

Urban purity and danger: The turbulence associated with contamination in suburban Australia

Jason Prior*, Steve Harfield**

*Institute for Sustainable Futures, University of Technology, Sydney, PO Box 123, Broadway, NSW 2007, jason.prior@uts.edu.au

**Faculty Design, Architecture & Building, University of Technology, Sydney, PO Box 123, Broadway, NSW 2007, steve.harfield@uts.edu.au

Abstract

The rapid growth of Australian cities throughout the 19th and 20th centuries saw the emergence of a long-running tension between processes of urbanisation and industrialisation. Urbanisation is characterised by an increase in the number of people who chose to call the city their home. In this case, simultaneous industrialisation provided new residents with much-needed employment whilst locating noxious and polluting industries on their doorstep. This paper presents findings from an Australian research project that investigates how residential communities experience and perceive industrial contamination that modern urban planning has so vehemently sought to protect them from. It presents evidence on how such contamination can disrupt, challenge or completely invert the way in which residents approach their neighbourhood and home. This research addresses a gap in the literature, analysing the topic within the Australian context.

This paper presents findings from a random telephone survey conducted with 400 suburban residents in the North Lake Macquarie area of New South Wales (NSW), living in proximity of industry, including a lead and zinc smelter. This research expands on the existing literature of Edelstein and others, to explore the psychosocial turbulence that emerges when the lifescape of suburban neighbourhoods in the Australia are contaminated by the toxicity of industries – in this case the smelter has contaminated both the industrial land itself and the surrounding suburbs. Lifescape can be broadly defined to describe the individual habits and collective behaviour and assumptions that make up everyday life in local areas. Psychosocial turbulence extends from potential effects on people's patterns of living, activities and relationships, through to their sense of health, security and safety, and their feeling of personal control.

Introduction

Many Australians are exposed to potential environmental health risks because they live in proximity to toxic sites – contaminated by past or current land use – including brownfields, waste disposal sites, industrial sites and so on. The broader community has a vested interest in how public agencies and planners manage the contamination on these toxic sites, their remediation and ultimately their reuse. Since the 1970s governments, public agencies and the planning industry in Australia have recognised their obligation to protect communities from contamination and have implemented legislative, regulatory and decision-making frameworks that aim to minimise risks

and costs, and maximise benefits from remediation of contaminated sites. 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.

The prevalence of contamination in Australia necessitates research into the attitudes and feelings people possess about land contamination and remediation, both as individuals and as members of the wider community. However, there are a limited number of studies that explore community feelings, perceptions and attitudes to land contamination and its remediation within the Australian context. This paper reports on research that addresses this gap. It responds to 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. This CRC CARE¹-funded research commenced in 2008 and is being undertaken by the Institute for Sustainable Futures, at the University of Technology, Sydney.

This paper presents findings from a random telephone survey conducted with 400 suburban residents in the North Lake Macquarie area of New South Wales (NSW), living in proximity of industry, including a lead and zinc smelter. This research expands on the existing literature of Edelstein and others, to explore the psychosocial turbulence that emerges when the lifescape of suburban neighbourhoods in the Australia are contaminated by the toxicity of industries – in this case the smelter has contaminated both the industrial land itself and the surrounding suburbs. Lifescape can be broadly defined to describe the individual habits and collective behaviour and assumptions that make up everyday life in local areas. Psychosocial turbulence extends from potential effects on people's patterns of living, activities and relationships, through to their sense of health, security and safety, and their feeling of personal control.

The paper begins by outlining Australia's past experience dealing with land contamination, and more specifically how land contamination has been addressed within the North Lake Macquarie area since the 1970s. Within both contexts, communities have played a significant role in the management and remediation processes of land contaminated by industry. The paper then briefly identifies an emerging body of international research which explores how residential communities relate to these processes and describes the overarching outcomes of the broader research project. Our findings are underpinned by a residential survey which was structured around four key themes from the literature. This paper will discuss the findings of one of the survey's four themes – the impact of contamination on the lifescape of residents.

Urban communities, industrial contamination and the growth in environmental concerns

The rapid growth of Australian cities throughout the 19th and 20th centuries saw the emergence of a long-running tension between processes of urbanisation and industrialisation. Urbanisation is characterised by an increase in the number of people who chose to call the city their home. In this case, simultaneous industrialisation provided new residents with much-needed employment whilst locating noxious and

polluting industries on their doorstep. Given that this was a common scenario throughout the industrialised world, environmental planning and environmental law gradually emerged in an attempt to manage the relationships between working landscapes (industry, farms, forests and lands from which minerals are extracted), public health (air and water pollution, toxics and waste disposal), the built environment (residential areas) and the natural environment (natural resources, wildlife).²

One of the first ways that environmental planning was made manifest was through the implementation of land use zoning. Zoning sought to control the worst aspects of industrialisation and growing urbanisation by identifying potential nuisances and segregating them from other uses. As Scott notes, 'zoning was [considered] the heaven-sent nostrum for sick cities, the wonder drug of the planners, the balm sought by lending institutions and householders alike.'³ It sought to 'immunise' those parts of the city that were developed as 'home'⁴ – as a retreat, refuge and sanctuary – for the urbanite from the noxious impacts of the industries on which their livelihood depended.

Soon after WWI most Australian States had local government mechanisms in place to manage land development such as subdivision requirements, zoning ordinances and building regulations.⁵ Within the Sydney context these land-use planning processes emerged through legislation such as the *Local Government Act 1919 (NSW)* and, after WWII, the *Local Government (Town and Country Planning) Amendment Act 1945 (NSW)*. Until 1919 these controls had been, in the words of Wilcox, 'haphazard and weak'.⁶ Even after the 1919 amendments to the local government legislation Wilcox criticised them of providing local governments with only 'minimal control' over planning.⁷ While the 1919 Act provided new powers to councils to 'avoid the worst evils of laissez-faire development' they did not provide sufficient control to 'prevent factories and shops being placed among cottages.'⁸

By the 1960s and 1970s concern for environmental problems had escalated to the point where serious action was being demanded by a cross section of Australian society. Both the Federal and the NSW State governments had by now enacted the most comprehensive environmental legislation in their histories to manage the protection of the population as well as air, water, coasts and other natural resources. In 1974 the Australian government enacted the *Environment Protection (Impact of Proposals) Act* requiring environmental impact assessment (EIA) to be made by States and Territories. The NSW Government later consolidated the decade's numerous planning and environmental laws, bringing them together into one act, the *Environmental Planning and Assessment Act 1979*. NSW also introduced pollution control laws, with licensing systems relying on the issuing of permits to carry out activities, subject to specified conditions. The administration of these laws was committed to a series of newly established government agencies such as the Commonwealth Environment Protection Agency (now Environment Australia), and the NSW State Pollution Control Commission (now the Environmental Protection Authority).

There is a consistent focus in this emerging environmental framework on contaminated lands – treated by discreet legislative, regulatory, planning and decision-making processes. The NSW provisions are complex and have multiple entry

points for government to act on contamination. They include measures to ensure that planning authorities consider contamination issues when making rezoning decisions⁹; local government provision of property information¹⁰; facilitation and control of land remediation¹¹; and remediation and management of sites where contamination presents a significant risk to human health.¹² These State instruments are supported, and in some cases guided, by a range of legislation and measures at the national level with respect to the sustainable assessment, management and remediation of site contamination¹³ and also by a range of international treaties.¹⁴

Contamination and remediation at North Lake Macquarie

This paper is concerned with the contaminated lands and associated remediation processes of the industrialised area of North Lake Macquarie. The area under discussion lies approximately 15km south-west of Newcastle and 2km north of Lake Macquarie. The site is contained within the Munibung Hill catchment area and all drainage in the immediate and local area is toward Cockle Creek which subsequently drains into the northern end of Lake Macquarie.

In 1897, industrialisation of the site commenced. The Sulphide Corporation Ltd opened a lead smelter and began production of lead bullion. Initially the smelter had no mechanism in place to capture the zinc or the sulphur dioxide that was vented into the atmosphere without treatment. In 1901 these uncontrolled atmospheric emissions from the smelter were somewhat mitigated through the implementation of desulphurisation processes. In 1913 sulphuric acid production commenced at the site and superphosphate fertiliser production began by combining sulphuric acid and phosphate rock. Although lead smelting ceased in 1922, the site remained a source of industrial pollution through as the production of sulphuric acid, superphosphate and mixed fertilizer expanded.

In 1962 lead-smelting operations recommenced, and in 1968 a zinc refinery was established at the site. In 1969 Australian Fertilisers Ltd (now Incitec Pivot Ltd) took over full ownership of the fertiliser business at the site. In 1972 capture mechanisms were installed into the smelting facilities to reduce dust emissions, and in 1975 effluent treatment plants were established to manage the onsite waste water. In 1988 Pasminco Metals-Sulphide Ltd (PMS) was formed and took over responsibility for the smelter facilities.

As early as the 1970s the site and surrounding area has been known to be significantly contaminated by heavy metal pollution, including lead, cadmium and zinc, as well as numerous other compounds – by-products of the site's industrial history.¹⁵ These pollutants significantly degraded air, soil and groundwater, however, the principle concern of authorities in the 1990s and 2000s was the high level of lead contamination in soil. The presence of lead posed an acute hazard to the community due to the proximity of housing and schools in the North Lake Macquarie residential suburbs adjacent to the site – Argenton to the north, and Boolaroo and Speers Point to the south. The detection of lead in these suburbs has been apparent since at least 1972 when the then NSW Health department began to run lead contamination tests on Boolaroo residents. In 1982-83 the State Pollution Control Commission (SPCC) declared that lead pollution levels for air, ground water and surface water at Boolaroo were the highest in NSW.

PMS and Incitec Pivot Ltd were designated responsibility for remediation of the contaminants in the site and its surrounding suburbs PMS' responsibilities have since been transferred to the company's receivers, Ferrier Hodgson. Ferrier Hodgson later engaged the Fitzwalter Group Pty Ltd to manage the site's remediation. Various remediation technologies have been used over the past few decades to remove, separate, destroy and/or contain the various forms of contamination at the site and in the surrounding suburbs.¹⁶ These remediation processes are ongoing today.

Community participation in the management and remediation of contaminated lands at North Lake Macquarie

There is a large body of research that details the nature and scale of past and ongoing remediation processes implemented in North Lake Macquarie. These processes were designed to comply with the emerging international, national and NSW State legislative, regulatory, planning and decision-making frameworks associated with the management and remediation of contaminated lands. In the context of this paper it is significant that the participation of affected *communities* has increasingly been recognised as vital to the success of remediation efforts.¹⁷

This paper focuses on understanding and engaging residential communities, however legislative and planning instruments typically have an expanded focus identified as the 'community of risk.' The idea of community of risk defines community stakeholder more broadly to include 'regulators, site assessors, environmental auditors, land owners, developers and industry.'¹⁸ Within this notion of community there are also various community structures and local action groups responding to the risk such as the North Lakes Environment Action Defence (NOLEAD) – formed August 26 1991) – as well as broader interest groups and NGOs and official bodies with some regulatory responsibility for overlapping issues (e.g. NSW Health, NSW EPA etc).

Community participation is a common theme to a number of remediation frameworks relevant to NSW. At the international level, Australia is a signatory to treaties which explicitly emphasise the need for 'public awareness and information programmes on hazardous waste issues'¹⁹ and upholding the rights of communities be involved in decision making processes about hazardous chemicals that affect them.²⁰ National measures for management and assessment of contaminated sites provide for consultation with communities, non-government organisations, unions and the media. These measures actively consider the health and lifestyle concerns of the community, advocate the acceptance and involvement of the community as a legitimate partner and acknowledge the importance of paying attention to the community's specific concerns.²¹ NSW government legislation, policies and instruments acknowledge that 'management of contaminated land...is a major issue for [the]...community' and that the availability of 'reliable information is also important in providing accurate advice to the community'.²² As Bubna-Litic notes, in reference to the emerging recognition of the importance of community involvement in and awareness of the management and remediation of contamination:

Promoting an exchange of information and ideas is seen as increasing the likelihood that community will feel that it owns the environmental problems

and solutions. Local knowledge and solutions are valued as they promote a shared responsibility in environment protection. The partnership is seen as encouraging all groups and individuals interested in, or likely to be affected by a proposal to work together to produce plans, policies and programs that are as acceptable and appropriate to the local community as possible, and which can be effectively implemented.²³

A variety of techniques have been utilised over the past decade to engage communities and promote information sharing with regards to the management and remediation of the contaminated IPCC and PMS sites. During the remediation associated with lead abatements in Boolaroo, Argenton and Speers Point in the 1990s and early 2000s, community members formed the Lake Macquarie Community Advisory Committee as a formal mechanism to provide inputs into the remediation process. Other mechanisms included: appointing a community liaison officer; introducing education strategies at local schools; initiating local meetings; undertaking community attitude surveys; and circulating information through newsletters and newspaper columns. At the same time, the companies have also recognised the importance of community engagement. Community consultative strategies have since been produced by Incitec Pivot Pty Ltd for the remediation of the IPCC site²⁴ and the Fitzwalter Group Pty Ltd for the remediation of the PMS site.²⁵ These strategies seek to engage the community in the remediation of the sites through a range of techniques such as letters to stakeholders, community newsletters, workshops, undertaking community attitude surveys, media releases, letter box drops, website information and community information sessions.

Trust, lifescape, stigma and capacity

The fields of environmental health, sociology, environmental psychology and environmental justice all have an established history of inquiry into residential communities and their attitudes to and experiences of contaminated land.²⁶ Four key themes emerging from this body of research were selected as the basis of the survey which informs this paper: (1) the relationship between trust, confidence and communicating risk about the contamination and clean up; (2) the impact of contamination on the lifescape of residents; (3) the stigma associated with contamination and how this might be transformed as a result of remediation; and (4) the relationship between contamination and remediation and the negative and positive impacts on the capacity of the affected community.

Research shows that the way in which government and industry communicate with the community about contamination and its implications and about the remediation process has a critical impact on communities.²⁷ As Edelstein has pointed out, this is because becoming aware of contamination in one's local area can fundamentally challenge people's 'assumptive worlds'.²⁸ Knowledge of contamination near one's home undermines people's normal assumptions about life. Edelstein summarises the five key dimensions of lifescape as health, personal control, home, the environment and social trust.²⁹ 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.³⁰ 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 relationships³¹, conflict³², chronic stress³³, helplessness³⁴, loss of control and powerlessness.³⁵

These dynamics are also connected to the second theme of our research; the impact of contaminated sites and remediation on the lifescape of those who live near the site, specifically how the spectre of contamination inverts or disrupts people's normal assumptions about life. Edelstein suggests that in the presence of known contamination, normal optimistic assumptions about health are replaced by a focus on risk and uncertainty, while 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. In addition, where 'home' was once associated with privacy and/or protection, and with the provision of a sense of security, status, self identity and attachment to place, the knowledge of contamination can replace these positive associations with negative ones as the idea of 'home' becomes stigmatised. In this way the local environment is perceived as a site that harbours danger, and people's trust in social and institutional support systems can break down. 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.

The potential for both social and economic devaluation of communities associated with contamination, or the notion of stigmatisation is the third theme of the study. Edelstein reasons the introduction of pollution or contamination *boundaries* can isolate the community, potentially creating 'a new shared identity...for those living within designated boundaries of contamination'.³⁶ Stigma associated with contaminated land may also extend to things and places in the surrounding area that get affiliated with the contamination. Hence, a number of researchers acknowledge the existence of 'stigma' with respect to real estate and property rights relating to land, and that this stigma is frequently driven by intangible perceptions based on fear as often as it is by clearly articulated and real risks.³⁷

The fourth and final theme to be mentioned here can be referred to as community capacity. The Bahia Declaration on Chemical Safety³⁸ enshrines the right of communities affected by hazardous chemicals to be involved in decision-making processes about their management and remediation. As noted above, this right is increasingly reflected in environmental legislation within Australia. For this involvement to be meaningful, however, the community must have sufficient capacity to participate effectively. Existing research shows that a range of obstacles must be overcome, including limited access to information and expertise.³⁹ While in some instances communities affected by contamination can develop an *increased* capacity⁴⁰, the existing research suggests that experience of contamination often has an *adverse* impact on community capacity, particularly that of vulnerable groups within the community.⁴¹ The emergence of a perspective known as 'environmental justice' has also stressed the particular vulnerability of some groups to contamination and its individual and social effects, including the young, the elderly, women and ethnic and racial minorities.⁴²

The growing body of international research on community relationships with contaminated land governance and management⁴³ is not yet matched by analysis exploring these issues within the Australian context.⁴⁴ The broader research supporting this paper will produce subsequent publications, thereby addressing the expressed need of regulators, site managers and other practitioners in the contaminated lands industry to understand how Australian communities experience and perceive contaminated land and its remediation.

Community experience and attitudes to contaminated land: The project in brief

In an attempt to contribute to the observed gap in the literature a mixed method research project⁴⁵ was conducted in 2008-2009 to investigate community attitudes and experiences to contamination and remediation within the Australian context. The mixed method approach was aimed at generating original primary empirical research on community perceptions of contaminated lands using a variety of data gathering and analysis methods including media analysis, content analysis, stakeholder analysis, in-depth interviews, residential telephone surveys and focus groups. This paper presents findings from one data collection activity – a telephone survey of residents living in vicinity of the PMS and IPCC sites. The survey findings are supported, where appropriate, by existing literature. The survey was designed to provide insight into the experiences, feelings, perceptions and attitudes of residents to the contaminated sites and their remediation through the four themes discussed earlier in the paper. Of these themes, only findings in respect of impacts on lifestyle are presented in this paper.

The residential telephone survey method was selected because it provided the opportunity to obtain a random stratified sample of the residential population living in the suburbs close to the PMS and IPCC sites. Quantitative results from the survey were analysed using SPSS and qualitative data was analysed using Nvivo. Statistically significant differences within the quantitative data have been calculated using the appropriate one-way ANOVA test. Nvivo was used for manifest and latent content analysis of respondents' qualitative responses so as to identify and code issues presented by each respondent relating to the surveys key themes and to examine the frequency of these issues and their relationship to each other.

The survey population was drawn from persons aged over 18 years and living within a 5km radius of the PMS and IPCC sites. Respondents were selected at random from a commercially supplied database of 7,659 residential telephone numbers in Boolaroo, and the surrounding suburbs of Speers Point, Glendale, Argenton, Teralba, Lakelands, Edgeworth, Booragul and Macquarie Hills. Surveying was conducted from 9-26 March 2009, on Monday to Thursday evenings, with calls limited to the hours of 3:30pm to 8:00pm. The survey was conducted on a random basis, with *initial* quotas for age and gender as per the ABS Census data 2006 Usual Residents Profile for the sum of the six suburbs surveyed. Potential respondents were screened to ensure they met the age and location criteria, and, critically, were aware of the Cockle Creek or the Pasminco contaminated sites. The survey response rate was limited to approximately 29% (400 out of 1,380) due partially to the 12-minute length of the survey instrument which proved a deterrent to many residents. Another 110 potential respondents, mostly those in the 18-34 age group, were deemed ineligible to participate due to having no previous knowledge of either site. While the gender quota was met, the age quota was thus discontinued. This was because the higher than

expected proportion of younger residents unaware of the contamination site made it impractical to calculate the amended survey population of adult residents within selected suburbs who had heard of Cockle Creek Smelter, Pasminco or Fitzwalter Group.

Impacts on lifescape

By focusing on the capacity of environmental contamination to disrupt the lifescape of residents, the survey sought insight into 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 has described the impacts of contamination on these assumptions as creating 'turbulence' in the lives of individuals⁴⁶, and the current analysis provides examples of how this kind of disruption and turbulence was experienced by the local communities living near the PMS and IPCC Sites. Specifically this concluding section of the paper will report on how the 400 respondents experienced contamination as creating significant health and safety fears, and disruptions to their normal assumptions about both 'home' and the wider local environment. As Edelstein has noted, the decaying sense of safety within and around the home that results from toxic contamination is confirmed by parallel efforts by residents to avoid activities that would otherwise have been a part of their normal routine.⁴⁷

While the majority of the survey respondents (84%, 336 out of 400) claimed that awareness and knowledge of the contaminated lands had *not* changed the daily habits of their household, 15% – three out of every twenty – indicated that it *had* caused them to institute changes. The majority of these disruptions were reported to be linked to health and safety concerns associated with lead and other heavy metal contamination in homes and yards, in public facilities such as schools and in other public areas such as Cockle Creek, parks and other recreation areas. These transformations in lifescape emerged both on the basis of personal judgement – as one respondent noted, 'I decided it was better for my children not to play in certain locations' – as well as a result of knowledge acquired through lead abatement strategies that had been implemented in these suburbs to reduce lead levels in residents since the 1990s, for example remediation of homes, greening of local areas, monitoring of lead levels in ambient air quality, and community education programs.

Almost half (43%) of those who had modified their lifescape to mitigate the effects of contamination were from the two suburbs, Boolaroo and Argenton, that were the focus of the residential remediation process in the 1990s and 2000s. Within *these* suburbs approximately one quarter of the respondents – 29.8% (14 out of 47) for Boolaroo and 22.6% (12 out of 53) for Argenton – claimed to have modified their lifescape. It is worth noting that the key focus of most of the official remediation processes in these suburbs was not the reduction of blood lead levels in *all* residents but specifically, reduced blood lead levels in children.⁴⁸ This is because children generally have a higher susceptibility to environmental toxins.⁴⁹ While evidence of lifescape changes was more concentrated in Argenton and Boolaroo, there were residents in every suburb surveyed, with the exception of Macquarie Hills, who claimed they had changed their daily activities to mitigate impacts from the contamination – ranging from 15.4% in Teralba, 14.7% in Speers Point, and 14.3% in Lakelands, to 8% in Glendale and 6.9% in Edgeworth.

Some of the most common disruptions to household life directly resulting from the lead contamination that were reported included vacuuming and cleaning the house with extra care (4.75%), preventing children from playing in dirt in residential yards (5.5%) and no longer growing fruit and vegetables (2.75%). Other disruptions to household life identified included: ‘annual blood tests for children’; ‘boiling water before drinking’ or ‘not drinking [tap] water’; ‘leaving shoes outside so as not to transport dust [into the house]’, ‘keeping windows closed [all the time]’ or ‘closing windows [during certain period to reduce dust in the house]’ and ‘[having to] hose down all the time because of dust on the driveway’; and ‘not hanging clothes out on certain days, [not] leaving them out overnight.’ Many of the respondents spoke of these changes of habit as being in the past tense, and indicated that in recent years they had resumed a more ‘normal way of life.’

A breakdown of response by suburb indicates that the large majority (77%, 46 out of 60) of the respondents who *had* modified their daily habits due to the contamination, came from suburbs immediately adjacent to the contaminated PMS and IPCC sites and had previously been the subject of residential remediation strategies. The extra attention paid by these respondents to cleaning homes and the curtailing of yard play and growing of vegetables within these suburbs, can be understood as a continuation of the practices that they had been taught as part of the lead abatement education strategies, implemented in these suburbs since the 1990s. These activities have had a two-fold effect on parents. Firstly, they instilled the belief that parents could control lead exposure by managing the environment in which they lived and by changing parent and children behaviours. Secondly, these responsibilities often put a burden on the parent, in the sense that it made parents feel responsible for tasks that, if not completed, could lead to higher levels of lead absorption. As one respondent noted, ‘if your child was found to have a higher blood lead level reading you wondered if you had cleaned enough, you blamed yourself.’ A Boolaroo resident describes her additional household responsibilities as a result of the lead contamination as follows:

Before the lead issue arose housework was just something you did, mostly unwillingly. Now it becomes a critical factor in lowering lead in your house and therefore your family. You wet dust, you dust more often, you dust bizarre places, the screen doors for example. You vacuum more often, without your children in the room. That can be impossible. You wash hands, play-clothes, clean fingernails, and you wash them well and often. After play, before meals, before bed. You wash their toys, every single thing touched. You watch them like a hawk, ‘don’t put that in your mouth’. You put their stuffed toys in a bag somewhere, they carry dust. You move your bed away from the window. You keep windows and doors closed all day. You watch your children’s diet. They must have calcium for example, they must eat well... The list is endless, but these are just some of the strategies suggested to me.⁵⁰

As a means of protecting children such cleaning activities can, as one respondent noted, ‘become obsessive’, and as McPhillips suggested, it can make parents prisoners to such responsibilities and chores.⁵¹ The scale and scope of the impacts of these additional cleaning duties and responsibilities on parents, and disproportionately on mothers, has been investigated by a study conducted in Boolaroo as part of the

evaluation of the lead remediation of twenty homes in the suburbs of Argenton and Boolaroo in the 1990s.⁵² Within the study Warner-Smith and Hancock note that ‘women ...carried the burden of responsibility’ for ensuring their houses remained contamination free through cleaning.’ Several respondents described cleaning to reduce contaminant exposure as a ‘nearly 24 hours a day’ task, ‘a full-on job’.⁵³ In carrying out this cleaning one respondent expressed a sense of hopelessness in the face of the contamination: ‘It doesn’t matter how much you do...the stuff still comes in the house’.⁵⁴

Within the suburbs of Boolaroo, Argenton and Speers Point, home-specific and zonal remediation interventions (ongoing since the late 1990s) also had a dramatic impact on the day to day lifescapes of local residents – for example, the remediation of houses by tradespersons to remove lead often required families to relocate to other premise for months at a time⁵⁵, while other respondents in the survey indicated that they had undertaken some major changes to their houses, noting that they had ‘relaid turf and concreted a massive part of the yard [to reduce the family’s contact with soil/dust]’, ‘recarpeted, re-floored the house’ or had had ‘to renovate to reduce exposure to lead levels.’

Some respondents also indicated that disruptions caused by the contamination extended beyond the confines of the home and into the surrounding suburban and natural environment. Two per cent of survey respondents indicated that, since being aware of the contamination, they no longer used Cockle Creek or other local recreational areas. A final example of this extra mura effect is the remediation of the schools in Boolaroo and Argenton in the 1990s. The impact of the remediation of the schools was detailed in the NSW Legislative Assembly in 1992:

[At] Boolaroo Public School, soil in the vicinity of the play bars is being removed to a depth of at least 300 mm and replaced with uncontaminated sand. The rest of the schoolyard is being top dressed with at least 50 mm of uncontaminated soil and a good grass cover established. To enable this work to proceed, the students and staff of Boolaroo Public School are being relocated at Speers Point Public School. At Argenton and Speers Point Public Schools, children have restricted use of the playground as contaminated areas are progressively top dressed with at least 50 mm of uncontaminated soil and good grass cover established. Future management of these grounds will be such as to ensure good grass cover is maintained...It has been considered necessary to now include children from the Speers Point Public School in the testing. The inclusion of the students of Speers Point is considered by the Public Health Unit to be essential for the establishment of control group parameters and to ensure the ongoing collection of statistical data...The Environment Protection Authority in conjunction with the Public Health Unit and the Department of School Education will incorporate ongoing soil and dust sampling of Boolaroo, Speers Point and Argenton Public Schools as part of the overall management plan for the lead remediation program.⁵⁶

Conclusion

Given the size of the study, this paper can only offer a brief introduction to a particular and very serious aspect of contemporary suburban living. Yet even in its shortened state, the study provides insights into the way Australian urban residential communities living with toxic contamination resulting from industry, experience the management and remediation of that contamination. The study is significant in that it uses a random stratified survey of local residents to collect the experiences, attitudes and feelings of *the community as a whole*, and in so doing moves beyond much existing research which focuses on the experiences, attitudes and perceptions of those members of the community who are more *active participants in management and remediation processes*. The research thus provides contact with a broader section of the population, and, via future papers, will allow a more thorough analysis of the ‘turbulence’ and disruption to suburban lives caused by living in close proximity to contaminated sites.

This paper provides an introduction and context to the larger research project. It details the background to the contamination and remediation issues associated with the North Lake Macquarie area, and provides an explanation of presented findings from one aspect of the research, namely the telephone survey. In addition the paper defines the four key themes used to structure the survey and briefly explores the capacity of environmental contamination to disrupt the lifescape of residents. It is apparent, even from this brief analysis of initial results, that the impacts on the lifescape of residents, newly aware of contamination in their immediate and local surroundings, extend far beyond just changes to daily chores such as ‘washing toys’ to fundamentally challenging people’s ‘assumptive worlds’. This finding supports the research conducted by Edelstein.⁵⁷ As the interview data shows, the knowledge of contamination near and in one’s home, undermines people’s normal optimistic assumptions about health, replacing them with a focus on risk and uncertainty. This can result in positive feelings of personal control being replaced with a sense of threat, insecurity and doubt, which in some people can lead to chronic ongoing stress.

Subsequent publications based on this research will demonstrate how lifescape impacts detected at North Lake Macquarie extend beyond the *home* and into the sense of security, status, self identity and attachment to place through wider stigmatisation⁵⁸.

The survey findings presented in this paper thus contribute to a larger research project which, when complete, is expected to provide a 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 intended that the research will help 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.

¹ Cooperative Research Centre – Contamination Assessment and Remediation of the Environment

² T. Daniels & K. Daniels, *The Environmental Planning Handbook for Sustainable Communities and Regions*, APA Planners Press, Chicago, 2003

³ M. Scott, *American city planning since 1890: A history commemorating the fiftieth anniversary of the American Institute of Planners*, Berkeley, University of California Press, 1969, p.192

⁴ B. Moore, *Privacy: Studies in Social and Cultural History*, New York, Sharpe, 2004; A. Blunt, and R. Dowling, *Home*, London, Routledge, 2006

⁵ A. S. Fogg, *Australian Town Planning Law*, Queensland University Press, Brisbane, 1974, pp.11-31

⁶ M. R. Wilcox, *The Law of Land Development in New South Wales*, The Law Book Company Limited, Sydney, 1967, p.188

⁷ M. R. Wilcox, *The Law of Land Development in New South Wales*, The Law Book Company Limited, Sydney, 1967, p.188

⁸ M. R. Wilcox, *The Law of Land Development in New South Wales*, The Law Book Company Limited, Sydney, 1967, p.188

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About the Conference

The Faculty of Architecture, Building and Planning at the University of Melbourne has the honour of hosting the 10th biennial *Australasian Urban History Planning History (UHPH) Conference* in February 2010. The conference series began in 1993 and has operated as an Australasian forum for historians of urban and regional planning and the built, social and natural environment. The conference series has been driven by committed academics at various universities over the last 17 years. The venues have been Sydney (1993; 1998), Canberra (1995), Melbourne (1996), Adelaide (2000), Auckland (2002), Geelong (2004), Wellington (2006) and Caloundra (2008). Participants have included scholars at the forefront of planning and urban history in Australia and New Zealand, and the attendance and participation of early career researchers, postgraduate students and practising professionals from the private and public sectors has always been strongly encouraged. Since 2000, papers have been peer-reviewed and published according to Australian Government research excellence standards.

The theme for this 10th UHPH conference is *Green Fields, Brown Fields, New Fields*. The conference explores past and future approaches to managing and designing for growth, development and decline. This goes beyond debates over density, frontier development and renewal. It includes new fields of historical, policy and social research which inform discussion of heritage, growth, environmental, economic and other issues of urban life and urban form. The papers in the conference proceedings consist of a wide range of papers from a diverse range of disciplines and explore the conference themes across divergent places, different scales, and varied contexts.

This year's conference will be launched at **ACMI** (Australian Centre for the Moving Image), Federation Square. At the launch we will be screening five rarely-seen Australian short films which critique and/or celebrate planning, development and the changing urban landscape, to be followed by a lively panel discussion. We have provided conference attendees with a DVD copy of the films, for their use in research and education endeavours. We have organised three guest speakers: **Dr Gary Presland** who will be talking about the history of Melbourne; **Mrs Josephine Johnson** who will be talking about her career in planning including work at the MMBW (Melbourne Metropolitan Board of Works), on the plan for Ballarat in the 1950s and her current interest in gated communities and planning for the active aged; and **Dr Jeff Turnbull** who will be speaking at the conference dinner (to be held at Newman College) on the Griffins, Newman and Canberra.

Thanks go to the many individuals and organizations who have supported the conference. This includes: the Faculty of Architecture Building and Planning at the University of Melbourne for their financial and in-kind support; the Planning Institute of Australia for support with event promotion, the Expert Review Committee for diligently reviewing papers; the authors of the papers for their intellectual contributions; and to Stephen Pascoe for research, administrative and academic assistance in organising the conference.

Drs. David Nichols, Anna Hurlimann, and Clare Mouat
UPHP 2010 Convenors

Peer review of papers

Refereed papers in this volume have undergone a formal and rigorous process of acceptance and peer review by the UHPH 2010 Expert Review Committee. Refereed papers are indicated in the footnote of the title page for each paper. Each paper was double-blind refereed by academics and peers appointed by the editors. Papers not accepted by one of the referees were reviewed by a third referee. Papers were matched, where possible, to referees in a related field and with similar research interests to the authors.

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