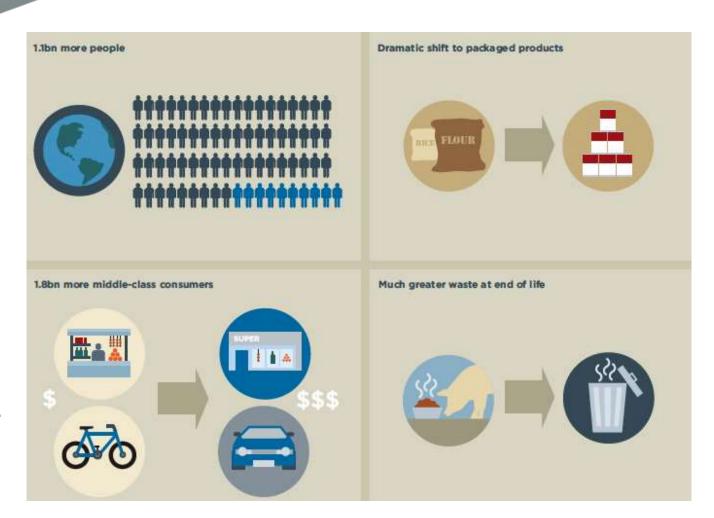




Unsustainable Consumption Rates Global

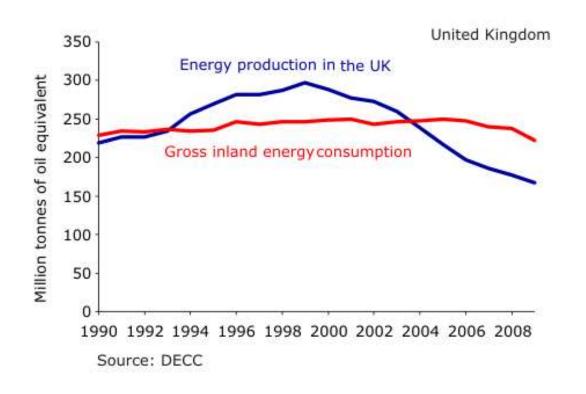


- +24% caloric consumption
- +57% food spending
- +47% packaging
- +47% end-oflife materials



UK Energy Production and Consumption

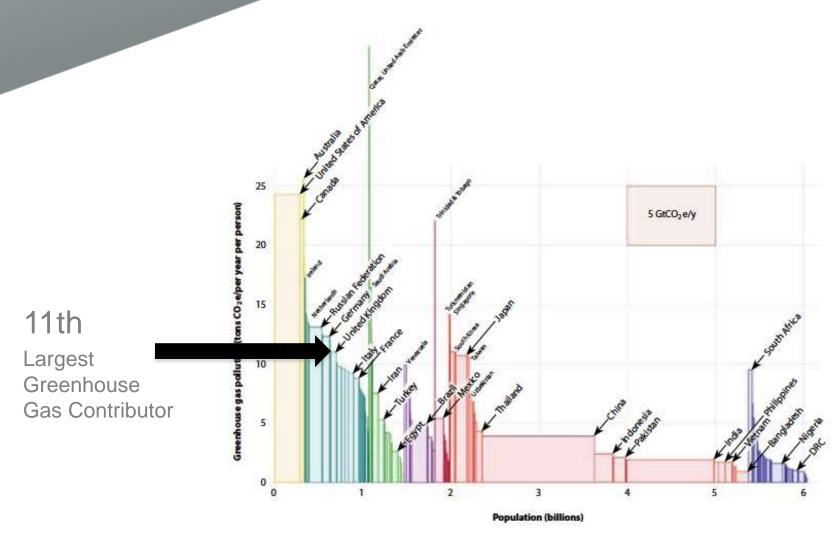




- Reduced resources
- Increased prices

UK's Contribution to Climate Change



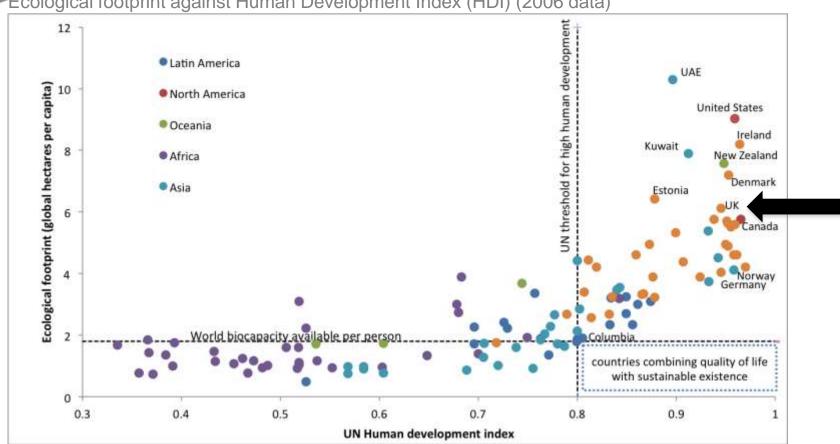


Sources: Mackay, 2009

UK Unsustainable Development



Ecological footprint against Human Development Index (HDI) (2006 data)



What are the major challenges for the UK?

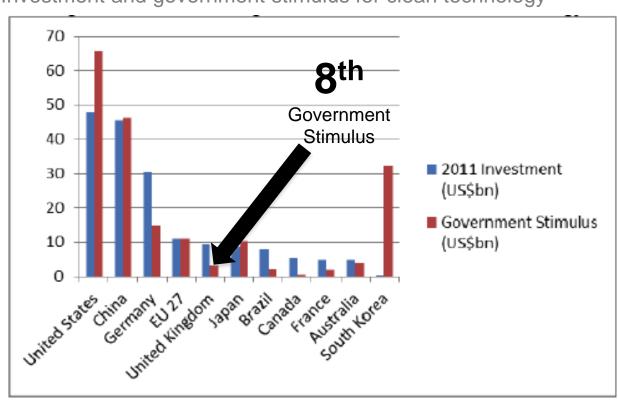


- Domestic sector accounts for 28% of total British energy demand
- Responsible for approximately 30% of Britain's total emissions

What are the major challenges for the UK?



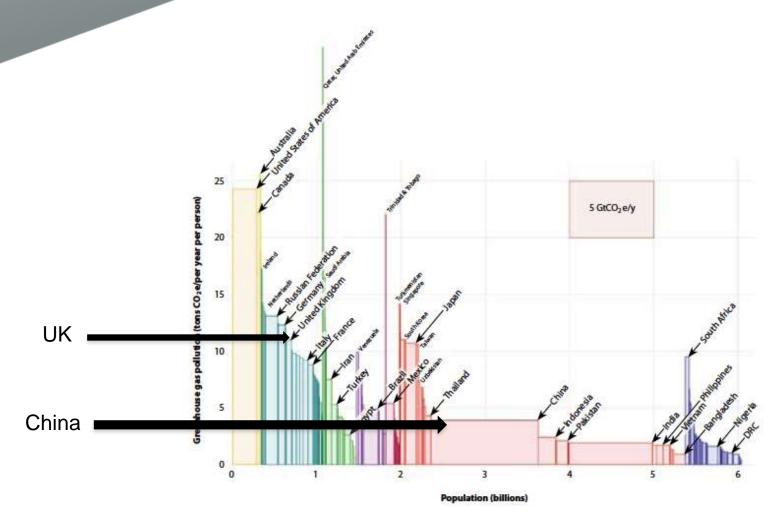
Investment and government stimulus for clean technology



Source: Pew Charitable Trusts, 2012

UK's Contribution to Climate Change



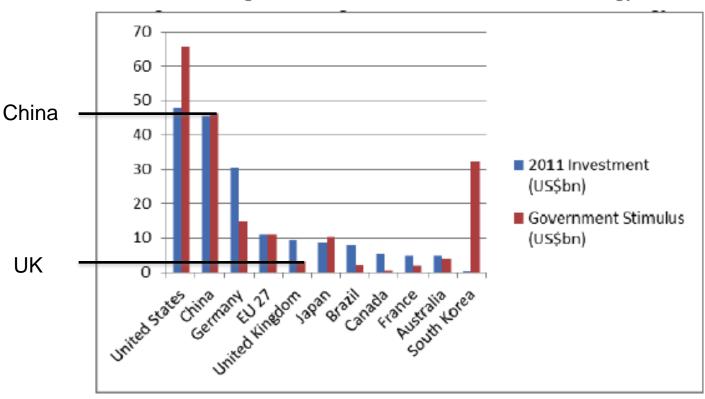


Sources: Mackay, 2009

What are the major challenges for the UK?





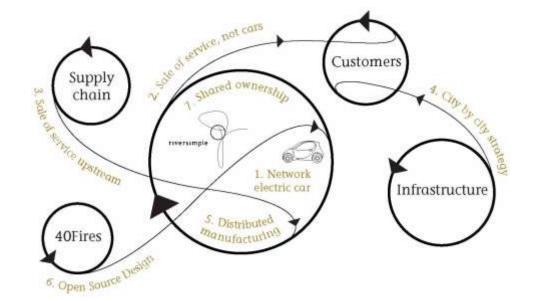


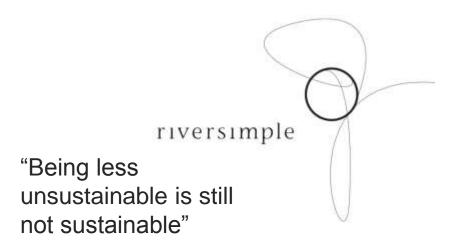
Source: Pew Charitable Trusts, 2012

New Business Models: Riversimple

Cranfield

- Environmental vehicle design
- Shared ownership
- Open source design and development
- Service concept
- 'Cradle-to-cradle'

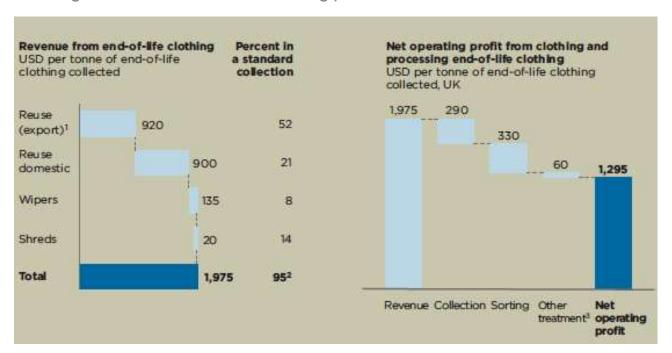




Circular Economy: UK Clothing



Clothing: current collection and sorting profitable business model



Case Studies









IMPROVING HEALTH AND WELL-BEING

By 2020 we will help more than a billion people take action to improve their health and well-being.



REDUCING ENVIRONMENTAL IMPACT

By 2020 our goal is to halve the environmental footprint of the making and use of our products as we grow our business.*



By 2020 we will enhance the livelihoods of hundreds of thousands of people as we grow our business.

1 HEALTH & HYGIENE

>>

2 IMPROVING NUTRITION

>>

3 GREENHOUSE GASES

>

4 WATER

>>

5 WASTE

6 SUSTAINABL

>>

7 BETTER LIVELIHOODS

>>

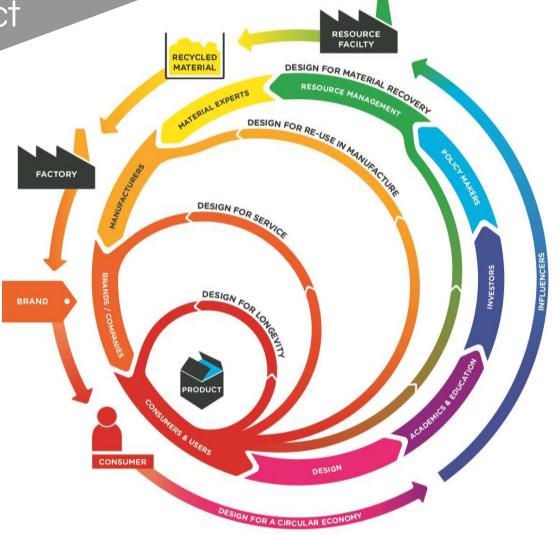


Case Study: The Great

Recovery Project

 540m tonnes of products and materials enter the UK economy

- Only 117m tonnes of this gets recycled
- New Designs for a Circular Economy



UK Sustainable Manufacturing: Future Needs



Fossil fuel depletion solutions

Climate change solutions

Carbon capture & storage used to enhance oil recovery

> Development of unconventional oil

Excessive use of biomass

Some agricultural interventions, such as reduction in fertilizer use even at the expense of forests

Energy reduction and energy efficiency

Development of renewables such as wind and solar

Development of non-fossil fuel energy carriers such as electricity and hydrogen Carbon capture & storage not used to enhance oil recovery

Restoration of ecosystems and tackling deforestation

Some agricultural interventions, such as reduction in ruminant livestock

- Resource efficiency
- Skill future generations
- New business models

- Collaborations
- Policies
- Communications

Shift to Sustainable Manufacturing



2013-2025: Efficiency & resilience 2025-2050: Experimentation with new systems 2050 & beyond: A resource constrained world

- Minimised material inputs
- Waste management
- Increased energy efficiency
- Reduced water usage
- Improved efficiency in land usage
- UK leadership in areas including low-carbon technology

- New forms of value associated with products including sustainability
- Products reused, remanufactured, recycled and redesigned with recovery in mind
- More durable products designed for shared ownership
- Spare capacity built into supply chains to ensure resilience

- Products use smaller amounts of materials and energy
- Material is not landfilled but kept in a 'productive loop'
- Cleaner and quieter factories close to consumers, suppliers and academic institutions
- Supply chains with spare capacity at all stages



Thank you.