Zero-disposal is no longer a dream!

Waste need not remain unresolved
We can fix waste - and a lot more

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BLINDSP T

National Waste Summit, Dublin. 26th-27th November 2008

Waste is the Grand Central Station of issues

human health

↑

pollution, toxics

↑

debt ← materialism ← **waste** → greenhouse gases

↓

non-renewables ← natural resources → biodiversity

↓

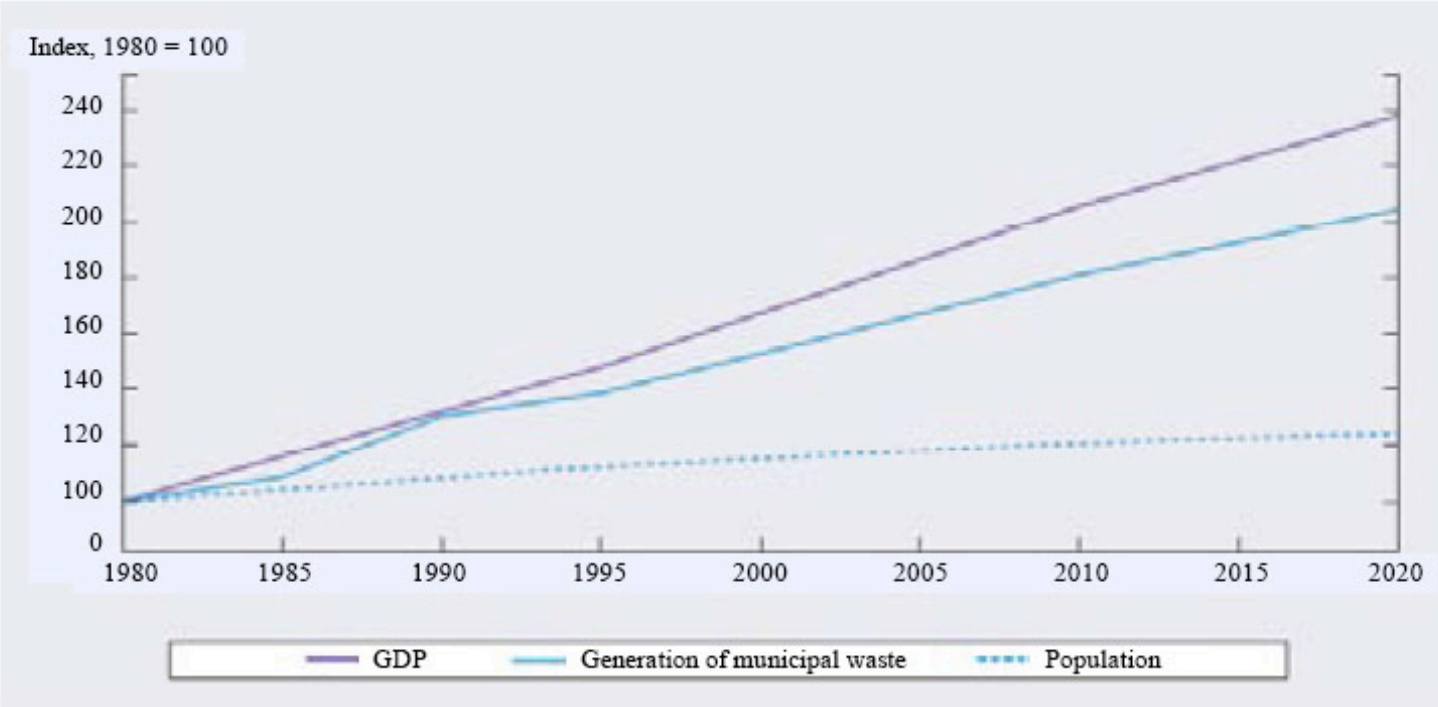
resources for the economy

↓

economic health

Default planning

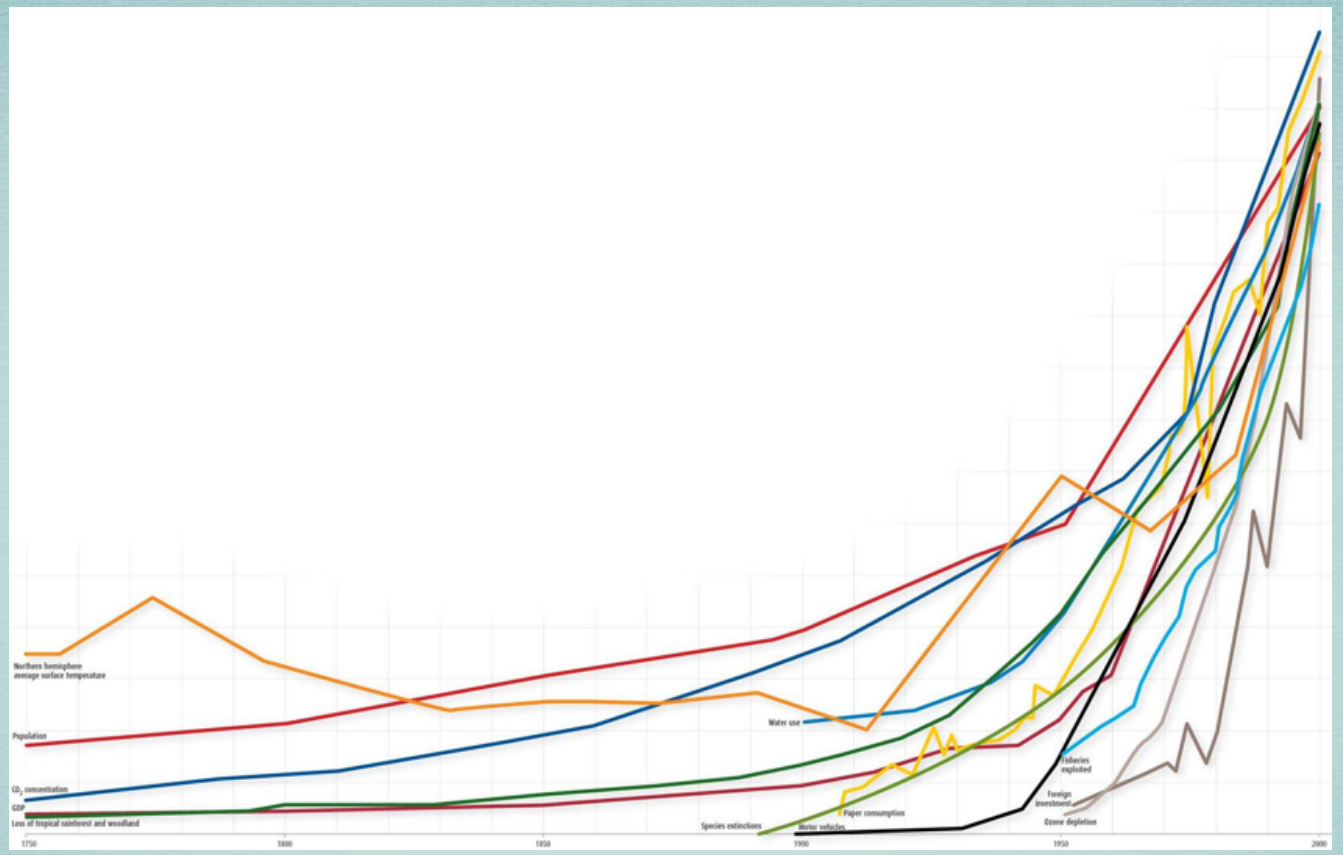
Municipal Waste Generation, GDP and Population in OECD Countries, 1980-2020



Source: OECD (2001) *OECD Environmental Outlook.*

predict + plan: 'join the dots'

Here we are, at the top



Loss of forest, CO2 concentration, species extinctions, motor vehicles, ozone depletion, water use, paper use, Northern hemisphere average temperature, population, global real GPD. 1750–2000

New Scientist magazine, 16 October 2008, page 40–41

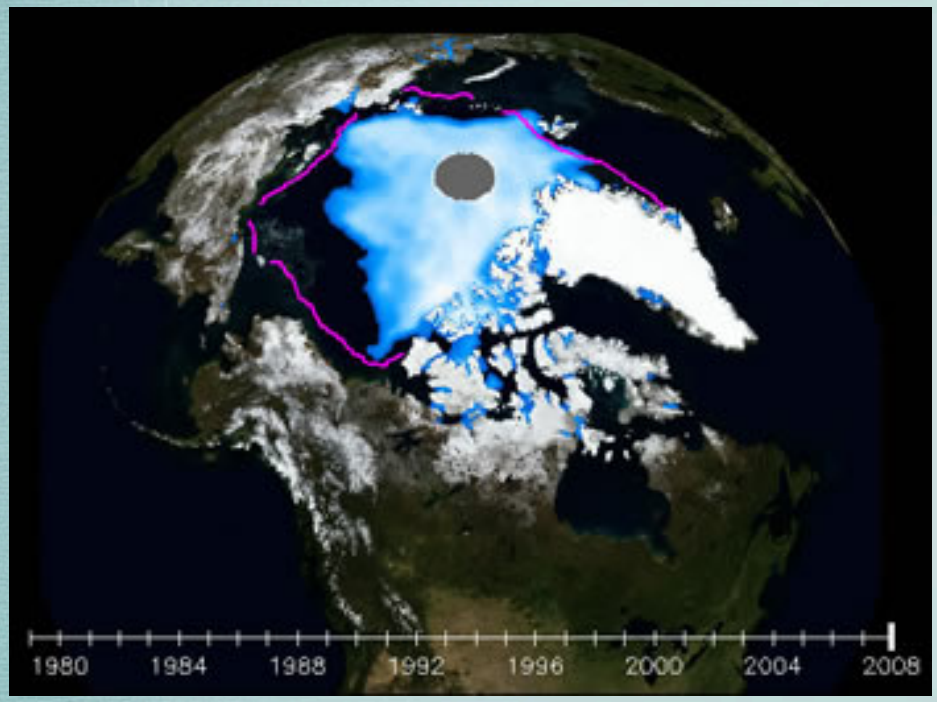
How are we doing?

"Political efforts to curb pollution, protect forests and avert climate change have proven totally inadequate."

Achim Steiner
UNEP executive director, Oct 2008

Methane from thawing permafrost in Siberia
http://www.sciencedaily.com/releases/2007/10/071025174618.htm
Image: Sergey Zimov

The ice says ‘time’s up’



National Snow and Ice Data Center www.nsidc.org/

Ice albedo effect is one of many positive feedbacks

www.apollo-gaia.org/BaliandBeyond.htm

Vanishing ice shows that existing levels are already too high

James Hansen et al. Target Atmospheric CO2, Open Atmospheric Science Journal, 2008 (in press)

Which way now?

Image: www.greenfutures.org.uk

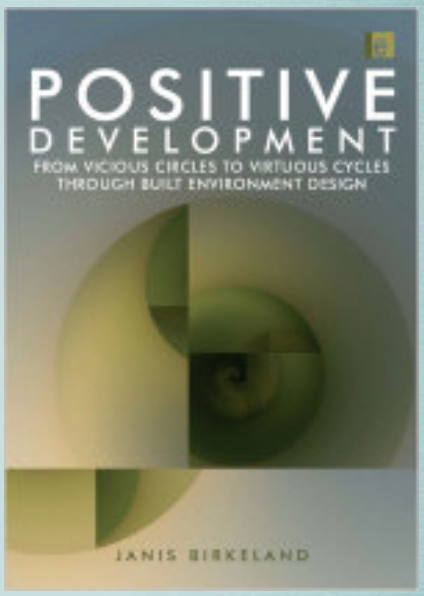
"The most important thing is not to become trapped by your own mindset. You should look for opportunities to twist the logic 180 degrees rather than 20 or 30."

Evan Davis
former BBC economics editor

Less bad is not good enough

"The view that negative impacts are an inevitable consequence of development has blinded us to the obvious. We could design development to increase the size, health and resilience of natural systems, while improving human health and life quality."

Janis Birkeland



Positive Development. Earthscan 2008
'precycling insurance' economic tool for positive development on page 339

A sense of being stuck

Image: John Cole, http://emedia.thetimes-tribune.com

30 years of unsustainability is hard on idealism

How to make problems feel manageable?

Default resource flow

Image: Professor Hiroshi Takatsuki www.japanfs.org

The first critic of the throw-away society?

"Our enormously productive economy demands that we make consumption our way of life, that we convert the buying and use of goods into rituals, that we seek our spiritual satisfaction in consumption patterns. We need things consumed, burned up, replaced and discarded at an ever accelerating rate."

Victor Lebow

Retail analyst, writing in 1955

'Price Competition in 1955', Journal of Retailing. USA, Spring 1955. Page 7

Default strategy: waste = growth

"Total consumption of resources will continue to increase as a result of economic growth"

"The G8 will seek to reduce waste, reuse and recycle resources and products to the extent economically feasible."

3R Action Plan Adopted at the G8 Sea Island Summit, June 10 2004

These kids take part in the same strategy

Image: Dhaka in Bangladesh:
WaterAid/Kate Eshelby
www.wateraid.org/

The speedo on the 'vehicle' of economic activity

"Well, that's all very interesting, perhaps now we can get back to the real job of growing the economy."

Source: Prof Tim Jackson quoting UK Treasury Official

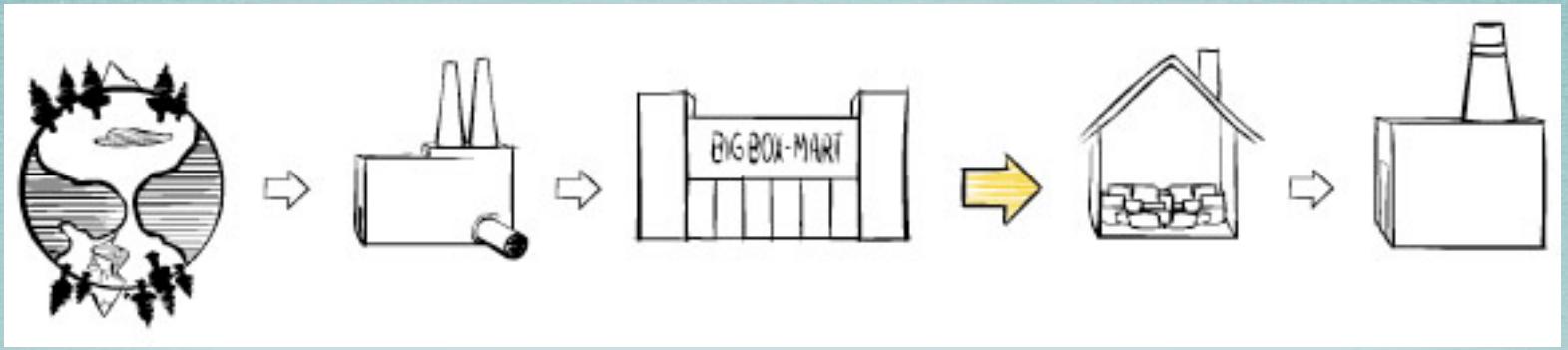
Most people assume the default growth vehicle is the only one available.

It's the economy...

"The science tells us that if we are serious about saving Earth, we must reshape our economy."

New Scientist editorial, 16th October 2008

What shape is the economy in?



"More than 90% of GDP goes to form waste and about 80% of all saleable products end up as waste, on average, within just six months."

CSIRO, Recycling – A Review. 2005

Images: www.storyofstuff.com

How to describe this?

Kenneth Boulding, 1966. Cowboy economy vs spaceman economy.

United Nations ZERI, 1994. Zero emissions, “All waste is to be converted into value-added ingredients”.

Japan, 2000. Fundamental Law for Establishing a Sound Material-Cycle Society.

Bill McDonough and Michael Braungart, 2002. Cradle to Cradle: Remaking the Way We Make Things.

China National Plan, 2006. “It is an urgent strategic task for China to vigorously develop the circular economy.”

Some others thinking this way

Wal-Mart, Ricoh, Xerox, Ford, Toyota, Nike, Hewlett-Packard, Dell.

New Zealand, Philippines, Germany, Wales

Western Australia, Victoria, Canberra

Kamikatsu, Japan (>80% recycling)

Much of British Columbia, Canada

Californian towns, cities and counties

Are you ready for a promotion?

"Picking up and reclaiming the scrap left over after production is a public service, but planning so there will be no scrap is a higher public service."

Henry Ford

Great Today and Greater Future. Cornstalk Publishing 1926, p142

Ford, again.

"The vision behind Model U is entirely positive. Instead of focusing on minimizing environmental harm, Model U starts to find ways to have fun and create environmental benefits at the same time."

Bill McDonough

If it can be done with an SUV...

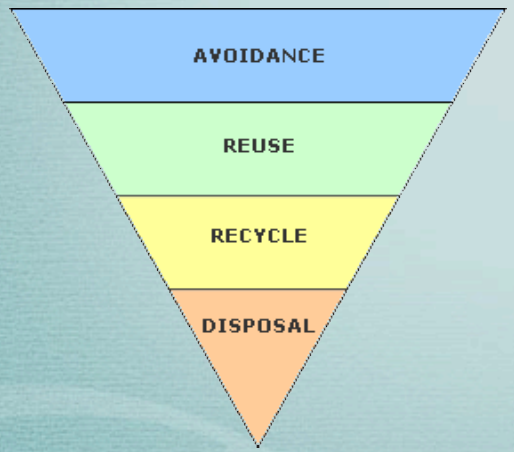
"These materials never become waste, but instead are nutrients that either feed healthy soil or the manufacturing processes without moving down the value chain."

Text: www.media.ford.com

Image: Michael Braungart www.epea.com

A choice of 2 waste hierarchies

Default: waste disposal is perpetuated by catering for it. 'Progress' means creeping away from landfill.



Relevant: waste disposal is phased out by shifting incentives to the top. Progress means rapidly phasing out additional wastes in land, water or air.

Default mindset	Relevant mindset
waste is stuff to get rid of	waste is lost resources, piling up in land, water or air
led by habit	led by vision and dialogue
the fewest people involved in decision-making	the most people involved in decision-making
Expensive and centralised	Nearer, cheaper, faster

Precycling

Precycling is action taken so something doesn't become waste

Everything can be precycled; everyone can precycle

Image: Publicity by Berkeley City, Ca in 1989
www.ororkepr.com

"The U.S. Environmental Protection Agency (EPA) cites precycling as the preferred method of integrated solid-waste management. Trash is eliminated before it is created."

TEACHING THE CONCEPT OF PRECYCLING, Gillilan, Sheryl; Werner, Carol M., Journal of Environmental Education, Fall 1996, Vol. 28:1

The ‘missing link’?

Link goals to the set of actions needed to reach them

Link economic, ecological and societal success

Link households, communities, government and business

Link ‘waste management’ to a healthy future; managing waste before it shows up for disposal

Precycling is:

Phasing out incompatible materials

Arranging that resources are regenerated as resources

Building nature’s capacity to remake resources

Meeting more needs with less so everyone can take part

Default: full steam ahead?

Borrow the language of sustainability

Say “there is no other option”

“Integrated solutions”

Prepare excuses:

“someone else’s fault”

There are no lifeboats.

The credit crunch was a gentle bump compared to what’s ahead.

Wasteberg

1t MSW represents…

recoverable energy ~ 3500Mj

embodied energy ~ 15000Mj

embodied emissions
~ 2.5t CO_2e

upstream waste ~ 70t

rucksack of hidden costs = soil, biodiversity, more energy and emissions, etc

Image: City of San Francisco. Figures: www.steppingforward.org.uk, The Next Efficiency Revolution: Creating a Sustainable Materials Economy by J Young and A Sachs. Worldwatch Institute (1994), p 13

The energy crisis...

...is a consequence of linear resource flows.

"Factor 10 resource efficiency will also dampen the energy demand by up to 80%, opening completely new vistas for de-carbonization and for supplying sufficient energy to the 2 billion poor of this world."

Friedrich Schmidt-Bleek, Factor 10 Institute. 2004

Are we short of energy or resources?

Sunshine arrives free of charge at 14400 times the rate of global primary energy consumption

William Shepherd
Energy Studies. Imperial College Press, 2003, page 31

New resources don't arrive at all

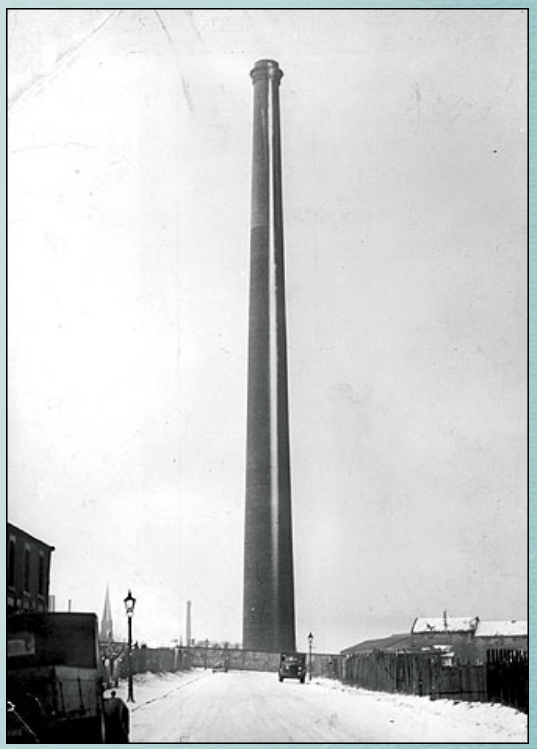
“the material may be destroyed by fire.”

First ‘destructor’ built in 1873 in Manchester.

“Well-constructed and properly-worked plants of this type should give rise to no nuisance, and may be located in populous neighbourhoods without danger to the public health or comfort.”

www.1911encyclopedia.org/Destructors

Image: BBC, Audley destructor in Blackburn, Lancashire

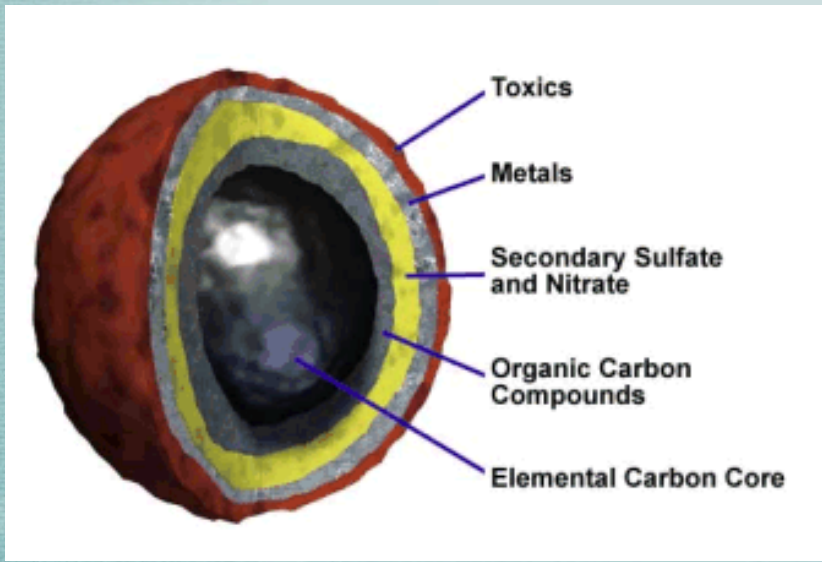


Incinerators are actually very productive

Burning 1t RDF makes 1.91t waste ash, CO2, CO, NOX, exotic pollutants and contaminated water vapour

www.biffa.co.uk/files/pdfs/MassBalance_Thermowaste.pdf Page 19

Many new toxicological pathways

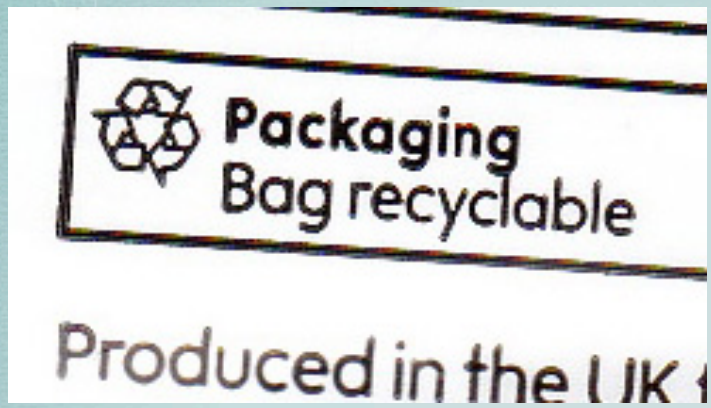


Vast quantities of fine particulates with "considerable lethal potential"

The Health Effects of Waste Incinerators, June 2008
Dr Jeremy Thompson and Dr Honor Anthony
www.ecomed.org.uk/pub_waste.php

Image: Clean Air Task Force www.catf.us

It's renewable if it's renewed



'recyclable' is an empty promise if there are no recycling facilities

Is it OK to burn 'renewable' biomass?

"Currently, the sinks are removing only 550 kg for every ton of CO_2 emitted, and this amount is falling."

www.globalcarbonproject.org/carbontrends 28th Sept 2008

Natural capital is shrinking and unstable

Unrecyclable organics: feed the soil

Dry and wet conditions in the field next to my office.

Farmer: “This field needs 300 tonnes of compost every year.”

Nitrous oxides from soils: ~9Mt/yr globally.

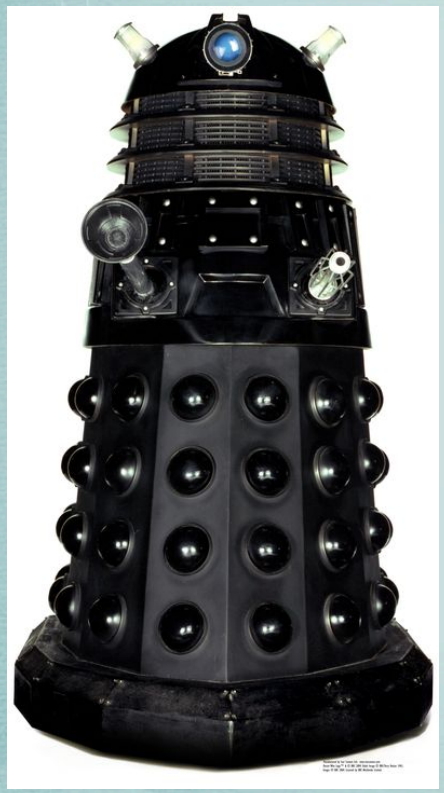
310 times warming effect of CO_2.

Measured by satellite, 2000. Lyatt Jaegl, University of Washington.

This is more than the combined CO_2 emissions of Japan and India.

www.en.wikipedia.org/wiki/
List_of_countries_by_carbon_dioxide_emissions

Compostable organics: exterminate?



- Unventilated ‘dalek’ home digesters/ ‘composters’ claim to operate aerobically, as if they were composting
- Top-up bacteria comes from septic tanks
- The waste material mostly vanishes
- No known research on mass-balance or production of methane and nitrous oxide

Landfill Directive: how not to...

What have we been doing since April 1999?

Following the Directive's upside down waste hierarchy

Seeking mixed waste 'solutions' rather than focus on biodegradables

Getting excited about costly techno-fixes

Taxing landfill but not 'skyfill'

Thinking small: number of people involved, number of material streams and number of contracts

Landfill Directive: how to...

Don't confuse biodegradable municipal waste streams with general rubbish.

Need not be expensive, slow or unpopular:

Minimise transport.

Clusters of houses, networks of volunteers, bulk builder's bags, neighbourhood teenagers.

Information is cheaper to move than materials. Who knows how to compost grass clippings?

Default: dis(engagement and empowerment)

"Whatever you do the public will object"
UK County waste strategy officer

PFI: imagine getting a 30 year mortgage on an unwanted house and having no say in the purchase. This is waste sub-prime.

www.frontofpipe.net report: Landfills in the Sky, 2006

Communities: "the balance of power, in Ireland at least, serves to marginalize civil society"

Prof Anna Davies

DAVIES, A.R., A wasted opportunity? Civil society and waste management in Ireland, Environmental Politics, 2007: 16, (1), p52 – 72

Collaboration and dialogue

Language and strategy ‘beyond waste’. Not 3Rs (yawn)
It’s healthy local economies, neighbourhoods, jobs, food...

Communities and community-based resource recovery are a gold mine of opportunity which has hardly been scratched.

Beware flow control for separated materials and long-term lock-in to unseparated waste treatments.

Image: Recycling collection by electric vehicle in Lewes

A future for the waste industry

Valuable expertise and capabilities

Reposition as resource recovery industry which can profit from declining wastes

Non-reusable hazardous waste collection and containment

Gasification or pyrolysis of declining residual wastes Clean up liquid or gas output for use in transport, cooking and heating

New York Times, 'Gassing up with Garbage', 24th July 2008. www.nytimes.com

Source-separate a stream for this

Design, but of what?

"From our perspective, waste doesn't need to exist, it's a design flaw."

Jared Blumenfeld

Director of San Francisco Environment (City Council Department)

- ☑ strategy – done
- ☑ engagement – done
- ☑ economic signals – now hit the accelerator
- ?? technical design issues: follow from the above

Default economic incentives

Try to keep the default ‘vehicle’ running

pay as you throw = subsidy to product producers
landfill tax = subsidy to incinerators
PFI sweeteners = subsidy to big business

Green taxes:
Depend on public trust of government
Fossil fuel taxes perpetuate fossil fuel dependence

Relevant economic incentives

Switch to a ‘positive development’ vehicle for growth

Strength of markets r.t. strength of constraints on markets

Put incentives where the most solutions are available

Prices should include the cost of protecting our future

We can fix waste - and a lot more

Insurance is an ideal economic tool

Government's role is regulation and scrutiny, not to handle the funds nor prescribe what to do.

Can work preventively, like early fire insurance.

Can be obligatory, like car insurance.

Recycling insurance:

In EU WEEE Directive

Premiums fund recycling

Cheaper if more recyclable

Works for any durable product

‘Life insurance’ for resources

Precycling insurance for products can fund all precycling opportunities. Disposal phased out.

Producers can choose. Cut their premiums by precycling or not bother and pay more to support precycling elsewhere. Consumers can choose.

Premiums paid for ‘waste risk’. Premiums invested to cut waste risk.

Waste risk is predictable

Resource flows are too complex to predict impacts and their costs. Some impacts could be unaffordable. So use waste risk instead.

Will our product add to waste levels in ecosystems?
How much is recyclable or biodegradable?
How much is handled by the producer's contribution to the processing capacity of nature, communities or industry?

A precycled planet

Precycling insurance can work with any material product; raw materials, chemicals, components, packaging, fuels, consumer products and infrastructure. (Not for air, water and soil.)

Collection and renewal of used materials
5-10X energy and resource efficiency
Local, sectoral and national dialogue and planning
Support for new skills and meeting needs cooperatively
Redesign, refit and renewal of infrastructure
Protection and expansion of nature
Help these things happen everywhere

References

Greyson J. Systemic Economic Instruments for Energy, Climate and Global Security, in F. Barbir and S. Ulgiati (Eds.), Sustainable Energy Production and Consumption, Springer Verlag, 2008: p139-158. NATO Science for Peace and Security Series

http://www.springerlink.com/content/u222304p3g1lvt67/

Greyson J. An economic instrument for zero waste, economic growth and sustainability. Journal of Cleaner Production, zero waste special issue. Elsevier, 2007;15: p1382-1390

http://dx.doi.org/10.1016/j.jclepro.2006.07.019

"The difficulty lies not in the new ideas, but in escaping the old ones."

John Maynard Keynes

The General Theory of Employment, Interest and Money, 1935

"The old system created waste from wealth, now we need to create wealth from waste."

Robin Murray

speaking about his report: Creating Wealth from Waste. Demos, 1999