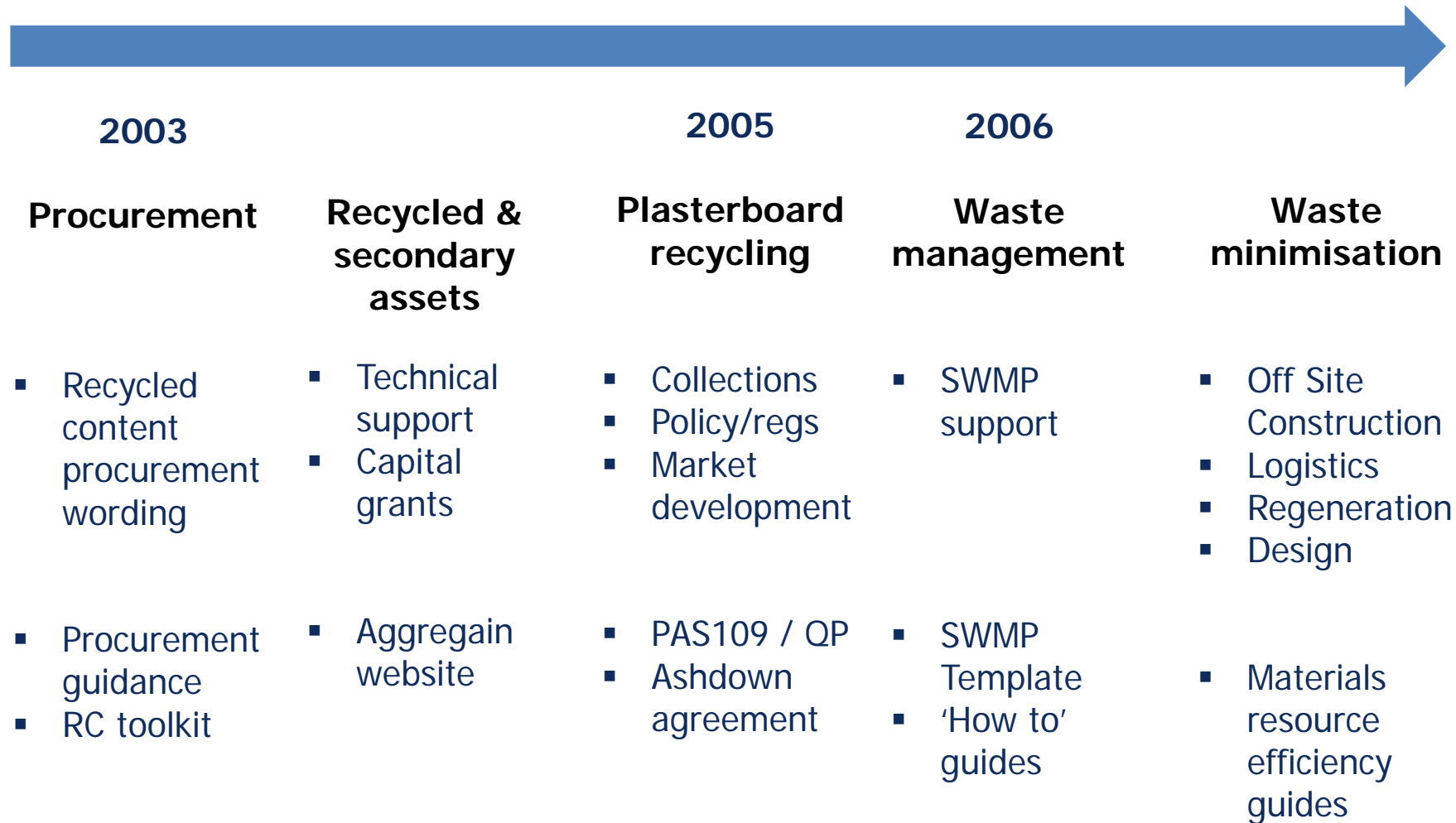

Waste Management Update

Making the best use of materials,
water and energy in built assets

Gareth Brown
Programme Manager

Programme evolution



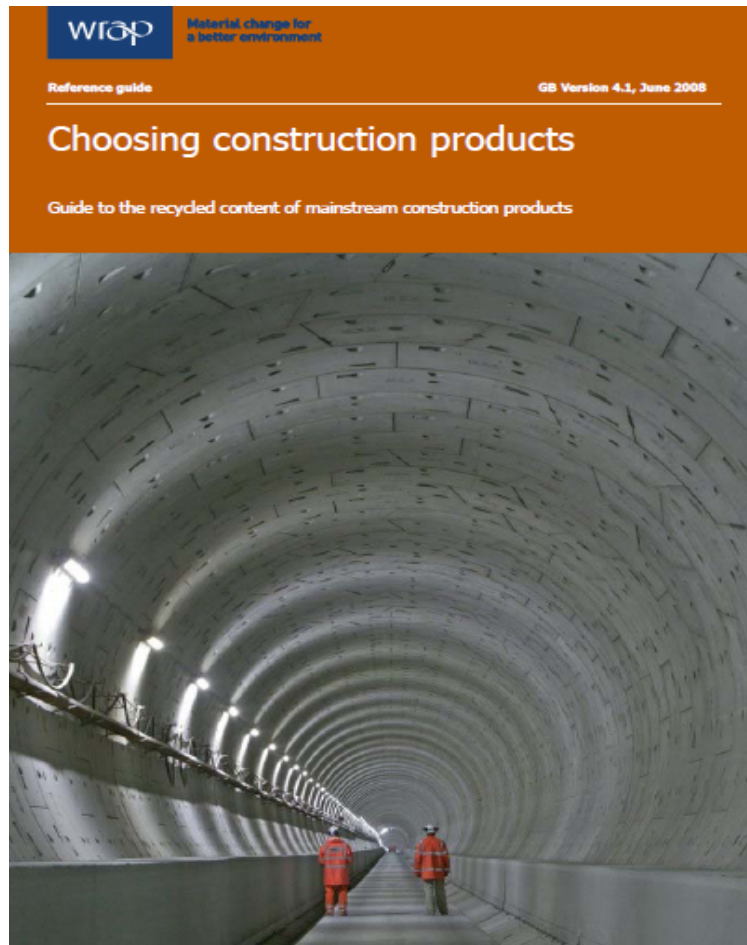
Driving change through procurement



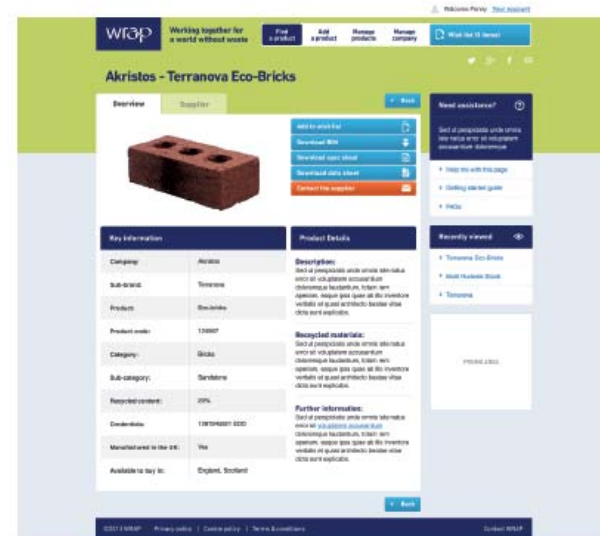
- Model wording for each project stage
- Client and contractor actions
- Corporate policies and project documents

£42bn value of projects influenced by WRAP's procurement wording

Guide to recycled content of products



Online database to facilitate choice editing of products and materials to increase recycled content.





Programme evolution



2006

Waste management

- SWMP support
- SWMP Template
- 'How to' guides

Waste minimisation

- OSC
- Logistics
- Regeneration
- Design
- Materials resource efficiency guides

2008

Construction Programme



- Net Waste Tool

2011+

Construction & Refurbishment (Built Environment)

- Designing out Waste
- DoW guides and tools
- Resource efficiency
- Design
- Construction
- Refurbishment
- Products
- Low Carbon Route-map
- Closing the Performance Gap

Some Key Outcomes

£42bn value of projects influenced by WRAP's procurement wording

Plasterboard sector set **50%** new build waste recycling rate target by 2015

By 2011 the protocol reduced the use of at **>36.5mt** of primary aggregates.

More than **800 signatories** to halving waste to landfill, committing to implementing change

Construction Industrial Strategy: Vision for 2025

 HM Government

Industrial Strategy: government and industry in partnership



Construction 2025

July 2013

Lower costs

33%

reduction in the initial cost of construction and the whole life cost of built assets

Faster delivery

50%

reduction in the overall time, from inception to completion, for newbuild and refurbished assets

Lower emissions

50%

reduction in greenhouse gas emissions in the built environment

Improvement in exports

50%

reduction in the trade gap between total exports and total imports for construction products and materials

Regulatory Changes

Resource efficient
construction



Devolved Powers

- Scotland
- England
- Wales

Minimising Construction waste

Resource efficient construction

The right side of the slide features a photograph of a modern building's facade. The building has a curved, cylindrical shape with multiple levels of balconies or overhangs. The balconies are highlighted with bright, curved bands of light, creating a rhythmic pattern of light and shadow. The background is a clear, deep blue sky.

Five Principals of Design for Resource Efficiency

- Design for Reuse and recovery
- Design for resource Optimisation
- Design for offsite Construction
- Design for resource efficient Procurement
- Design for the Future



Drivers for improving resource efficiency

Resource efficient construction can provide strong **business benefits** of:

- cost savings
- risk reduction
- opportunities for innovation
- compliance with regulations, standards and planning requirements
- supporting industry objectives
- improved reputation

Porth Relief Road

- 8km carriageway, 11 bridges, 15 retaining walls, 16 culverts
- Collaborative approach with integrated project team and ECI
- Value engineering reduced target cost from £78m to £60m
- Flexible earthworks avoided 250,000m³ waste & 7,500 tonnes carbon



RE benefits:

- Re-engineered retaining walls from 3.5km to 800m
- Modular and off-site bridge construction
- Local sourcing of masonry stone and steel
- Weathering steel on bridges to reduce maintenance

A-One+ Integrated Highway Services

- Managing Agent Contractor (MAC) for the Highways Agency
- Three areas, 1500 km of trunk roads and motorways
- Integrated project team and supply chain partnership
- Highways Agency carbon accounting framework



RE benefits:

- Reduction in carbon emissions year on year
- Repave recycling system saved 57% carbon and £2.3m
- GRP signs saved 50 – 70% embodied carbon
- Ex-situ recycling of 9,000 tonnes tar-bound planings saved £1.3m

The Works - Ebbw Vale

- Site of a £350m regeneration project
- 20 ha of landscaped required as part of design
- EU funding prohibited import of soils
- Strategy for manufacture of replacement growing medium developed



Benefits

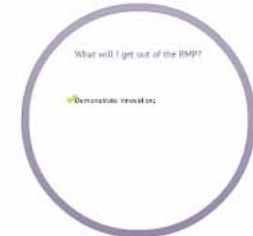
- 100,000 tonnes of growing medium was manufactured of which 60% was recycled site waste materials and 40% imported PAS100 compost
- Project saved Blaenau Gwent County Council £450,000



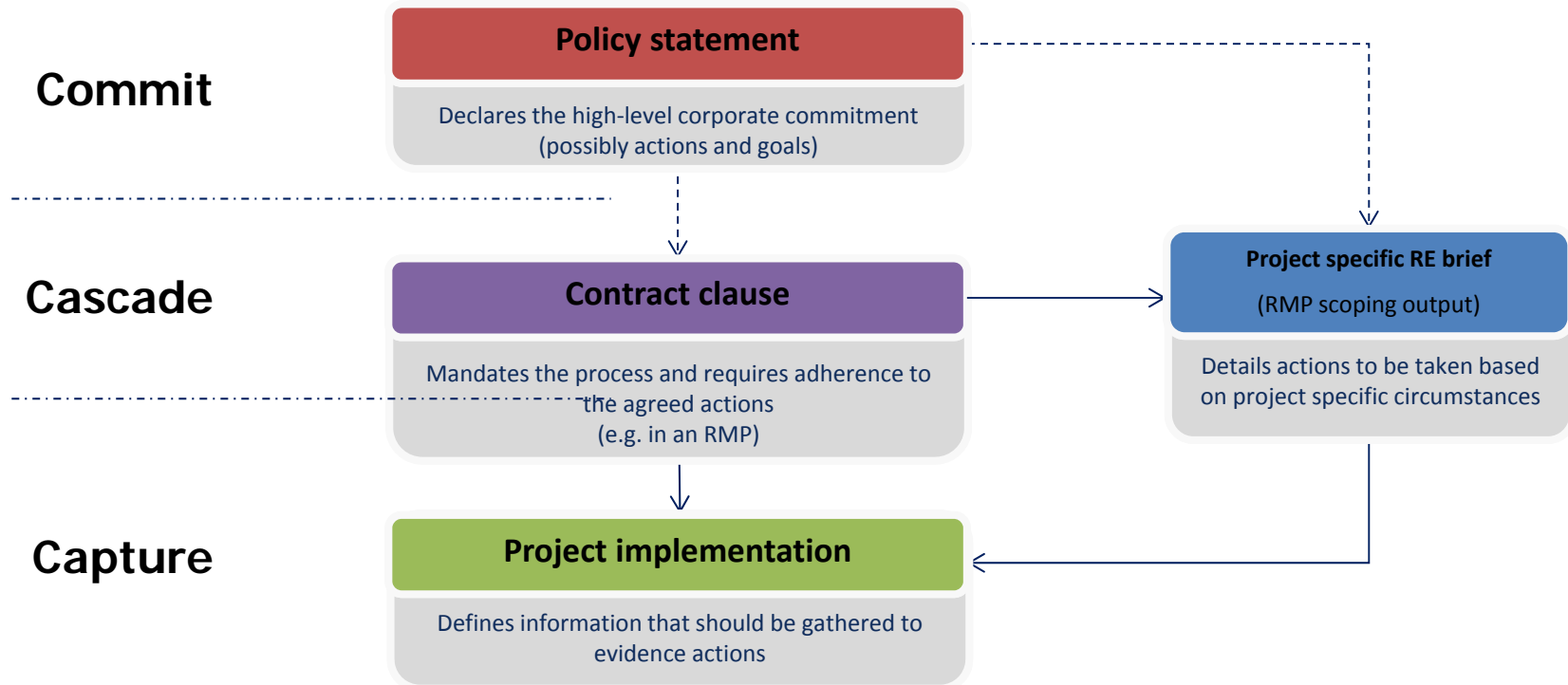
Resource Management Plans (RMPs)

Resource Management Plan Process


Lower Costs
Prioritise efforts
Consistent Approach



Procurement








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[MEDIA CENTRE](#)

 [Around the UK](#)

Site Waste Management Plan template 'lite'

The Site Waste Management Plan (SWMP) template 'lite' is a simplified version of the WRAP [SWMP tool](#) and aims to drive good practice waste forecasting and reporting on smaller projects.

Our SWMP 'lite' tool is aimed at the smaller contractors and tradesmen. Use the SWMP 'lite' to:

- estimate waste and identify actions to reduce waste and costs;
- record actual waste movements; and
- review project performance.

In addition to CD&E activities the tool includes options for Fit out, Refurbishment, Retrofit and Strip out projects - making it ideal to use alongside environmental refurbishment schemes such as [SKA Rating](#) and [Green Deal](#) refurbishments.

The tool includes example projects to help you develop your own waste management plan.



Register to download our [SWMP 'lite' tool](#).

View our [SWMP Lite Video tutorial](#).

Related pages

- [SWMP 'lite': Registration form](#)
- [Site Waste Management Plans](#)
- [Specialist and SME contractors](#)
- [Site Waste Management Plan Tools: Video Tutorials](#)

Related documents

-  [SWMP lite: Actual waste checklist \(164.05 KB\)](#)
-  [SWMP lite: Estimated waste checklist \(158.85 KB\)](#)

Contact us

bulletenvironment@wrap.org.uk

RELATED CATEGORIES

- [Role](#)
- [Contractor](#)
- [Sector](#)
- [Construction](#)
- [Subject](#)
- [Waste reduction](#)
- [What we offer](#)
- [Good practice guidance](#)
- [Tools, templates and apps](#)

Resource Efficiency Portal

WRAP Material change for a better environment WRAP Resource Efficiency Portal [Back to WRAP >](#)

Data entry - corporate Save & Back Save Cancel

My corporate data **Energy** Water consumption Material Use Waste Carbon Scarcity Durability

Notes

Operational data

Category	Type	Quantity	Unit	Source	By sub-contractor	t CO2e	£
Fuel (project)	Grid electricity	200	kWh	Bill	<input checked="" type="checkbox"/>	96.92	
Fuel (project)	Petrol	34	Litres	Estimated	<input type="checkbox"/>	76.33	
Fuel (project)	CNG	68	Litres	Metered	<input type="checkbox"/>	32.23	
Please Select					<input type="checkbox"/>		
Please Select					<input type="checkbox"/>		

+ New Row

Add non Operational data

	Type	Quantity	Unit	t CO2e	£
Elec (Premises)	Grid electricity	200	kWh	96.92	
Fuel (project)	Petrol	34	Litres	76.33	

+ New Row

Save & Back Save Cancel

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WRAP Material change for a better environment WRAP Resource Efficiency Portal [Back to WRAP >](#)

Reporting

Report Filters

Start: January 2011
End: December 2012
Baseline year: 2011
Compare to: Industry benchmark
Operational area: All
Sector: All
Structure type: All
Stage: All
Location: All
Postcode: AB12 3CD
Tags: 2011, Corporate
Status: Anonymous

Generate Excel Report Generate PDF Report

Energy Water consumption Material Use Waste

Headline results

Performance Over Time

Year	Value (Tonnes / £100k)
2010	20
2011	17
2012	4

Performance Over Time

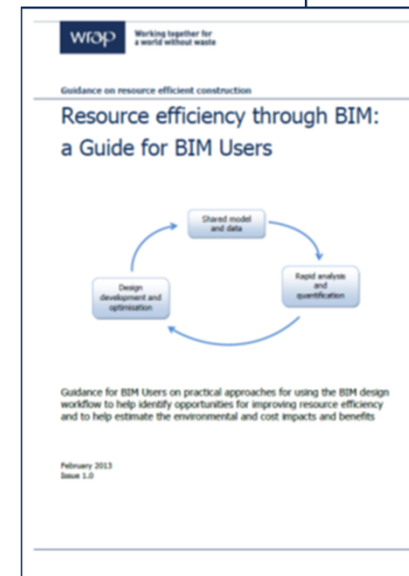
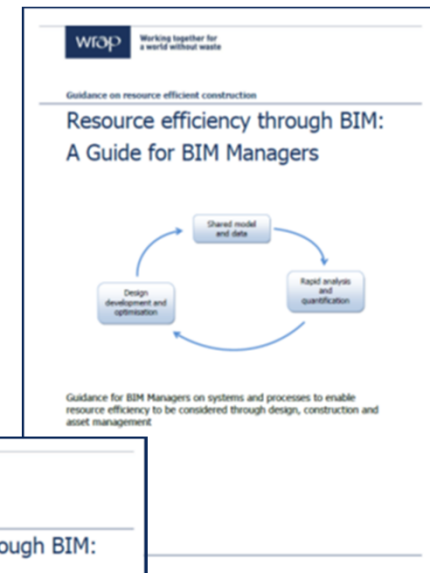
Category	Value (Tonnes / £100k)
Waste arising	10
Benchmark waste arising	2
Waste to Landfill	5
Benchmark waste to landfill	1

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Resource efficiency through BIM

Incorporating resource efficiency into BIM implementation is effective because BIM processes and data can readily be used to:

- achieve design and construction efficiencies;
- identify priority opportunities to reduce costs and carbon; and
- benchmark and monitor performance.

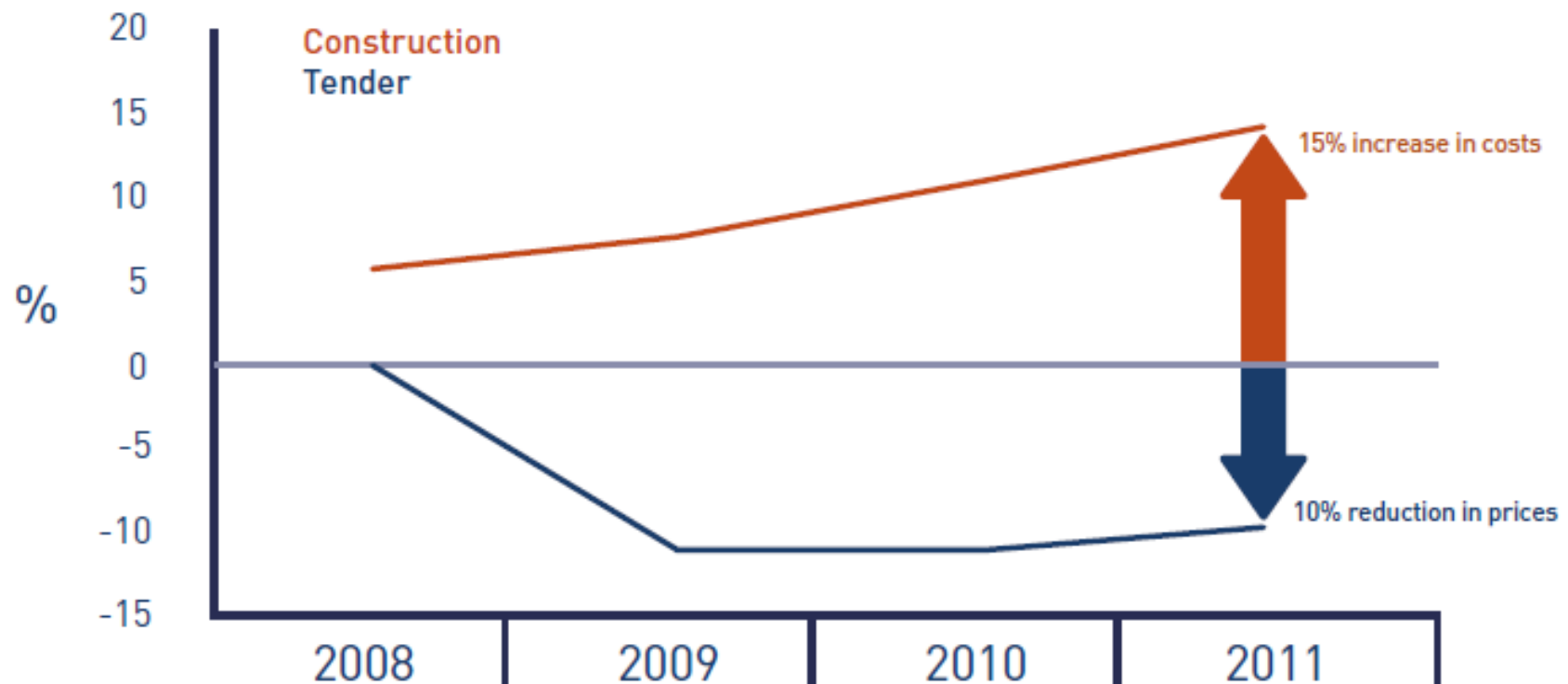


The potential for income from waste

Resource efficient
construction

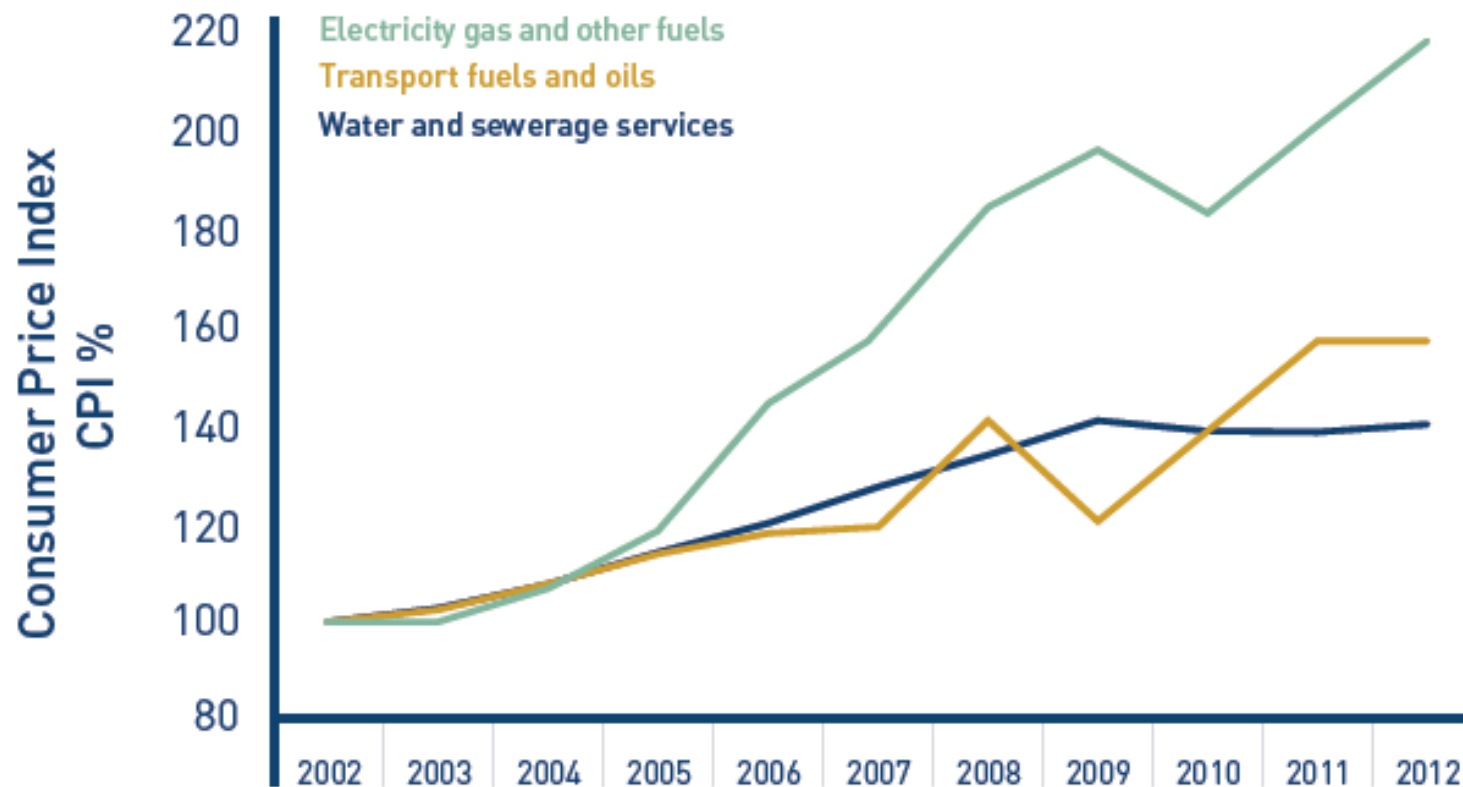
The business case for resource efficiency

% change in construction costs and tender prices



The business case for resource efficiency

Utility and fuel prices: 2002 -2012



Business Cases

The case for action: resource efficiency in the built environment

Audience Summaries



Investors



Buildings clients



Housebuilders



Civil engineering clients



Designers & consultants



Contractors



Manufacturers



Suppliers

Component Summaries

Water efficiency during construction

Designing for water efficiency in operation

Reducing waste during construction

Energy efficiency during construction

Specifying and sourcing resource efficient products

Materials in building design

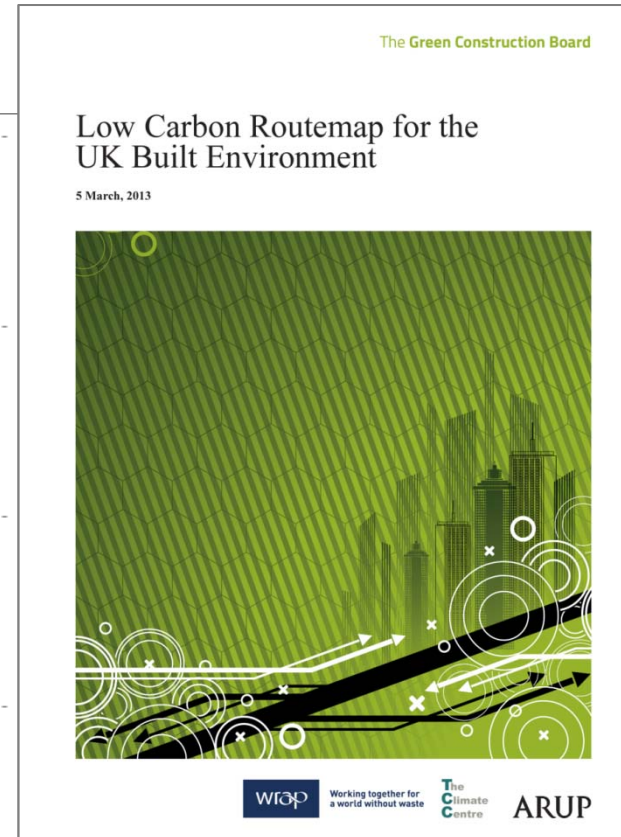
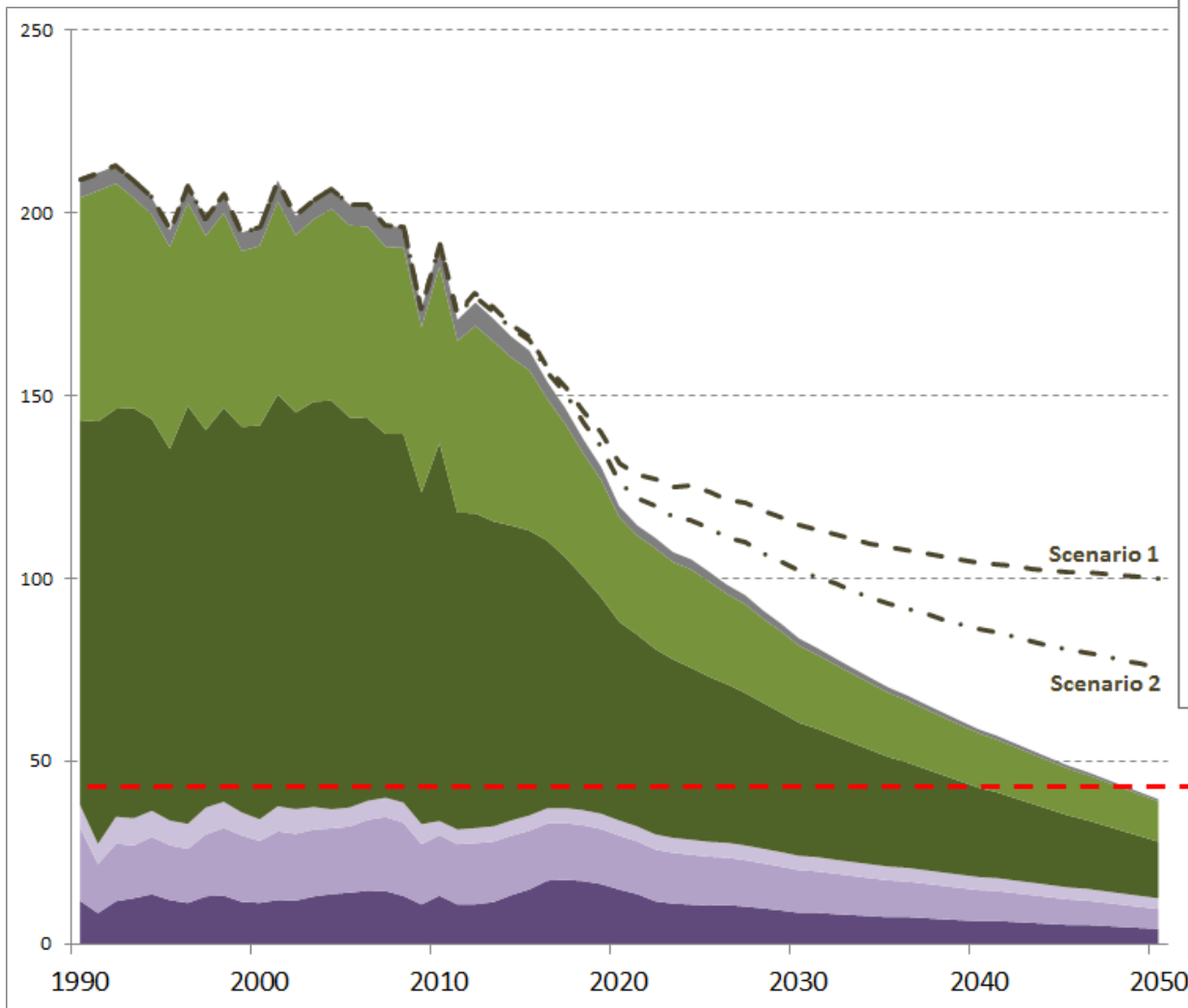
Materials in civil engineering design

Managing materials' risks

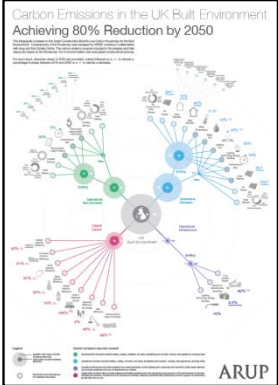
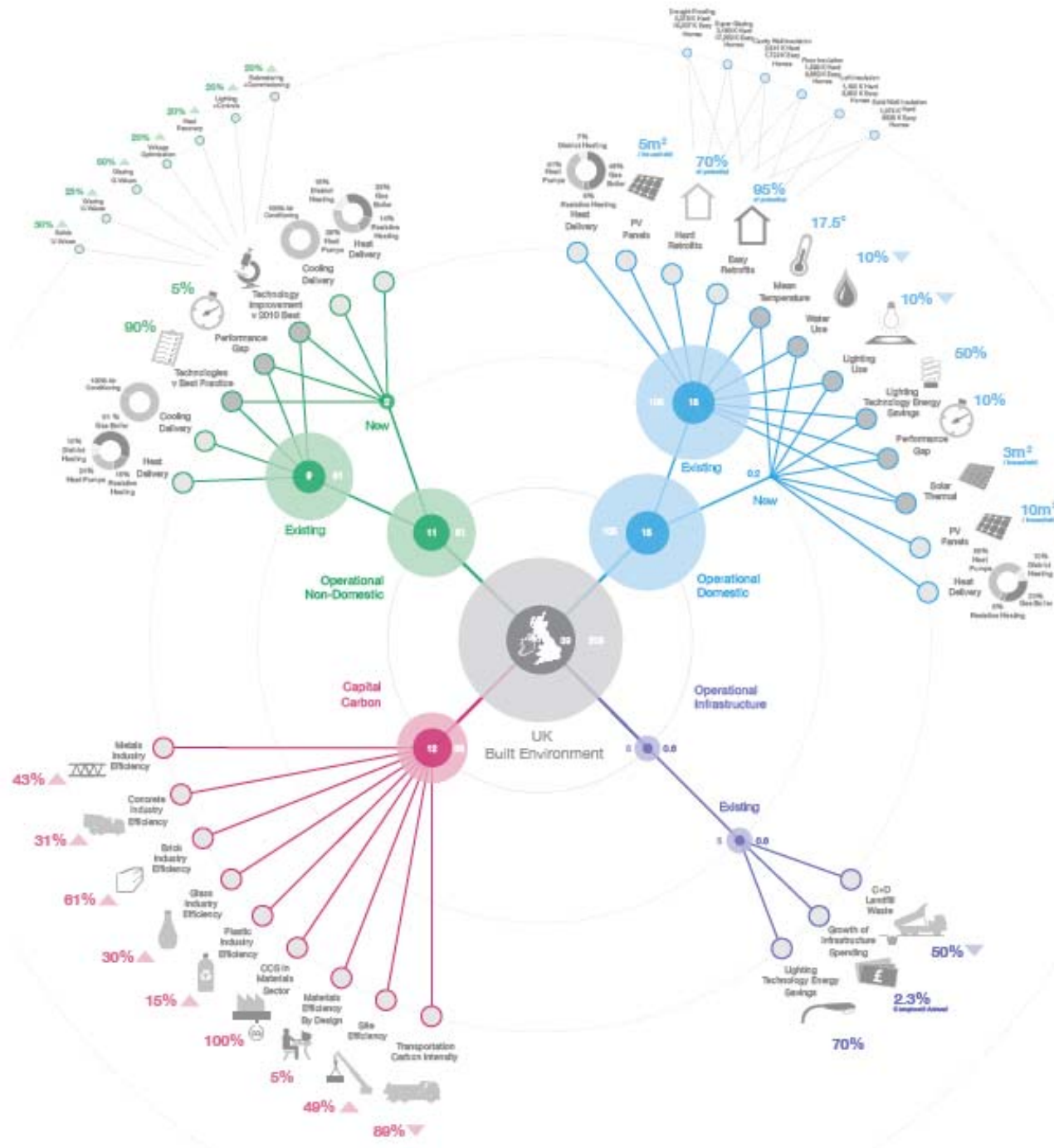
Durability, adaptability & deconstruction in buildings

Durability, adaptability & deconstruction in civil engineering

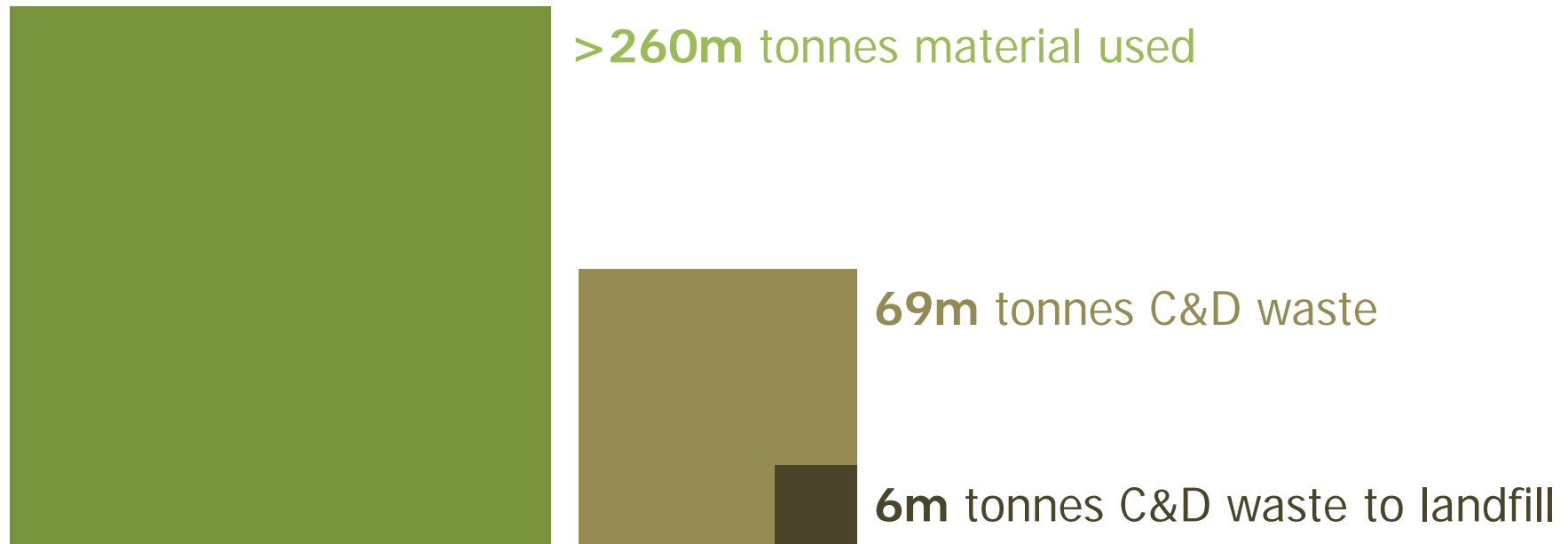
Low carbon Routemap



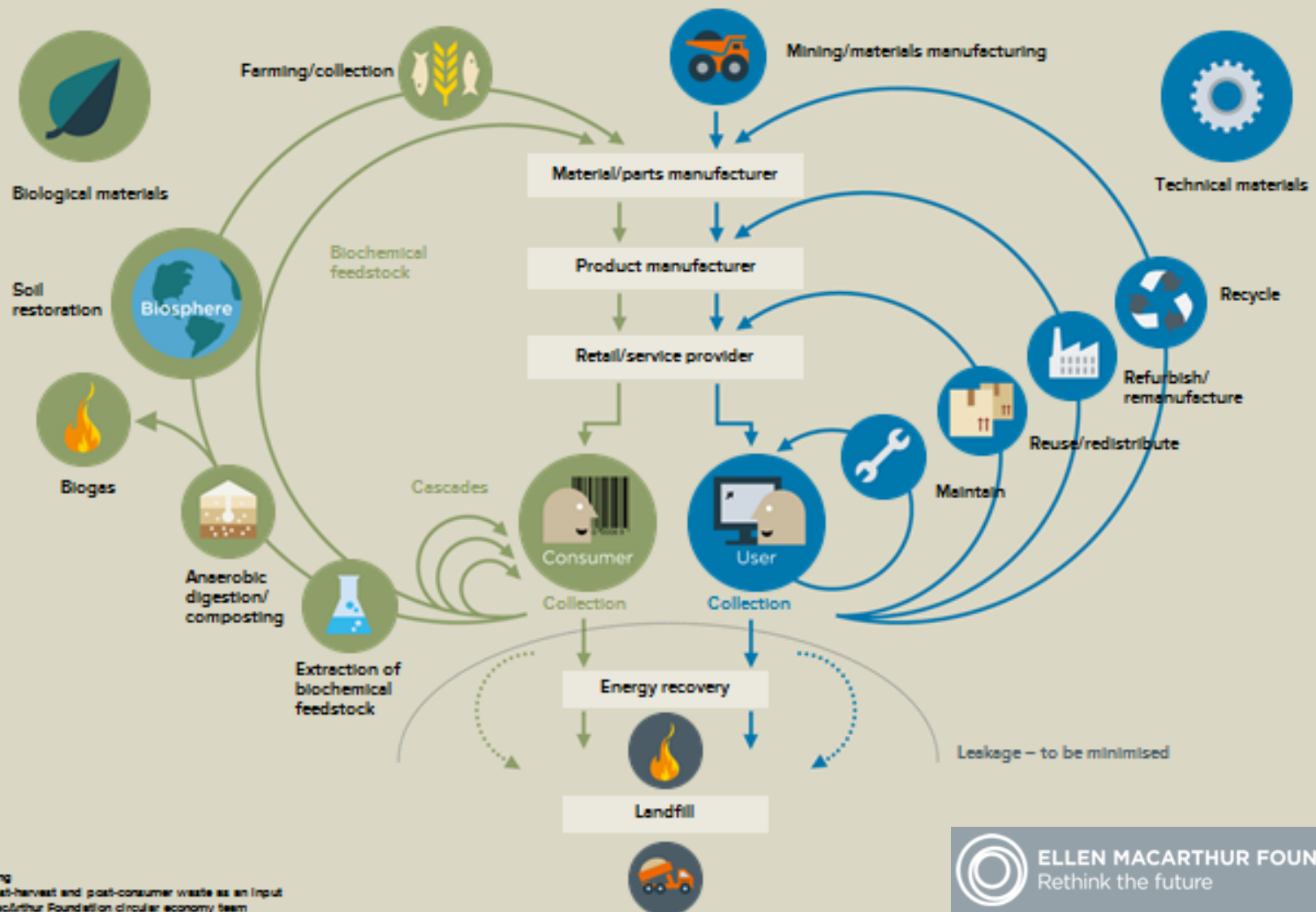
80% reduction target



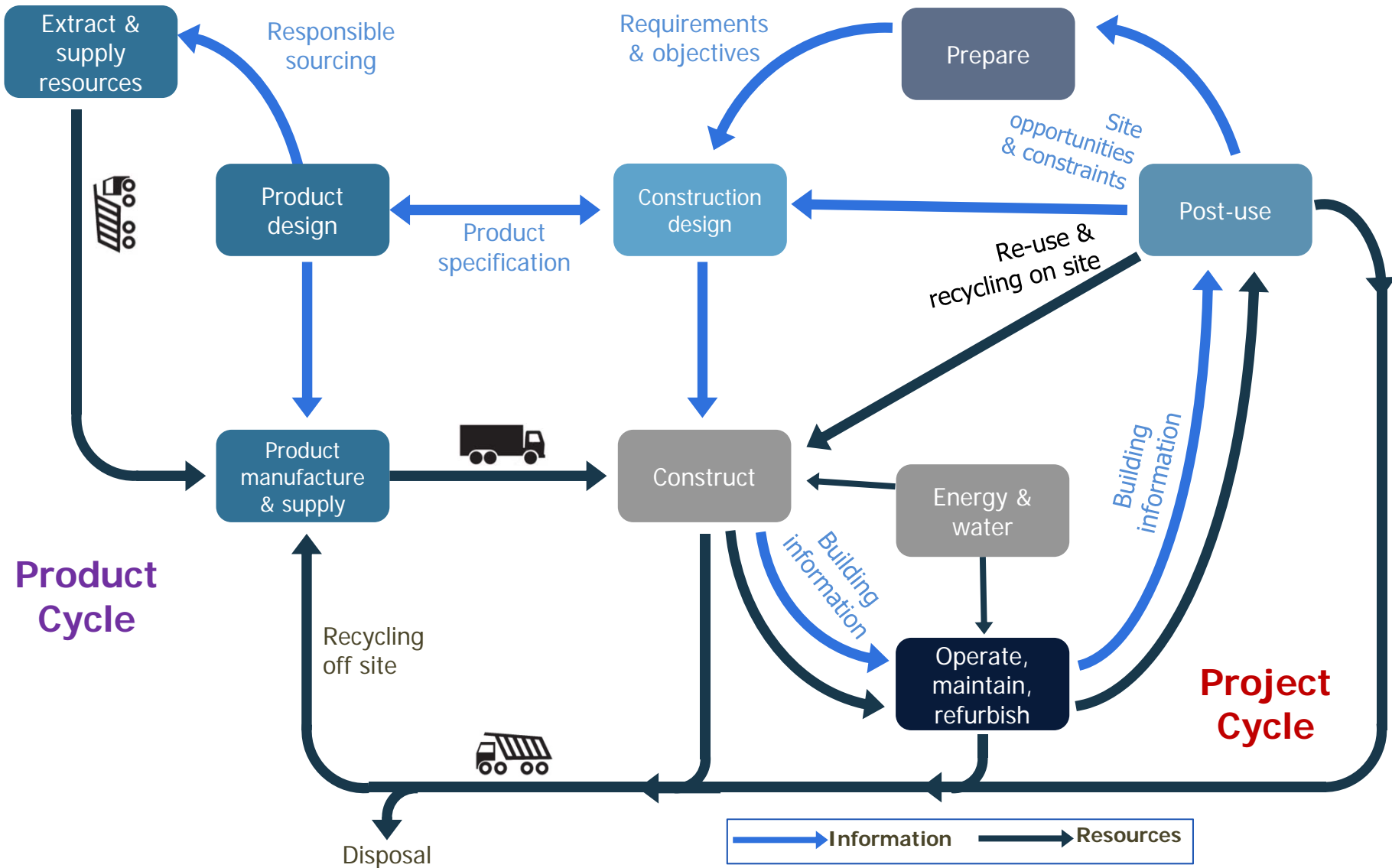
How much “stuff”?



THE CIRCULAR ECONOMY AN INDUSTRIAL SYSTEM THAT IS RESTORATIVE BY DESIGN



1 Hunting and fishing
 2 Can take both post-harvest and post-consumer waste as an input
 SOURCE: Ellen MacArthur Foundation circular economy team



RES

Resource Efficient Street Lighting Programme

Resource efficient
construction

The right side of the slide features a photograph of a modern building's facade. The building has a curved, cylindrical shape with multiple horizontal bands of light-colored material, possibly metal or stone, creating a rhythmic pattern. The building is set against a clear, bright blue sky. The perspective is from a low angle, looking up at the building.



RES Support Programme



Specific work will vary by authority, but involves:

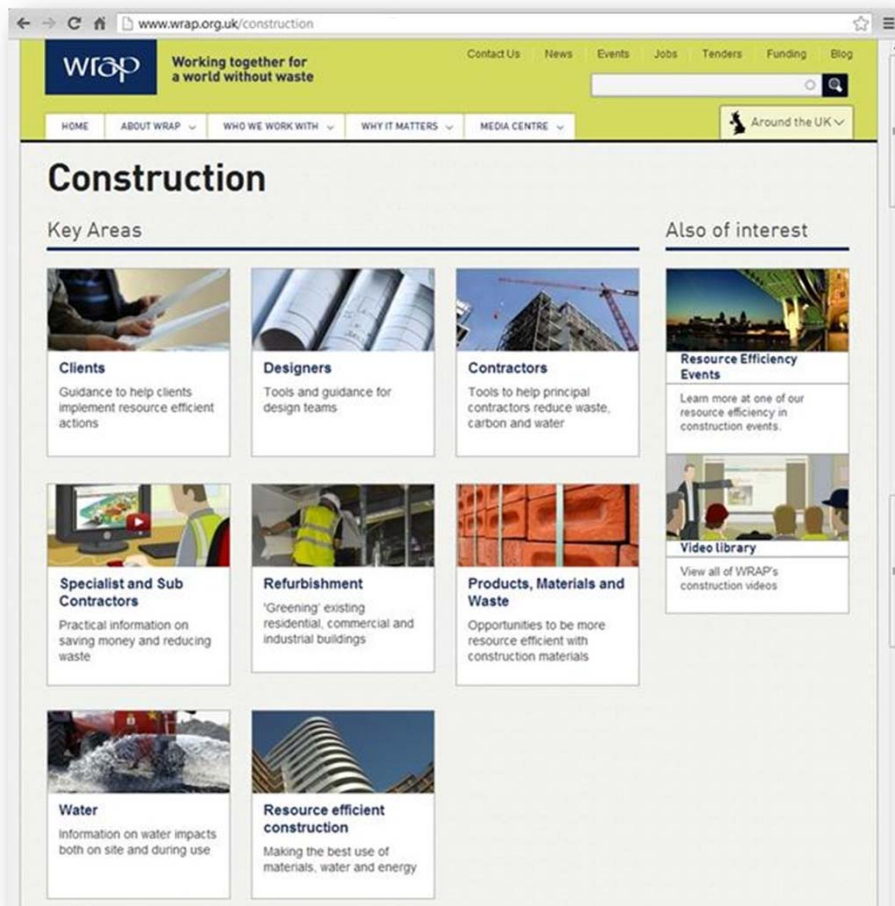
- Developing a scoping study
- Undertaking a condition audit and assessment of a specified amount of the Local Authorities street lighting asset register
- Business case of replacement
- Published exemplar to demonstrate feasibility and replication across other areas
- Spreadsheet detailing all assessed columns, details, cost savings, CO2 Savings and cost of implementation and waste.



Embodied Carbon Week 2014 7 - 11 April
Life Cycle Analysis: Seeing the whole picture

www.ukgbc.org/content/embodied-carbon-week-2014

More help and guidance



www.wrap.org.uk/construction

www.rcproducts.wrap.org.uk

www.aggregain.org.uk

www.wrap.org.uk/content/construction-clients



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