

Gadgets-to-go: Why Whittling E-waste is Becoming Big Business

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Australia loves its gadgets. There are more mobile phones in use than people in the country; computer purchases exceed three million annually and sales of digital products (including televisions, cameras, media players and games consoles) reached an estimated A\$5.9 billion in 2009, up 3.1% from 2008. But it's a love affair that comes at a cost. To date 75% of discarded computers in Australia end up as landfill, joining another 234 million e-waste items, according to the environmental campaigners at the Total Environment Centre (TEC). In turn, these goods are responsible for 70% of the toxic chemicals that seep into landfill, leading to a range of human health and environmental impacts. The problems with e-waste are numerous. There's the loss of rare and non-renewable materials and the missed opportunity to reduce greenhouse gas emissions by burying e-waste, not to mention the escalating problem of dumping broken electronics in developing countries.



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It's part of a much bigger global e-waste problem that's growing at a rate of more than 40 million tonnes a year – and Australia has been slow off the mark when it comes to establishing an overarching national framework to deal with the issue. To date there's been a hotchpotch of local councils that run e-waste recycling days, limited company take-back schemes and voluntary recycling programs, along with a small group of recycling/refurbishment companies. The world's largest metals and electronics recycler, [Sims Metal Management](#), opened Australia's first automated recycling plant in Sydney's south-western suburbs in 2008, a facility that has the capacity to recycle 20,000 tonnes of e-waste every year, roughly equal to all of the state of New South Wales' annual waste.

By the end of 2008, it was estimated that less than 4% of the e-waste generated in Australia had been processed. An Australian Bureau of Statistics report stated that 23% of electronic equipment and 51% of household appliances disposed of in the 12 months to March 2009 were placed with the non-recycled garbage for kerbside collection. Countries that have introduced stewardship programs and e-recycling legislation, including all those in the European Union, Japan, Korea and some US states, have e-waste recycling rates in excess of 80%.

However, Australia is heading for major improvements to e-waste recycling. A product stewardship arrangement is expected to be legislated in 2011 as part of the federal government's [National Waste Policy Implementation Plan](#), which sets the direction for Australia to produce less waste for disposal and manage waste as a resource to deliver economic, environmental and social benefits. The plan will create a permanent collection, recycling and community education scheme that will cover end-of-life televisions and IT equipment. After almost a decade of posturing, many of the key players believe it will come to fruition, but the vagueness of exactly what it will encompass still concerns some.

For [Jane Castle](#), a senior campaigner with the [Total Environment Centre](#), the devil is very much in the detail. "We are likely to see something in place by 2011, but that will be dependent on the federal government bureaucrats getting their acts together and being open and transparent in their consultation with the community so there are no roadblocks as we approach the legislation and the regulations," she says. Castle pinpoints a number of key issues, such as targets that determine the quantity of material producers will collect, and ensuring the scheme moves beyond TVs and computers to encompass radios, MP3 players and other electronic gadgets. There are also issues pertaining to standards, infrastructure and the timing of rollouts.

Think Global, Act Local

Educational institutions have a special role to play in promoting environmental best practice and social responsibility, insists Aaron Magnier, sustainability director at the University of New South Wales. His role goes beyond policing policy. The higher education sector needs to show leadership "in educating the future generation of leaders – the people who are going to be running the show in the not too distant future", says Magnier. "We should be able to demonstrate to them in a practical sense how you can live and work and learn more sustainability." Across campus, the UNSW Built Environment faculty sends reusable computers to Africa – a program that's carefully controlled due to instances of abuse in similar schemes in other parts of the world.

Under the guise of sending secondhand product to developing countries, a number of recycling companies have dispatched large volumes of non-working goods that invariably end up as landfill in the third world. Greenpeace, the international environmental campaigning organisation, made this discovery when it placed a tracking device inside an unrepairable television set and sent it to Hampshire County Council in the UK supposedly for responsible recycling. Instead of being dismantled in the country, the council's recycling company passed the TV off as secondhand goods and it was shipped to Nigeria to be sold as scrap or dumped, a practice forbidden by the European Union and in contravention of the Basel Convention governing the movement and disposal of hazardous waste. The Greenpeace reporter eventually purchased the broken TV at a market in the Nigerian city of Lagos that receives as many as 15 container loads of electronic goods from Europe daily.

Australia is no cleanskin in this area either. From 2008 to May 2009 Australian Customs and the Department of Environment intercepted 12 ships illegally carrying e-waste bound for China. In September, *The Times of India* reported their government was considering banning the importation of used computers and electronics equipment after a recent intelligence operation in Chennai resulted in the seizure of six containers with illegal e-waste sourced from Australia, Canada, South Korea and Brunei. Computer hardware and electronics manufacturer Fujitsu conducted a four-country survey to determine the maturity of environmentally sustainable IT practices among large manufacturers. Its [Green IT: Global Benchmark Report](#) showed Australia rating behind the US and UK and only in front of India. Australia was "let down by poor metrics", the report claimed.

Mixed Efforts From Manufacturers

Ironically though, in Greenpeace's May 2010, [Guide to Greener Electronics](#) – which rates the 18 top manufacturers of personal computers, mobile phones, TVs and games consoles according to their policies on toxic chemicals, recycling and climate change – Fujitsu comes near the back of the pack at 15th. Games manufacturer Nintendo was last on the list, with the report concluding: "It continues to score zero on all e-waste criteria." Greenpeace regards mobile phone company Nokia, the Finnish-based mobile device manufacturer, as the global leader in the field, scoring highly in its take-back schemes and producer responsibility, closely followed by the global phone maker, Sony Ericsson.

In Australia, Hewlett-Packard (HP) has been making moves, in August launching a campaign that delivers cash rebates to small-to-medium businesses (those with 199 or less employees) when they replace and recycle their old PCs. On a broader level, [MobileMuster](#) has been the official recycling program of the mobile phone industry in Australia since 1999. Run by the Australian Mobile Telecommunications Association, it collects and recycles handsets, batteries and accessories from a network of more than 3500 mobile phone retailers, local councils, government agencies and business drop-off points. To the end of 2009, it claims to have collected 667 tonnes or 4.48 million handsets, batteries and accessories.

Carrying The Costs

For consumers, a stewardship program will invariably lead to higher costs with companies expected to factor the scheme into the price of their final product. But as consumer electronics continue to become cheaper in relative terms, the Total Environment Centre's Castle says this has become a false economy anyway. "We're not paying for resource depletion, we're not paying for hazardous chemicals which are polluting our environment and currently we are not paying for collection and recycling," she says. "If products had to be really priced according to their impact then they would be a lot more expensive and

people would hold onto them for longer."

[Miles Park](#), program director of industrial design at UNSW, says while designers must take their share of the blame for creating obsolescence, there is an increasing consideration for taking a "lifecycle approach". Park completed a PhD at London's Kingston University on how to prolong product life and has "walked the walk" beyond the classroom by inventing a unit which, when connected to an analogue radio, allows the old technology to play digital broadcasts. It's something that could come in handy given 37 million radios in Australia will eventually be rendered obsolete as the digital technology takes over. Park says the move to design products that can be adapted to future technology is "essentially, driven by environmental concerns – but equally there could be other benefits". "Depending on the business model, maintenance might be an important aspect. For example, with leased products, such as a photocopiers, it would be in the manufacturers' interest that parts can easily be replaced and refurbished."

Then there's the direct return from recycling e-waste itself, a market that it is still in its infancy because of the relative expense, difficulty and sometimes danger of extracting the value from the product. An average mine yields about five grams of gold per tonne of ore, yet a tonne of mobile phones without batteries, contains about 300 grams of gold per tonne, so there's money to be made from e-waste. "There's an extraordinary opportunity in terms of not thinking of this stuff in terms of waste, but as a resource," Park says.

That's the key. In a world driven by market forces, the market is more likely to create solutions by necessity. Japan, a country with little land and scant natural resources, is a world leader in e-waste and general recycling almost because it has to be. Japan's landfill stocks are estimated to be now about a third of the 1990 levels. Through auction and trading websites, such as eBay and Gumtree, the market has also shown it can be part of the solution. And with the TEC estimating that a national recycling scheme for e-waste would create 5100 jobs in Australia by 2015, the by-product of Australia's technology love-in also has an upside.

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