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Assets under attack: metal theft, the built environment and the dark side of the global recycling market

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Introduction²

'Six churches a day plundered by gangs selling lead to China'³

The UK built environment is experiencing unprecedented levels of metal theft. Thieves are plundering buildings and infrastructure for their copper, lead and other valuable metallic elements. Metal theft has one of the fastest growing crime rates in the United Kingdom, with an estimated cost to industry of £360million.⁴ Popular perception has it that this stolen material is being forcibly 'recycled' and is readily finding its way to China, to form the power cables, electrical components and architectural finishes of new Chinese buildings and, in particular, that it has found its way to the €1.22 billion⁵ investment in built environment and new infrastructure that was the 2008 Olympics project.⁶ This view is even held in police circles:

The copper is going through larger scrapyards, then to smelters and then by ship to China, which has an incredible demand for copper, particularly with the Beijing Olympics and the demand for telecoms infrastructure.⁷

What is the truth? Is the West being steadily pillaged to meet the rapacious construction needs of the newly ascendant China?⁸

This article explores this linkage, a linkage that embraces the local and the global and which raises some unusual (and uncomfortable) questions about what happens when recycling becomes *too* successful in terms of its financial attractiveness and the ease of integration of recyclates back into the materials markets. It investigates the impact of (and regulatory response to) metal theft in the United Kingdom and also highlights developments in other afflicted countries around the world.

Why is metal theft happening?

The world price of copper has risen 180 per cent since mid-2003, to sustained record heights. Warehouse stocks of copper on the international metal markets are at very low levels.⁹ The demand for copper has fuelled a conspicuous rise in the pillaging of the built environment around the world.

It is rarely the case that clear cause and effect relationships can be shown between abstract global factors (ie the price of metals) and local behaviour, but there is a clear correlation between the rise in metal theft crime rates and the current spike in the world metal prices. British Transport Police's Deputy Chief Constable cannot be faulted when he observes: 'You have only got to look at the rising copper price on the metal market and the theft of copper matches that rise almost absolutely.'¹⁰

Is China to blame?

But the reasons for the metal prices rise are less straightforward. Demand in China has been a major contribution to the metal price hike, but factors such as a decline in metal stocks, industrial disputes in Chile, and commodity speculation have also contributed to the market's sharp rise since 2006.

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2 Part of this paper was presented at the Environmental Crime session of the Chartered Institute of Wastes Management Annual Conference 2008 (Torbay 12 June 2008).

3 Banner headline *Daily Mail* (12 December 2007).

4 'The Big Meltdown' *The Guardian* (25 June 2008); British Transport Police media release (8 July 2008).

5 Online article dated 29 January 2008, quoting vice mayor of Beijing, pro-Chinese government website www.radio86.co.uk (accessed 11 March 2008).

6 Non-official analysts assess the overall Olympics related real estate investment as much higher – see for example a 26 January 2006 article in US publication *MoneyNews* which estimated the total development investment at \$160billion: www.newsmax.com (accessed 12 March 2008). According to a 16 January 2008 press report in *China Daily*, the 6.93 tons of copper required for the minting of the 2008 Olympic medals was sourced direct from the 'the diversified minerals and medals sponsor', mining transnational corporation BHP Bilton, which supplied the copper direct from its mines in Australia and Chile. According to www.beijingolympicsfan.com, copper is a component of both the gold and bronze medals.

7 Andy Trotter, Deputy Chief Constable of the British Transport Police *The Guardian* (28 May 2007).

8 India's hunger for resources is also occasionally cited as a factor inflating the worldwide price of metals and other resources.

9 'Copper Fundamentals Still Bullish' an investment report (March 2008) published by www.goldworld.com.

10 Note 7.

According to the United States Geological Survey (USGS),¹¹ China is the world's largest copper consumer, accounting for 20 per cent of world copper demand. The United States is the second biggest consumer, at 15 per cent. The USGS study of world copper demand concluded that China's path to economic growth through its 'open door' policy, although it commenced in the 1970s, did not start to have a significant market impact (and show itself in world copper markets) until the 1990s.

As the USGS notes:

Today, China has the second largest economy after that of the United States. China's impact on mineral and metal markets is greater than its proportional economic size might indicate because China, unlike developed countries, is building infrastructure, a process that is mineral and metal intensive.¹²

However, the role of commodities speculation in further driving up metal prices should not be underestimated:

Speculators are buying metal that doesn't exist through a paper market. It's not industry driving the price any longer.¹³

This is fairyland. We have never seen such a disconnect between reality and pricing of raw materials. The long-term story is sound but the short-term froth is patently frightening.¹⁴

People think they're going to make their millions in commodities, that's the bottom line, and it's true that the world does seem to be running out of copper.¹⁵

Market speculation was fuelled in 2006 by the US Geological Survey announcing that the world has already used up 26 per cent of all the copper ore ever likely to be found in the earth's crust.¹⁶

In May 2006¹⁷ copper prices on the London Metals Exchange jumped to an all-time high of \$8875 a tonne. Yet futures prices for April 2011 were just \$3778 a tonne, suggesting strongly that the market was over inflated, and out of touch with the reality (in the western world at least), given that the market for copper water pipes is in decline (a victim of substitution to PVC)¹⁸ and industrial demand for copper is stable.

There is evidence that the world copper industry has been engaged in 'market making' in China since the mid 1990s, with the aim of encouraging the use of copper water piping in new development. In 1995, the International Copper Association, an international trade association funded by major copper producers,¹⁹ launched its China branch, to promote the use of copper in construction and manufacturing within China. Encouraging the selection of copper piping is the subject of one of its initiatives. By its own admission:

... ICA China continues to monitor and influence related codes, standards, technical specifications and regulations and have maintained a government's positive attitude towards copper plumbing tube. This included ensuring copper piping is listed in codes for both dedicated water systems and fire sprinkler systems.²⁰

While the metal theft problem cannot be laid at the door of ICA China, the news that copper manufacturers are lobbying for greater consumption of copper in China may strike some owners of premises afflicted by metal theft in the west as rather galling.

The link between Chinese development and lead theft in the United Kingdom is slightly less clear-cut. The world price of lead has increased markedly in recent years (it rose 40 per cent in the first half of 2007) but China is currently a net exporter of lead (after Australia, China is the largest lead mining nation).²¹ However, there is evidence that the sheer scale of transport-related development in China and India²² is increasing the total demand for lead acid batteries (over 70 per cent of world lead consumption is in this form), this fact combined with moves by China to curb its lead exports and retain a greater portion of its lead for home consumption²³ point to China making a significant contribution to escalating lead prices²⁴ (and consequently lead thefts) in the United Kingdom.

China's development needs are not confined to metals. In other parts of the world, its hunger for natural resources is felt in other virgin resources. For example, the World Wildlife Fund China estimates that China's demand for

11 United States Geological Survey (USGS) *Cr, Cu, Mn, Mo, Ni and Steel Price Drivers* (Open-File report 2007-1257 Reston Virginia 2007) <http://pubs.usgs.gov/of/2007/1257/>.

12 *ibid* slide 49.

13 Simon Paynton, head of the International Wrought Copper Council quoted in 'Scrap Thieves in France Ransack TGV Rail Lines for Copper' *The Daily Telegraph* (13 May 2006).

14 Richard Elman, head of the Noble Group (an independent investment bank) 'Banks Face Huge Losses In Copper Mayhem' *The Daily Telegraph* (13 May 2006).

15 Robin Bhar, a metals analyst at merchant bank UBS quoted in 'Scrap Thieves in France' (n 13).

16 'Scrap thieves in France' (n 13).

17 'Banks Face Huge Losses' (n 14).

18 *ibid*. An analyst at BaseMetals.com, is quoted as saying demand for copper tubes was collapsing as producers switched to PVC plastics. The market in Germany has halved from 90,000 to 45,000 tonnes.

19 The ICA is headquartered in New York, with regional offices in Asia, Europe, Latin America and North America. According to its website www.copperinfo.com, its programmes and initiatives are executed across 31 offices in over 65 countries. Its 38 member companies represent about 80 per cent of the world's refined copper output and are among the top copper producers, copper alloy fabricators, and wire and cable companies in the world.

20 As quoted on ICA China's website. See http://www.copper.org.cn/list_e_2.asp?newstype=Building%20Construction-Plumbing# (accessed 12 March 2008).

21 Lead Development Association International website 'Lead Information' www.ldaint.org (accessed 15 March 2008).

22 India's development needs are not limited to lead: demand for jewellery, due to the rise of the middle class as its economy has burgeoned in recent years, has been cited as a key cause of the world price of gold recently hitting a 30-year high. *The Independent* (25 September 2007).

23 Associated Press (4 June 2007).

24 *MoneyWeek* (1 June 2007).

imported industrial wood (timber, paper and pulp) will grow by 33 per cent within the next five years.²⁵ China currently sources the majority of its wood from Russia,²⁶ but with increasing exploitation of smaller national suppliers in Africa and Indonesia, it has been accused of complicity in illegal logging imports by criminal syndicates.²⁷

Will high copper and lead prices continue?

Completion of the Olympic project and revival in copper supply capacity may go some way to reducing copper price inflation:

China's economy is expected to grow by a whopping 11.8 per cent this year [2007]. But next year, growth is forecast to slow. More importantly for metals prices, the stadiums, rail links and other big infrastructure projects being built for the Olympics – a big driver of Chinese demand for metals – are almost complete.²⁸

Also, production estimates for 2007 predicted a 120,000 production shortfall on demand, with prospects of a production surplus being achieved for 2008 of 300,000 tonnes through the opening (or re-opening) of extra mining and smelting capacity around the world, and resolution of wage-related labour disputes that have affected supply in recent years.²⁹

The truth is that no one really knows. As Tim Webb observes,³⁰ the non-ferrous metal mining industry has traditionally suffered from boom and bust cycles. During periods of high metal prices, more investment is pumped into increasing production. When this new capacity comes on stream, prices slump. But the current, seven-year long, bull market in metals – the longest since the Second World War – has prompted analysts to call it a 'super-cycle'. The industrialisation of China and India, in particular, and the resulting demand for raw materials such as metals, they say, is a once-in-a-generation phenomenon. As a result, the traditional theory of boom and bust may no longer apply.

China's development-related demand for lead and copper is unlikely to stop with the Olympics. As one precious metals speculator notes, with an eye fixed on the inevitability of future growth in Chinese demand:

'currently the US consumes 50 pounds of copper per capita each year, while China is using only one pound'.³¹

The impacts of metal theft

Internet pages from local and national newspapers, utility companies, solutions providers, and law enforcement authorities reveal a catalogue of pillaging around the world, and have provided the source material for much of this article.

- Copper theft is thought to have been the cause of the demolition of a bungalow in Bradford on 22 May 2007. The unoccupied house exploded after copper gas pipes on the outer walls were fractured, apparently by someone trying to rip them out. Police were reported to be looking for two boys, aged 10 and 11, in relation to the explosion.³²
- Copper theft caused more than 240,000 minutes of delays for train passengers in 2006 after a near-fivefold rise in robberies at tracks and depots.³³ On 21 November 2007 cable theft caused rush hour chaos as 71 trains were cancelled due to the theft in Greater Manchester.³⁴ British Transport Police claim that: 'after the threat of terrorism, the theft of cable is one of BTP's biggest challenges'.³⁵
- In January 2006, The Three Watchers, a bronze sculpture, was stolen from Roehampton University's campus. The sculpture's value as art was £300,000, but police fear that it was stolen for its scrap metal value, a mere £1000.³⁶
- Such is the demand that (pre-1992 edition) 2p pieces are more valuable if they are melted down for their 97 per cent copper content.³⁷ (The Royal Mint estimates that there are more than eight billion pre-1992 1p and 2p coins still in circulation.)³⁸
- The impact upon churches has been particularly pronounced, and the reaction of their main insurer, Ecclesiastical Group, particularly prominent. Ecclesiastical spokesman Chris Pitt has said: 'The problem of theft of metal from churches is nothing short of an epidemic. We've never seen a trend of theft which is so widespread and taken hold so quickly'.³⁹ Claims statistics from Ecclesiastical (who insure over 95 per cent of Anglican churches in the United Kingdom) show claims for metal theft rising from £300,000 (85 claims)⁴⁰ for the whole of 2005 to £7.6million (2200 claims) for the first nine months of 2007.⁴¹

25 WWF China Press Release (8 March 2005) <http://www.wwfchina.org/english/loca.php?loca=297> (accessed 10 March 2008).

26 Conservation site Mongobay (21 May 2006) (quoting customs statistics from China Customs) <http://news.mongabay.com/2006/0521-china.html>; also 20 April 2005 http://news.mongabay.com/2005/0420x-tina_butler.html (accessed 10 March 2008).

27 'China Consumes Forests of Smuggled Timber' *The Guardian* (22 April 2005) alleges Chinese Government inaction in the face of evidence of criminal syndicates importing illegal hardwood timber from Indonesia <http://www.guardian.co.uk/print/0,3858,5176823-108142,00.html> (accessed 10 March 2008).

28 T Webb *The Observer* (2 December 2007).

29 *Copper Fundamentals Still Bullish* an investment report (March 2008) www.goldworld.com.

30 Webb (n 28).

31 *Copper Fundamentals Still Bullish* (n 29).

32 *The Guardian* (28 May 2007).

33 *ibid.*

34 *Manchester Evening News* (21 November 2007).

35 British Transport Police press report (10 July 2007).

36 *The Guardian* (26 January 2006).

37 *The Guardian* (28 May 2007).

38 BBC News online report (27 October 2007).

39 Newspaper interview *Wales on Sunday* (30 December 2007).

40 *The Daily Telegraph* (22 January 2008).

41 Ecclesiastical Insurance Group <http://www.ecclesiastical.com/theftofmetal/index.aspx> (accessed 19 March 2008).

- The impact of metal theft reverberates across the insurance industry. 'You can't put copper on an open trailer any more, and insurance premiums are shooting up,' said Simon Paynton, head of the International Wrought Copper Council.⁴²
- Scrap metal yards have themselves been targeted by metal thieves and have had to invest in increased security. In one raid in Shropshire, a stolen lorry was used to smash a way into the locked yard.⁴³

It is easy to find contemporary (English language) metal theft stories in countries around the world; for example, USA and Canada, France, Italy, Israel,⁴⁴ Malaysia,⁴⁵ Jamaica,⁴⁶ Australia,⁴⁷ South Africa, and Micronesia.⁴⁸

Addressing the issue

What is to be done? This section reviews the options and emerging strategies for responding to the challenge of metal theft from the built environment.

Catching criminals

Theft from premises (termed 'burglary' if theft is achieved via trespass) is already a criminal offence, as is receiving stolen goods. A number of police forces have mounted campaigns in recent months aimed at targeting police resources (and public attention) upon the various types of metal theft, for example:

- *Operation Drum*. The British Transport Police has launched Operation Drum to crack down on cable theft and is liaising with Network Rail to ensure that copper is not left unguarded at the side of tracks, as used to be the case, and is not stored in easily accessible parts of depots. The clampdown has also led to stakeouts at suspect scrapyards, which have emerged as key outposts in the cable crime food chain.⁴⁹ The operation coincided with the 'European Day of Action on Cable Theft' (10 July 2007),⁵⁰ a day of action organised by Railpol, the international federation of national rail police forces. The day of action saw raids, surveillance and scrap yard

inspections across Italy, Spain, Germany and the north-east of England.⁵¹ British Transport Police's initiatives include purchase of a hi-tech 'microdrone' (remote controlled surveillance aircraft) to monitor rail infrastructure.⁵²

- *Operation Saruman*. Cambridgeshire police are so concerned by the theft of telephone wires and other scrap metal, said to be costing the county £500,000 each month, that the force has launched a specific campaign to address the problem.⁵³
- *Operation Steel*. West Midlands Police claim that a crackdown on metal theft in the area during 2007 led to a 20 per cent reduction in reported metal theft crimes. During the campaign 414 arrests were made.⁵⁴

Such campaigns appear to be successful in raising public awareness of the scale of the metal theft problem, but whether they will have a significant impact upon metal theft rates over the longer term remains to be seen.

Regulating the theft

There is nothing particularly new about the theft of lead and copper elements from buildings, or about attempts to control it through criminalisation. The built environment has been afflicted by metal theft for hundreds of years. Lead theft in particular has a history that predates the Industrial Revolution, stretching back to the first use of lead in plumbing systems in the Roman era, and thereafter the use of lead in roofing for churches and other civic buildings in the Middle Ages. Such thefts had an established existence (and terminology) within those societies. An eighteenth-century slang dictionary⁵⁵ includes the term 'to fly a blue pigeon', a term given a more expansive explanation in an 1889 US slang dictionary⁵⁶ as: 'to steal lead off houses, or cut pipes away ... cut a hundredweight of lead, which they wrap round their bodies next to the skin. This they call a "bible", and what they steal and put in their pockets they call a "testament"'.

A culture of copper theft came to be recorded as copper was incorporated in the built environment in forms which could easily be pillaged; first as anti-barnacle coating to the keels of British naval ships (the origin of the expression 'copper-bottomed') from the mid-eighteenth century, thereafter with the rise of electrical power (and wiring) in the late nineteenth century, and then with the switch from lead to copper piping in the 1930s. The rise of the copper-bottomed ship led to the emergence of 'tosher's', a special subset of 'mudlarks' (Londoners who made their living scavenging the shoreline

42 Quoted in *The Daily Telegraph* (13 May 2006).

43 *Shropshire Star* (15 June 2007).

44 J Larkin 'Image System Will Protect 100,000 Square-Meter Israel Assembly Plant and Enhance Loss-Prevention Pro' (April 2006) 186 *Automotive Industries* 4 p 75.

45 'Lorry Driver Hijacks Own Vehicle Carrying Scrap Metal' *New Straits Times* (1 January 2008).

46 'Alleviating Shortage of Cement, Basic Food Items and Regulating Scrap Metal Trade Dominated Activities of Industry Ministry' *Jamaican Information Service* (28 December 2007).

47 'Pair Charged with \$1 Million Copper Theft' ABC News report (on line) (3 March 2008) which reports the widespread transport disruption that is being caused by a wave of railway cable theft in Australia <http://www.abc.net.au/news/stories/2008/03/03/2178773.htm> (accessed 20 March 2008).

48 'Global Copper Thefts on Rise' (21 November 2006) www.energybulletin.net/22790.html (accessed 20 March 2008).

49 *The Guardian* (24 May 2007).

50 British Transport Police 'Five Arrested in North East During Day of Action against Cable Thieves' Press Release (10 July 2007).

51 British Transport Police 'European Crackdown on Cable Theft' Press Release (10 July 2007).

52 *Wakefield Express* (6 February 2008).

53 C Aslet *The Daily Telegraph* (21 January 2008).

54 *Express and Star* (Wolverhampton) (1 January 2008).

55 F Grose *A Classical Dictionary of the Vulgar Tongue* (London Hooper 1788).

56 A Barrère, C Godfrey *A Dictionary of Slang, Jargon and Cant* (Leland USA 1889).

of the Thames), who, according to a slang dictionary of 1874⁵⁷ 'steal copper from the bottoms of boats in the Thames'.

A random search of the Proceedings of the Old Bailey⁵⁸ finds over 300 records of proceedings before that criminal court involving lead or copper theft, stretching back to the start of the records in 1674. While lead thefts in the late seventeenth century were from buildings, copper thefts mostly related to the theft of copper kitchen utensils, as copper had yet to appear as a common building element.

In 1731 the Theft Act made the stealing of lead or iron affixed to buildings or yards (or ships) a specific crime. In 1756 the Stealing of Lead etc Act made the unexplained possession of lead, solder, copper, brass, and bell metal a crime if no legitimate reason for its possession could be shown. The taking of these or any other metals attached to buildings was made a specific crime by the Criminal Law Act of 1781. Landau⁵⁹ places the development of this and other theft legislation in the context of attempts by the eighteenth-century authorities to develop effective legal remedies against receivers of such materials, but offers little insight (because that is not the aim of her study) into the patterns of metal theft (and/or relationship to urbanisation and/or materials usage) during that century that prompted the development of that legislation. However, Landau's survey of court records suggests that actual prosecutions under this legislation may in practice have been largely confined to the protection of ships and dockyards from toshers and employee pilfering, rather than wider defence of the built environment against metal theft.

What we do know, however, is that the penalty for breach of the 1781 Act's anti-metal theft provisions was seven years' transportation to Australia (although that punishment may well have been a lenient one in the penal culture of the era where the death penalty was available for a wide range of crimes, including burglary).

Subsequent codification of the laws of theft (the Larceny Act of 1861 followed by the 1968 Theft Act) saw the metal theft specific offences merged into generic theft offences as part of a general trend towards a 'generic' form of anti-theft law.

In 1964 the Scrap Metal Dealers' Act was introduced to improve regulation of the scrap metal trade (which has always had a reputation for straddling the legitimate and the black economies). The 1964 Act was not the first attempt to regulate the trade; Victorian control of offensive trades and the Old Metal Dealers Act 1861 had preceded it. The 1861 Act was concerned with the sales route for stolen metals (ie fencing) aspect. The 'offensive trades' legislation was focused upon the environmental pollution side effects of the copper recovery industry, namely the

toxic dark smoke caused by cable stripping. That activity is now a criminal offence under s 33 of the Clean Air Act 1993 (whether performed by a metal thief or legitimate scrap dealer). However, cable smoke remains a tell-tale sign of metal theft here and around the world: as one commentator on Italy's spate of metal theft put it (rather colourfully) in November 2006: 'toxic smoke from the clandestine burning of insulation off cables is filling the night sky of some Rome neighbourhoods'.⁶⁰

Regulating the market in stolen metal

The 1964 Act was, however, the first 'modernising' step, in the sense that it introduced documentary and audit controls that are now widespread across environmental regulation. The controls (all criminal offences if breached) require:

- scrap metal businesses to be registered with the local authority
- records of dealings to be kept recording all receipts and onward shipments of scrap metal (and retained for at least two years)
- no scrap to be purchased from persons under 16
- records to be produced to an inspector upon demand.

The records of dealings are required to include:

- description and weight of the material
- date and time of receipt of the material
- name and address of the person from whom the material is received
- price or estimated value of the material
- registration mark of the vehicle delivering the material.

The Act made certain concessions to acknowledge the existence (and recycling contribution) of itinerant scrap metal dealers operating without a scrap store or yard. Such persons must be registered, and can be required to operate a receipt-based system to record their onward sales.

It may be thought that these provisions would result in a readily traceable trail for investigating metal theft. However, the reality does not appear to bear this out. In a recent ITV documentary,⁶¹ a reporter visited a number of West Midlands scrap yards, offering increasingly audacious scrap for sale, including a lorry-load of manhole covers, part of a bronze statue, and a bus shelter complete with bus stop sign. Using concealed cameras the yards involved were seen to accept the materials offered without any apparent suspicion or questioning, despite the increasingly eccentric and dubious information offered by the journalist about the material's provenance.

The documentary (like the press coverage reviewed for this paper) featured expressions of concern by law enforcement agencies, utilities, and property owners about metal theft but neither local, national, nor regional

57 J Camden Hotten *The Slang Dictionary: Etymological, Historical and Anecdotal* (London 1874).

58 <http://www.hrionline.ac.uk/oldbailey/> (accessed 17 March 2008).

59 N Landau 'Summary Conviction and the Development of the Penal Law' (Spring 2005) 23 *Law and History Review* 1 <http://www.historycooperative.org/journals/lhr/23.1/landau.html>.

60 I Simpson in a Reuters news report (17 November 2006) <http://news.sawf.org/Lifestyle/27614.aspx> (accessed 17 March 2008).

61 'The Great Drain Robbery' *Tonight* ITV 1 (28 January 2008).

politicians in the United Kingdom have commented on it. Whereas the response in many US states has been to introduce or tighten county or state level ordinances, there is a noticeable lack of political or legislative comment upon such matters in this country. In February 2008 the US National Conference on State Legislatures listed 19 US states that had enacted laws intended to curb metal theft, and 19 more where legislation is pending.⁶²

The action by US county and state authorities appears to seek the introduction of identity and transaction recording; something the 1964 Act already requires. An added innovation in states such as New York⁶³ is a requirement that photo identification evidence must be produced (and/or the scrap seller photographed) before any trades of \$50 or more can proceed. Also, due to fears of (literal) currency meltdown, the US Federal Government legislated in April 2007 to make it illegal to melt down US coins or to export them abroad in any quantity; anyone convicted of these new crimes faces a fine of up to \$10,000 and/or five years imprisonment.⁶⁴

The call for further action (where stated) from stakeholders in the United Kingdom is (from British Transport Police) to ban cash-based scrap transactions and move towards an 'account only' basis of payment. However, a move to such a system (and this, I believe, is BTP's aim) would discourage the occasional scrap metal seller – it would seek to remodel the profile of the client base. Each scrap yard would, in effect, be discouraged from dealing with 'one-off' customers. Clearly that could have a suppressive effect on the amount of legitimate scrap metal delivered to yards. It could also have the effect of suppressing illegal trades (assuming that all scrap dealers could be compelled to comply fully).

The scrap industry (taking its trade association as representative⁶⁵) would prefer to stick with its scheme of voluntary action, a system of stolen material alerts to merchants aimed at attracting attention to stolen articles before they are offered for sale at scrap yards. A similar scheme has operated since 1992 within the architectural salvage market for stolen garden and architectural antiques.⁶⁶ However, the generic nature of scrap metal renders this problematic for all consignments other than those which include 'novelty' items (eg stolen statues). A bundle of copper wiring normally bears no distinguishing shape or marks from which its origin can even be guessed at. As Knox⁶⁷ notes, it is precisely this anonymity which makes metal theft detection difficult.

During 2007, proprietary technologies emerged offering some hope for the individuation of built environment assets vulnerable to metal theft. These

included a range of 'DNA' security paints that feature a unique chemical code in each batch, enabling forensic testing of recovered materials so they can be traced back to their owner (and also acting as a disincentive to the less serious potential thief). The most widely known example is 'SmartWater',⁶⁸ a substance which has been widely adopted upon school estates and utilities in South Yorkshire. Indeed, South Yorkshire Police mounted 'Operation Apparent' in October 2007, a successful metal theft crackdown based upon recovering copper encoded with this technology.⁶⁹

Market manipulation

What could national government do, beyond publicly acknowledging the seriousness of the problem? Metal theft from the built environment is a truly global phenomenon, and its roots lie in classic supply and demand factors playing themselves out around the world.

Given the intrinsic difficulties of individuating copper and lead in such a way that more traditional approaches to law enforcement can be effective in cracking down on metal thefts (whether of the organised or opportunistic variety), tighter regulation can only meaningfully focus upon the recycling market. Criminologists style this the 'market reduction approach'.⁷⁰

However, such approaches work best where the criminal and legitimate 'marketplace' can be clearly distinguished and separated. The problem, of course, is that there is a single market infrastructure for the reintegration of 'scrap' metal back into productive use in the United Kingdom. Also, and unlike many other property crime networks, metal theft requires no 'fencing' (or laundering) process by criminal intermediaries to be undertaken to render the stolen material into a form or context in which it can be successfully presented at a legitimate inlet for reintegration into use and manufacturing flows. Accordingly enforcement drives (such as have been described above) may be a more effective way of cracking down on metal theft than further elaboration of existing legal controls over scrap yards.

Export controls could in theory be introduced to suppress the demand for scrap copper and lead within the United Kingdom, but that would have major implications for the legitimate copper and lead markets (and would soon run into legal challenge on 'free movement of goods' grounds under EU law). At least three metal-theft afflicted countries have taken this step; Russia⁷¹ and Kazakhstan,⁷² both in 2000, while in 2007 Jamaica declared a temporary moratorium on all scrap

62 *San Diego Union Tribune* (3 February 2008).

63 Associated Press (23 January 2008).

64 BBC News online report (27 October 2007).

65 British Secondary Metals Dealers Association.

66 www.Theft-alerts.com.

67 A Knox *Secondary Metal Recyclers & Copper Theft – Strategic Assessment* (Florida Department of Law Enforcement 2007) (unpublished) available at http://www.fdle.state.fl.us/FCJEI/Analyst_Info/Analyst%20Academy/Class%206%20Assessments/Class%208%20Assessments/Knox%20Assessment%20Paper.pdf.

68 www.smartwater.com.

69 South Yorkshire Police <http://neighbourhood.southyorks.police.uk/news/armthorpe/181020071429> Press Release (18 October 2007).

70 M Sutton, J Schneider and S Hetherington *Tackling Theft with the Market Reduction Approach – Crime Reduction Research Series Paper 8* (London Home Office Policing and Reducing Crime Unit 2001) <http://www.homeoffice.gov.uk/rds/prgpdfs/crrs08.pdf>.

71 Reported in *American Metal Market* (1 September 2000).

72 *ibid* (22 December 2000).

metal exports while it investigated why scrap metal export rates had increased 600 per cent between 2005 and 2006. However, such bans do not appear to last. Russia abandoned this policy in 2001 and replaced it with licensing and audit chain requirements more characteristic of the western style of regulation in that year.⁷³ Meanwhile, in Bulgaria, fines for metal theft were increased in 2001 in an attempt to alter the cost versus benefit equation in that country,⁷⁴ and in October 2000, Estonia⁷⁵ was reported to be considering introducing legislation to restrict the flow of scrap metal around its territory.

These extreme eastern European reactions in part reflect the legacy of their authoritarian approaches to social and economic control, but are also testimony to the wave of asset pillaging that hit the area in the 1990s in the social and economic dislocation that followed the fall of the Berlin Wall.⁷⁶ The rise of systematic pillaging (not just for metal) in these former command economy states was an example of an over-exuberant, extremely anti-collectivist capitalism, both more raw and more destructive than had been anticipated by Sir William Ryrie, of the World Bank's International Finance Corporation, when he forecast in 1990 that: 'economic man cannot be far beneath the surface. One has to believe that a decontrolled environment with the right incentives will lead to the emergence of entrepreneurs.'⁷⁷

Wider implications for recycling

The scrap metal industry predates the growth of contemporary recycling initiatives. The value inherent within redundant metal items has always supported a market in the recovery of such materials. The ferrous metal sector needs scrap as an integral part of the production process for new steel (scrap serves a chemical purpose, it is not merely a substitute for virgin iron ore). In western Europe the majority of lead consumed is recycled rather than freshly processed from ore. Copper is readily identifiable within demolition and other waste streams, and provides a high effort to reward ratio for the collector and the recycler. Accordingly, the scrap metal industry is desirable and unavoidable. It is an example of a system in which resource values and ease of recovery enable a finite resource to have an enduring life spread across many incarnations. It should be applauded for its success.

However, as has been shown, this value-driven success has the ability to become counter-productive. High prices, readily accessible materials in the built environment, and informal infrastructures for the sale and integration of stolen metals back into the productive chain create a cycle of asset stripping that has major economic and social (and also environmental) costs.

Could future successes in establishing recycling infrastructure lead to other materials being pillaged and then laundered through recycling channels? Until recently the prospects of this happening in the United Kingdom appeared low, partly due to comparatively low (and often marginal or negative) values for non-metallic recyclates, and partly due to the lack of public involvement in the trading of such materials (such materials are conventionally donated by consumers who are eager to do their bit at the bottle bank). However, an increase in market prices and increased awareness among the criminal element, whether organised or opportunistic, would, in situations where the resources in question are readily capable of direct sale to users, or relatively easy to reintegrate into legitimate resource be likely to lead to a rise in other levels of resource crime.

Some commentators view the rise of door-to-door clothing collections⁷⁸ (ostensibly for charity) as an example of such a development (and something to which there has been a conspicuous national government reaction).⁷⁹ Such clothing is believed to be exported to eastern Europe and Africa and sold there at street stalls.⁸⁰

More worryingly, 2008 has seen signs suggesting that other resources which are accessible to plunder in the built environment are being targeted, as their global prices start to rise. Examples include thefts of fuel⁸¹ and theft of catalytic converters⁸² (from high performance cars) in order to recover their platinum content.

It has become conventional in senior policing circles to view a certain section of the criminal fraternity as essentially rational in their behaviour, according to 'rational choice theory'.⁸³ This practical criminological theory takes the view that theft crimes are largely motivated by a cost/benefit calculation, and that crime is more the product of opportunities and environments than personality. According to this perspective high reward, low risk of capture crimes are attractive to criminals, and the focus of their thieving will change over time, following where the best benefit/risk can be found. By such analysis, the richest pickings may increasingly be found in environmental and related resource crime – whether

73 *ibid* (5 June 2001).

74 *ibid* (20 December 2001).

75 *ibid* (17 October 2000).

76 See, for example, R Manser 'The Squandered Dividend – The Free Market and the Environment in Eastern Europe' (London Earthscan 1993).

77 *Financial Times* (5 January 1990).

78 See for example BBC News report (18 August 2006) of a bogus 'charity' collector in South Wales http://news.bbc.co.uk/1/hi/wales/south_east/5263072.stm.

79 HM Cabinet Office, office of the third sector 'Give with Care: New Awareness Drive to Deal with Bogus Charity Clothing Collections' Press Release (3 December 2007) http://www.cabinetoffice.gov.uk/third_sector/news/news_stories/071203_bogus_charities_collections.aspx and http://www.consumerdirect.gov.uk/watch_out/scams/bogus-charity-collection/.

80 'The Great Charity Collection Scam' *The Guardian* (18 August 2007)

81 'Breakdowns Caused by Fuel Theft Soar, say RAC' *The Daily Telegraph* (22 July 2008); 'Farmers Fear Fuel Theft Epidemic as Harvest Season Starts' *The Daily Telegraph* (25 July 2008); 'It Used to Be Deer Poaching, Now Rural Gangs Move into the Oil Business' *The Guardian* (28 June 2008).

82 'Thieves Target Catalytic Converters' *Los Angeles Times* (2 January 2008); 'The Big Meltdown' *The Guardian* (25 June 2008).

83 M Felson and R V Clarke 'Opportunity Makes the Thief – Practical Theory for Crime Prevention: Police Research Series – Paper 98' (London Home Office Policing and Reducing Crime Unit 1998) <http://www.homeoffice.gov.uk/rds/prgpdfs/fprs98.pdf>.

organised fly-tipping, cigarette smuggling, metal or fuel theft – rather than in aggressively policed (and understood) areas such as drugs.⁸⁴ Accordingly, it appears that metal theft may signal a broader range of resource crimes set to blight the built environment in the current economic climate.

Conclusion

This article seeks to map out some of the terrain across which contemporary metal theft is situated. The study has found little research aimed at understanding the causes and consequences of, or developing the necessary policy responses for, dealing with this problem. It has also found little engagement with the topic by public administration (other than police agencies).

While global in its footprint, metal theft in the United Kingdom has, perhaps conveniently, been seen as a localised petty theft issue. It has often been characterised as ‘northern’ and ‘industrial’, receiving comparatively little attention in the south, although the national media, both print and television, have been active, in part spurred on by the efforts of the British Transport Police and Ecclesiastical Insurance Group.

Although metal theft cannot be solved ‘nationally’, the absence of conspicuous comment from politicians leaves those in affected areas feeling a disconnect between the (local) world as they experience it and what they hear from national policy makers. Recent initiatives in the arena of ‘environmental crime’, such as the Clean Neighbourhoods and Environment Act 2005, have conspicuously concentrated on raising the resources and focus upon the mundane ‘neighbourhood’ crimes (which are no less significant to those afflicted by them) of fly-tipping, nuisance light pollution, and neighbourhood noise.

However, acknowledgement of the serious social and economic impacts of metal thefts from the built environment have been conspicuously absent from such initiatives. The prospect of the emergence of a wider body of resource crime, targeted at the lucrative and relatively low-risk pillage of the built environment, is further cause for concern.

84 Reflecting comments made to the author by a senior police officer specialising in rural crime in the periphery of London. In his experience gangs engaged currently in environmental crime such as fly-tipping, metal theft, and fuel theft had known prior association with drug crime, but were currently finding these environmental crimes more attractive because of the relatively high rewards and low risk of capture. With thanks also to Dr Craig Paterson, Senior Lecturer in Criminology at Sheffield Hallam University for his insights into ‘Rational Choice Theory’.