

Waste Disposal

A Wasted Resource Opportunity

Total Food Conference
23rd April 2009

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Agenda

- A Brief history of the LWaRB.
- Our approach to the challenge.
- London's Financial and Environmental Balance Sheet.
- London's lost opportunity.
- Indicative priority resource materials, interventions and a case study.
- Indicative funding profile and emphasis.
- Tangible outcomes and measurement.
- Summary and benefits.

LWaRB - A Brief History

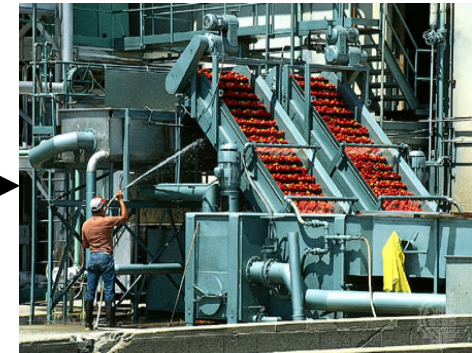
- London Waste and Recycling Board Order 2008 came into force on 24th July 2008.
- £60m available from Central Government (Covers the period 2008 – 2011) plus a further £24m from the LDA.
- Board priorities in respect of financial assistance include:-
 1. The provision of facilities for or in connection with the collection, treatment or disposal of waste produced in Greater London, or
 2. Conducting research into new technologies or techniques for the collection, treatment or disposal of waste, or
 3. Securing, or assisting in securing, the performance of any function of a London Borough Council or the Common Council relating to waste.

OUR APPROACH TO THE CHALLENGE

A Resource not a Waste



A Resource not a Waste



Resource Mining



A Commercial Approach

- Developed in line with the Board's away day themes.
- How to maximise the business and investment opportunities arising from our 'wasted' resources?
- 'Mine' the resource to produce a quality product for an end market that crowds out raw materials, or;
- Use the embedded calorific value to displace fossil carbon.
- Focus on market and demand led 'pull' solutions.
- Payback and/or profit share for participating stakeholders.

LONDON'S FINANCIAL AND ENVIRONMENTAL BALANCE SHEET

London PLC

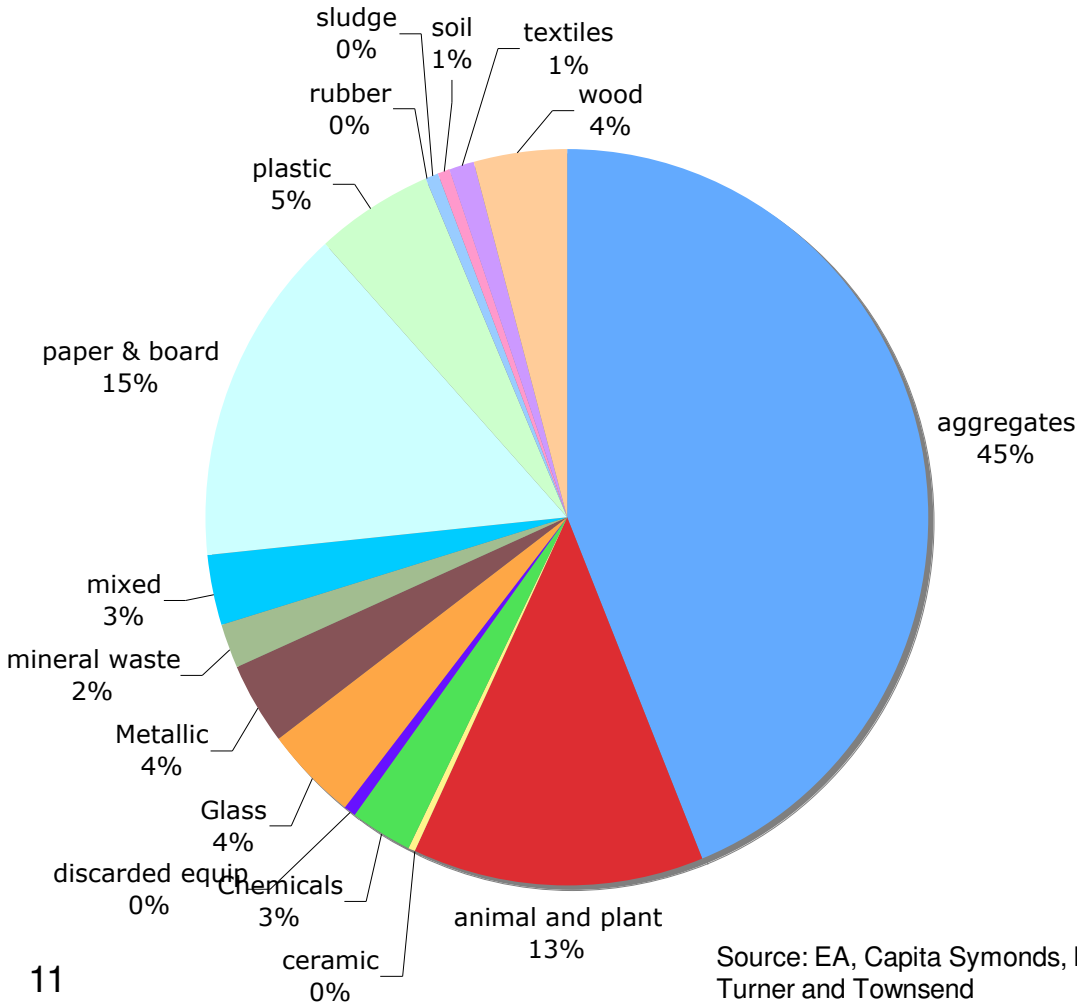
LIABILITIES	ASSETS
<p><u>“Stock Out”</u>: 20 m tonnes p.a. obsolete stock disposed of.</p>	<p><u>Stock In</u>: 70m tonnes p.a. raw materials purchased</p>
<p><u>Cost:</u> Obsolete stock write off cost of £550 million p.a.</p>	<p><u>Cost:</u> Ongoing purchases of raw material.</p>
<p><u>Energy consumption:</u> Fossil fuel energy footprint amounts to 154,519 GWhr p.a. plus exposure to energy markets.</p>	<p><u>Energy production:</u> ?</p>
<p><u>Climate Change Impact:</u> Embodied CO2 45m tonnes p.a</p>	<p><u>Climate Change Mitigation:</u> ?</p>

London PLC – Notes to the accounts

RESOURCE SECTORS	TONNES PER ANNUM (M'S) (Pre treatment / disposal)	DISPOSAL COSTS (Landfill and ERF)
Construction, Demolition and Excavation (estimated)	9.8	£37 million
Commercial and Industrial (estimated)	6.6	£163 million
Municipal solid waste	4.2	£350 million
Total	20	£550 million

- London's population is 7.5 million due to rise to 8.5m by 2031 potentially producing more waste.
- 398,430 businesses in London across a broad range of sectors. 25% of the tonnage is produced from big businesses and 25% from SME's.
- 767,000 commuters travel into London and 321,000 out. 26 million overnight tourists to London and 132 million day visitors per year.
- The common denominator is people.

London PLC – Resource Materials



- The total resource arisings for London are in the region of 20 million tonnes per year. 18 million identified in the London Plan plus 2 million not identified from the construction and demolition sector
- While aggregates waste are the biggest material stream - over 85 % recycled or used in land recovery.
- Significant quantities of food, plastic and wood waste, textiles and paper and board are disposed of to landfill or used for energy recovery.

Source: EA, Capita Symonds, BRE, Turner and Townsend



London PLC – Residual Capacity Gap

Total Existing Capacity (Million tonnes per year)	6.7
New and planned Capacity (Million tonnes per year)	3.2
Total (million tonnes per year)	9.9*

* (14 million inc CDEW assumed to be managed in London)

- London produces an estimated 20 million tonnes per year.
- It has capacity to manage 10 million tonnes per year.
- 90 per cent of CDEW waste is either recycled or put to beneficial use. Some (about 2 million tonnes) of this happens in sites that are exempt from waste licenses, while another 1.6 million tonnes is exported to the surrounding regions. This implies that 6.2 million tonnes is managed within London

LONDON'S LOST OPPORTUNITY?

London PLC – Resource Costs

KEY MATERIAL STREAMS	TONNES PER ANNUM (M'S)	% DISPOSED TO LANDFILL (EST)	COST £M'S (EST)
Food / Garden	2.7	40%	£57
Wood	0.9	Circa 46%	£27
Plastic	1.1	54%	£32
Textiles	0.2	58%	£6
Paper and board *	3.0	46%	£74
Metals	0.7	40%	£16
Totals	8.6mtpa		£212m

14 * New capacity being built.

INDICATIVE PRIORITY RESOURCE MATERIALS AND INTERVENTIONS

Indicative Priority Resource Materials

EARLY ANALYSIS OF LONDON PLC 'PIE CHART'

- Organic
- Wood
- Plastic
- Paper and Board
- Textiles
- Metals

KEY PRIORITY DETERMINANTS

- Tonnage.
- Disposal Cost.
- *Embedded Output Energy Value.*
- *C02 avoidance and climate change mitigation.*

Table 4b 1: Calculations of Potential Carbon Dioxide (CO₂) savings

Waste stream	Tonnage ('000 tonnes)				CO ₂ impact of landfill			CO ₂ mitigation impact					CO ₂ mitigation impact + CO ₂ impact of landfill		
	Total	Total recycled	Total incinerated	Total to landfill	Kg CO ₂ saved per tonne of waste landfilled	Kg CO ₂ saved based on total waste landfilled	Embodied fossil energy (kg CO ₂ saved per tonne waste prevented - WS2007)	Reduction including reuse (tonnes CO ₂)	Kg CO ₂ saved per tonne of waste recycled- Table A.28 WS2007	Recycling (tonnes CO ₂)	Kg CO ₂ saved per tonne of waste incinerated- Table A.28 WS2007	Energy (tonnes CO ₂)	Reduction including reuse (tonnes CO ₂)	Recycling (tonnes CO ₂)	Energy (tonnes CO ₂)
Aggregates	9,075	5,626	0	1,409	10	14,090	102	143,718	4	5,636	-35	-49,315	157,808	19,726	-35,225
Ceramic*	68	51	0	17	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chemicals*	579	117	76	180	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Discarded equip	94	57	3	13	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Class	898	398	54	394	10	3,940	2,812	553,964	1,148	226,156	-90	-17,730	557,904	230,096	-13,790
Metallic	753	375	59	299	10	2,990	27,026	2,693,542	18,549	1,848,717	1,145	114,069	2,696,532	1,851,707	117,059
Mineral waste*	364	178	0	172	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Mixed*	657	65	131	447	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paper & board	3,068	1,311	160	1,400	687	961,800	7,668	3,578,400	2,139	998,200	279	130,200	4,540,200	1,960,000	1,092,000
Plastic	1,124	341	103	610	10	6,100	34,500	7,015,000	2,691	547,170	-3,227	-656,055	7,021,100	553,270	-649,955
Rubber*	15	6	0	7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Sludge*	74	18	1	7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Soil	128	0	0	85	10	850	4	340	-16	-1,360	-35	-2,975	1,190	-510	-2,125
Textiles	201	39	39	117	233	27,261	38,588	2,257,398	2,568	150,228	-490	-28,665	2,284,659	177,489	-1,404
Wood	867	236	78	505	298	150,490	768	129,280	15	2,525	1,731	291,385	279,770	153,015	441,875
Total	20,639	9,581	1,221	6,729		1,377,720		17,714,461		3,777,272		-107,052	19,092,181	4,944,793	1,270,669

* No CO₂ emissions factors were available in Waste Strategy 2007 for these materials and therefore total tonnes of CO₂ diverted could not be calculate

Note: this is an indicative analysis and these numbers may be subject to revision

Effectiveness of these Interventions

	INTERVENTIONS			
Priority Materials	Reduction	Reuse	Recycling	Energy
Organic	✓	▨	✓ ✓	✓ ✓ ✓
Wood	✓	✓ ✓	✓ ✓	✓ ✓ ✓
Plastics	✓	✓ ✓	✓ ✓ ✓	✓
Metals	✓	✓ ✓	✓ ✓ ✓	▨
Textiles	✓	✓ ✓ ✓	✓	✓
Paper and Board	✓	✓	✓ ✓ ✓	✓ ✓
BOARD EFFECTIVENESS	LOW - MEDIUM		MEDIUM - HIGH	

- KEY PRIORITY DETERMINANTS
- Tonnage.
 - Disposal Cost.
 - Embedded Output Energy Value.
 - C02 avoidance and climate change mitigation.

A CASE STUDY

Ealing BC / Cawleys / Biogen



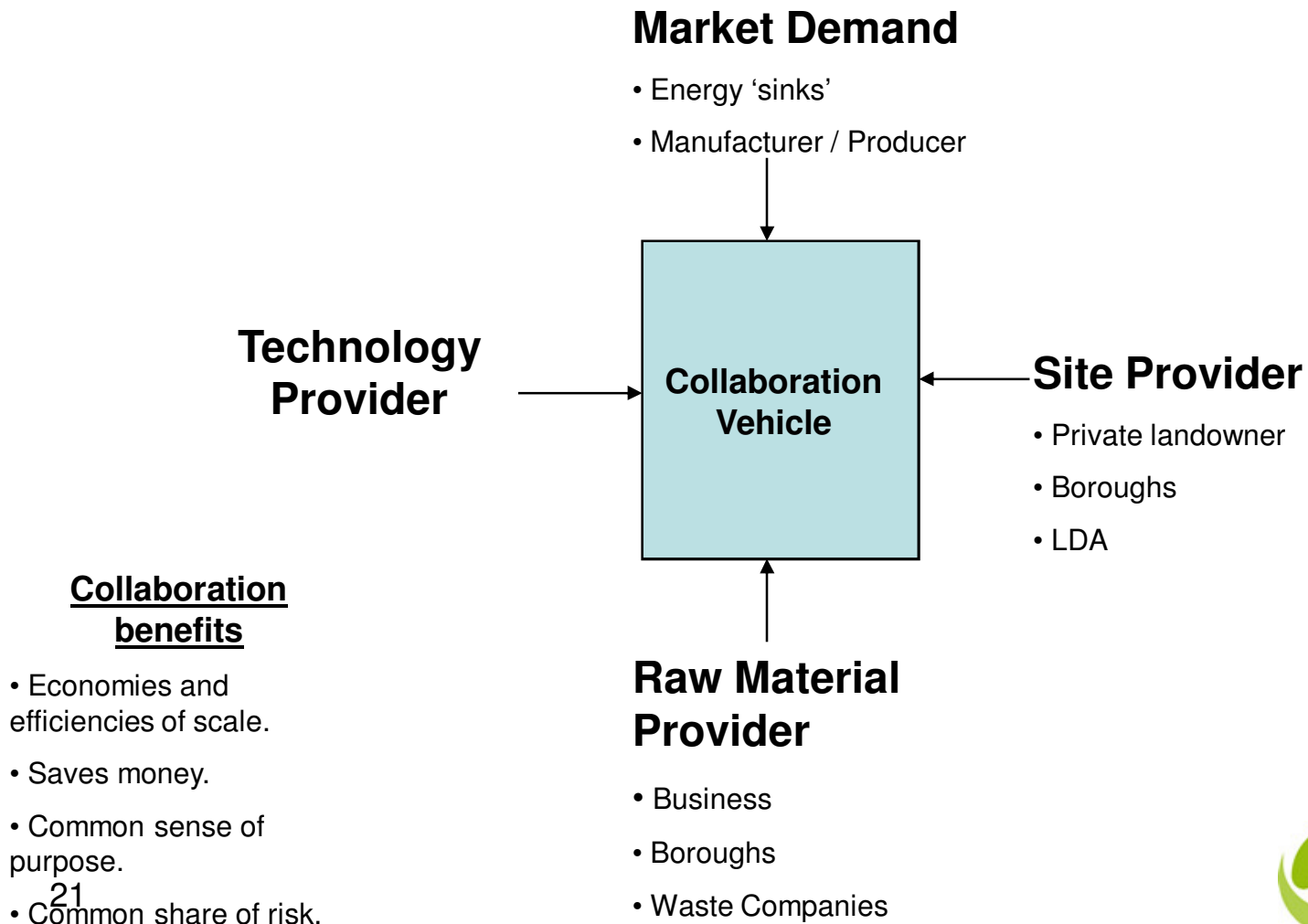
Food into wattage

- Ealing Council has been collecting residents' food leftovers since 2006 as part of the weekly recycling collection.
- In 2007 it began a six-month trial in partnership with waste management company Cawleys and BIOGEN.
- Cawleys handle the bulk collection and deliver it to BIOGEN's Bedfordshire based AD plant.
- Recycling rates have increased across the borough over recent months.

Photo's courtesy of WRAP and Biogen. Information from Ealing website.



Common 'Case Study' Threads...



INDICATIVE FUNDING PROFILE AND EMPHASIS

Indicative Funding Profile

Intervention (waste hierarchy)	Potential Board Actions	Probable impact of the Board on landfill diversion	Impact on climate change mitigation	Total Board Impact	Indicative funding priority
Reduction	-Campaigns -Advice	Low (difficult to measure)	High due to avoided energy impact	Low	Low
Reuse	-Campaigns -Infrastructure -Reuse standard -Market development -Government procurement	Low- medium (easier to measure)	High due to avoided energy impact	Medium	Medium
Recycling	-Campaigns -Breaking down market barriers -Market development -Infrastructure -Government procurement	Medium	Medium-high	Medium - High	Medium - High
Energy	Energy supply risk mitigation -Decentralised energy -Technology evolution -Infrastructure	High	Low-medium (technology specific)	Medium	Medium-High

TANGIBLE OUTCOMES AND MEASUREMENT

Tangible Outcomes and Measurement

- Tonnage diverted.
- Increased reuse and recycling levels.
- Climate change mitigation.
- Exemplar projects (Energy and Product).
- Technology evolution.
- Economic value (Disposal savings) or economic uplift (Jobs, regeneration) or both.
- Private sector leverage in of capital assets.

SUMMARY AND BENEFITS

Summary

- Clear strategic fit with the London Plan and the LWaRB order.
- Commercially focused Board.
- Addresses wide stakeholder concerns and issues.
- Targeting quick wins and legacies, not quick fixes.
- A focus on end markets, the priority residual resource material streams and reverse supply chains.
- Financial assistance provided on solid business and/or investment cases that generate tangible outcomes.
- Leverage in private sector capital assets and collaborate with key partners.

Benefits to Londoners

- Value uplift in London's environmental economy.
- Job creation.
- Greater resource transparency, understanding and environmental 'feel good' factor.
- Market led convenience to increase re-use and recycling.
- Local heat and power plants providing cheap energy.
- Shared participation and benefits.
- Increased confidence in local authorities and community leadership.

Key messages to take away....

- London leadership and vision setting.
- Resource recovery not resource destruction.
- Market and enterprise led approach by the Board.
- Creating a solvent and sustainable environmental balance sheet.
- *London Resource Recovery Board.*

Thank you