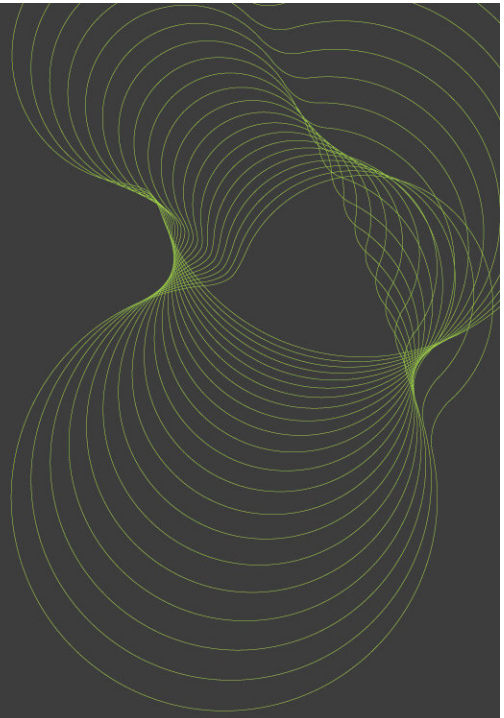

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Construction resource efficiency

Gilli Hobbs
Resource Efficiency
BRE

Overview

- Benchmarking and auditing waste
- Common causes of waste
- Actions to reduce waste through
  - Policy/ strategy
  - Product
  - Process

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Benchmarking

“ In order to manage something you must first be able to measure it ”

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www.smartwaste.co.uk

Reduce waste

SMARTStart

a simple and easy to use benchmarking tool

SMARTStart+

a monitoring and target setting tool for local government, contractors and managers

SMARTAudit

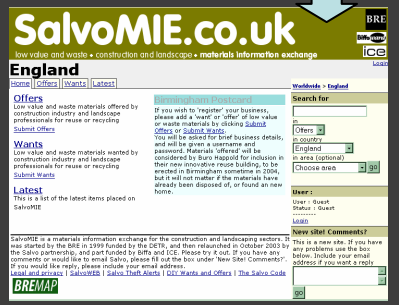
a detailed auditing tool to measure the source, type, quantity, cause and cost of waste

BREMAP

a geographical information system that helps identify the best practical environmental option for waste

Reuse and recycle

SalvoMIE



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Demolition/refurbishment audits

- Quantify key demolition products
- Find and develop local markets
- Identify reuse on site
- Inform during the contract
- Minimise journeys
- Quantify environmental impacts
- Feed into demolition protocol

	Reclamation Valuation				Environmental Quantification		
ALL PRODUCTS (m^3)	STTOD - sold to the trade, own dismantling	STTG - sold to the trade at the gate	SOS - sold on SalvoWeb	RVO - reuse value on-site	Ecopoints	Hectares pristine Amazonian rainforest per year	Hectares heavily logged, sustainably managed rainforest per year
24,515 m^3	£456,995	£2,107,442	£6,952,402	£4,227,529	119,121	2,516	1,060

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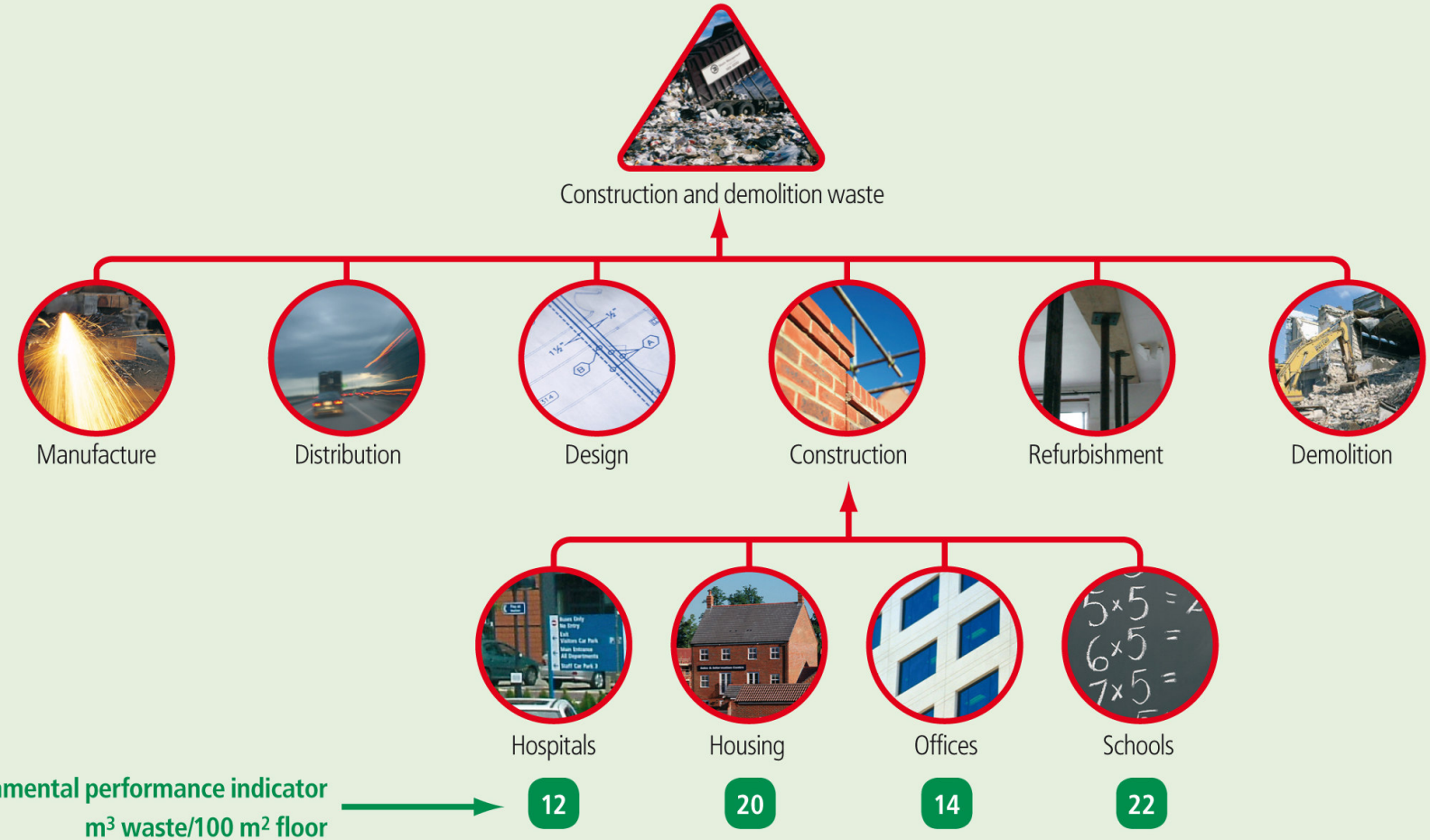
Defra Benchmarking – EPIs/ KPIs



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Common causes of waste

All linked to product and/or process

- Off cuts
- Recyclable packaging
- Temporary materials
- Clearing site
- Reusable packaging
- Excavation material
- Excess deliveries
- Unsuitable storage

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Policy

- Code for Sustainable Homes
  - SWMPs
  - Reduce & Recovery actions
- Construction Resources & Waste Roadmap
  - Waste reduction target : **Halve the amount of construction waste produced by 2015**
- Draft Sustainable Construction Strategy
- Waste Strategy for England 2007
- Sustainable Products roadmaps – windows & plasterboard

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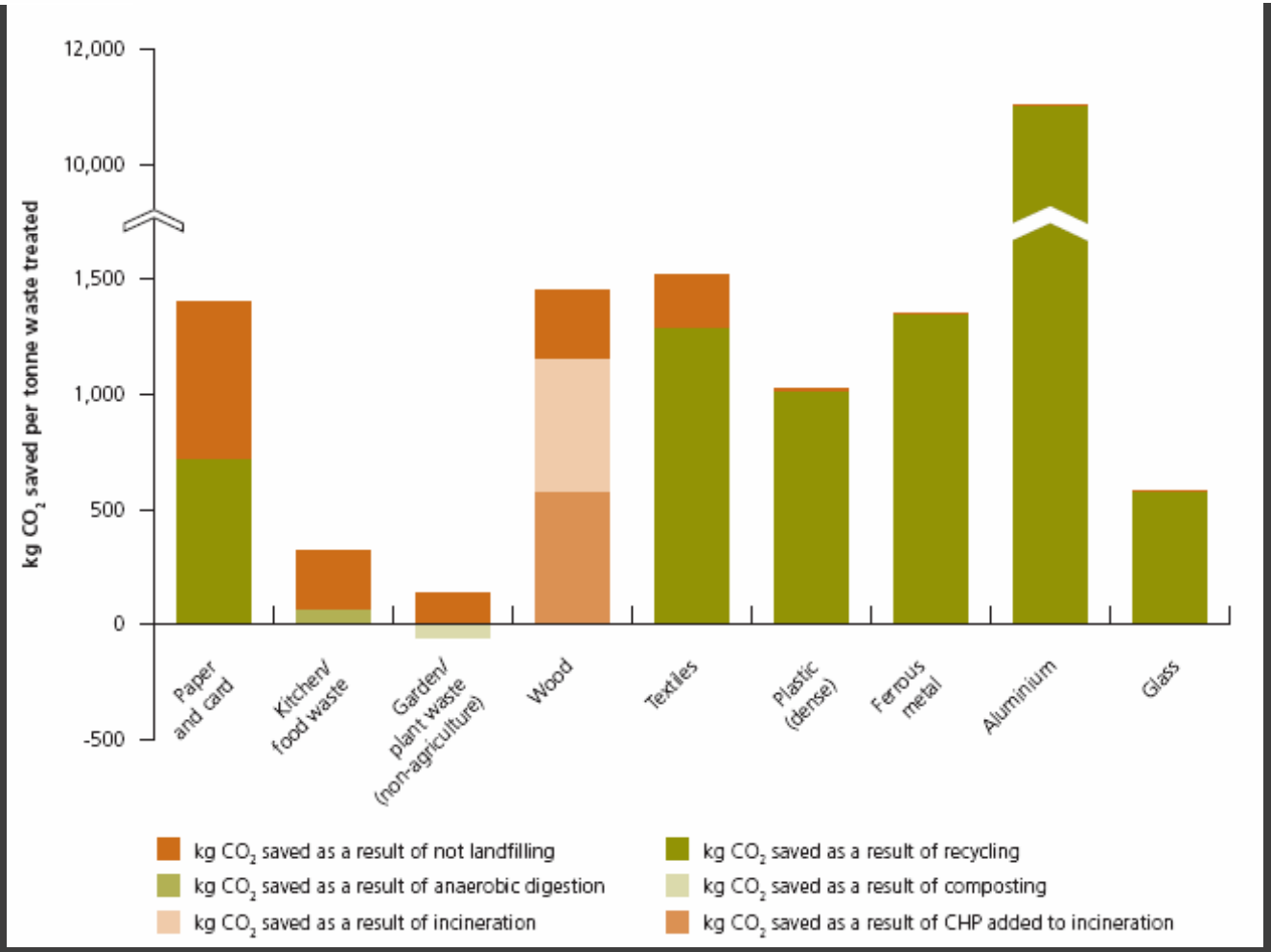
Defra Waste strategy CO_2 benefits of landfill diversion



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Construction targets (1)

- Proposals only – consulting within wider framework of BERR-led Sustainable Construction Strategy on
  1) Halving CD&E to landfill by 2012 as a result of waste reduction, re-use and recycling
  2) Clients to include contractual requirements for measurement and improvement of materials resource efficiency in ½ of large projects by 2009
  3) Waste neutral construction in Government's major construction projects by 2012

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Construction targets (2)

- Draft strategy for sustainable construction
- Vehicle for consulting on Waste Strategy targets
- Other targets include:
  - By 2015, zero net waste at construction site level
  - Halve the amount of construction waste produced at site level by 2015
  - By 2020 zero waste to landfill
- Issues include: feasibility (esp landfill); appropriate use of zero net waste/waste-neutral; baselines; data and monitoring; waste reduction emphasis

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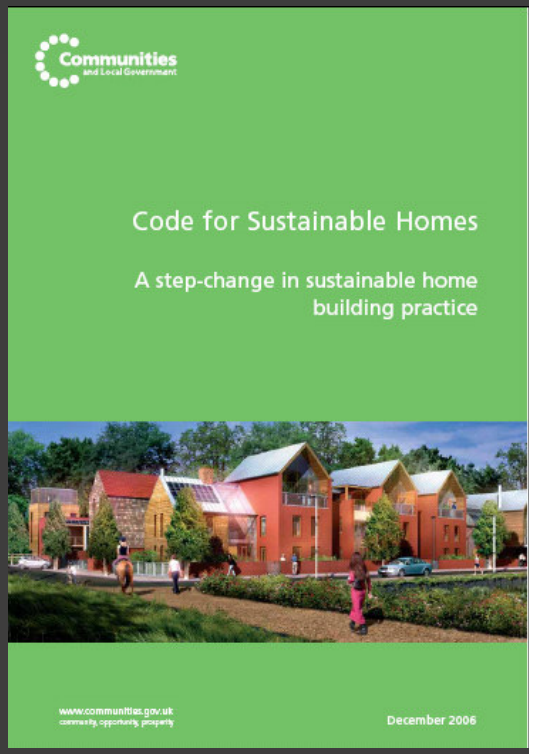
Code for Sustainable Homes - construction

Mandatory level = site waste management plan which requires the monitoring of waste on site and the setting of targets to promote resource efficiency

<u>Extra points =</u>
EITHER 0.9 - SWMP includes procedures and commitments that minimise waste generated on site in accordance with BRE/WRAP/Envirowise guidance

OR 1.8 - Above is achieved and the plan includes procedures and commitments to sort, reuse and recycle construction waste either on site or through a licensed external contractor



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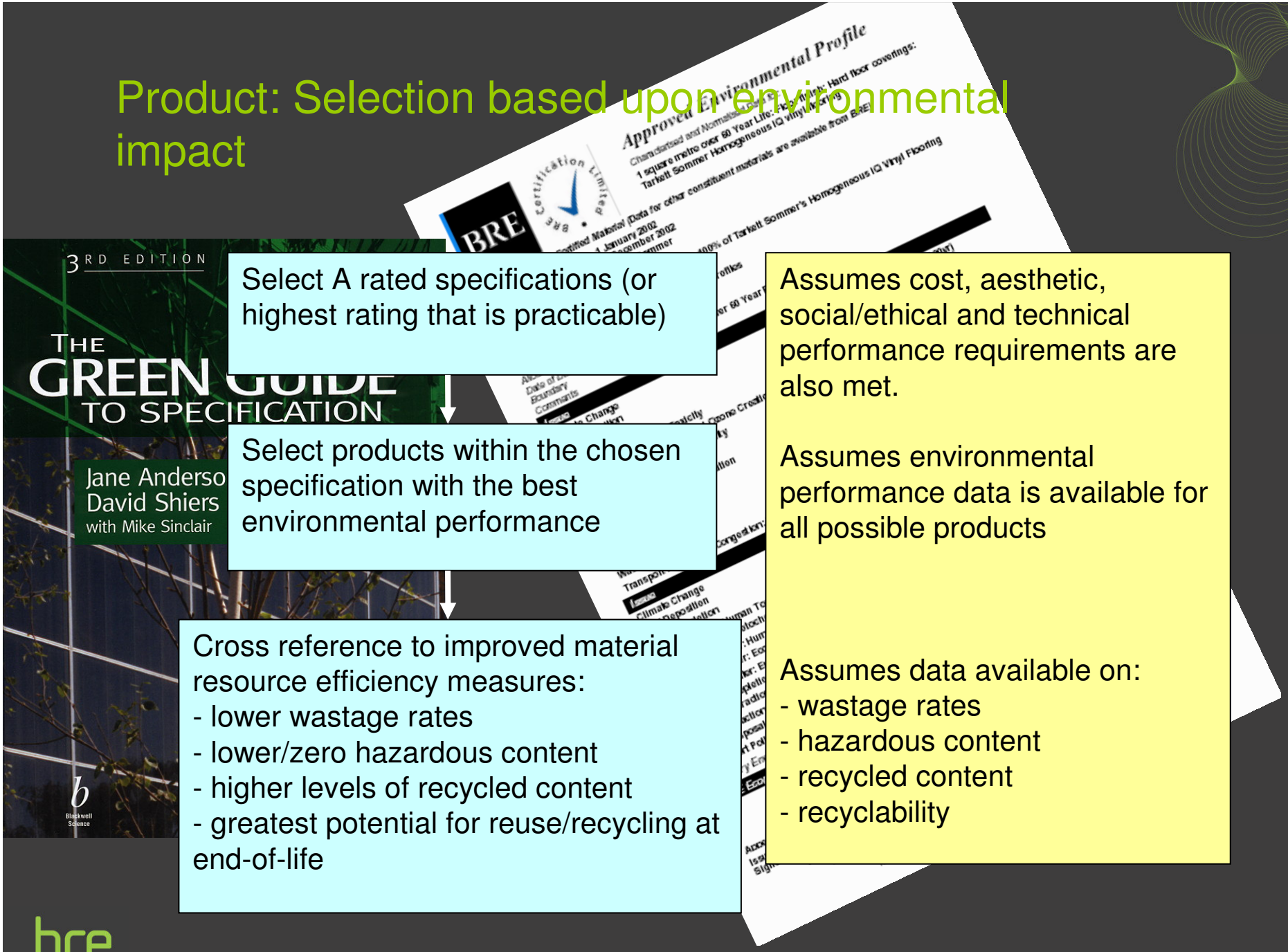
Product: Selection based upon environmental impact



Select A rated specifications (or highest rating that is practicable)

Select products within the chosen specification with the best environmental performance

Cross reference to improved material resource efficiency measures:
- lower wastage rates
- lower/zero hazardous content
- higher levels of recycled content
- greatest potential for reuse/recycling at end-of-life

Assumes cost, aesthetic, social/ethical and technical performance requirements are also met.

Assumes environmental performance data is available for all possible products

Assumes data available on:
- wastage rates
- hazardous content
- recycled content
- recyclability

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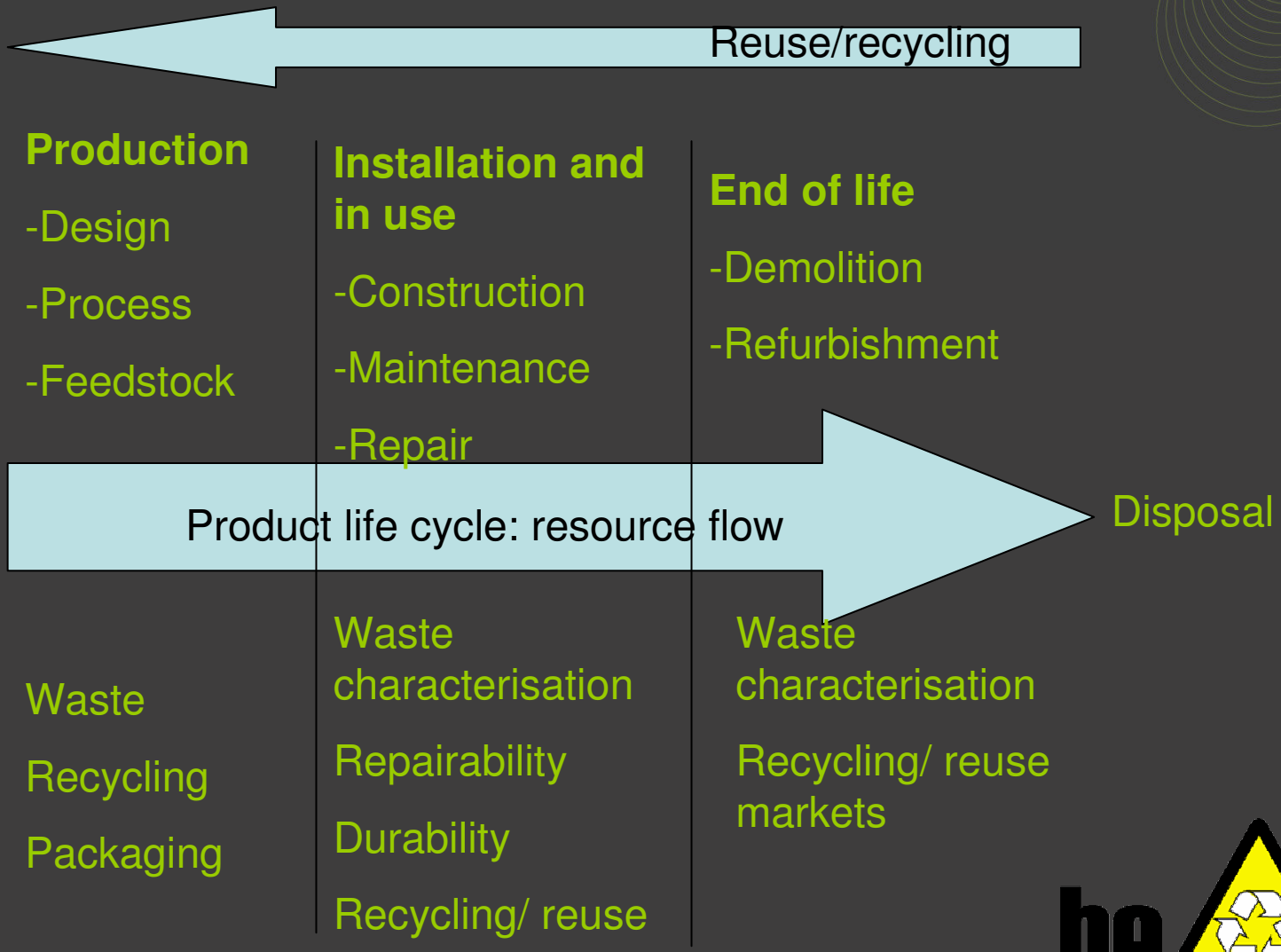
Product resource efficiency throughout life cycle: Be Aware



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be aware

Product: Packaging

- Purpose of packaging
  - Containment, breakage, identification, ease of handling
- Average of 26% by volume across construction
- Packaging optimisation needed
- Producer Responsibility (Packaging Waste) regs
  - Especially if importing (£2 million, 'handle' more than packaging waste)
- Reduce – better design, less material, returnable
- Reuse – pallets, bags
- Recycle – separate/bulk for recycling, compost
- Waste to energy

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Process: Design

- Building form, size and shape to make best use of materials/ products
- Consider how materials/ products are supplied in design specification
- Use available resources on site e.g. demolition products
- Flexible and adaptable buildings reduce demolition
- Ease of repair and maintenance reduces refurbishment waste
- Design for deconstruction – fixing, connectors
- Minimise composite materials/products

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Process: Site

- SWMP = method statement
- Predict waste arisings, question wastage rates (QS), procurement & suppliers
- Appoint waste champion
- Monitor waste
- Raise awareness & importance
- Set targets for waste reduction – sub contracts
- Optimal delivery round site
- Good storage/ JIT delivery
- Return or reuse packaging and offcuts
- Find homes for leftovers
- Review and revise SWMP – throughout and post completion

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Summary

- Measure to manage
  - Understand what & how to prioritise
- Always reduce as the highest priority
  - Environment
  - Cost of products & materials
  - Cost of disposal (landfill tax doubles by 2011)
- Work as a team throughout the supply chain
  - Quality
  - H&S
- Good outcomes should benefit all in the supply chain
  - Incentives
  - Job satisfaction

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