Resource Efficiency, Extended Producer Responsibility and Producer Ownership

A presentation to the Annual Symposium of the Greening Growth Partnership and Economics and Environmental Policy Research Network

By

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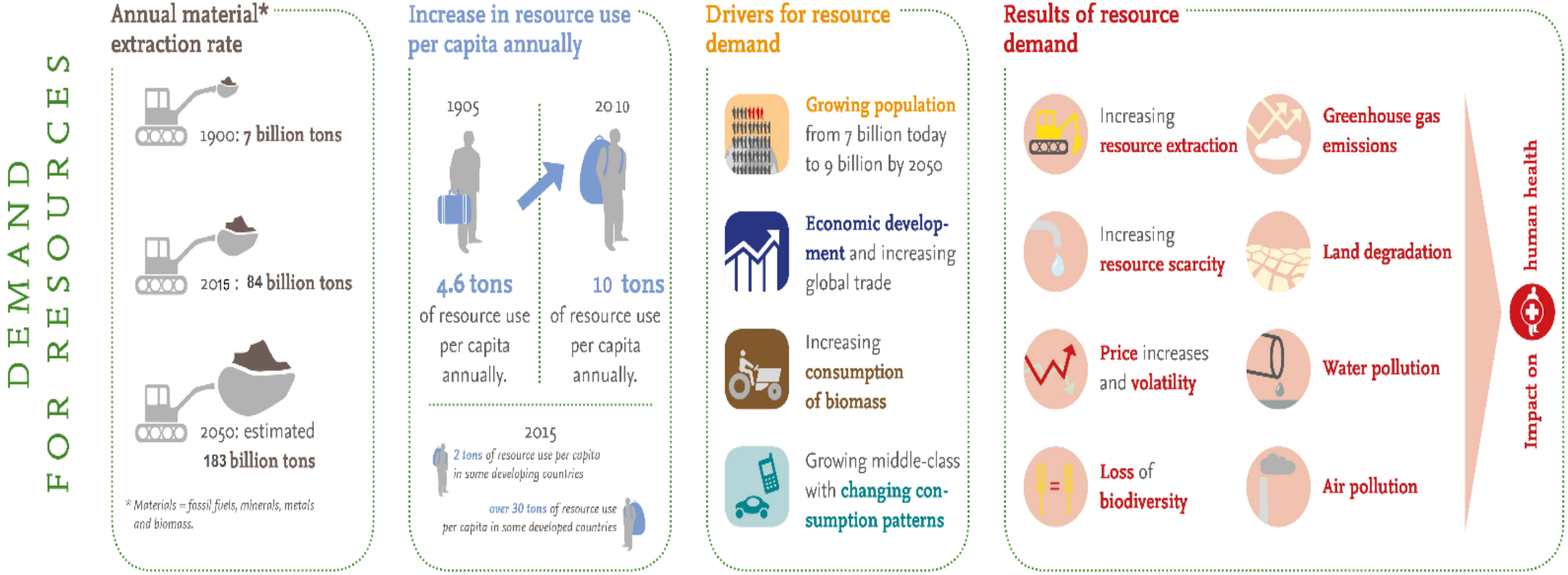
The imperative of increasing resource efficiency

International Resource Panel



The promise of double decoupling

International Resource Panel

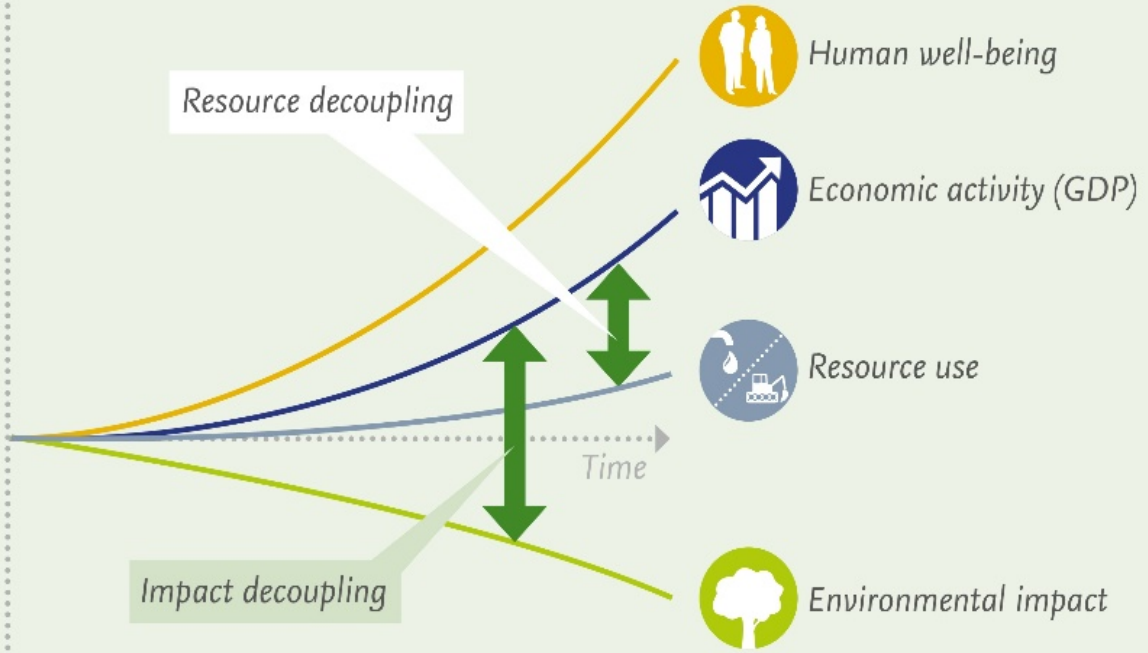
INNOVATIVE SOLUTION

How can we protect the environment, reduce poverty and maintain economic growth?

By Decoupling: breaking the link between resource use and economic growth

Using less land, water, energy and materials to maintain economic growth is: Resource decoupling

Using resources wisely over their lifetime to reduce environmental impact is: Impact decoupling



Key messages from the Summary for Policy Makers

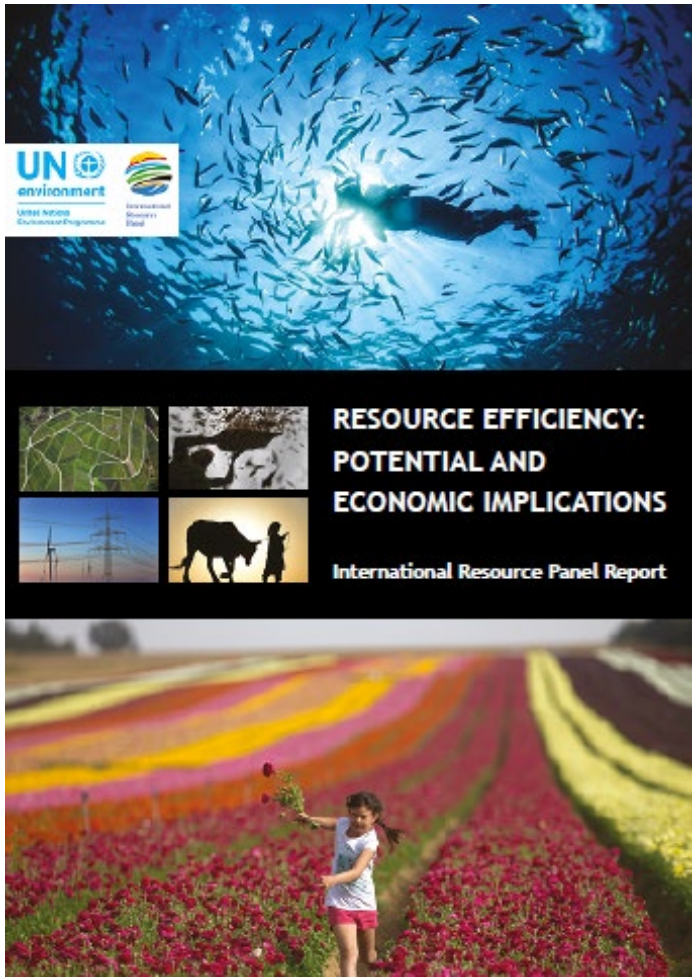
http://www.unep.org/resourcepanel/KnowledgeResources/AssessmentAreasReports/Cross-CuttingPublications/tabid/133337/Default.aspx

Headline Message:

"With concerted action, there is significant potential for increasing resource efficiency, which will have numerous benefits for the economy and the environment"

By 2050 policies to improve resource efficiency and tackle climate change could

- **reduce global resource extraction** by up to **28%** globally.
- **cut global GHG emissions** by around **60%**,
- boost the value of **world economic activity** by **1%**



How to increase resource efficiency?

Waste/resource management focus

- Make it easier to recycle materials by differentiating between wastes and recyclables (definition of waste, by-products)
- Increase the quality of collected recyclates (separate collections)
- Create markets for recycled materials through product specifications and green public procurement (standards and regulation)
- Ban the incineration of recyclables
- Facilitate industrial clusters that exchange materials while they are still resources to prevent them from becoming wastes (industrial symbiosis)

Consumer focus

- Require separation of wastes (create recycling habits)
- Provide facilities in buildings (make recycling easier)
- Incentivise waste reduction and high-quality separation by consumers (e.g. variable waste charging, or Pay As You Throw)
- Incentivise separation and collection systems that reduce the costs of recycling and re-use (e.g. deposit-refund schemes)

- **These approaches encourage better waste management, more recycling, not waste prevention, which is at the top of the waste hierarchy**

How to prevent waste?

Producer/product focus

- Increase the time material products deliver their service before becoming wastes (product durability)
- Reduce the quantity of materials required to deliver a particular service (light-weighting)
- Increase the amount of information available about what materials are in products, and where (product passports)
- Reduce the use of energy and materials required both to produce a product and in its use phase (eco-design, efficiency regulations)
- Reduce the use of materials that are hazardous or difficult to recycle or dispose of (substitution)
- Design products that are easier to recycle (eco-design)
- **But producers have little or no incentive to implement these changes**
- **Regulation is part of the answer**
- **More fundamental – and effective – could be a change in the rules of material ownership**

MEET CELESTE AND RESHAD

They have just moved into their dream home and bought all sorts of stuff: computer and TV, washing machine, clothes, the usual.

After a few years they find themselves the proud owners of ……

100 KG TEXTILE WASTE

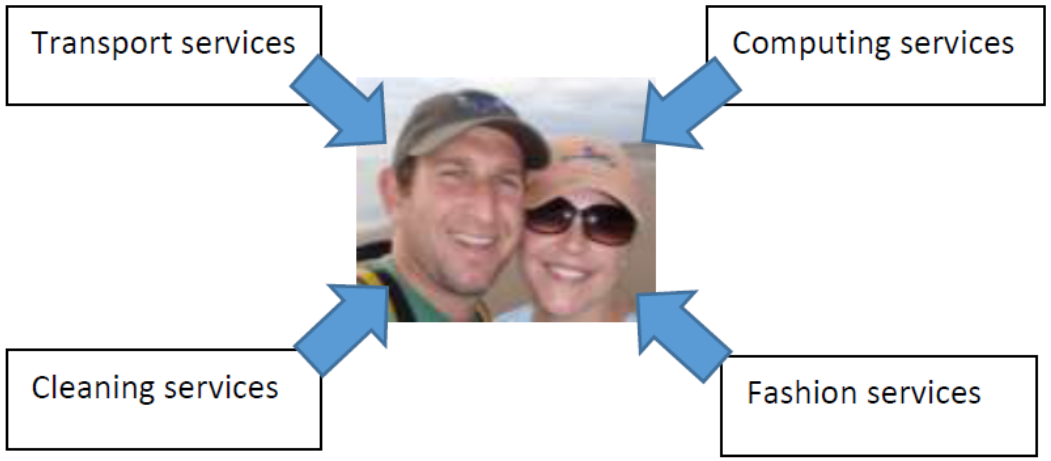
75 KG PLASTIC WASTE

75 KG METAL WASTE

50 KG ELECTRONIC WASTE

When consumers are responsible for end-of-life materials

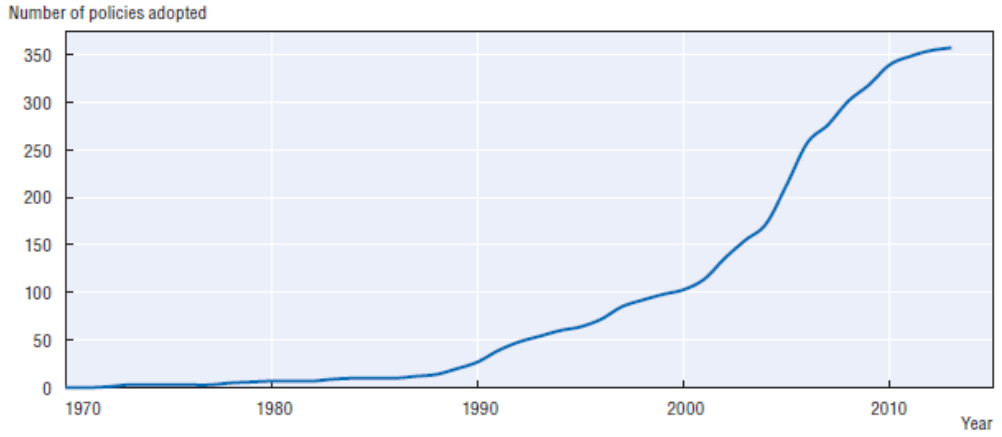
- Celeste and Reshad are not interested in owning piles of plastic, metals and textiles – they are interested in the services they provide
- The waste materials have zero or negative value to them
- They do not know exactly what materials are in their products
- Nor do they have any say in how the companies design their products
- And yet they are required to take responsibility for how they are disposed of
- Waste is ultimately passed to the remediation authority in a disordered and hard-to-recycle state, making waste management expensive, and 100% recycling virtually impossible



How to change this situation?

Enter Extended Producer Responsibility

Figure 1.2. **Cumulative EPR policy adoption globally, 1970-2015**



Source: OECD (2013), *What have we learned about extended producer responsibility in the past decade? – A survey of the recent EPR economic literature*, Paris

Figure 1.3. **EPR by product type, worldwide**

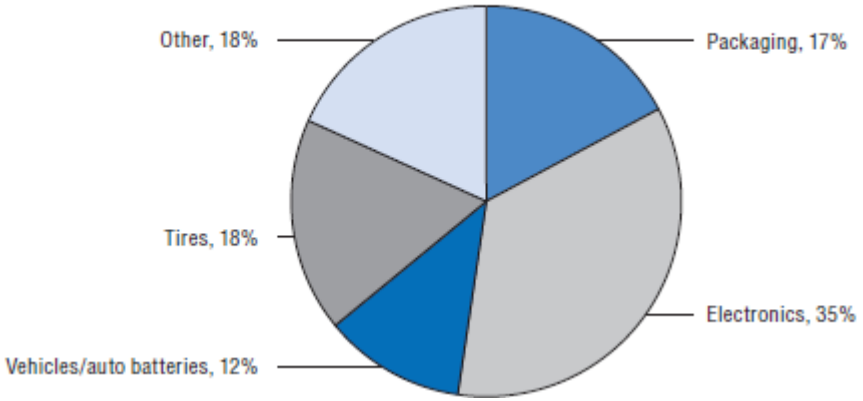


Figure 1.5. **Regional Distribution of EPRs**

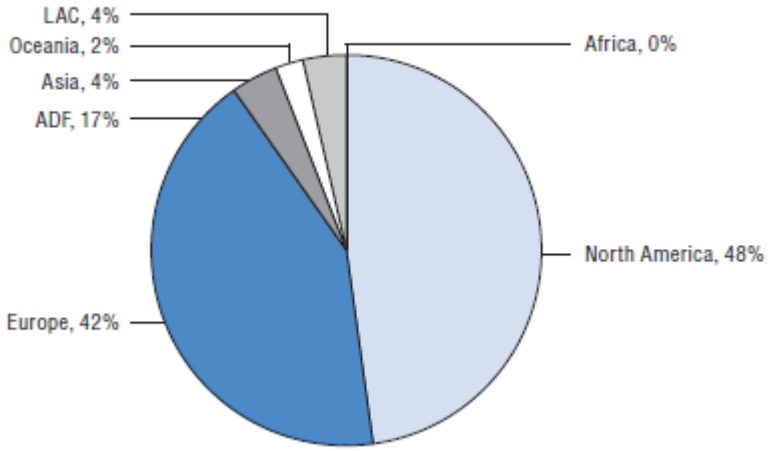
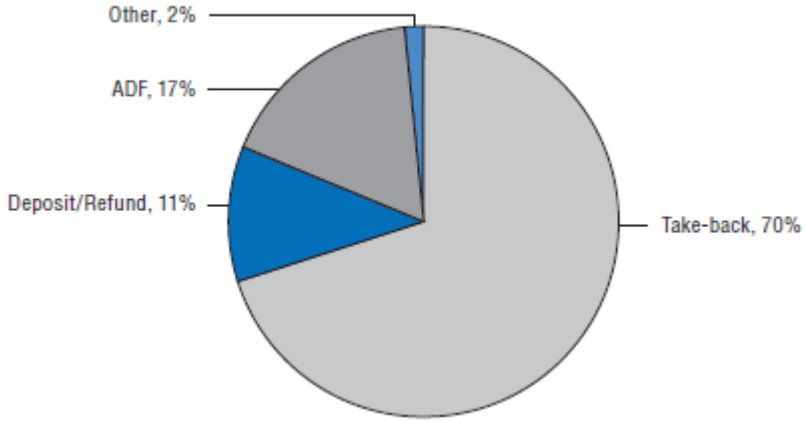


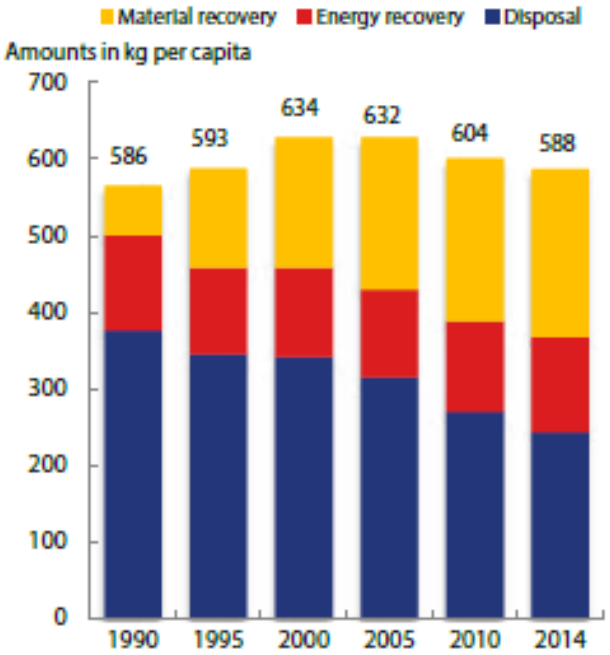
Figure 1.4. **EPR by Policy, worldwide**



But …..

- EPR policies are implemented in a multitude of different ways – they may be mandatory or voluntary; involve individual or collective responsibility; entail physical, organisational, financial or informational responsibility; use economic, administrative or informational instruments
- EPR policies have not reduced waste
- EPR policies have not incentivised up stream design to make products easier to repair, re-use, re-manufacture, or re-cycle
- EPR policies typically do not cover the full cost of end-of-life collection, treatment and disposal
- EPR policies leave much to be desired in terms of governance, transparency and enforcement

Municipal waste management, recovery and disposal rates, 1990-2014



Source: OECD (2016), "Municipal waste generation and treatment", OECD Environment Statistics (database).

Introducing product ownership

https://www.systemiq.earth/resource-category/making-materials-work-for-life/

The big idea: a policy whereby manufacturers retain the legal ownership of the materials in products, and thus the responsibility for them at the end of their lives

This policy would: create a legal framework and a commercial incentive that actually rewards innovative solutions for resource efficiency and the circular economy.

This is because the cost of reclaiming the materials at end of life would need to be applied to the product by the manufacturer. The more the manufacturer can minimise this cost by reducing in advance the cost of waste management, the more cost competitive their product will be. This will encourage innovative solutions like design for recycling, modular designs.

Incentivising circular economy business models

Changing the cost structure of materials management, as well as the challenges of achieving reverse logistics, will also encourage innovative business models, such as deposit return and leasing / service models. These in turn could see companies developing new and better relationships with customers throughout the usage lifetime of a particular product, and beyond.

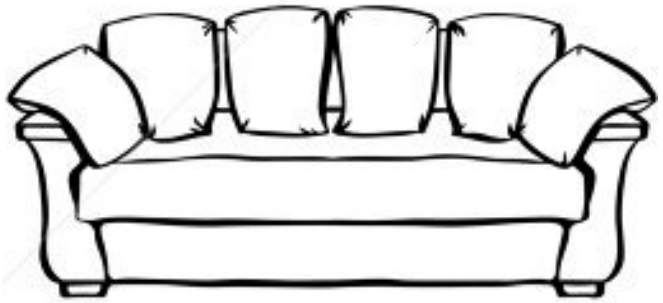
Producers will demand more and better information from their supply chains

It may also stimulate additional economic activity and value-added in materials management supply chains.

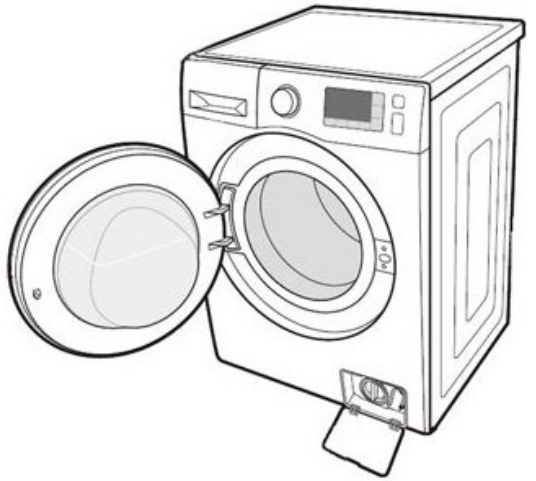
It will substantially reduce costs of publically funded waste management

The net costs to the consumer are likely to be negative, because the incentives are now driving those best placed to make innovative, and therefore lowest life-cycle cost, innovations.

DEPOSIT REFUND



DEPOSIT REFUND OR STAGED PAYMENTS & UPGRADE OPTION



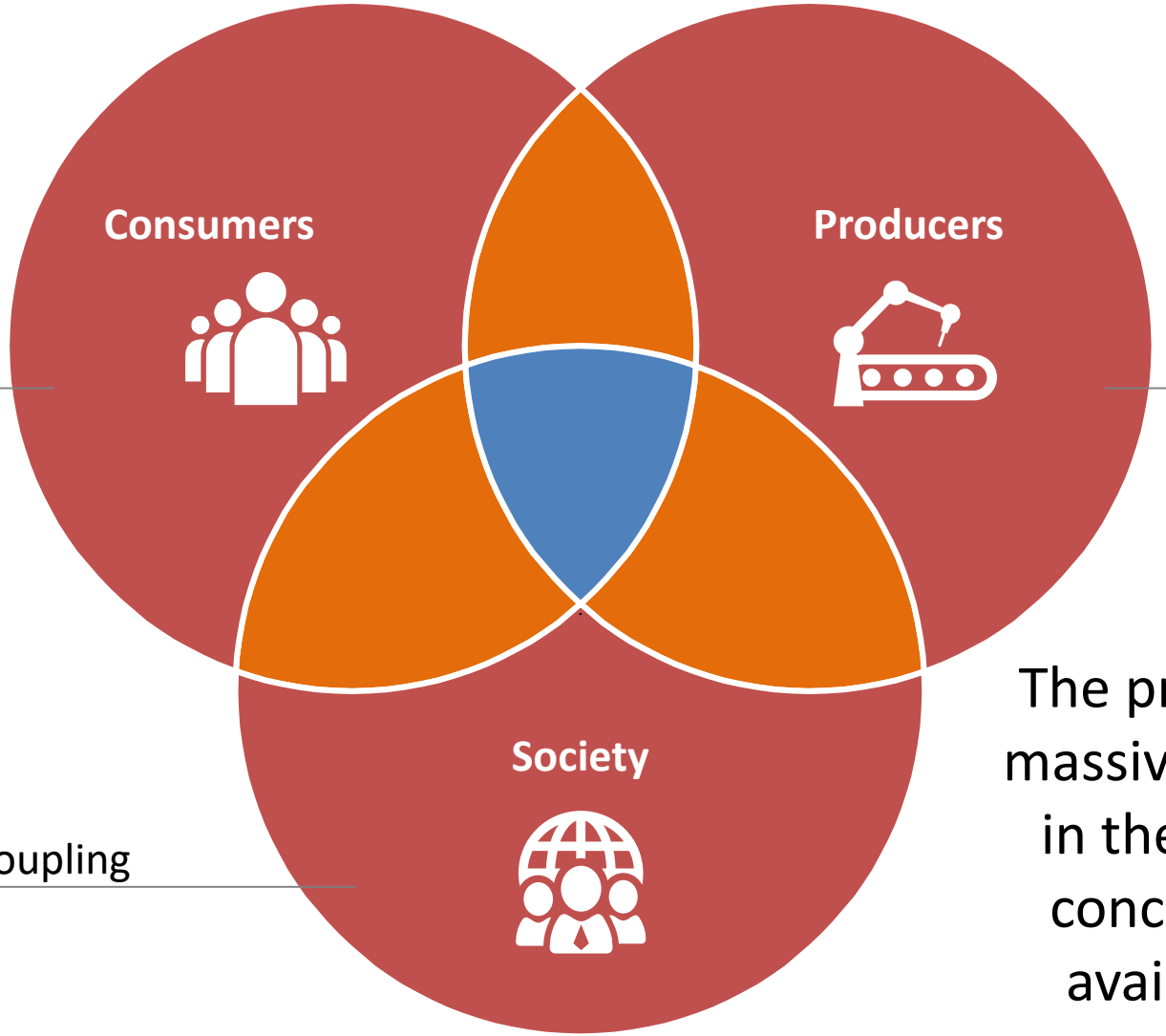
SERVICE CONTRACT

Producer ownership would mean that when companies put products on the market, they are actually selling the lifetime services of the products, but retaining ownership of the materials in the products.

From the perspective of consumers, companies will be saving them from the burden of their waste.

This policy would align the incentive for delivering true circular economy innovations with those in the best position to do so – the manufacturers of the products themselves.

- Better products
- Lower waste fees



- New business models
- Secure high quality materials and value chain

- Resource and impact decoupling

The product ownership model is a massive opportunity for businesses in the current context of greater concern about natural resource availability and environmental degradation.

Source: SYSTEMIQ

Examples

Goods as Service

- Rental/leasing services
  - Caterpillar
  - H&M

Chemicals as Service

- Royal Haskoning BV

Function Guarantees

- Lifelong Guarantee
  - Craftsmen tools
- Takeback schemes
  - Palpa

Performance as Service

- (Public) transport subscription
- Rolls Royce

Support businesses

- Asset management or maintenance (upcycling/repair/remanufacturing)
  - Caterpillar
  - Local repair shop
- Sharing platforms
  - AirBnB
  - Fat Llama

Outstanding questions (1)

- **Materials and Products:** What are the main material flows through the economy, and how these are related to different industrial sectors and product groups, what proportion of them are imported and exported, their rates of reuse, recycling or recovery, and the environmental implications of their production and current means of disposal?
- **Producers:** What are the different materials in products, what are their value and supply chains (domestic and foreign), their employment and value-added, their logistic arrangements, the fate of their end-of-life products, and their life-cycle resource and environmental implications? How might this change under Producer Ownership schemes?
- **Existing Materials Policies:** How would Producer Ownership interact with existing materials management policies, especially EPR? What new complementary policies might be required to accelerate moves towards circularity?

Outstanding questions (2)

- **Definitional and Legal Issues:** What are the legal implications of a change in the formal ownership of the materials in products? How might definitions of waste need to be changed to enable companies more easily to re-purpose their products or the materials in them? New business models under Producer Ownership policies may generate large amounts of data about consumers – what are the legal and ethical implications of this?
- **Consumers:** What would be the consumer reaction to Producer Ownership? Would be policy be perceived as leading to costs (e.g. the upfront charges that producers might make in order to incentivise the appropriate return of the materials) or benefits (e.g. freedom from the costs and responsibility of organising waste disposal in other ways, more durable and longer-lasting products that can be more easily repaired, reductions in taxation as waste management was funded by companies rather than local government)? How would these costs and benefits be distributed across different social groups.

Resource efficiency makes environmental and economic sense.
But it doesn't happen if the incentives aren't right

Product ownership could create the right incentives for producers and consumers

Thank you

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www.bartlett.ucl.ac.uk/sustainable