Zero Waste:
A Way to a Low Carbon Future

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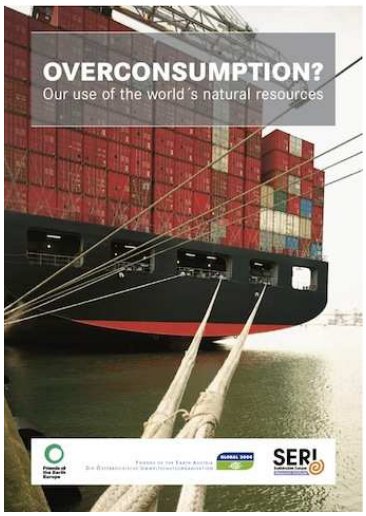
Contents

The climate challenge

- We all agree that emissions must be cut, and the UK's targets are now written into Climate Change Act 2008
  - Friends of the Earth led the campaign for this Act.
- The key challenges on climate:
  - We need to cut emissions by more than 80% of 1990 levels by 2050
    - We must adopt the best approaches, not just those that are slightly better
  - We need to move fast – Friends of the Earth are proposing a cut of 40% in European emissions by 2020
    - How can we have the fastest impact?

The resources challenge

- We are using ever-increasing quantities of the world's resources
- Europe is particularly dependant on imported resources – see our 'Overconsumption?' report [1]
- Yet we continue to waste our resources.....
- e.g. How is it possible that the UK landfills or burns over £650 million worth of recyclable material every year [2]?
- The resources agenda will get more important in future years, as consumption in large developing countries – e.g. China and India – continues to increase.



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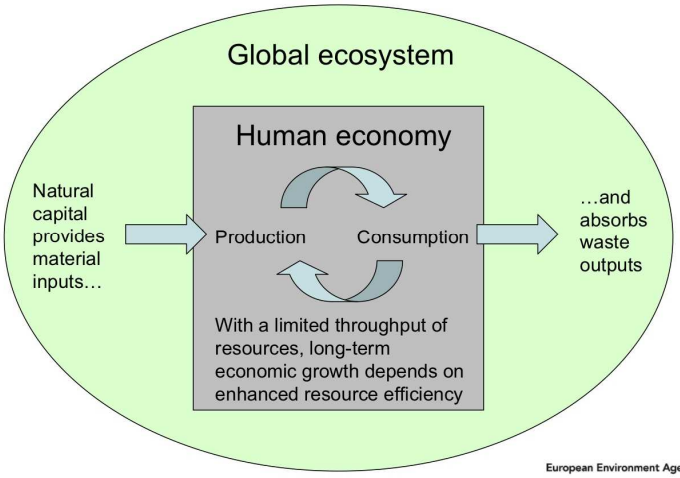
The global context



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What is Zero waste?

- 1) Making sure that you keep materials within the economic system
  - Using less, re-using, recycling, composting
- 2) Avoiding – phasing out – residual waste
  - The material that isn't reused, recycled, composted (that isn't kept 'in the loop')
    - Residual waste is a problem whether it is incinerated or landfilled
- 3) Reducing our use of natural resources

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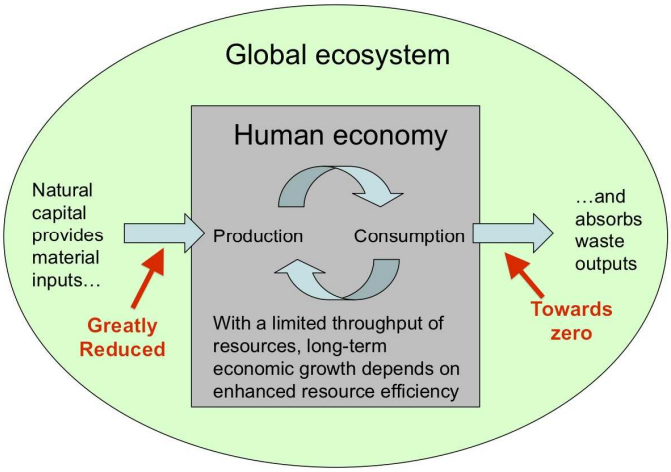
Zero waste in summary



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Moving to zero waste

- The top of the hierarchy is the priority:
  1) Prevention
  2) Reuse
  3) Recycling, Composting/AD

- Some examples:

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1) Develop prevention

- Prevention is linked to recycling
  - Recycling - and food waste collection - makes waste more visible, and seems to encourage prevention
- We need to share best practice
  - There is a lot to learn from, in the UK, EU and beyond
- We need to create plans and set targets
  - The Government needs to create a waste prevention plan, due to the revised Waste Framework Directive
  - The European Commission will examine the potential for EU waste prevention targets, with the aim of putting in place targets for 2020 in 2014

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2) Develop reuse

- Huge amounts of goods are currently wasted
  - Furniture makes up a significant proportion of residual waste [3]
- Re-use has huge advantages
  - Diversion from landfill
  - Provision of furniture, electrical goods etc at low cost
  - Creation of employment
- e.g. in Flanders [3]
  - Network of re-use shops
  - Some also re-condition goods, e.g. reupholstering furniture
  - Funded through waste costs, social schemes and income from sales
  - Discounts available for people in need
- Win-win, particularly in a difficult economic times

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3) Optimise recycling

- Use the best techniques that will work in your situation
  - This will usually be kerbside separation
  - The most cost effective and environmentally effective method, according to WRAP research [4]
- Recycle as wide a variety of materials as you can - and plan for more
  - E.g. WRAP has shown that mixed plastic recycling can be environmentally and economically effective [5]
- Don't forget civic amenity sites
  - The best performers (e.g. Flanders, Somerset) do half of their recycling this way [3].

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4) Take advantage of AD

- Anaerobic Digestion (AD) is the waste technology of the moment
- AD can generate 100% renewable energy from food waste:
  - biogas can be burnt directly, to generate electricity (least efficient option), and/or heat
  - it can be injected into the natural gas grid (very efficient)
  - it can be used as a transport fuel (very efficient)
- Food waste collection is cost effective and popular
  - Best (in cost and environmental terms) to collect food waste separate from green waste, in kitchen caddies, with compostable liners
  - Makes alternate weekly residual collection more palatable

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Zero waste creates jobs

- Reuse, recycling & composting creates jobs
  - See our new "*More jobs, less waste*" study [6].
  - Recycling creates 10x as many jobs as landfill or incineration
- Jobs created by achieving a 70% municipal waste recycling target
    - instead of the 50% minimum defined in the Waste Framework Directive:
  - **In UK: over 25,000 new jobs for 70% vs 50%**
    - **Plus over 18,800 from achieving 70% for C&I waste**
  - **In EU: over 500,000 new jobs**

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Now the residual...

- In a true 'zero waste' world there would be no residual
  - Zero waste to landfill is not zero waste - zero residual waste is zero waste
- Residual waste is a problem to be prevented
  - Prevention of residual waste is the best climate option
  - Residual waste has economic cost, while keeping material out of the residual often has economic value.
  - Avoiding residual waste increases resource efficiency.
- Everyone claims they want to minimise residual waste
  - Yet many technologies depend on a continuous stream of it...
  - Some people even sign 25 year contracts guaranteeing it!

Residual waste - what is it?

- How much is there?
  - As a percentage of total municipal waste, Wales is assuming a maximum of 30%, Flanders is burning around 25%, while the Hovedstaden region of Denmark burns around 77%, recycling just 21%.
  - The amount is constantly reducing in the UK, as a result of increasing diversion to recycling etc, and the overall decline in waste volumes.
- What is in residual waste in the UK [3]?
  - 1) Material that could be reused or recycled:
    - but isn't being collected adequately (e.g. food waste, furniture)
    - but isn't being collected due to limited participation
    - but isn't being collected due to poor markets (e.g. mixed plastics)
  - 2) Materials that can't currently be recycled, some of which might become recyclable in the future due to improved design or markets
- Therefore..
  - The amount of residual waste will vary
  - Given the advantages of prevention, reuse, recycling and composting/AD...
    - Waste policy should aim at reducing residual waste

Why not incinerate the residual?

- The incineration advocate would say...:
  - An incinerator will generate some electricity, maybe some heat (if you can really find a market)
  - They aren't as polluting as they used to be, and you can hire an architect to make them look weird
  - They are a low risk technology, if rather expensive
- But...
  - The electricity is created at a cost in terms of climate emissions, as the technology (even if heat is used) is inherently inefficient [7].
  - Incinerators will burn recyclable materials, unlike other residual waste technologies that will separate out e.g. plastics
    - And it's better for the climate to landfill plastic, not incinerate it, if you can't recycle it [8]
  - Incinerators are large, expensive and inflexible, and must be fed with a constant stream of waste, thus removing flexibility
  - People will - rightly - oppose them.... see www.ukwin.org.uk

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An alternative....

- Don't treat residual waste as material to be burned or buried
- View it as a resource:
  - Use Material Recycling Facility (MRF) technology to separate out recyclables - including plastics, before and after...
  - Composting the residual:
    - to remove the bulk of the biological activity (in case the output is landfilled)
    - to release further recyclables
    - to create a low-grade compost output.
- Other advantages of this approach:
  - Much cheaper and faster to build than incineration, so can be built with much shorter contracts.
  - Very flexible, new 'lines' can be added or removed, MRF can be used on recyclables, composting can be used for source separated compost.
  - Climate - and resource - performance is better than incineration, even if output landfilled [7].
  - Already happening in UK, e.g. New Earth solutions, Dorset

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The balance...

	Incineration	Composting & separation
Cost & contract	Very expensive, usually financed through 25-30y contract	Cheap, can be financed through 5y contract
Planning & Build time	Long, usually with local opposition, sometimes engineering problems	Short, generally less opposition, simple technology
Diversion from landfill	Diverts BMW; produces toxic fly ash and less toxic bottom ash - some or all is landfilled	Diverts BMW; produces low grade compost which may be landfilled
Climate & resource efficiency	Inefficient generation of electricity; burning of plastic worse than landfilling it [8].	Increased recycling is positive in climate and resource efficiency terms. Un-recyclable plastic can be landfilled, sequestering carbon [7]
Flexibility	Stable demand for waste for >25 years, regardless of changes in waste composition, new technologies etc.	Very flexible, adapting to changing waste volumes and composition. Able to provide feedstock for new technologies.

Other policies to support zero waste

- Adopting ‘best practice’ can get you a long way
  - Flanders – in northern Belgium – is already recycling >70% of its waste
  - **Zero waste communities and networks are a key way of establishing and spreading best practice**
- But for true zero waste we need more:
  1) New rules for products
  2) Measurement and reduction of resource use

1) New rules for products

- A largely missing element, e.g. :
  - Ensure products designed to last
    - E.g. Compulsory minimum guarantee
  - Ensure products are reusable or recyclable at the end of life
- Most such laws are decided at EU level
  - But can we get the government to support new EU laws??
- A key tool in getting >75% recycling

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2) Getting Europe to measure and reduce its resource use

- We are leading Friends of the Earth Europe's work on Resources & Consumption, working to get Europe to measure its resource use.
- We have selected four indicators, all including the resource use involved in imported goods:
  - Total material resource use
  - Water footprint
  - Land footprint
  - Carbon footprint
- See our briefing for an introduction [9]
- We are working to get these adopted at EU level.
  - As a tool for developing new polices to reduce resource use

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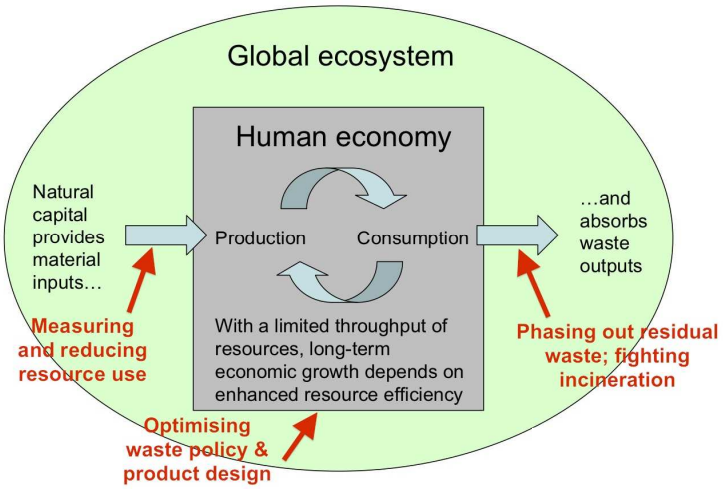
Linking together...



Zero waste for fast action on climate change

- We know:
  - That CO2 emissions must be brought down rapidly
  - That pressure on natural resources is getting higher and higher
- We also know:
  - That increasing reuse, recycling, composting and anaerobic digestion will help solve both these problems
  - That composting & separation of residual waste – rather than burning it – will also help solve these problems
- Why aren't we doing this now, everywhere?
  - How can we get a stronger zero waste movement in the UK?
- For more information & briefings:
  - http://www.foe.co.uk/waste

References

[1] *"Overconsumption? Our use of the world's natural resources"*, Friends of the Earth Europe/Sustainable Europe Research Institute, September 2009: http://www.foeeurope.org/publications/2009/Overconsumption_Sep09.pdf

[2] "*Gone to waste: the valuable resources that European countries bury and burn*", Friends of the Earth, October 2009: http://www.foe.co.uk/resource/reports/gone_to_waste.pdf

[3] See presentations and write up from the Friends of the Earth Residual Waste conference in May 2009: http://www.foe.co.uk/campaigns/biodiversity/news/taking_rubbish_20031.html and also our "*Sorting residual waste*" briefing http://www.foe.co.uk/resource/briefings/residual_waste.pdf

[4] "*Choosing the right recycling collection system*", WRAP, June 2009: http://www.wrap.org.uk/downloads/Choosing_the_right_recycling_collection_system.f04f58c3.7179.pdf

[5] *"Mixed Plastics*", WRAP: http://www.wrap.org.uk/recycling_industry/information_by_material/plastics/mixed_plastics.html

[6] *More jobs, less waste*", Friends of the Earth, September 2010: http://www.foe.co.uk/resource/reports/jobs_recycling.pdf

[7] *"A changing climate for energy from waste?*", Eunomia Consulting, May 2006. http://www.foe.co.uk/resource/reports/changing_climate.pdf

[8] Eriksson, O., & Finnveden, G. (2009). *Plastic waste as a fuel - CO2-neutral or not?* Energy & Environmental Science, 2(9), 907-914.

[9] Friends of the Earth Europe. (2010). *Measuring our resource use: A vital tool in creating a resource-efficient EU*. http://www.foe.co.uk/resource/briefings/measuring_resource_use.pdf