

Editorial

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It is an interesting fact that if you hang about in a topic area long enough the old things come around again. Writing this editorial filled me with dread about discussing the latest hot topic in recycling – why recycle when you can just reuse the old one or at least some of it? On reflection however, there is nothing new here; one is reminded of the ‘war on waste’ posters from WWII – the latest economic crisis has been called a war and the climate change issue definitely feels like a war. We will certainly have to do unpalatable and innovative things in order to economically reduce climate change.

The first paper ‘Remanufacturing and reuse – trends and prospects’ (Parker, 2010) sets the topic scene and reminded me of the halcyon days of rediffusion in my youth when my parents *rented* their black and white television. Once you could afford to upgrade to the next model the less well-off family down the road could then hire your reconditioned cast-off. This allowed you to get the latest technology without having to feel guilty about throwing the old one out. Try telling that to a 16-year-old with a mobile phone and he’ll wonder why. Meanwhile it is commonplace in the office community to hire, rather than buy a photocopier and nobody thinks twice about the famous Xerox claim that 80% of your new photocopier is the old one in a new box with new software. However try using that argument with your IT manager about computers or your wife about the washing machine and the response is very different.

When you actually calculate the environmental benefits, as demonstrated in the second paper in this issue (King and Gu, 2010) It becomes evident that the issue is not just the environmental benefits of saving embodied energy/carbon, but also a multitude of other factors. For example the human resource employed in repairing or reconditioning units, the innovation employed in the active disassembly design required (to get around those pesky sealed units), the new jobs this creates, the true life-cycle costs – the list is nearly endless. The paper postulates the interesting concept that while new products are often more energy efficient, this involves redesign rather than wholesale replacement so that the energy-using bit – in their case a luminaire – can be replaced when new bulb technology comes along. This addresses the dichotomy of replacing an old but perfectly functional item with a completely new one to address the in-use cost, ignoring the embedded energy and carbon in the old appliance.

The paper by Ijomah (2010) on applications of remanufacture in sustainable manufacture discusses the reasons why companies do not remanufacture products, preferring at best the perceived cheaper and quicker material recovery option and at worst the sell-and-forget option. The author highlights the resistance from large industry but close inspection of the acknowledgements section indicates some proponents are hardly small-bit players. If these companies understand remanufacture as good business sense rather than just ‘greenwash’ perhaps we are making some progress.

The final three papers are sector-specific, focusing on textiles, construction and electronics (arguable the biggest manufacturing sectors after food and drink). The paper by Russell *et al.* (2010) is as much about active disassembly as it is remanufacture. This paper addresses the common issue of the ‘little things’ that make recycling ‘big things’ really difficult – in this case corporate logos and insignia on uniforms. Paradoxically the recycled textile market favours mixed wastes rather than large volumes of similar colour/type of clothing items which means that large volumes of uniforms are excluded from the route. Consequently less than 10% of uniforms are recycled or reused compared to over 25% of domestic clothing. The paper also discusses how clothing can be difficult to take apart depending upon its design. This same complex design of shapes for example also contributes to the high waste in manufacturing step, as any competent dressmaker will tell you.

The recycling of electronics is hardly surprising given the significant value of their composite materials such as precious metals, and increasing their base metal content. The next paper on integration of reuse into the promotion of alternative EoL management of WEEE takes a different perspective (Achillas, 2010). The technology to remove whole components using a variety of active disassembly techniques is now well researched but the reluctance of manufacturers to reuse these components is still a major barrier. Critically the issue for this sector is component recertification and reuse. However the raw material cost alone will not drive the reuse market in this sector. Increasing labour costs in the Far East will eventually force a better acceptance of what we define as recycling and this paper gives an example of how this can be achieved.

Perhaps the surprising sector in this list of potential areas for reuse is construction, which has always been perceived as a low-value raw material industry with consequently appalling

'virgin waste' figures. The fact that nearly 10% of raw materials are never used has always represented a bigger target than dismantle and reuse. However, as for the electronic sector, there is an increasing awareness that while it may be very quick to demolish a building, you recover very little of value from the combined, and now extremely mixed, waste stream. The drive to code six housing standards has meant that active consideration is now being given to end-of-life issues. For example the embedded carbon in the materials and the climate change levy mean that cheap materials like cement and bricks may no longer be a viable option as single use items. The paper on local reuse of building materials (Essex and Whelan, 2010) looks to change this attitude while promoting local community activity, thus also fulfilling the 'social dimension' of the sustainable uses of materials agenda.

In summary, the argument for remanufacturing and reuse may still be a muted voice in the business community but companies ignore these opportunities at their peril. Paradoxically the current economic climate may galvanise the debate as consumers look for more 'intelligent spends' within their reduced budgets and companies are more inclined to radically re-think their business models. Governments could help tip the balance with focused research funding and sensitive legislation/policy changes. However the signs are not good – the Centre for Remanufacture and Reuse referenced in the first paper in this issue has had its funding from central government withdrawn since the time of writing.

Let's hope for all our sakes that this area of waste reduction becomes much more about resource recovery through reuse

rather than straight recycling and disposal, and thus more in the mainstream family of techniques rather than the distant relative it is currently perceived as.

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