

Community Experiences, Perceptions of and Attitudes to Contaminated Land and its Remediation: An Analysis of Metropolitan and Local Newspapers in Australia

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The legislative, regulatory and decision-making frameworks relating to contaminated land in Australia aim to minimise risks and costs and maximise benefits from remediation. Ensuring a 'triple bottom line' outcome requires a comprehensive assessment not only of economic and environmental risks, costs and benefits, but also of the *social* dimension of the issue. Exploring and understanding the ways in which people – as individuals and as members of the community – think and feel about land contamination and remediation is critically important. However, studies exploring community feelings, perceptions and attitudes to land contamination and its remediation within the Australian context are extremely limited. In relation to the specific issue of *in-situ* remediation, this kind of research appears to be non-existent. This paper reports on research that addresses this gap, as well as the need – expressed by regulators, site managers and other practitioners in the contaminated lands industry – for a better understanding of how Australian communities experience and perceive contaminated land and its remediation.

The paper reports on the findings from one component – a media analysis – of a mixed method social research project investigating community experiences and perceptions of contaminated sites and remediation processes, and includes empirical research with communities at two case study sites in New South Wales – the first involving contaminated sites near Botany Bay, Sydney and the second involving a contaminated site near Cockle Creek, Lake Macquarie. The contamination at both case study sites resulted from an industrial history and was manifested in a variety of forms - soil, ground water, and airborne. This CRC CARE-funded research commenced in 2008 and is being undertaken by the Institute for Sustainable Futures, at the University of Technology, Sydney.

The paper begins by presenting the conceptual framework that was used to frame the media analysis, then provides an outline of its methodology and finally presents the research findings that emerged from the analysis.

Conceptual framework

Newspapers amongst other media 'texts' can be used as a powerful resource to trace the discourses and narratives that emerge around community experiences, perceptions and attitudes to contaminated land and associated remediation processes. Media texts reflect

and are deeply embedded in the cultural production of these discourses and narratives. Culture in the broadest sense: “includes all of the meaning making systems, practices, and forms in a social formation - the prevailing truths as well as the contesting knowledges...both formalized and informal” (Hennessy 2000, p. 18). The media does not merely report news; as a social institution it shapes culture. “Mass media...is not merely an indicator of broader cultural changes in the civil society but influences them, spreading changes in language use and political consciousness” (Gamson 1998, p. 60).

The ‘community’ discussed within the media analysis can be understood as the community that forms out of the interconnection of previously separate individuals and communities that come together as a result of risk associated with the contaminated lands (Brown, 1987). This ‘community of risk’ most obviously includes the residents who live in physical proximity to the contaminated land within each case study site. However, as well as individuals immediately affected by the risk, a community of risk includes various community structures, local action groups responding to the risk, interest groups and NGOs with a broader base; and official bodies with some regulatory responsibility for aspects of the situation (Brown, 1987). The media analysis explored the experiences, perceptions, interactions, and attitudes of this broadly defined ‘community of risk’ that formed around the contaminated lands and associated remediation processes at each case study site.

Before turning to the media analysis it is worth briefly describing the nature of the two case study sites. The Botany Bay site in Sydney is characterised by a mix of different types of contamination that have been discovered over a range of parcels of land and areas of groundwater, including Botany Industrial Park and South Lands and Botany Bay itself. These include a large groundwater plume contaminated with chemicals such as 1,2 dichloroethane, Australia’s only significant stockpile of HCB waste (over 10,000 tonnes stored in barrels), and various areas of soil contaminated with numerous compounds. The diverse array of contaminants found at Botany Bay is the result of the area’s long history as a site of industry – from 19th century tanneries through to chemical manufacturing plants owned by the company ICI, which started operations in the area in 1944 (and later became Orica). The community of risk that has formed about the contaminated lands at Botany Bay involves a broad range of participants including local residents, local community groups, environmental bodies such as Greenpeace, the Greens (political party), federal and state government agencies seeking to resolve contamination issues, the City of Botany Bay local council, and private companies such as Orica which is the current owner of the contaminated land and manages the remediation of those lands.

The Pasminco Cockle Creek case study refers to a site that was occupied by a zinc and lead smelter for over one hundred years. Built by Sulphide Corporation Limited in 1896, the smelter produced large quantities of lead, and was later expanded to include sulphuric acid production and a zinc refinery. At times other materials were also produced on the site, including cement, superphosphate and compounds for explosives produced during both World Wars. In 2002 the NSW Environmental Protection Authority (EPA) found lead, cadmium and zinc contamination in groundwater at the site, and discovered that the

contamination was migrating to nearby residential areas in groundwater. The EPA also found risk of cancer from airborne particles and risk of harm from elevated lead levels detected in children in the community. The EPA closed the smelter and ordered remediation in 2003. When it closed the site was occupied by the company Pasminco, which has since been placed into voluntary administration¹. The remediation of the site is now being managed by the Fitzwalter Group.

Like that at Botany Bay, the community of risk that has formed at Cockle Creek includes a diverse group of actors ranging from local residents, environmental groups, local, state and federal representatives, Pasminco and its appointed administrators, the Fitzwater Group and many others.

The media analysis, like the broader mixed methods research project of which it is a part, draws on four broad themes that emerge from international research on community experiences, attitudes and perceptions to contaminated lands. These are firstly, how risk about the contamination is communicated to and within the community; secondly, the impact of both the contamination and remediation on the 'lifescape' of those who live near the site; thirdly, the stigma associated with contamination and how this might be transformed as a result of remediation; and finally, the relationship between contamination and remediation and the capacity of the affected community. We suggest that using these themes to better understand community experiences and responses can provide valuable insights that will be valuable in informing the management of the contaminated lands and their remediation.

Existing international research has shown that the way in which government and industry communicate with the affected community about the contamination and its implications and about the remediation process is of critical importance. This is because becoming aware of contamination in one's local area can fundamentally challenge people's 'assumptive worlds' (Edelstein 2002:579). Knowledge of contamination near one's home undermines people's normal assumptions about life, particularly those concerning health, personal control, home, the environment and social trust (Edelstein 2002). The impact on social trust affects both social and relational networks in communities living with contamination, and extends to government officials in a 'dialectic of double binds' in which neither group trusts the other and victims are likely to experience increased stress as a result of encounters with officials (Edelstein, 2002). Communication about risk is also complicated by the tendency for ambiguity (real or perceived) in warnings issued or information provided by specialists, government officials or industry about the level of harm resulting from exposure to contamination. This ambiguity can further contribute to the disruption of social relationships (Kroll-Smith & Couch, 1991), conflict (Freudenburg, 1997; Becker, 1997) and chronic stress (Freudenburg, 2004).

As noted above, disruption of 'lifescape' refers to the way in which contamination inverts or disrupts people's normal assumptions about life. Edelstein (2002) summarises the five key dimensions of lifescape and how they are disrupted by the experience of contamination. Normal optimistic assumptions about health are replaced by a focus on risk and uncertainty. Positive feelings of personal control are replaced with a sense of threat, insecurity and doubt and people's sense of fairness and justice may be violated. Where

once 'home' was associated with privacy, or protection, and provided a sense of security, status, self identity and attachment to place, the knowledge of contamination can replace these positive associations with negative, as 'home' becomes stigmatised. The local environment becomes a site that harbours danger, and people's trust in social and institutional support systems can break down (Edelstein 2002). These significant lifescape impacts are one explanation for the stress that is commonly identified as an effect of exposure to the health and safety risks associated with contamination (Edelstein, 2002; Kroll-Smith et al., 1997).

International research identified that there is commonly a sense of stigma associated with contaminated sites, and by extension a social stigmatization of the communities that surround them (Becker, 1997; Edelstein, 1988, 2002). The establishment of pollution or contamination boundaries can isolate and stigmatise the community within (Edelstein, 1988) and can create 'a new shared identity ... for those living within designated boundaries of contamination' (Edelstein, 2002).

The final theme characterising this research is that of community capacity. The right for communities to be involved in decision making processes about hazardous chemicals that affect them is enshrined in the Bahia Declaration on Chemical Safety (Intergovernmental Forum on Chemical Safety 2000). However for this involvement to be meaningful, the community must have sufficient capacity to participate effectively, and range of obstacles – such as limited access to information and expertise – must be overcome (Lloyd-Smith 2004). Whilst in some instances communities affected by contamination can develop an increased capacity (Edelstein, 2002), the experience of contamination often has an adverse impact on community capacity, particularly that of vulnerable groups within the community (Freudenburg, 2004, Edelstein, 1988).

Methodology

The media analysis involved both a quantitative and qualitative component. While the main analysis conducted was qualitative, there was a need to first define a small enough sample of material to enable qualitative analysis. A purely qualitative approach brings difficulties in tackling large samples of media text. Bryman and Burgess, for example, note that the analysis of qualitative data is often regarded as a problem because of the nature of such data 'which are invariably described as voluminous, unstructured and unwieldy' (1994, p 216). For this reason, a quantitative analysis was first used to identify a dataset small enough for qualitative analysis. A quantitative approach is ideal for analysing large samples of text because its main units of analysis are explicit, objective and mutually exclusive (Berelson, 1952; Holsti, 1981).

In the initial quantitative stage, data searches of newspapers were undertaken. Three metropolitan papers were selected – the *Sydney Morning Herald* and *Daily Telegraph* (for

the Botany case study), and the *Newcastle Herald* (for the Cockle Creek study). The other two papers that were selected included the *Lake Macquarie News* and the *Southern Courier*, which are local newspapers in the two case study areas (the latter serving a district to the east of Sydney Airport between Randwick and La Perouse). A series of basic terms was used (such as the company names – Orica and Pasminco). This identified material from five relevant newspapers, (a mix of metropolitan and local). The searches at the initial stage discovered 110 relevant articles in *The Sydney Morning Herald* between 1986 and 2008. There were 118 articles in the *Newcastle Herald* relevant to the case studies (between 1997 to 2008). The *Daily Telegraph* returned 50 articles on ‘Orica’ at Botany Bay, between 1996 and 2008. The *Lake Macquarie News* also had a high number of articles (102) when just the keyword ‘Pasminco’ was searched for. Issues of the *Southern Courier* are not searchable in any database, and it was necessary to refer instead to clippings files maintained by the Botany Bay Library pertaining to the Orica contaminated site and remediation options. While this source cannot be assumed to be exhaustive, there were a large number of articles from the *Southern Courier* (over 100) in the ‘Orica’ clippings folder from between 1994 and 2008.

Quantitative analysis shows that there was regular reporting in the *Sydney Morning Herald* of the issues surrounding the contaminated sites at Botany in the late 1980s and early 1990s, particularly in the years 1989-1991. Another period of significant reporting of the issues surrounding this site was 2003-2005. In this period, both groundwater remediation plans and disposal options for barrelled waste were being planned and implemented, with much activity in the community and conflict between the company and community. Reporting of issues surrounding the contaminated site at Cockle Creek in the *Newcastle Herald* had regular coverage from 1998 to 2003. This coincides with growing community concern in the late 1990s and leads up to the final closure of the smelter in September 2003. In the local papers there was a real difference in reporting. The *Southern Courier* had consistent coverage of the contamination issues at Botany, whereas the (now defunct) *Lake Macquarie News* had limited coverage of contaminated issues at Cockle Creek.

The second phase of the quantitative analysis refined this initial pool of material using a search which combined the company name – Orica or Pasminco – with a selection of additional terms: ‘residents’ or ‘community’, ‘contamination’ or ‘remediation’, and ‘pollution’ or ‘toxic’. Using these constraints produced 182 itemsⁱⁱ across both case studies. Notably, *Lake Macquarie News*’ initial substantial article count of 102 dropped dramatically to only nine at this stage of the search. The 182 articles were deemed to constitute a reasonable dataset to be analysed for the qualitative phase, and it is this analysis that is the focus of this paper. As Potter and Wetherell note, qualitative content analysis and discourse analysis are more appropriate for the identification of themes, dispositions, ideologies, symbols, beliefs and principles (Bryman, 2001, p. 185; Mason, 1994, p. 171–5; Potter and Wetherell, 1994, p. 47–9) but can only realistically be carried out on a more restricted data set.

The remainder of this paper focuses on the findings emerging from the qualitative stage of the media analysis and is structured according to the four themes that framed that stage of

the analysis, namely risk communication, impacts on lifescape, stigma and community capacity.

Risk Communication

Material bearing on the theme of risk communication addresses three main areas: mechanisms for communicating risk; who is communicating within the media; and the community responses to communications by authorities. Regarding mechanisms, it is important to bear in mind that newspapers are only one of the media by which risk is communicated. This media analysis lets us examine mainly the types of mechanism utilised within the newsprint medium, but it does refer to other mechanisms mentioned in articles from time to time.

One observation we made is that within the newspapers there is an absence of basic information about the nature of the risks, such precisely how or with what the soil or groundwater was contaminated. This type of basic information is regularly skimmed over within the context of a story, and a certain level of pre-existing knowledge is assumed. Further, it is apparent that articles, letters and opinion pieces in the mainstream media, particularly at the metropolitan newspaper level, are not the mechanism by which companies or governments choose to or are able to communicate with the community about the risk of contamination or remediation. The metropolitan newspapers do refer to the release of reports, such as Environmental Impact Statements (EIS), but there is little of the detail about the opportunities for community involvement and consultation that is found in the local papers.

Both local papers – *Southern Courier* and *Lake Macquarie News* – mention a number of these formal community engagement initiatives and are more generally used by the respective companies as a formal engagement mechanism. The *Southern Courier* has a weekly column by Orica's Environment Manager (Bruce Gotting), as well as a regular column from the local Mayor in which he often comments on the Orica contaminated site and remediation plans. Community workshops, meetings, EIS reviews and more relating to Orica are also advertised in the *Southern Courier*. It is possible that this was also true of the *Lake Macquarie News*; however, the online database does not attempt to cover such advertisements, and the paper ceased operation in July 2008. The media analysis did find a fairly high rate of publication of letters or articles referencing the remediation and environmental health efforts of the Boolaroo Environmental Health Clinic located at the Cockle Creek site, local town meetings held by the authorities and/or Pasminco, and the regular newsletter from the company informing residents of recent updates.

Metropolitan newspapers also refer occasionally to such newsletters from Pasminco and Orica to the Cockle Creek and Botany communities. For example, in relation to a series of allegations in 1997 about sulphur dioxide pollution emanating from the Pasminco site, the Newcastle Herald noted that 'Lake Macquarie residents were kept informed of progress by company news sheets' (Croxtton, 1997). Similarly, the Sydney Morning Herald reported that after an investigation into a series of gas leaks Orica planned to 'distribute a newsletter to 4,000 Botany residents' (Beale, 1997). Our findings suggest that while

popular metropolitan media channels did alert the wider community to the contamination and risk issues in a broad sense, people would have needed to seek out local papers or other sources of information to obtain fuller details.

When reporting on the risk and other issues surrounding both case studies, these newspapers made space for a number of voices. As noted above, Orica's Environment Manager regularly availed himself of the opportunity to position his company as a risk communicator in the local press, as did the mayors of Botany Council; this was also true of their counterparts at the Cockle Creek site to varying extents. It is noteworthy, however, that State government officials are rarely quoted in media articles, raising a question as to whether the State government avoids initiating risk communication (or indeed any sort of commentary) in these forums as a matter of policy.

Community voices, specifically key spokespeople for community action groups and residents affected by the contamination, were also given space in the media articles we analysed. Recurring spokespeople across the date range of the dataset include, for example, Nancy Hillier from Botany Environment Watch and Joan Staples from Save Botany Beach. Overall, the tenor of the community voices in the media coverage of the Botany sites are one of anger, disappointment and frustration, reacting both to remediation issues and to the authorities' risk communication efforts (or lack thereof). At one point, the Save Botany Beach group accused the EPA and the responsible State government department (DIPNR) of 'failing to properly inform residents of the potential danger of using groundwater' (Staples in Bell, 2003). More broadly, residents repeatedly imply that both the company and regulatory authorities have been 'bungling the issue' (Huxley, 2005a). Sample statements to this effect from community action group spokespeople include 'both Orica and the department have known about this for years and did nothing' (Blaschke in Peatling, 2003) and 'the Government has let us down' (Staples in Peatling and Smith, 2004). This sentiment is also reflected in the newspapers of the Cockle Creek case study; for example, Lyn Hinds (2002) asked 'when will the Government do something about the continued lead problems that residents near the Pasminco smelter are suffering?'

The frustration and anger regarding the initial contamination, then the lack of action and how both have been communicated by authorities, manifests in the media as lack of trust in the company and in the government's remediation efforts. There are many quotes which question the veracity of claims made by the company or the government, which illustrate the build-up of a level of distrust that Edelstein (2002) refers to as typical in such situations. These include claims that the groundwater plume test results showed the 'limits to modelling' done by Orica (Staples in Peatling, 2005), that predictions about toxic emissions [from a high-temperature incinerator] would be "nonsense" (Beder in Smith, 1991), and that the Geomelt process for disposing of the HCB waste is an 'unproven technology' (Davis, 2002). Mistrust of Orica's remediation efforts is a sentiment heard in the following comments: 'we don't have confidence in them', by Nancy Hillier of Botany Environment Watch (in Davies, 2002); 'we're still not confident they'll have the plant up and running', by Joan Staples of the Save Botany Beach action group (in Marriner, 2005); and 'at least we know there's some money allocated, whether it's enough we don't know because we may be cleaning this site up for the next hundred years', by Gary Blaschke, spokesman for the Botany Bay Catchment Alliance (Grafitti, 2004). Similarly, at the Cockle

Creek site the United Residents' Group for the Environment (URGE) expressed its concern that 'a proper clean-up would "fall through the cracks"' (Morris in Kirkwood, 2004).

Impact on 'lifescape'

By focusing on the capacity of environmental contamination to disrupt the lifescape, we are looking at the way in which contamination impacts on people's 'normal' assumptions about life – particularly as they relate to health, personal control, home, environment and trust. Edelstein (2002) has described the impacts of contamination on these assumptions as creating 'turbulence' in the lives of individuals, and our analysis provides many examples of how this kind of disruption and turbulence was experienced by the local communities living near the case study sites. Trust was considered in the previous section and feelings of control will be touched on in following sections of this paper; this section will focus on the media portrayal of how community members experienced contamination as creating significant health and safety fears, and disruptions to people's normal assumptions about both 'home' and the wider local environment.

The contaminations at Botany and Cockle Creek have resulted in public health outcries, sustained over a number of years. In relation to both sites, the media we analysed contained many references to people's fears for health and safety. For example, in his mayoral column Cr Ron Hoenig (2004) states that Botany Council had 'received a number of calls from residents concerned about the safety of their families and themselves.' The fear in the Botany area was rooted foremost in the nature of the contamination itself, which literally entered local residents' backyards. The groundwater contamination there potentially affected the bore water that people had previously used to water their gardens and fill their swimming pools. In the words of Joan Staples, then chair of Save Botany Beach, the result of the EPA's and DIPNA's 'fail[ure] to properly inform residents of the potential danger of using groundwater' was that 'we have members with children who have used the groundwater in swimming pools and spas for years – ingesting, inhaling and absorbing the water through their skins' (Bell, 2003). A similar issue can be identified at the Cockle Creek site, where there was significant fear about airborne lead particles contaminating the soil and surfaces of local residents' gardens and houses in the surrounding communities. In the article 'Mother looks to cleaner future', Jane Warby, a nearby Boolaroo resident, describes herself as 'freaking out' about lead levels in her back garden: 'there is a patch of dirt in the backyard where the grass won't grow and the kids love playing in it ... and you never know what the lead levels are out there' (Keene, 2002).

It is striking that these quotes focus particularly on residents' fear for children in the home environment. This is indicative of the disruption that Edelstein (2002) describes – people's normal assumptions about home as a place of safety and privacy and protection and security for one's family have been disrupted and replaced with a sense of fear and dread, uncertainty and anxiety. Thus Botany resident Derrick Pittman is reported as asking 'what if 10 years down the track our kids get crook?' (Skelsey, 2004a); Ros Cook talks of her daughters' 'seriously high' blood lead levels (Croxtton, 1997); and the Enderby family explain that they did not let their children out to play 'on days when the wind is in the wrong direction' (*Newcastle Herald*, 26 August 1998, p5).

From the media analysis the impact of contamination on people's lifescapes is clear. It has created increased levels of fear and worry and has led people to question the safety of their own homes and gardens, the water they use and the air they breathe. As well as these psychological impacts, the contamination at Botany and Cockle Creek has had a practical daily impact in that it has required changes to the normal behaviour and practices of local residents. Of the two case studies the daily impact of contamination is most significant in the Cockle Creek area. The remediation approach to the lead contamination was at a household scale – completely removing topsoil from residents' gardens, as well as engaging a community health service to monitor lead levels and provide advice on how residents should live with lead contamination in the environment in order to minimise risk to public health. The *Newcastle Herald* described the day-to-day consequences of living in the shadow of a lead smelter for resident Jane Warby: as recommended by the Boolaroo Environmental Health Clinic, she 'thoroughly cleans carpets, regularly hoses off children's toys and washes everything with a damp sponge to minimise the risk of lead contamination' (Keene, 2002).

At both sites, the most severe and potentially fear-inspiring impacts reported on residents' home lives have been gas leaks and explosions. In 1996, there were a series of gas leaks and a fire at the ICI site. After the worst of the leaks, the *Sydney Morning Herald* reported 'scores of people reportedly suffered nausea and sore eyes and some children were said to have suffered asthma attacks' (Beale 1997). In 1997, when Pasminco was bringing its plant back on line after a maintenance program, one component of the furnace failed, leading to what the *Newcastle Herald* described as 'a series of loud explosions that rocked the surrounding streets and damaged houses' (Croxtton, 1997). *Newcastle Herald* readers were given Ros Cook's description of the resulting damage to her home: 'Last night we had nine [explosions] ... I have cracking to my walls and my roof ... it looks like an earthquake has been through' (Croxtton, 1997). Another unnamed resident was reported as saying that the explosions were like 'hell breaking out with all the sirens going off from the works' (ibid.).

Thus occasional disturbing incidents are piled on top of the daily impact of contamination on the home lives of residents. Other elements of the life-scape have also been affected by the contamination. Recreation areas and local schools are spaces that are referred to in both case studies. For example, the *Daily Telegraph* reported developments such as that 'toxic groundwater plume carrying cancer-causing chemicals has unexpectedly started travelling uphill towards houses and a primary school' (Murray, 2004), as well as claims by locals such as Joan Staples that she 'refuses to take her six-year-old twin grandchildren to play' in the Penrhyn estuary in Botany (Huxley, 2005a), and Mrs Wolfram, quoted as feeling "very concerned" about any form of pollution so close to residents, shops and schools' (Bita, 1990a). Such locations outside the home figure in the minds of residents (and no doubt readers) as defenceless spaces. They are areas where children play, so

any threat to them is particularly fear-inspiring, particularly as children are understood to be the most vulnerable to contamination. The contamination of recreational areas and schools and the fear for safety associated with using these spaces, normal parts of urban life, clearly add further 'turbulence' to people's lives.

In addition to a fear for children's health and safety in community spaces, concern was expressed in the media for the environment itself, albeit only occasionally. For example, the chairman of the Botany Bay Catchment Alliance, Gary Blaschke, highlighted the fact that the contaminated groundwater plume is 'also affecting the ecology of Botany Bay' (O'Rourke and Gibson, 2003). Articles from both case studies and across all newspapers refer to the degradation of the environment, particularly areas that were once or continue to be recreational areas. Examples include remarks such as 'Penrhyn estuary, once a popular recreation spot, but now little more than a dumping ground, a polluted backwater, increasingly cramped by the airport, the container base and chemical plants' (Huxley, 2005); and, regarding Cockle Creek, the observation that a name which now 'evokes an image of an abused waterway full of rubbish and industrial waste' (Ray, 2002) was once a place where young couples would hire boats and row upstream in search of sheltered picnic spots (observed by Rinker in *ibid.*) and even now has 'enormous environmental and recreational potential' (Holt in *ibid.*). Fear was also expressed for adults using these recreational areas, for example 'fisherman, divers, swimmers and anybody involved in water sports on the northern side of Botany Bay will be at risk' (Bell, 2003), and 'residents are worried about [the] health [of fishermen and others]' (Huxley, 2005).

All these impacts, from fear for the health and safety of people and the environment, to the impact that fear has on people's daily lives, combine to create significant turbulence for individuals and the community generally. While residents of Botany appear to have been particularly vocal, the Boolaroo community at Cockle Creek has also clearly been affected on a daily basis, and many people have had their sense of 'normalcy' disrupted.

Stigma

The impact on people's life-scape extends to the concept of stigma; not only are the impacts from contamination personally felt, but they can result in the stigmatisation of communities and their localities, as well as of individuals and their property. Disparaging characterizations of the current state of Penrhyn estuary and Cockle Creek itself have been cited above. The theme of stigma was extensively referenced in Pasmenco related media articles. Jane Warby openly states 'we cop a bit of stigma because ... we choose to live in Boolaroo' (Keene, 2002). The impact of the lead smelter at Cockle Creek on local property values was one of the clearest measures of stigma reported in the media. One resident suggested that house values were the reason that people don't talk openly about Pasmenco (Croxtton, 1998). In 2000 the Holziga family were reported to be thinking about selling and moving to avoid health impacts but having difficulty because of 'the 149', a

certificate that states that the soil on their property is lead affected (Croxtton, 2000). A decision by the local council to freeze any new developments was reported as sensible for health reasons, but likely to add to the sense of stigma attached to the area and exacerbate already declining property values. Most of the references to property values came in articles around the time that Pasminco closed. Croxtton (2003), in her article 'Boolaroo begins to blossom', summed up the sentiment: 'the up-side has already begun for their property values. Homes are selling rapidly after years of buyer resistance to living near an operating lead and zinc smelter.' Other descriptions include the closure of the lead smelter being a 'boon for developers and the local community' (Croxtton, 2003) and leading to a sharp rise in land values (Ray, 2002). Ken Holt, General Manager of Lake Macquarie Council, and local real estate agent Fred Andriessen (in Ray, 2002), were happy to name the suburbs which had most stigma attached to them and whose property values were most affected, first adversely by the existence of the smelter and then favourably by its closure (Boolaroo, Argenton and Glendale).

Stigma associated with the Botany area as a result of the Orica contaminated site did not appear to be reported through reference to property values; rather, the stigma of the area was portrayed through a number of feature articles which discuss the degradation of Botany Bay itself. These stories have a particular resonance because of Botany Bay's iconic status in Australian history, and indeed in media coverage it is often referred to as the 'birthplace of modern Australia' (Huxley, 2005a). Articles entitled 'The Degradation of Botany Bay' and 'Historic Birth, Modern Death' draw out the stark differences between the pristine bay teeming with wildlife or the 'God's own country' (ibid.) that Cook encountered in 1788 and the 'hive of industry' (Sampson, 1987) or 'paradise lost' (Walsh in Huxley 2005a) that it has become in the late twentieth and early twenty-first centuries. These articles stressed the sense of the passage of time by including the voices of older community members, such as Joan Staples, grandmother and campaign co-ordinator of the Save Botany Beach community group and 'craggy' Bernie Clark, a Botany Bay fisherman of 50 years and activist for 30.

In addition to the two feature articles in the Sydney Morning Herald, there were two feature articles in the *Newcastle Herald* relating to Pasminco, entitled 'Urban Survivor' (Ray 2002) and 'Save the Lake' (Croxtton 1998a). These lengthy in-depth features give a historical background to the two contamination case studies, while also providing anecdotal accounts from residents of the contemporary situation. A key concept that is conveyed by all four articles is the contrast between nature and urbanisation. Lake Macquarie and Botany Bay are places rich in biodiversity and popular recreation spots, while also being sites of significant industrial development. The articles explore the impact of this industrial development on the natural surrounds and the community, with many contrasting the beauty and vulnerability of nature with the dangers and pollutants of urbanisation. Botany Bay is described as the 'dumping ground' for Sydney which has 'suffered more than two centuries of abuse' (Huxley, 2005a) – 'so much of the botany disappeared, replaced by concrete, destroyed by chemicals' (ibid.). The 'Save the Lake' article discusses the different industries that have contributed to the degradation of Lake Macquarie, using it as a 'dumping ground' for hazardous discharges (Croxtton, 1998a). An article about Cockle Creek suggests its mere name 'evokes an image of an abused waterway full of rubbish

and industrial waste' (Ray, 2002) and 'decades of abuse and neglect', though the article does describe some better qualities including original and undisturbed vegetation. One of the *Newcastle Herald* feature articles uses 90-year old Jack Mitchell, Cockle Creek Boating Club's sole life member, as a commentator for the area and journalistic tool to convey a sense of history, similar to the Sydney Morning Herald example above.

It should be noted that when the feature articles describe the industrial landscape, Orica and Pasminco are only one aspect of the industrial 'contamination' of the environment. However, in both cases the problems for which Orica and Pasminco are responsible stand out as being the most significant within a suite of issues facing these communities and environments. In fact, one senior government official called the contamination caused by Orica/ICI 'the most serious ground contamination issue in Australia'.

Despite the similarity in the way both sites are described as having been used as a 'dumping ground' there is one significant difference between the story told of Cockle Creek/Lake Macquarie and that of Botany Bay. The suburb of Boolaroo at Cockle Creek is portrayed as trying to throw off its cloak of stigma to 'begin the process of change (Ray, 2002); in other words, there is a sense of hope conveyed for the future of the Lake Macquarie community as it emerges from under the shadow of contamination that was associated with the smelter site. By contrast, the Botany Bay articles typically convey a sense of ongoing anger or resignation – 'are we just going to sit back and accept that this is our second-rate harbour ... if so, we might just as well concrete over the bay now' (Blaschke, in Huxley, 2005). At least in the media portrayal, it appears that there is a sense that the hope of justice and a safe environment for the Botany community is still a long way off.

Community capacity

The theme of 'community capacity' explores whether communities have become stronger and more capable of taking action in response to the contamination, or whether the contamination and associated remediation options have caused division and despair. This was the hardest theme to explore using qualitative techniques. It is anticipated that this theme will be explored in greater details as part of the other mixed method social research techniques that are being used within the broader project beyond the media analysis such as the community survey and in-depth interviews.

The previous three sections of the paper described a number of different impacts on peoples' lives over which they had very little control. In an effort to regain control and manage their fear, many residents have taken action in varying forms, including forming action groups, calling the EPA, taking the company to court and attending public meetings. Specifically the things that communities have asked for via such initiatives reflect their need to have a greater level of knowledge of what is happening. Examples include calling for 'an investigation into how factories affected the health of people living and working nearby' (Bita, 1990a), 'a detailed human health risk assessment' (Staples in Huxley, 2005), adequate signage on Botany beach warning of 'high levels of contamination in the area' (ibid.), and asking 'which government authorities have the jurisdiction to prosecute should Orica breach environmental laws' (Hillier in Bell, 2003).

At Botany, the collective response to the sense of loss of control is reflected in the media by the large numbers of community action groups identified, all with similar or complementary agendas. These include the Botany and Eastern Sydney Region Environment Protection Agency; Stop the Ocean Pollution (STOP); Save Botany Beach; Botany Environment Watch; and the Botany Bay and Catchment Alliance. The reporting of these groups gives the impression of a vocal, active and united community. Practically no media articles contain community voices supporting the company, and the vast majority of quotes and descriptions of community attitudes portray a community angry and distrusting of Orica. This suggests that the series of contamination events – groundwater contamination and the stockpiling of HCB waste – has helped to unify and bring the community together in opposition to the company, and in the cause of demanding action.

By contrast, in Cockle Creek related media there is only one vocal community action group quoted – the United Residents Group for the Environment (URGE). The paucity of resident action groups is reflective of a broader conflict in the Cockle Creek Community, one which does emerge in the case study. On the one hand many residents perceive Pasminco as ‘a major health and environmental concern’, which leads to ‘support for its closure’, while on the other it is considered a crucial source of jobs, and thus people and particularly workers are ‘loyal to the ageing smelter’ (Kirkwood, 2002). The conflict is exemplified in the article ‘Mother’s concern for kids wins out over loyalty’ (Croxtton, 2000), where ‘mother of five’ Sandy Cox, an employee of Pasminco, explains how, although she sees Pasminco doing ‘a lot to try and sort out the problems’, she still worries for her children’s health and is considering participating in the class action against Pasminco. Sandy Cox is clearly conflicted; and it appears that the community may also be divided along lines related to whether people in their families have an employment history with the company.

Divided loyalties in Cockle Creek notwithstanding, a desire for compensation or retribution for the impact caused by contamination on residents’ lifescape has been a common sentiment reported in both case studies. Residents of both Botany and Cockle Creek have called for or actively sought compensation. Examples of calls for retribution by the community include researcher Richard Gosden from STOP who stated (in Bitá, 1990) ‘if the pollution in the drain is being deliberately discharged, the polluter must be prosecuted’; and Ron Hoenig, Mayor of Botany Council, who declared that the only place he ‘would like to see the directors and senior executives of Orica is in jail’ (Skelsey, 2004). The most significant example of action to force compensation or retribution was the multi-million-dollar class action taken by Lake Macquarie residents in conjunction with South Australian Port Pirie residents against Pasminco. The statement of claims alleged ‘smelter pollution has led to symptoms ranging from headaches and nausea to more serious long-term effects’ (Tucker, 2000). It was reported that the ‘claims for damages will extend to losses in property values surrounding the two plants’. The lawsuit was eventually unsuccessful, but it prompted Pasminco to initiate its own process whereby local residents could seek compensation.

Another common theme across both case studies is the concept of ‘polluter pays’. When calling for retribution, the common expectation is that the polluter must pay for the cleanup of the contamination and/or compensation to those affected by said contamination. This principle is expressed through reported statements such as ‘the company should be forced

to pay up' (Peter Morris, URGE, in *Lake Macquarie News*, 2005) and 'the responsibility for pollution lies with the polluter, the polluter must pay for the testing and report back to us' (EPA spokesman in Bell, 2003).

While the media portrays unanimity on the principle of polluter pays, community attitudes as to what constitutes adequate clean up or remediation are reported as more conflicted. In the Botany community there has been contention regarding the remediation options, especially if one includes environmental non-government organisations (ENGOS) in the definition of community. When campaigning against high-temperature incinerators and the Geomelt process as means of dealing with the HCB waste, the community including ENGOS is portrayed as united. (Although one exception detailed in the article 'Greens split over toxic waste burner' (Bailey, 1990) revealed Greenpeace and ACF as being at loggerheads as to whether a high temperature incinerator should be built). On the location of a treatment plant for the HCB waste, divisions within the community were on display. Local residents, resident action groups, Botany Council and even Kelloggs, who have a factory adjacent to the Orica site, have lobbied to have the remediation of the HCB waste 'processed outside their area' (*Daily Telegraph*, 25 October 2005). However, Greenpeace supported disposal at the site, because of the dangers of moving the HCB waste (Davies, 2002). This led to the media reporting conflict between residents and NGOs related to the proposals to ship the HCB waste to Europe (either Germany or Denmark) for incineration or to build a high temperature incinerator or the Geomelt treatment plant in regional NSW. It was reported that residents 'just want the toxic waste anywhere but their own backyard' (*Daily Telegraph*, 27 November 2008). However, that is not a sentiment shared by ENGOS, whose major focus (particularly that of Greenpeace) has been to campaign against incineration as a remediation option, no matter where it is located, due to the harmful dioxin emissions that the process produces.

In the Cockle Creek community, the responses to the remediation of the Pasminco site initially seem to prompt the formation of URGE, which called for the 'assurance that residential land would be decontaminated so the burden of lead contamination would not be left for land owners' (*Lake Macquarie News*, 2003). Attempts to do just that – remediate the surrounding homes – sparked 'frustration' in other residents of Boolaroo as the attempts were deemed inadequate, as voiced in the demand 'we want it fixed up and the contamination taken out if that's what they [the Environmental Health Centre at Boolaroo, who are in charge of remediation] were supposed to do' (Latham, in Holland, 2003). However, as years passed after the closure of the smelter, the community's interest in the remediation plans for the smelter site seemed to dwindle. While there are infrequent references in media articles to the remediation plans, there are even fewer comments by the community on their adequacy or otherwise. This indicates that the Cockle Creek community, unlike the one at Botany, has not been particularly engaged in the remediation efforts. One possible explanation for this is that the main form of contamination associated with Pasminco that the community was concerned about was the airborne emissions, which ceased once the plant shut down. This rationale is supported by the article 'Lead levels in kids down' in the *Lake Macquarie News* (2006) which asserts that there had been 'a one-third reduction since 2004-2005 in blood-lead levels in children under five, who are most at risk of exposure because of their tendency to put their fingers in their mouths.'

Based on this analysis, a provisional answer to the question of whether awareness of contaminated land and remediation processes creates a sense of cohesion within the community, is that it can, but that this is complicated when a significant proportion of the community has a recent history of employment with the company responsible for the contamination. That is, the Botany community seems to have been brought together in responding to the contamination and remediation options, whereas the Cockle Creek community is more divided. That divide can be attributed to the fact that Pasmenco was a major employer in the community and thus many more community members had a stake in the source of the contamination.

Conclusion

This research is significant given the limited existing Australian research on this issue. The media analysis presented within this paper contributes to a larger research project which, when complete, is expected to provide a highly useful resource for informing community engagement and risk communication practice and planning as carried out by regulators, site managers and others in the contaminated lands industry. It is our intention that the research will help the industry to develop improved engagement practices that are informed by a deeper understanding of community experiences of, perceptions and attitudes to, and feelings about contaminated land and its remediation. However, it would not be appropriate to rely on a singular source such as a media analysis as a means of understanding these experience, perceptions, attitudes and feelings. Whilst media can provide insight into “importance...central social and ideological currents in our culture” (Cunningham & Turner 1997, p. 18) that insight is better viewed in the context of a mix of research methods. With that caveat in mind a few key findings can be extracted from the media analysis that are worth noting and will need to be tested against the findings emerging from other parts of the project. Some of the key findings emerging from the media analysis are:

Popular metropolitan media channels alert the wider community to the fact that there is an issue of contamination or risk more generally; but local papers or other sources of information must be sought to find fuller details.

When reporting on the risk and other issues surrounding both case studies, newspapers made space for a number of voices – remediators, community groups and voices, and residents. It is noteworthy, however, that State government officials were rarely quoted in media articles.

From the media analysis it can be seen that the contamination at Botany and Cockle Creek has both a psychological and a practical daily impact on residents. It has disrupted their ‘normal’ assumptions about the lifescape, and has also required changes to daily behaviour and practices of local residents. The media analysis reveals that the impact on life-scape extends to the concept of stigma; not only are the impacts from contamination personally felt, but they can result in the stigmatisation of communities and their localities.

The media analysis suggests that the way in which contaminated land and its remediation affects community capacity is dependent on the specific context. For example, the Botany community (at least as it is represented within the selected newspapers) seems to have

been brought together in responding to the contamination and remediation options, whereas the Cockle Creek community is presented within the media as more divided. That divide is attributed to the fact that Pasmenco was a major employer in the community and thus many more community members had a stake in the source of the contamination.

ⁱ On 19 September 2001, the Pasmenco Group of Companies went into Voluntary Administration and trading in Pasmenco Limited shares ceased on 20 September 2001. Pasmenco remains under the control of the Administrators (John Menzies Spark and Peter Damien McCluskey) who are currently managing its wind up.

ⁱⁱ This excludes the *Southern Courier* articles.