



By Leo Hickman, The Guardian, Thursday 26 February 2009

The truth about recycling

With stories of old TVs ending up in Nigerian landfill sites, the collapse in demand for recycled materials, and claims that incineration is a better way to dispose of waste, there's a growing backlash against recycling. So should we still be washing up those baked beans cans? Leo Hickman finds out



A digger moves waste at Greenstar Recycling facility at Aldridge near Walsall.
Photograph: David Sillitoe/Guardian

Several times a year, without forewarning or invitation, inspectors representing the Chinese government make their way to the Black Country, the geographical and, some would argue, industrial heart of England, to rummage through the [recycling](#) collected from the region's streets. They pass through Walsall and on to neighbouring Aldridge where they visit a former foundry that was recently converted - "recycled", according to its owners - into the country's largest "materials recovery facility" (MRF, pronounced "merf").

"We had them here again just a few weeks ago," says Mick Davis, the business development director at Greenstar, the site's owners. From a gantry high up above the loud confusion of conveyor belts, thrashing bag splitters and giant spinning magnets below, he points to a towering pile of bales being stacked by a forklift truck in the corner of the hangar-like building. The sweet, acidic stench of rotting refuse attacks the nostrils.

"The inspectors reserve the right to split open any of those bales containing plastic bottles and check for quality and contamination," says Davis. "They are very fussy about standards. They will also closely inspect our 'soft mix' paper bales, too. We now have to take a photograph of every bale before it gets shipped to China. It's all about traceability and quality control. But it's their right to be fussy: they pay us good money for these materials. We're getting about £50 for a 300kg PET [polyethylene terephthalate, a thermoplastic polymer resin] bail at the moment."

This is the vision of recycling we all want to hold dear in our heads as we wash up baked bean cans and sort wine bottles from plastic milk cartons ready for collection: confirmation that as much of our [waste](#) as possible is collected, sorted and sold on for a profit.

But the reality - somewhat at odds with the evidence to be found in Aldridge - is that recycling is undergoing a crisis of confidence. Amid stories of old televisions being sent for recycling but instead heading for Nigerian [landfill](#) sites, and popular revolts against "bin taxes" and fortnightly collections, many householders say they are beginning to lose

confidence in a system that has only been in existence for the last decade. (It's easy to forget that as recently as 2000, as much as 90% of waste in England was still being sent to landfill: in 2008, it stood at 59.9% of household waste.) Compounding this sense of anxiety is the news that the international market for recyclable commodities has taken a dive alongside the rest of the global economy, sparking headlines about piles of unsold recycled materials across the country.

And hovering over this are longer-term questions about the direction our waste management strategy is headed, with an increasing push towards [incineration](#) as landfill is slowly squeezed out of the equation by ever-tightening environmental directives, regulations and taxes. Would it, in fact, make more sense both environmentally and economically, as one government waste adviser controversially suggested recently, to be burning some of our recycling to generate both electricity and heat instead of, say, exporting it?

Inside the warmth of the boardroom, away from the noise and hurry of the machinery, Ian Wakelin, Greenstar's CEO, offers up a passionate defence of recycling: "Yes, there is a backlash against recycling at the moment, but there is also a real lack of balance in the debate. Is recycling being landfilled, as some are claiming? Beyond the contaminated matter that we have to extract from the recyclate we receive [about 5-10% of the total weight], I think this is nonsense. I haven't talked to anyone in the recycling industry who has landfilled anything that is recyclable. The economics just don't stack up. Why would they when landfill gate fees are so high? [Currently, about £50-60 a tonne.] They can give it to me and I will readily take it off them."

Wakelin feels that the UK still has a long way to go before it feels at ease about how it deals with its waste. "We are such a nimby culture here in the UK," he says. "Would you rather have a landfill or an incinerator on your doorstep? Look at Vienna, where they've built an incinerator right in the centre of the city that is so beautiful that it now attracts tourists. The danger is that public perception is bloody difficult to change. We need more positive education programmes about what we do with our waste. For example, it's immoral not to ship our recycling back to India and China if it's helping them to grow their economies and develop. Who are we to deny them this resource?"

Wakelin believes that one of the tricks to winning over a sceptical public is to make recycling far easier for the average householder. "I always get asked the same questions at dinner parties," he says. "Why do I have to have so many bins at home? And why can't I recycle more plastic?"

The solution, says Wakelin, is to "leave it to the machines", rather than have "Mr and Mrs Average sorting it all at home". His company's philosophy for waste is that "co-mingled" collections (where all dry recyclables are placed by householders into just one bag ready for collection) are the way forward, as opposed to kerbside collections (where householders are expected to separate their recycling at home for refuse workers working "kerbside" to then put these sorted materials by hand into separate containers on their vehicle) which, he says, are less efficient, both environmentally and economically. The MRF at Aldridge processes 500-600 tonnes of municipal recycling (collected from households, restaurants, small businesses etc) a day, serving 15 local authorities, some as far away as London and North Wales. This represents 3-4% of the UK's dry recyclate.

"The traditional argument against co-mingled is that it gets more contaminated than kerbside," he says. "That was the case five to 10 years ago, but the technology is much better now. The industry is going through a revolution right now, from the rag-and-bone man through to the machine. We are seeing a rush by councils towards co-mingling. Nine out of the 10 best-performing local authorities, when it comes to recycling rates, use co-mingled collections. When they switch over, they typically see a 20% leap in recycling rates overnight."

Back out on the shop floor, Davis edges past the 40-strong team of "pickers", who are all intently scanning the recycling as it flashes past them on the conveyor for any contamination missed by the machines. "We see all this as a commodity, not waste," he says. "We then process it into soft-mix paper, glass, aluminium, metal cans and soft plastics by polymer type and colour. About 10-15% of our materials go to China, but the majority stays in the UK. All our newsprint, for example, goes to a processing site in Aylesbury.

"Steel cans used to go to the steel firm Corus, but they have currently abandoned this due to the downturn in the car industry. Last year we were getting £60 a tonne for steel, but that's down to £30-£50. Yes, this has hurt us. But we are tied to the global economy and we think the sharpest shocks are over. People had been running down their stocks of recycled materials, especially in China, but now that they've exhausted those supplies they are coming back into the market and prices have strengthened again. It's a total myth that we can't sell this stuff. The main problem is that there's a real shortage of processing facilities like this around the country."

Chris Allen is one of the reprocessors waiting keenly "downstream" for these materials to turn them back into "useful stuff". As CEO of Smurfit Kappa Paper UK, he oversees a firm that produces 450,000 tonnes of 100% recycled brown paper at two paper mills, in Kent and Birmingham, for use by corrugated box manufacturers across the UK and Ireland. "We turn things such as newspaper, old cardboard boxes and cornflake packets into quality

brown paper," he says. "The UK produces 2m tonnes of cardboard boxes a year. We should do our level best to produce these with locally recycled materials. At the moment, I'm paying £50-55 a tonne for mixed waste paper and card, whereas I'm selling it as brown paper for £280 a tonne. This is a viable business, believe me. The fibres from those trees that get cut down have a bloody good life."

Allen has strong views about media reports that some local authorities and collection companies have been stockpiling paper, and other sorts of recycling, as market prices have collapsed: "The Chinese buy paper in huge volume and have been outbidding us. They had been buying like hell and paying incredible sums for it. But the downturn caught up with China at the end of last year and they suddenly stopped buying the expensive stuff from far-off Europe. But they are now coming back into the market and we are seeing prices rise again. There's always been ups and downs in the market, but it was the collection companies who had been exclusively selling to the Chinese that were bleating at the end of last year that the market had collapsed. I hate to say, 'I told you so,' but if they had had a balanced supply portfolio they wouldn't have been in that pickle. The quiet, sensible ones just got on with selling to buyers like me. Look at Birmingham City Council, the largest local authority in the country. They didn't have one single problem, because they sell paper that is well sorted and of a high quality. It's the shit-quality paper that you saw being stockpiled on the TV."

Tom Freyberg, editor of Recycling and Waste World magazine, agrees there are signs the market is recovering from its trough in December 2008. "Problems started in October when the prices of materials such as paper and plastics fell dramatically," he says. "However, prices are now climbing. For people to lose faith now in recycling would be disastrous."

But it's not just the availability of buyers that has helped to depress prices, say some prominent voices within the industry. There is a problem with quality, too. The Campaign for Real Recycling, which is made up of some of the UK's largest materials reprocessors, in addition to community recycling representatives and Friends of the Earth, argues that the overall quality of recycled materials in the UK just isn't as high as it should and could be, and that this is largely down to the trend for co-mingled collections.

Earlier this year, the campaign group sent an open letter to Jane Kennedy MP, the minister for farming and environment at Defra, urging the government to reverse this trend. It lamented the fact that the recycling system in the UK was producing "extremely low-grade mixed materials masquerading as paper, aluminium, glass" and, as a result, many reprocessors were having to import materials from abroad unnecessarily.

Caught in the middle of this debate is the Waste and Resources Action Programme (Wrap), the not-for-profit company set up as part of the government's waste strategy published back in 2000. Phillip Ward, as director for [local government](#) services, has the task of advising local authorities on what types of collection systems they should opt for.

"We are going through a large transitional period," he says. "As recently as 2000 we were largely putting all our stuff in the ground. But we're now at 35% recycling rates. Local authorities had to invent a new system but no one knew the best way to do it. That's why we now have a patchwork solution across the country. It's not a finished system yet."

Yes, he says, we must all aim to produce cleaner, better quality recycle, as well as aim to "narrow the variations between the local authorities", but he adds that a patchwork of collection and sorting methods will always be necessary to some degree due to the rural/suburban/urban split across the country. Co-mingling better suits the often cramped "internal logistics" of people living in built-up city centres, whereas kerbside collection suits those out in the leafy suburbs with enough space to sort everything into neat, tidy piles.

Psychology plays an important role in public engagement, says Ward. "Surveys have shown that most people have fairly mundane criticisms of recycling: 'Nobody explains to me what happens next to my waste', or 'Nobody says thank you for my efforts'. People do respond to this, rather than a punitive atmosphere."

Ward accepts that the media backlash ("propaganda by papers with an agenda," as he describes it) against "pay-as-you-throw" schemes, which aimed to impose an extra charge on householders who produced excessive waste, means that these are now politically untenable. Give people the right signals, as well as the right collections, he says, and most people are only too happy to "do their bit". "Our research has shown that giving people two 55-litre boxes for recycling, collected once a week, is the ideal combination. We have also found that if you get plastic recycling right it triggers further engagement. This is now a key area for us, alongside increasing food waste collections. [According to Wrap, we still throw out about one-third of the food we buy.] The next frontier is getting plastic items such as yoghurt pots and margarine lids collected. It has to be shown to be viable. For example, a new plant called Closed Loop has recently opened in Dagenham, Essex, processing plastic milk cartons and clear drinks bottles into food-grade packaging."

But Ward also wants us all to ask some broader, deeper questions about our whole "cradle-to-grave" waste economy. The waste industry has been talking about the so-called "waste hierarchy" for decades - the mantra that places waste prevention as the first goal followed, in descending order, by minimisation, reuse, recycling, energy recovery and, finally, disposal - but it has still not yet fully met these words with deeds. After all, it is now almost 50 years since the US social critic Vance Packard wrote about the excessive waste produced by western consumerism (principally, how we are all encouraged to buy things we don't need) in his landmark bestseller *The Waste Makers - the Silent Spring of the waste world* - and still we have yet to fundamentally heed his warnings.

"We need a manufacturing system that uses far more recycled materials," says Ward. "We need to tackle planned obsolescence. At the moment it's still hard to make the economic case to mend something, but, as we have already seen in places such as Japan and Taiwan, the labour pool in China will become less and less cheap as their standard of living rises. This should lead to the return of the repair man for items such as broken dishwashers, kettles and washing machines. We can do this by getting the manufacturers together. That's how we tackled standby power. Ten years ago, standby used 25-30 watts; now that's down to 1-2 watts."

Ask most householders what their No1 irritant is when it comes to waste and the response is immediate: excessive packaging. Why is the onus placed on householders and consumers to dispose of it dutifully and correctly, they ask, when the problem could be more readily tackled upstream? The Local Government Authority also recently weighed into the debate saying that supermarkets should contribute towards the costs of recycling, adding that almost 40% of the packaging used by supermarkets still cannot be easily recycled.

Ward shares this frustration, but he doesn't have a word of comfort for those who express concern about the slow creep towards incineration as opposed to, say, waste minimisation or greatly increased recycling. "Incineration is going to be inevitable," says Ward. "[But the] cleaner we can get our waste, the less of it we'll need to burn. That's why we always plead for people to keep their recycling as clean and well sorted as possible. Curry sauce all over your recycling will render it useless."

There are those, though, who believe that recovering energy by incinerating waste is better, by and large, than recycling it. The Institute of Mechanical Engineers, for example, has recently urged the government to invest in heating and energy projects with local waste being used as the fuel resource, much like the schemes found in countries such as Germany and Austria. "The government should abandon its focus on recycling as the only way to rid us of landfills," it says, "as this is quite unachievable and is clearly deceiving the public about what is really happening to their waste. Recycling should only be for waste products that cannot be more sustainably converted into electricity, heat and/or transport fuels."

Adam Read, a former professor of waste management at Northampton University, believes that the industry is still in the foothills when it comes to understanding the full environmental implications of each form of waste treatment. "We certainly need to understand our waste-flow better," he says. "We need a better grasp of the calorific values, water content, market values and the like of each waste source before pushing ahead. Yes, it sometimes will be more economical to burn waste, but the environmental impact is always going to be less when recycling. However, incineration will always be better environmentally than landfill because of the methane generated when organic waste rots underground."

On the site of a former quarry at Allington in Kent sits a facility that is squarely at the heart of the debate about whether we should be burning more of our waste, especially the portions of our waste that some argue could and should be recovered for recycling. The Enviropower energy from waste (EFW) facility, with its 80m-tall chimney, is the country's newest and largest incinerator. It also operates a MRF and, as a result, can now claim to be Kent's one-stop-shop for waste. The Waste Recycling Group, the Spanish-owned company that built the site, says the UK can expect to see more and more combined "waste management facilities" such as Allington Quarry being built in the coming years.

"We burn 1,500 tonnes of waste a day - 24/7, 365 days a year - at temperatures of 600-650C," says Paul Andrews, Enviropower's managing director, as a huge mechanical claw swoops down, grabs several tonnes of black bin bags from a concrete bunker below, and lifts them up into a shredder in preparation for entering the combustion chambers. "Doing so provides us with 43 megawatts of electricity - easily enough to power the whole of Maidstone."

As much of the recyclable material as possible, he explains, is recovered from the black bins as they pass through the shredders, but this only amounts realistically to any ferrous metals that manage to be caught by magnets. The vast majority of what Kent now puts into its black bin bags - chicken bones, bottle tops, cling film, nappies - ends up being burned inside Allington Quarry's fluidised-bed combustion chambers (ovens with 120 tonnes of sand at the bottom that is blasted with air to help increase the "burn efficiency" of the materials that pass over it). It's a one-way ticket, but Enviropower says by burning this waste it helps to divert almost half a million tonnes of Kent's waste

from going to landfill each year. For every black bag that passes into the system, 85% of the weight will be vapourised and the remaining 15% will be extracted, either as an anaerobic sludge or a dry ash. The sludge is sent to landfill, whereas the ash is either landfilled or used as aggregate for roads.

But what most of the surrounding residents want to know is what is coming out of that tall chimney. When the site was going through planning, for example, local campaigners opposing its construction said they were fearful of being exposed to soot, heavy metals, PCBs (polychlorinated biphenyl) and cancerous dioxins. Paul Andrews makes a pretty remarkable defence when probed on this matter: "It would take 25 years for this facility to produce as much pollution as is emitted by vehicles on the M25 in just three days. The legal limit for dust particles from a coal-fired power station is 160mg per cubic metre, where as for us the limit is 10mg per cubic metre. Proportionally, fireworks throw up far more in the way of dioxins. So does cooking bacon. We have even reached the limit of detection with some of the gases, but we could still go further with nitrogen oxides. The regulations on emissions are incredibly stringent now and, to be honest, we would welcome even tighter rules."

Andrews says that when most people think of incinerators now they think of the ones dating back to the postwar period. But today's incinerators, he says, are many orders of magnitude cleaner because they go to "extraordinary lengths" to clean up the gases as they leave the combustion chamber, including passing them through a lime and carbon bath to remove the acidic gases and through filter bags to remove dust particles.

"We have this Englishman-and-his-castle attitude here in the UK," he says. "Zero waste is just not possible. We live in a society where some waste streams just don't have a home other than disposal. As a country, we need to work out where we are ultimately heading with waste. The government needs to set out clearly what our waste vision is."

Recycling as much of our waste as possible is still the goal, says Andrews, but we must accept that some of it will need to be either incinerated or landfilled. But the wider, as yet unanswered, question is what happens when incinerating waste is seen to be more convenient than going to the cost and bother of recycling it? Do we block this from happening with regulation and taxes, as we are doing with landfill, or do we slide into a society that predominately incinerates its waste? The way Liz Parkes, head of waste at the Environment Agency, sees it, we are going through some inevitable growing pains as we move from a nation that once unthinkingly threw its waste in the ground and buried it to one that attempts to make as much use of it as it can.

"Yes, it is taking time to turn this around, and it's a shame that the current debate could turn attitudes away from recycling, but there is a demand out there for our materials," she says. "We have to keep building up public trust with things such as open days and school visits. We must keep the message simple. Recycling has to be normalised and socially acceptable. Just look at what happened with issues such as smoking and drink-driving over the years. It takes time as this is really all about public behaviour. We just need to move as a society from one that says 'not there, not there' to one that asks, 'Where do you want it then?'"