

subr:im bulletin

CL:AIRE's SUBR:IM bulletins present practical outcomes of research by the SUBR:IM consortium which have direct application to the brownfield and contaminated land communities. This bulletin considers the topic of risk communication and focuses on the attitude of local communities to land contamination.

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Communicating Risk on Contaminated Sites: How Best to Engage with Local Residents

About the research

This bulletin describes important aspects of work on 'Multi-level decision making processes, expertise and sustainable urban regeneration' undertaken by researchers at the University of Sheffield as part of the SUBR:IM consortium. The focus is on the attitude of local communities to land contamination and its treatment. A combination of large-scale surveys of affected residents and case studies of local policy management was carried out between 2004 and 2006 in two local authorities; one in Thames Gateway (East London) and one in Greater Manchester. The results were used to examine the social construction of risk and risk communication in relation to contaminated sites. The importance of transparent and democratic decision-making processes was confirmed. Such approaches create local trust in the decisions that are made and reduce friction in risk communication. The lay public gives much greater weight to open and empathetic risk communication strategies than to those that emphasize technical competence and objectivity. These findings should be of help to local authorities and other public agencies in the design and implementation of policy for contaminated land.

1. INTRODUCTION

Contamination adds to the cost of, and limits the options for, the remediation and/or redevelopment of brownfield land. Therefore it has economic as well as health/environmental implications. The framework for implementing Part 2A of the Environmental Protection Act 1990 was introduced in April 2000 (Department of the Environment, Transport and the Regions, 2000). This gave local authorities key responsibilities for the (risk-based) identification and remediation of contaminated land in their areas. The engagement of local communities in these processes is essential if they are to be pursued in a socially sustainable manner. Consequently, we must better understand how health and environmental risks are perceived by residents living adjacent to, or in the wider vicinity of, brownfield sites with significant levels of contamination; and how their opinions of their local authorities (the main policy actors) are linked to these perceptions.

Here we report survey data relating to these points that were obtained from residents living in two local authority areas; one in Thames Gateway (East London) and one in Greater Manchester. Because of confidentiality issues, we refer to the local authorities as Area A and Area B. The areas were selected because of their contrasting approaches to communicating with local residents about land contamination and its treatment. The major question addressed was whether any differences in the actual or perceived communication strategies of the respective local authorities affected residents' perception of risk relating to contaminated land or their trust in the local authorities' attempts to deal with the risk.

The key events that characterise the recent histories of the two areas are as follows:

Area A

When the local council in this area first had to deal with a contaminated site (close to a housing estate) under the new legislation, they decided that they "wanted to be as open as possible with residents and the wider public". However, their strategy misfired. The council issued a press release and talked to the local media about the site. When an article appeared in the local paper, this was the first many residents had heard about the potential problem, leading to considerable anger which erupted at a public meeting some weeks later. This led to a breakdown in trust between the council and the local media (who were blamed by the council for treating the story in an alarmist way), and to a consensus within the council that people or the press would be given information *if they requested it*. In the words of one council officer, "Now we work on the basis of public reassurance as a core element of our communication strategy. We are careful about where the information goes to outside local residents." Other evidence from confidential meetings suggests that this reactive, even reluctant, style of communication is a general one that applies to issues relating to other contaminated sites within the remit of the same local authority.

Area B

The local authority for Area B has considerable experience of dealing with contaminated sites. On one of their sites, two deaths were attributed to historical contamination and exposure to asbestos. Contact was made directly with local residents and a settlement was agreed between the council's insurance company and the victims' families. On another site, a valuer misleadingly reported that the land on which a large housing estate had been built had been officially designated as contaminated. This led to lenders refusing mortgages on houses on the estate, until the council intervened. Nonetheless, when the council first received reports on the potential contamination of the site, they created a focus group and held regular meetings with residents to inform them of the findings and their intention to carry out on-site investigations. This created a context in which residents felt that they could express their concerns and that they were being kept in the picture. As one council officer commented: "It's worked quite well because they can see that we're being up-front and straight forward, and also trying to listen to what their concerns are."

At least as far as the stated intentions of the respective council officers are concerned, then, the contrast is between a style of keeping residents at a distance and not sharing information (Area A) and one of actively engaging residents in dialogue about potential risks (Area B). The question for the research was how these expressed differences in styles of risk communication related to residents' perceptions of hazards and their attitudes towards, and trust in, their local council.

2. A SURVEY OF RESIDENTS OF AREAS A AND B

It is clear that the residents and councils in Areas A and B have different perceptions of one another's views and actions in relation to contaminated land. The two councils have developed distinct approaches to risk communication and management. In Area A, processes tend to be cautious, reactive and 'closed'. In comparison, in Area B, processes are more proactive and 'open' and involve local residents more substantively. How may these different approaches have affected the relations between democracy, trust and risk in the two areas?

To explore this, a postal survey of residents in Areas A and B was conducted. The survey covered a variety of topics, including attitudes to brownfield redevelopment, preferences for different forms of redevelopment (for example, housing, recreation), and perceptions of the impact of new housing developments on their area. Here, we report the findings of a subset of questions relating specifically to satisfaction with, and trust in, communication by the local council, and to perceptions of risk from contaminated land.

A total of 8,378 copies of the questionnaire were sent out with freepost reply envelopes to addresses in selected wards within Areas A (3,603) and B (4,775). The surveyed areas included communities adjacent to, and more distant from, contaminated land. Depending on the size of the ward, either all or alternate households were included in the sample. A total of 747 questionnaires were returned (407 from Area A; 340 from Area B). Although low, the response rate (8.9%) is not out of line with similar unsolicited mail surveys. There was no evidence that respondents differed demographically from other households in the sampled areas, although a self-selection bias towards individuals with greater interest in the issue is likely. Of those responding, 48.6% were male, 65.6% owned their own home, 61.4% were employed or self-employed, with 7.8% seeking work and the remaining 30.8% being homemakers, retired or in education. Their average age was 51.0 years. The response rates and general demographic make-up did not differ notably between Areas A and B.

Basic Findings

The questionnaire began by asking residents, 'Thinking of the country as a whole, should most new homes be built on brownfield land?' and 'Thinking of your local area, should most new homes be built on brownfield land?'¹ Respondents in both areas were broadly in favour of building new homes on brownfield land (see Figure 1). On average, respondents in Area A were more positive than respondents in Area B to the idea of building new houses on brownfield land, both nationally and in their local area.

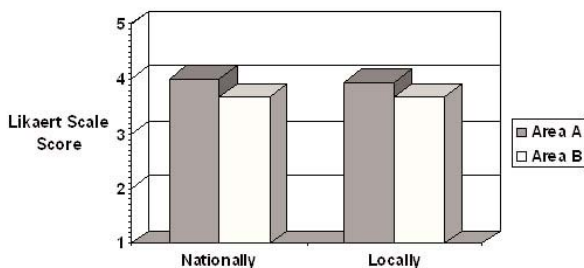


Figure 1: Support for the redevelopment of brownfield land for new houses (a) in the country as a whole and (b) in the local area.

Three items on the questionnaire assessed satisfaction with the council in the context of housing and redevelopment. Respondents were asked how satisfied they were that the local council had (a) kept residents informed, (b) sought residents' views and (c) taken residents' views into account.² The response to these questions indicated that respondents in both areas were, on average,

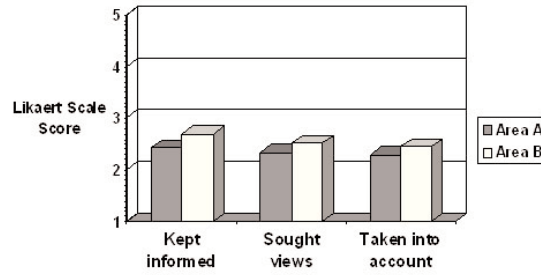


Figure 2: Satisfaction that local council had (a) kept residents informed, (b) sought residents' views and (c) taken residents' views into account over housing and brownfield redevelopment, by area.

moderately dissatisfied with the council. Respondents in Area B were, however, less dissatisfied than respondents in Area A. This can be seen in Figure 2. Because individuals' responses to these three items were highly consistent with each other, they were averaged to yield a single score (for *satisfaction*) for subsequent analyses.

The section of the questionnaire that dealt with residents' perceptions of the risk of contamination on brownfield land was introduced in a manner that avoided implying to residents that they had been selected because their own homes were at risk. Respondents were then asked the following questions to assess how vulnerable they thought they were to land contamination³:

- 'Do you think any brownfield land in your local area might be contaminated?'
- 'Compared with other urban areas in the UK, do you think there is more or less contaminated land in your neighbourhood?'
- 'Compared with other homes in your neighbourhood, do you think there is more or less contaminated land near your own home?'

The responses to these questions are shown in Figure 3. There was no significant difference between Areas A and B in the respondents' belief that there was contaminated land in their local area. Both groups considered their local area to be affected. However, while the combined sample believed that there was more contaminated land in their neighbourhoods than in other urban areas, residents of Area B believed that they were relatively more affected than residents of Area A. When asked about risk of contamination near their own home compared with the rest of their neighbourhood, Area B residents again considered themselves more at risk than those in Area A. A striking aspect of these results is the comparative reluctance of respondents, particularly in Area A, to believe their own home was at risk, even when acknowledging the presence of contamination in their neighbourhood. Thus, even against a background of generally heightened risk perceptions, residents saw their own home as no more at risk (Area B) or even less at risk (Area A) than other homes in their neighbourhood, a finding indicative of an effect known as unrealistic optimism or optimistic bias.

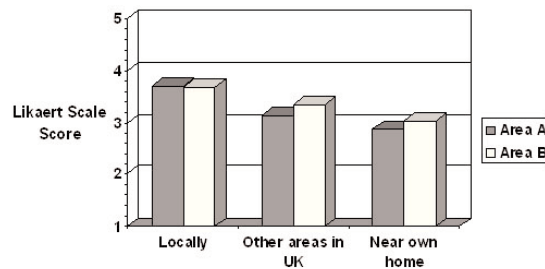


Figure 3: Perceptions of risk of contamination in the local area, compared to other urban areas in the UK, compared to other homes near to own home, by area.

¹Responses to both questions were recorded on a five-point Likert scale (1 = definitely no; 2 = no; 3 = not sure; 4 = yes; 5 = definitely yes).

²Responses were again recorded on a five-point Likert scale (from 1 = definitely not satisfied to 5 = definitely satisfied).

³Responses to these questions were recorded on a five-point Likert scale (1 = definitely no/much less to 5 = definitely yes/much more).

The three items measuring vulnerability were significantly intercorrelated. For the sake of simplicity, therefore, they were averaged to yield a single score (for *vulnerability*) for use in subsequent analyses.

Concern with the consequences of contamination was measured by asking respondents how concerned they would be if they learned that they lived near contaminated land. Concern was assessed relating to 11 potential effects of contamination (effects on the respondents' health and that of friends, children and pets; on wildlife, house prices and mortgages; on local recreation and bathing; and the implications of eating locally caught fish or locally grown vegetables)⁴. A twelfth question asked how concern over contamination compared with that over other urban risks such as crime, air pollution and traffic accidents. The average responses to these questions are shown in Figures 4 and 5.

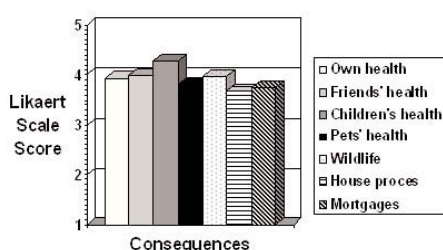


Figure 4: Concerns about consequences of living near contaminated land.

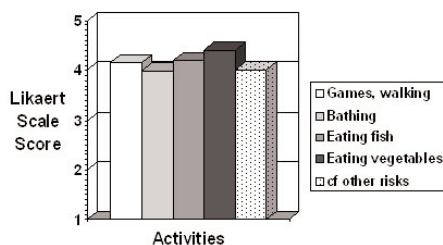


Figure 5: Concerns about loss of opportunities for different activities which might result from living near contaminated land.

The only effects over which there were significant differences between Areas A and B were those concerning property prices and the ease of selling and/or mortgaging respondent's houses. Residents in Area B were significantly less concerned than those in Area A about this, despite the temporary difficulty the former had had in relation to securing mortgages. In view of their high internal consistency, these 12 items were averaged to yield a single measure of *concern*.

A major part of the survey concerned residents' trust in their local council and relevant aspects of council decision-making and communication. Respondents rated their general trust in their local council in the context of decision-making about contaminated land⁵, together with five aspects of decision-making and communication that might contribute to such trust:

- expertise*: the council was not at all able to judge how safe or dangerous it was = 1; extremely able to judge = 5;
- interpretation bias*: the council would definitely see the risk as safer than it really was = 1; would definitely see the risk as more dangerous than it really was = 5.

⁴Responses to these questions were recorded on a five-point Likert scale (1 = not at all concerned to 5 = extremely concerned).

⁵Responses to this question were recorded on a five-point Likert scale (1 = would not trust at all to 5 = would trust completely).

c) *communication bias*: the council would definitely underplay the risks when communicating to the public = 1; would definitely exaggerate the risks when communicating to the public = 5.

d) *openness*: the council would be not at all prepared to tell what they know = 1; would be extremely prepared to tell what they know = 5.

e) *shared interests*: the council definitely hasn't got my interests at heart = 1; definitely has got my interests at heart = 5.

The mean scores given by residents of Areas A and B for these aspects of trust are shown in Figure 6. There were no significant differences between the areas with respect to views on these matters; but when the relations between aspects of trust and other variables were analysed, a different picture emerged.

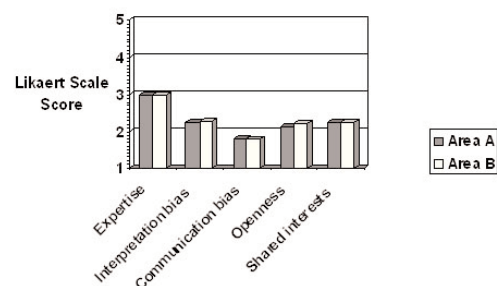


Figure 6: Residents' trust in aspects of their local council's decision-making and communication.

Residents of both areas were rather dissatisfied with their local council in terms of their perceived style of communication. However, such dissatisfaction was significantly stronger in Area A than in Area B. Satisfaction was negatively associated with perceived vulnerability and, more weakly, with concern. When we looked at area differences in satisfaction, controlling for vulnerability, the A vs B comparison was even clearer. The effect of vulnerability was also highly significant.

General trust

Overall, respondents were quite distrustful of how their local council would deal with issues of contaminated land. Residents of Area A were slightly more distrustful of their council than residents of Area B. However, if we control for vulnerability, concern and satisfaction, the area difference in general trust is rendered non-significant. The effects of vulnerability and, especially, of satisfaction were highly significant, but that of concern was not significant. In other words, irrespective of area, residents trusted their council far more if they were satisfied with its record on communication, but somewhat less if they perceived themselves to be at relatively greater risk from contamination.

Aspects of trust

Finally, we examined how general trust might be predicted from other aspects of trust. Since there were no area differences between these items, the analysis was performed on the total sample. The measurements of interpretation and communication bias were changed to identify: maximum bias, either in the direction of underplaying or exaggerating the extent of risk (= 1), some bias in either direction (= 2) and no bias (= 3). Subsequent analysis revealed that the five aspects of decision-making and communication together accounted for 59.7% of the variance in general trust. The two most important predictors of local residents' general trust in their councils were openness and shared interests, followed by a lack of communication bias (see Figure 7). The effects of a lack of interpretation bias and of expertise were very limited. In other words, trust in councils was only weakly related to perceptions of the quality of their decisions as such, but strongly related to perceptions of their openness and lack of bias as communicators, and to their perceived motives; that is, whether they had residents' interests at heart.

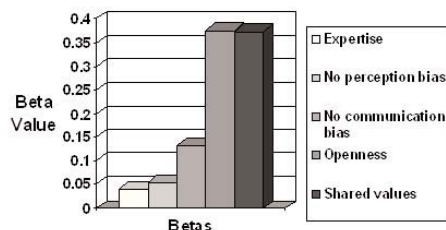


Figure 7: Regression of trust in council onto predictors of trust.

3. DISCUSSION AND CONCLUSIONS

These findings provide both discouraging and encouraging news for those charged with looking after the interests of local communities and, in particular, protecting residents from the potential harmful consequences of environmental contamination. On the one hand, both the local councils to which the research related were held in rather low regard. They attracted ratings of dissatisfaction and distrust overall, rather than of satisfaction and trust. Such negative evaluations were strongest among residents who perceived themselves to be relatively more vulnerable to the risks associated with contaminated land. On the other hand, where council officials appeared to have made more effort to be open with local residents and to engage them in discussion about the relevant issues (and/or were perceived to have done so), such distrust and dissatisfaction were significantly reduced.

It is difficult to attribute these differences between the two areas to any single incident or example of good (or bad) practice by any particular local authority officer(s). Our background interviews and observations suggested that it was differences in organisational culture that mattered, rather than the attitudes of specific individuals. Our data are likewise silent on how far, if at all, such differences may have spread to other aspects of the councils' activities. Nonetheless, our characterisations of the communication strategies of the two councils were broadly borne out by residents' responses to our questionnaire. Extra confidence can be placed in these findings because our postal questionnaire method lessened any chance that they could be the result of demand characteristics. Direct contact between researchers and respondents was avoided and the questionnaire itself made no mention of our intention to use the data to draw comparisons between different areas. Furthermore, the area differences in residents' satisfaction cannot simply be put down to differences in the (perceived) extent of contamination *per se*. Although greater perceived vulnerability predicted more dissatisfaction at an individual level, residents of Area B were *less* dissatisfied with their local council while seeing themselves as *more* affected by contamination than residents of Area A.

While commending the more open approach adopted by the council in Area B, what we observed amounted merely to a preparedness to adhere to principles that, from the perspective of the broader literature on risk communication (Calman, 2002; Kasperson & Stallen, 1991), one might have hoped to be more widely acknowledged and adopted. In contrast, the reluctance of some council officers in Area A proactively to engage with residents when aware of possible contamination risks is of concern. It flies in the face of the principle that the withholding of information can lead to a loss of trust that may be very difficult to recover. A more worrying possibility is that such examples of poorer practice, and possibly a lack of professional training in risk communication, may not be uncommon within local government or other relevant agencies. As mentioned, the council for Area B had built up more experience of dealing with serious contamination issues and therefore had developed a more thought-through strategy for communicating with local residents. This could imply that many councils or other agencies with less experience of such issues may not have prepared a risk communication strategy before being confronted with particular incidents. Under such circumstances, their response may be largely determined

by short-term considerations and/or the intuitions, good or bad, of individual officers. None of this suggested a systematic dissemination of evidence-based good practice.

At a more conceptual level, our findings reinforce the message that risk perceptions, attitudes and trust are closely interconnected, as noted in previous research on other forms of risk (e.g. Eiser, Miles & Frewer, 2002). Those residents who perceived their neighbourhood and/or home to be more vulnerable to the effects of contaminated land were more dissatisfied with and distrustful of their council. Furthermore, when considering different predictors of trust, residents attach greatest weight to aspects that reflect their perceptions of the council's motives (having residents' interests at heart) and their openness in communication. These aspects take precedence over those aspects more central to the judgement of danger or safety itself (expertise and interpretation bias). In other words, **it helps a little (in residents' minds) if the council appears to know what it is doing, but it helps to build trust even more if the council is seen to be acting openly and for the right reasons.** Such findings suggest that ordinary citizens, even though they often lack the expertise to interpret technical information concerning levels of specific contaminants, may yet rely on their everyday knowledge about people and their motives when forming judgements of risk and trust. In so doing, they recognise, explicitly or implicitly, the extent to which risk is a product, not merely of physical hazards, but of human behaviour.

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A more detailed description of this research is given in Eiser, J.R., Stafford, T., Henneberry, J. and Catney, P. (2007) Risk Perception and Trust in the Context of Urban Brownfields. *Environmental Hazards*, 7(2), 150-156.