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# LISTENER

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**RECYCLING MYTHS BUSTED**

## WORLD *of* WASTE

**Why it's time to act on plastic**



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# BAGGING AN OPPORTUNITY

More than 35 countries have now banned plastic bags, and in many others there's a user charge, but despite public pressure, the Government is taking no action on either option. **by PETER CALDER**







In the waters off the coast of Vietnam, they brushed against my legs so insistently they could have passed for seaweed. In Tierra del Fuego at the foot of Argentina, I saw them hanging in the trees like shredded cobwebs, and shuddered to think how many had escaped, blown by the fierce winds, out into the wild, pure Drake Passage.

Each year, by conservative estimates, shoppers take away about a trillion single-use plastic bags, most of which are made from high-density polyethylene (HDPE), a petroleum derivative. About three dozen countries have banned them. These include places such as Eritrea and Papua New Guinea, which are not given to proclaiming themselves 100% Pure. Argentina and Vietnam are not among them. Neither is New Zealand.

At least as many countries mandate a charge, including all or part of about half the US states (in the most populous, California, a vote on a ban is included with the presidential and congressional poll on November 8).

The campaign for a user charge, preferably as a staging post on the way to a ban, has widespread support. But in August, the Ministry for the Environment (MfE) advised against the introduction of either.

A year after a 16,265-signature petition was delivered to Parliament by Green Party MP Denise Roche, calling on the Government to examine how it might phase out the bags, MfE came out saying it wasn't in favour of introducing any charging regime.

The ministry, which publishes a leaflet entitled *25 Steps Towards Sustainability* with the slogan "Every step makes

### **The ministry evidently took the view that a charge to discourage the use of bags was not a step towards sustainability.**

a difference", evidently took the view that a charge to discourage their use was a step that would not. Its submission was based largely on the fact that our contribution to marine contamination was nowhere near as bad as Asia's and that some retailers were already charging anyway. Further, it relied on a 10-year-old report by Australian consultants that loaded questionable factors, such as the cost of retraining retail staff – into calculations of net costs of between \$45 million and \$85 million a year. A ban or a charging regime "would not be practical", the submission said.

Barely a month later, in September, the local government and environment select committee reported back on the anti-bag petition, recommending no action. Last month, the Greens unveiled a bill, drafted by Roche, proposing a charge. The hoped-for law has gone into the ballot for members' bills. But even if it is drawn, its chances look slim. Environment Minister Nick Smith is on record as saying a charge makes no sense, since plastic bags constitute only a small proportion of litter.

GETTY IMAGES/LISTENER ILLUSTRATION



# Putting the genie back in the bottle

Charging a small deposit on every drink container, a distant memory of the 1960s, is back on the agenda.

**R**emember when the bottle cost more than the milk? For decades in the mid-century, milk came in a glass bottle with a crimped foil lid, and if you wanted a pint – from the dairy or delivered, free of charge, to your gate by the milkman, you had to provide an empty bottle – or pay as much as five times the cost of the contents.

It seemed like an extortionate charge, but kept the bottles in circulation for refilling. The same went for the deposit of pennies (later cents) on soft-drink bottles that financed many youngsters' aniseed-ball habits.

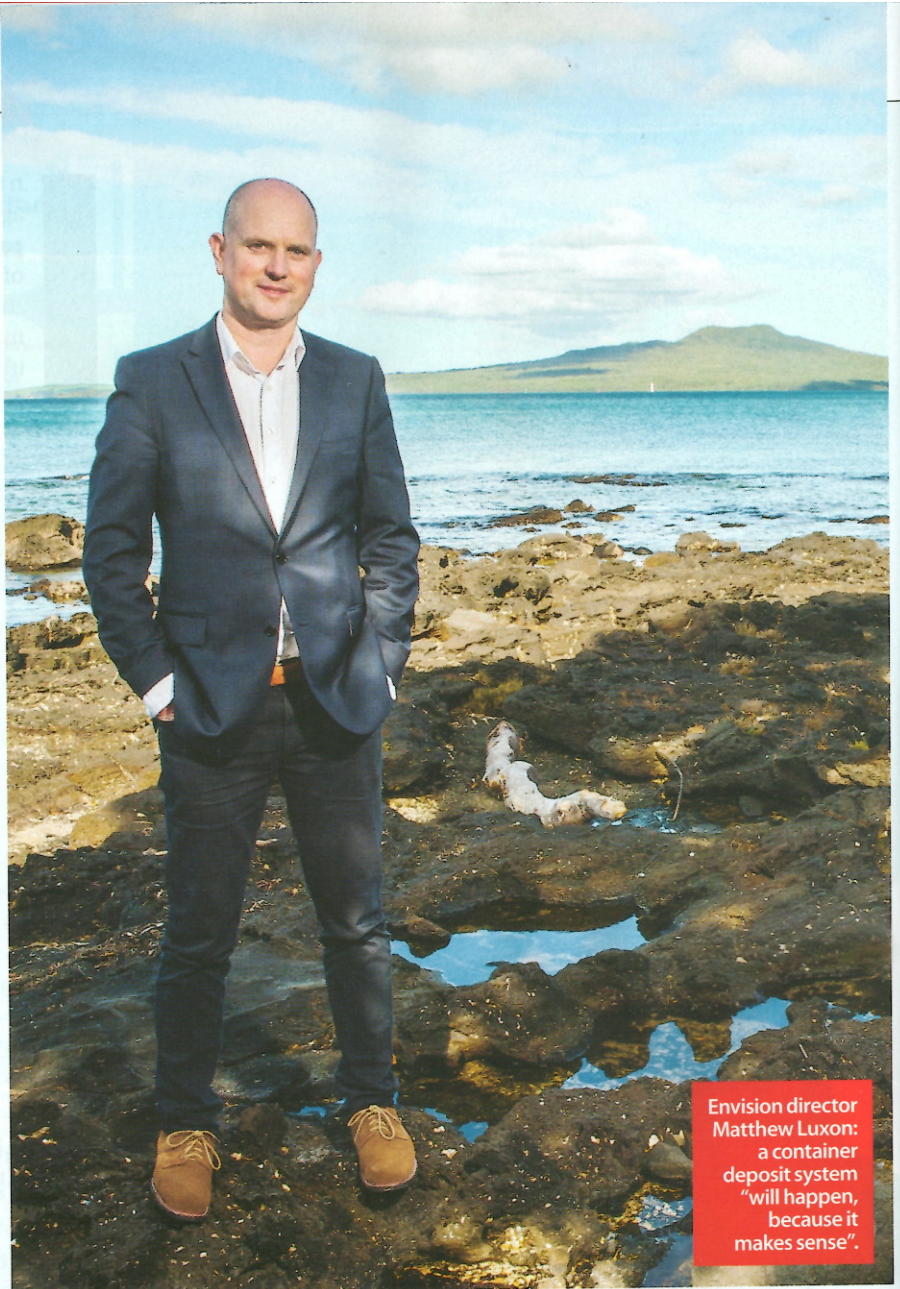
When milk started coming in cartons, that old-fashioned thinking vanished. But there is a strong push to reintroduce

## A container deposit system would save councils up to \$40 million a year.

a container deposit system (CDS) for glass and plastic bottles, to encourage their return and cut the numbers ending up in landfill.

Quite what those numbers are is a subject of dispute between the industry and environmental activists. They agree that we buy between 2.1 billion and 2.3 billion beverage containers a year. Matthew Luxon of Envision says about 40% of those containers make it into the recycling system, in part because so many of the liquids they contain are consumed

SIMON YOUNG



Envision director Matthew Luxon: a container deposit system "will happen, because it makes sense".

away from home, far from the kerbside-recycling bin. John Webber, manager of the Glass Packaging Forum, says it's more like 70% for glass and 60% for all packaging. The halfway point between those two claims adds up to a billion bottles a year.

Not surprisingly, the industry is fiercely resistant to a CDS, claiming it would impose direct and indirect costs of \$96 million for a \$22 million saving, although Luxon claims that these figures have been arrived at by spuriously loading on every conceivable cost, such as driving to a collection depot, which people would typically do when they were out, anyway. "There is no way to critique that number because they don't provide the data."

The tide of change may be irresistible, however. In South Australia, a CDS has been operating for 40 years; the Northern

Territory introduced one despite the strenuous legal opposition of bottlers, and other states are poised to follow suit. Systems are in place in most of Europe and in 10 US states.

At the Local Government New Zealand conference in Dunedin in July, a remit calling for the Government to mandate a CDS, proposed by Palmerston North and seconded by Auckland, passed with the support of 90% of local authorities. Palmerston North Mayor Grant Smith said a CDS was "a no-brainer" that would create about 2000 jobs and save councils up to \$40 million a year.

Luxon says the Greens-sponsored Waste Minimisation Act 2008 allows for a CDS scheme to be introduced quickly.

"It will happen, because it makes sense," he says. "It's just a case of how painful it's going to be to get there." – Peter Calder



## SPECTACULAR RESULTS

The Government's position is in sharp contrast to trends in other countries, where the results of charging regimes have been spectacular. In the UK, a 5p (9c) levy was imposed a year ago, requiring the money collected to go to charities. In July, the *Guardian* reported that use had dropped by 85% and the scheme had raised £29 million after six months.

New Zealanders who like to think of themselves as clean and green might have good reason to feel embarrassed about our lagging so far behind the pack. This is particularly true since the major supermarket chains have long claimed to support the idea – each has held off from instituting it for fear the other would gain a competitive advantage – and territorial local authorities overwhelmingly called for it at their 2015 annual conference.

"The wave is coming," says Matthew Luxon, director of environmental consultancy Envision, "but the packaging lobbies are so in the ear of the Government that it's really hard to get an alternative perspective in there.

"We know a 10c charge will reduce use by

**"We know a 10c charge will reduce use by 75% or more. It's happened countless times around the world."**

75% or more. It's happened countless times around the world." It would add 2% to the cost of a Vogel's loaf.

Instead, the Government has given its support, and \$700,000, to an industry-led soft-plastics recycling programme, which was launched at a Mt Roskill supermarket a year ago. Retailers, including supermarkets, have stationed bins at the checkout as part of a trial that will, over the next three years, extend to other big centres.

The programme caters to not just shopping bags but all soft plastics, such as bread bags and the wrapping around the pack of toilet rolls: if it stretches a bit, it will recycle.

But even the Packaging Forum's figures suggest the impact will be minimal. At its peak, the scheme in Auckland would divert 36 million bags a year from the landfill, it says. The best-case scenario would return twice as many nationwide. Shops give out



Our plastic-filled society is also playing havoc in our oceans, with marine mammals, seabirds and fish inadvertently consuming plastic debris that we allow to escape into the environment. We no longer hunt whales, but we seem to have found a new way of killing them. Earlier this year, 13 sperm whales that beached in Germany were found to have stomachs filled with such debris. The rubbish that these vast, placid creatures probably thought was food included a 13m-long fishing net and a 70cm piece of plastic from a car. In 2011, almost 100 plastic bags and other debris were discovered in the stomachs of a young sperm whale found floating dead in Greek waters. Two years earlier, bloated albatross chicks discovered on Midway Island in the Hawaiian archipelago had been mistakenly fed so much plastic, including beer-can pull tabs and cigarette lighters, by their parents that they starved from a lack of nutrition. Then there are food-safety concerns: scientists who tested fish caught off the coasts of California and Indonesia found plastic and textile fibres in most of their guts.

that many plastic bags every 16 days.

In any case, Luxon echoes many supporters of a ban when he says the idea of collecting and recycling, rather than reducing use, is old thinking: "First principles dictate that you follow the waste hierarchy, which is 'reduce, reuse and recycle'. If you encourage people not to use, they don't have to recycle. But what we have done is jump straight to recycling."

## CHEAP BIN LINERS

During his successful campaign for the Auckland mayoralty, Phil Goff suggested

that the city should follow the UK's lead and introduce a charge on plastic bags. It was scarcely a bold announcement since he knew he wouldn't have to live up to it: it came barely a fortnight after the Environment Ministry nixed the idea, and since it cannot be introduced by bylaw, but only by Government regulation, he committed himself only to "working with MPs to promote a local bill in Parliament".

When buttonholed on the subject at a candidates' meeting, he said the announcement was likely to have cost him as many votes as it gained him because so many

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# The human dimension

**F**or someone who devotes a large part of her life to questions of sustainability, Niki Harré is remarkably reluctant to discuss recycling.

An associate professor of psychology at the University of Auckland, Harré co-ordinates a sustainability network in the university's Faculty of Science. But she regards discussing what we do with what material as "a technocratic view of sustainability".

"Questions about recycling are tip-of-the-iceberg questions," she says. "What's important is getting people inspired and on board with the broader social movement towards sustainability."

Badgering people to recycle is worse than a waste of time. "It misses the entire potential of what a human being is.

"How well we are recycling is not the question: it's the starting point of a much larger question of whether we have a broader culture of sustainability. If I were an Auckland councillor, my key performance indicator



Niki Harré

would not be to have 80% of the population recycling; it would be promoting conversations about what kind of society we want to have.

"It's not a top-down approach in which you try to get a specific thing in place; it's a bottom-up approach in which you are looking at what's going on and working from that."

For all that, you should recycle anyway, "because it's a beautiful thing. I love the aesthetics of flattening cereal boxes. The feeling that you haven't just chucked it away but you have managed it: it's a really nice feeling." – Peter Calder

GETTY IMAGES



Auckland Council's waste planning manager Parul Sood: "We only want to collect stuff that ... you have a market for."

voters liked to use supermarket bags as bin liners. But at 10c a bag, they'd be getting cheap bin liners. No one says you shouldn't be able to have a bag; you just shouldn't be able to have one for free.

Goff sang the praises of the bags produced by Australian firm Biopak, which makes a variety of recyclable or compostable paper plates, coffee cups, utensils and bags.

Its Ecopond plastic bags, thicker than the supermarket standard, have a silky feel and are described in the small print as "biodegradable during composting in pro-

**"We certainly want to encourage people to reduce consumption first and to reuse what they can."**

fessionally managed facilities".

According to Biopak's founder, Richard Fine, the bags, which cost retailers about 10c each, three times as much as conventional ones, will also decompose in a home compost (although it's worth noting that the subset of people who both operate home composts and use plastic bags is probably quite small).

In any case, claims about the recyclability of bags and packaging need to be treated with some scepticism. The *Listener* spoke to a manufacturer of high-grade motel toiletries in packaging certified as recyclable, who was being priced out of the market by cheap Asian imports that came with spurious claims

about the products' eco-friendly properties.

Tauranga company Eco-Pal was fined \$60,000 in 2013 after being found guilty of 15 breaches of the Fair Trading Act for website claims that its rubbish bags were biodegradable and for "giving the impression of environmental friendliness". The judge said the company's behaviour amounted to "serious offending that prejudiced well-intentioned shoppers". A 2014 law change required businesses to substantiate environmental claims, on request from the Commerce Commission, but not as a matter of course.

If that compostable coffee cup you're drinking from isn't being composted – and it almost certainly isn't, since there are only four commercial compost facilities in the country, and although they can take it, they're not getting it – it's just a PR initiative designed to make you feel better about the waste you're generating.

The problem with biodegradable plastic bags is that they are a component of the "recycle" part of the waste hierarchy. Goff's enthusiasm for them is quite at odds with a belief in charging for them, which is a "reduce" strategy. A compostable bag is better than a non-compostable one, but nowhere near as good as no bag at all.

To his credit, Fine is a voluble supporter of a levy – "the fewer of them that get used, the better" – and he accepts the networks do not yet exist to deliver the bags into compostable waste streams.

"We're working with the public-place recycling schemes and coffee suppliers to put bins in public places so they can be taken to facilities."



### 300 TRUCKFULS A DAY

In a cavernous building in industrial Onehunga, the noise is deafening. The plant, operated by Australian-based multinational Visy Industries, is the engine room of the battle to stop what we throw out from despoiling the planet more than it already has. The operation, on a 10ha site, swallows up the recycling of our largest city at the rate of 300 truckfuls a day, 24 hours a day, five days a week – peaking during the Christmas holidays.

The trucks' contents are picked over by human hands, moving quicker than a card sharp's, pulling out contaminated or non-recyclable items before they pass on fast-moving conveyor belts into various automated processes of impressive ingenuity: gargantuan spinning perforated drums sort by size, allowing smaller items to tumble out as larger ones move on; currents of air blow the lighter items away from the heavier; photo-electric scanners decide the direction to send other materials at the rate of hundreds per minute.

Outside, crushed glass waits in bays for mechanical scooping. Cuboid bales of crushed PET bottles or cans are tucked tightly into containers, ready for shipping to overseas buyers. More than 300 a month head out, mainly to Asia, to be made into something else.

"Every plastic bottle is critical to us," Nick

## If that compostable coffee cup isn't being composted, it's just a PR initiative designed to make you feel better.

Baker, the plant's general manager, bellows above the din, as we scurry along elevated walkways. "Everything we can recover we have to recover, because that's what pays."

The operation reclaims 140,000 tonnes of recyclable materials a year – about 100kg per Aucklander – and the ceaseless hum of activity might be expected to dissuade those who mutter darkly that most of the stuff we put out at the gate for recycling ends up in the dump, without explaining why a council would go to the trouble and expense of collecting stuff separately and reamalgamating it for disposal. Parul Sood, Auckland Council's waste planning manager, remains amused at the persistence of the myth.

# Making a mealworm of it

**W**hat to do with all those disposable coffee cups that can't be recycled and other plastics that don't break down in the environment?

The answer could lie in plastic-eating worms and bacteria.

Engineers at Stanford University, in collaboration with Chinese researchers, have shown that the common mealworm can survive and thrive on a diet of Styrofoam and other types of polystyrene and degrade this in its gut. The mealworms in the experiment, as they do with all food, converted about half the plastic to carbon dioxide and excreted most of the remainder within 24 hours as bio-

degraded fragments that looked similar to rabbit droppings. The researchers say this waste seems safe to use to help grow food crops.

The researchers hope the mighty mealworm can become even more so through genetic engineering to make them digest faster – and that larger animals may have a similar gut makeup, allowing research to move up the food chain. As an article on Salon said, "Imagine the king of the jungle safely feasting on hyenas, zebras and your smart TV packaging."

Meanwhile, Japanese researchers

"We only want to collect stuff that can be recycled and that you have a market for," she says. "You don't want to be collecting stuff for the heck of it."

In fact, about 11% of Auckland's recycling collection gets dumped, normally because it's contaminated (the half-full jam jar; the unrinsed container – some small traces are fine) or non-recyclable (heat-resistant

have discovered bacteria that can break down one of the most used plastics, polyethylene terephthalate, commonly called PET or polyester. The bacteria took much longer to chomp through the highly crystallised PET used in plastic bottles, but they were much more

voracious than a related bacterium, leaf compost and a fungus enzyme that were also recently found to be able to consume PET.

PET has particularly strong bonds, and until recently, the researchers say, no organisms were known to be able to decompose it.



Food for mealworms: a disposable coffee cup. Right, mealworms tucking into a meal of plastic.



But this may be a case of evolution to the rescue, a response to all the plastic accumulating in the environment over the past 70 years.

Swinburn University professor Uwe Bornscheuer told the *Guardian* that microbes have an extraordinary ability to adapt to their surroundings. "If you put bacteria in a situation where they've got only one food source to consume, over time they will adapt to do that."

glass cookware; scrap metal; concrete; gas bottles; disposable nappies (!); and, critically, plastic bags, which choke sorting machinery).

Anything that is recyclable will be recycled, Sood says, although there is some process damage.

In Wellington, a slightly different system yields slightly different results, says Adrian



## RECYCLING

Mitchell, the manager of waste operations. Recycling collections are funded by a levy on tip fees, so dumpers subsidise non-dumpers. Further, glass and other materials are collected on alternate weeks, so the paper, uncontaminated by broken glass, is of a higher quality and more attractive to recyclers.

### NOT BURNT AS INDUSTRIAL FUEL

The other persistent myth is that our recyclables are sent to China to be burnt as industrial fuel. But Sood says that makes no sense, either. "Most of the material is sold for the best we can get on an international market. Buyers are not going to pay top dollar for fuel."

Much recyclable material (see "What goes where" box, p25) does indeed go overseas. O-I in Penrose, which has been operating since 1922, deals with glass, melting it down to make more glass, which is why glass, reusable and recyclable endlessly and processed

## There's a good chance that your wine glass contains molecules from one your grandfather sipped from.

here, is the most environmentally friendly packaging material. There's a good chance that your wine glass contains molecules from one your grandfather sipped from. Other material goes to firms here or in Asia and Australia.

That may seem like a long-winded way of dealing with it, but New Zealand is too small to make much large-scale recycling viable. Further, Sood adds, recycling avoids the exploitation of a material that would have been virgin.

But she underlines the "reduce, reuse, recycle" hierarchy: you don't have to deal with the detritus of something you never bought.

"We certainly want to encourage people to reduce consumption first," she says, "and to reuse what they can. Recycling is further down the line. If you can, as a person living on this planet, think about how you reduce your consumption or reuse what you have got already. Then recycle. It is by no means the top choice, but it's definitely better than chucking it."

Quite how well we do in domestic



Clockwise from top left, in Spain, a used-tyres dump is a huge environmental problem; hand made from 100% recycled tyres, Retyred Furniture is a combination of style, comfort and durability ([www.retyredfurniture.co.nz](http://www.retyredfurniture.co.nz)); Wanaka 'Wastebusters' community recycling centre; a man throws a polythene bag into the Yamuna River in New Delhi, India.



recycling by comparison with equivalent countries is hard to say, because of a difference in the way the statistics are reported, although an OECD Environmental Performance Review of New Zealand, due for publication next year, will make interesting reading. What is plain is that there is a lock-step relationship between consumption and waste. When the economy is doing well, as ours is now, our passion for buying heats up and, with it, our passion for biffing stuff.

Among new developments is the growth of community recycling centres such as Wanaka Wastebusters and Waiuku Zero Waste, which aim to deal with recycling on a local level. The Waiuku operation, the first in the Auckland region (there are others at

Helensville and Devonport), is in its third year of operation, and manager Sue Wallis says it employs the equivalent of seven full-time staff.

An onsite shop is packed with reusable items – many of which are now donated rather than pulled out of bins – but the volatility of commodity prices means that it may never be fully self-sustaining.

"Making money is not what the model is about," says Wallis. "It's about social outcomes. It's a matter of looking after your own rubbish in your own backyard, which is awesome."

### TAKE RESPONSIBILITY

When environmentalists and companies talk about recycling and litter, the phrase





“product stewardship” soon makes an appearance. The term highlights the fact that someone has to take responsibility for the container or packaging left over after goods have been used or consumed.

As matters stand, businesses make money from the sale of goods that consumers enjoy. But the ratepayer or taxpayer is left with the bill for cleaning up the mess.

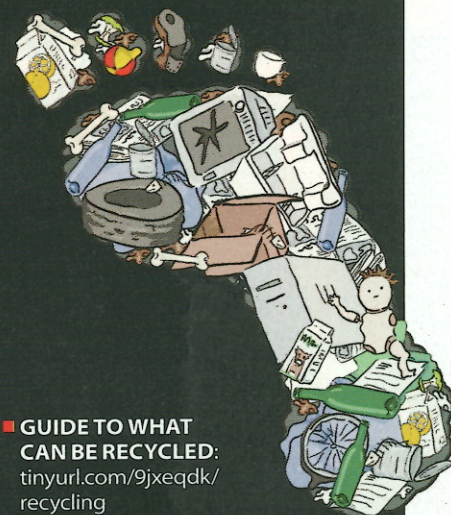
Any exploration of recycling leads up endless tributaries of the waste stream. But arguments about the relative desirability of different approaches often ignore the fundamental question of whether the producers of goods and services should assume at least some of the responsibility for mitigating the environmental effect of their packaging.

If so, why not all? Why should an enterprise run for private profit generate an environmental cost that must be remedied at public expense? In an economic system that has for so long trumpeted the virtues of user pays, why should non-users pick up the tab for the waste generated by users and the makers of what they use?

Even more fundamental is the question of whether consumer capitalism and environmental degradation are joined at the hip. If we reduce consumption, what happens to the mainly lowly paid workers at the bottom of the production and retail chains? If we ban plastic bags, jobs will be lost. This is not to say that banning plastic bags is a bad idea, but that it may be only a good start. ■

## What goes where?

- **PAPER:** Cardboard and paper are sold, mostly on international markets, where they are pulped to be made into new paper products.
- **GLASS:** Glass is melted down and made into ... glass. Heat-resistant or coloured glass is ground up and used as filter media in swimming pools and made into sands. No glass goes to landfill, except containers with adhesive labels that cannot be removed.
- **PLASTICS:** Most are exported to Asia, where they're typically flaked and used as raw material feedstock for products such as plastic containers, polar-fleece clothing and carpets.
- **POLYSTYRENE:** Containers with a recycling symbol containing a 6 include polystyrene, which cannot be recycled. Ask retailers who use them – for meat and vegetable trays, for example, or takeaway containers – to find alternatives.



■ **GUIDE TO WHAT CAN BE RECYCLED:**  
[tinyurl.com/9jxeqdk/](http://tinyurl.com/9jxeqdk/)  
 recycling