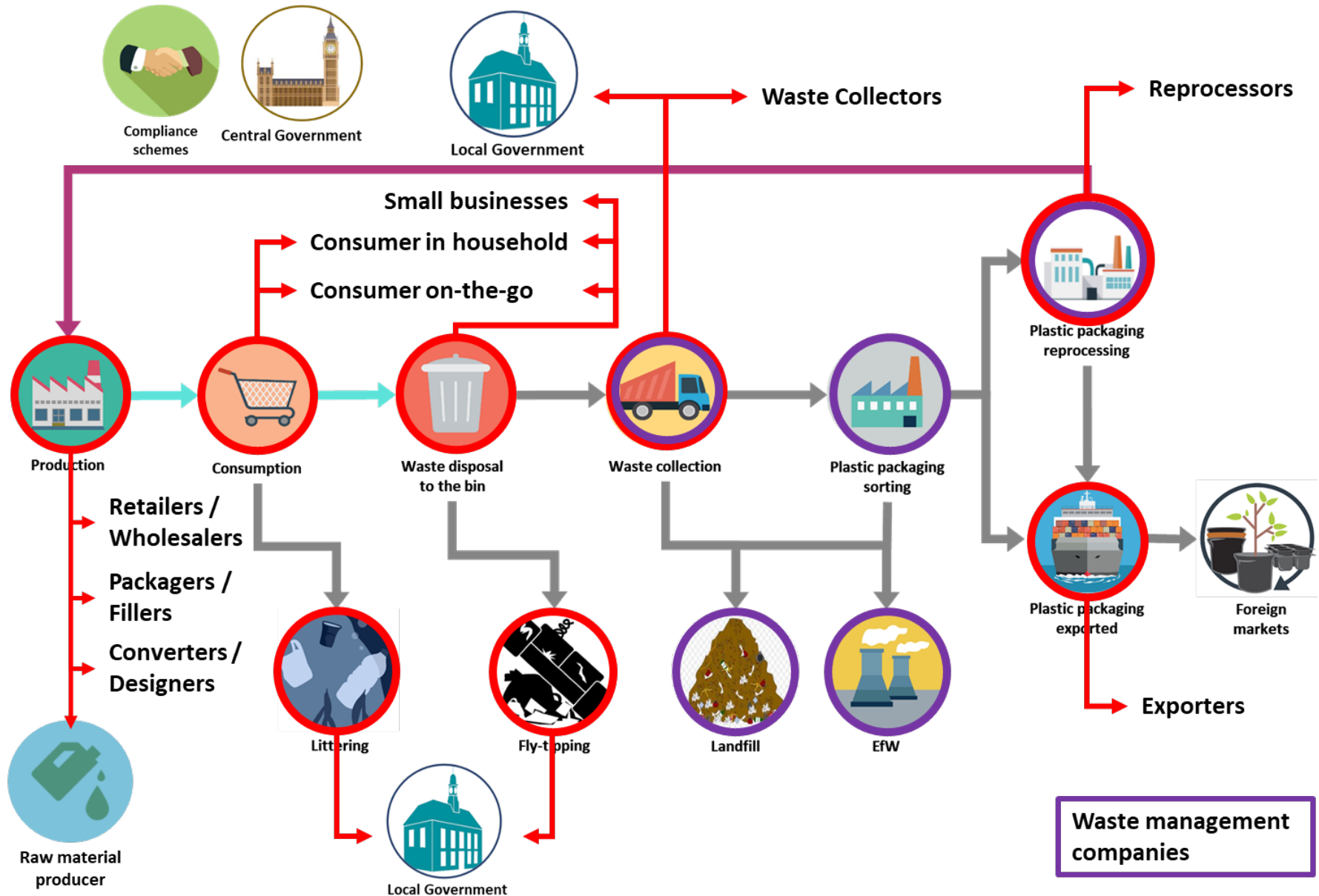
Design / production

Disposal / collection

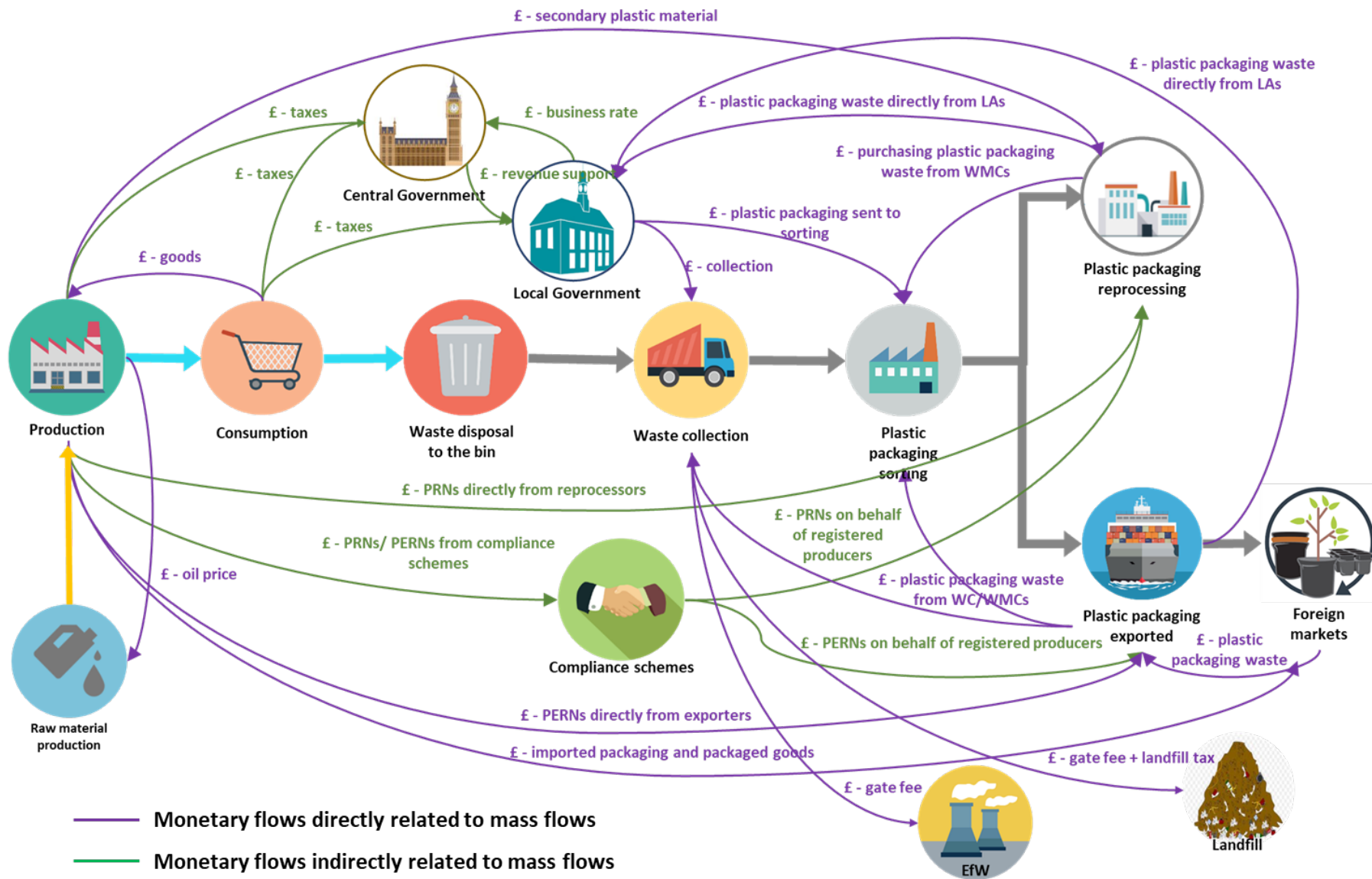
Sorting

Reprocessing

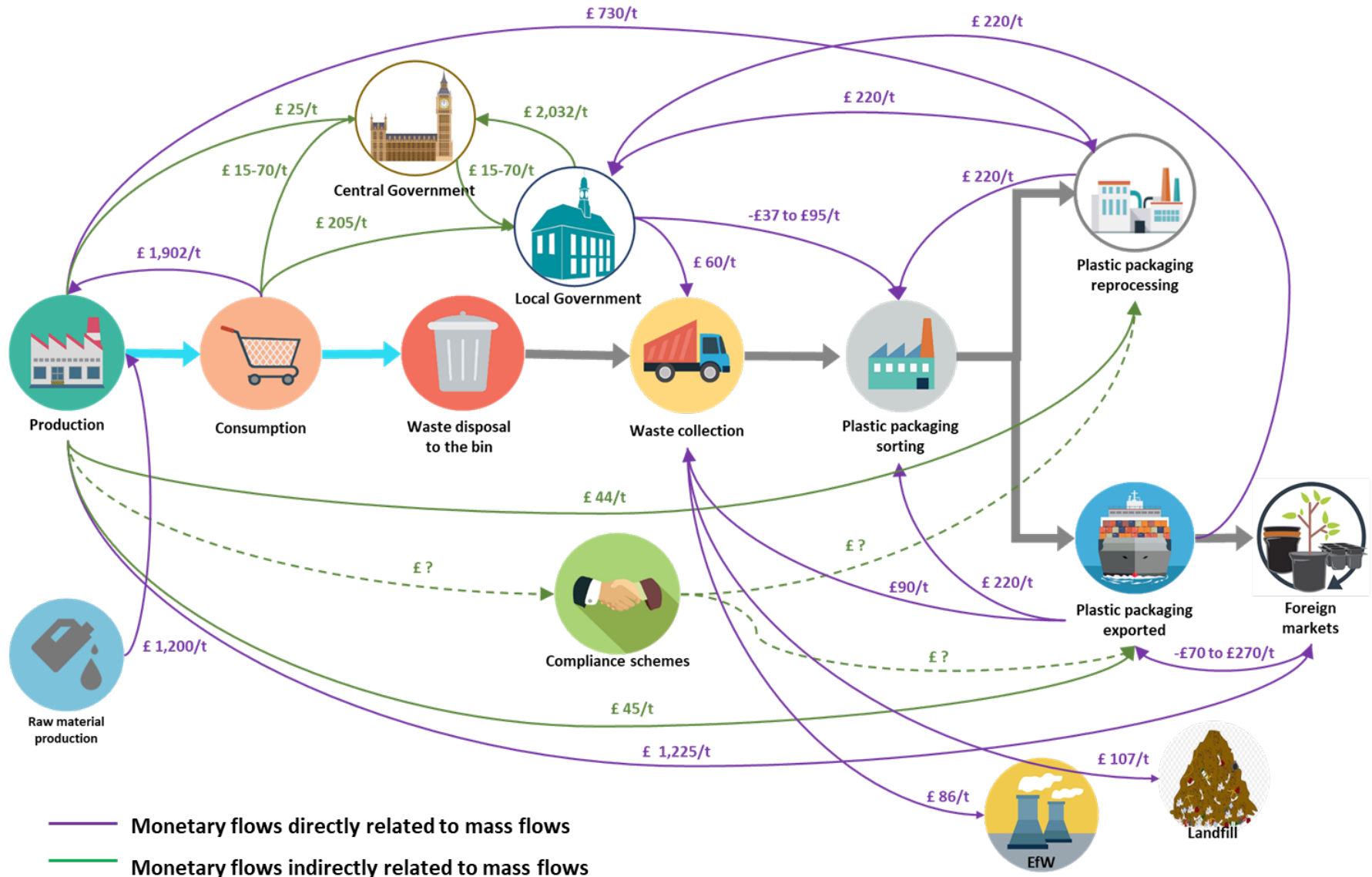
...and the stakeholders involved



Description of monetary flows



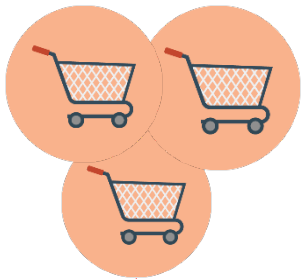
Quantification of monetary flows (per tonne)



So...

How do we get to where we want to be?

Reforms start from 'design / production'



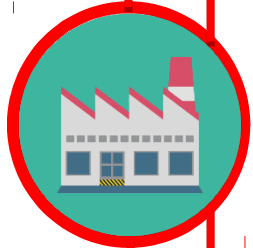
Products are designed for multinational markets

Changes in the form and rigidity of packaging could affect the functioning of internal markets and structures



Changes in the amount of materials used in the production – more resource efficient.

This can lead to material savings, and risks rewarding lighter but not necessarily recyclable materials. It may also increase sales thus leading to increased production.



Increasing the use of recycled plastic content in packaging

Increases demand in secondary plastic; requires sourcing of good quality plastic packaging waste.

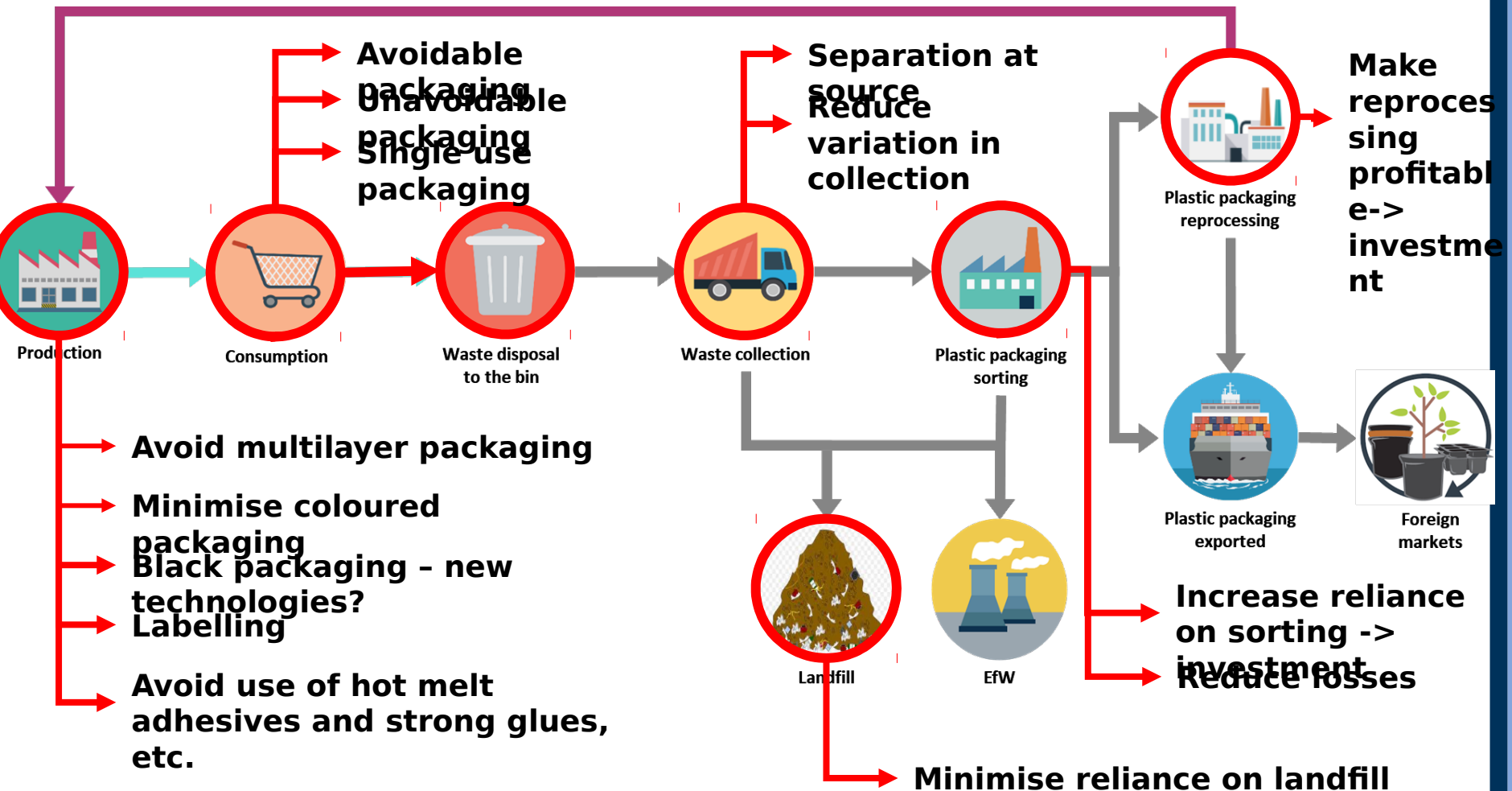


Introducing refills made from plastic sachets and laminates

Only viable where there is specialised collection, sorting and reprocessing facilities.

Focus on 'Design-Consumption'

...and also on 'Collection-Sorting-Reprocessing'



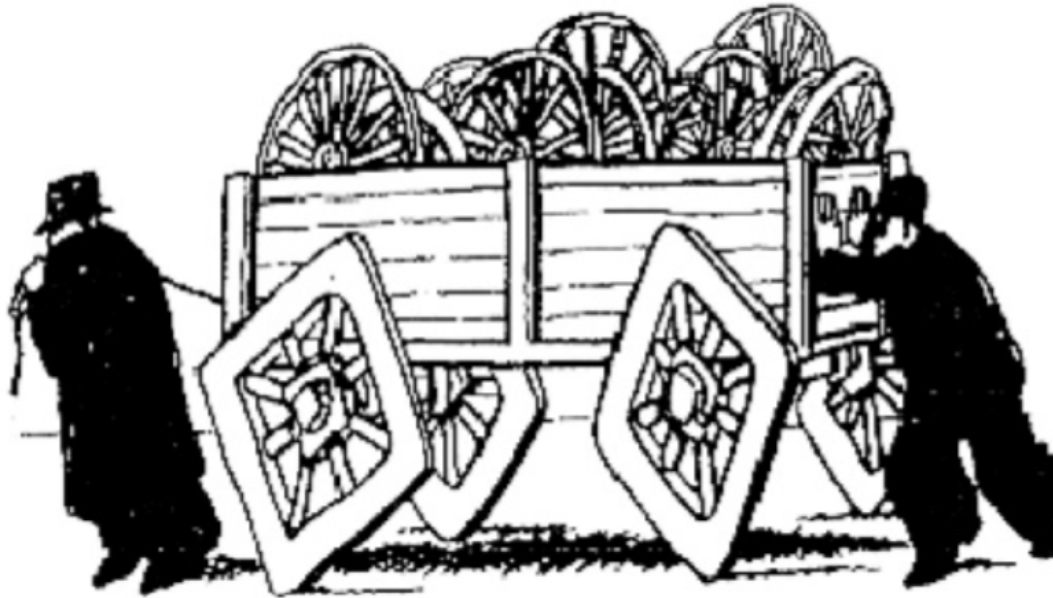
Feasibility check

- **What can be done in terms of design?** Role of markets, consumer purchasing decisions, and EPR in stimulating change, and of the plastic packaging tax.
- **Is there a good infrastructure to support the collection of plastic packaging waste either separately or commingled?** Investment to increase consistency in collection across LAs.
- **Is there enough capacity to sort and reprocess increased amounts of plastic packaging waste?** Investment to increase capacity – hand-in-hand with changes at collection and design.
- **Is there a strong secondary market domestically and internationally to increase demand of plastic packaging waste in the future?** Variable environment – new innovations and price volatility create uncertainty.

Take away messages

- ❖ Tighter environmental regulations in Europe and elsewhere, will require post-Brexit UK to make sure is ahead of the game.
- ❖ Building demand for recycled materials, government and businesses must reinvent their relationship, understand system complexity and make it economically feasible to build secondary materials demand.
- ❖ To connect the downstream with the upstream part of the plastic packaging value chain we need:
 - **Coordination across the value chain** to realise investments in collection and recycling activities, and technological innovation;
 - **Regulatory reforms** to influence changes in product design and manufacturing (i.e. packaging reforms);
 - use of **taxes and levies** on products (i.e. plastic tax), and **information based instruments** to raise consumer awareness and improve separation at households and minimise litter.

Thank you.



**“We don’t have time to change the wheels.
Push harder, Harry!”**

**Running the system harder will not bring change
- we need to change the wheels!**