

Risk Communication for Contaminated Land: Developing Guidelines from Practical Observations and Case Studies

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Abstract

A multi-centre, interdisciplinary team investigated how risks associated with contaminated land and its remediation were communicated to stakeholders. The investigation resulted in guidelines for good practice in communication, based on the experiences of a number of companies which had experienced contamination problems in recent years. This paper describes the observations which were most influential in the preparation of the guidelines. The cases under investigation are summarised and implicit representations of contamination problems are considered. Some common communication problems and suggested solutions are described before an outline of a good communication strategy is presented.

Keywords: risk communication, contaminated land, remediation, public, case studies

INTRODUCTION

A multi-centre, interdisciplinary team investigated how risks associated with contaminated land and its remediation were communicated to stakeholders, for example, regulators or local communities. The investigation resulted in the development of recommended guidelines for good practice in communication, which were based on the experiences of a number of companies which had dealt with contamination problems in recent years. This paper describes the observations which were most influential in the preparation of the guide-

lines. The guidelines themselves are presented in summary form; the complete document can be obtained from NICOLE (www.nicole.org). In this paper the cases under investigation are summarised and the implicit representations of contamination problems are considered. Some common communication problems and suggested solutions are described before an outline of a good communication strategy is presented.

Case descriptions

The guide is based on observations from three cases and several indirect cases. Brief descriptions of the cases follow.

Case 1: Historical soil contamination

Some 30 years ago the soil and the phreatic aquifer had been contaminated with heavy organochlorine products. The contamination was discovered in 1987. The authorities had been informed as soon as the contamination was discovered. An administrative order regulated the monitoring of the pollution, its confinement and the economically feasible remedial actions to be taken. There were no drinking water wells that could have been contaminated downstream of the plant. The staff at the plant which had caused the contamination were informed annually about the condition of the aquifer. Villagers were informed not to use the groundwater

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and surface water for any use whatsoever – even for irrigation or for swimming. If they did want to use the water – however small the amount – they had to ask for an analysis by the environmental service of the plant. They seemed to have accepted these facts.

Case 2: Contamination incident

Due to a leak in the naphtha pipeline, naphtha was spilled on farmland, surrounding surface water ditches and open surface water. The farmland, grass, was contaminated to a depth of approximately 1–1.5 m because it had a drainage system with a run-off to the ditches. The naphtha in the ditches back-flushed into the drains causing contamination at the depth of the drainage system. The incident had been reported immediately to the local authorities. The authorities, the plant and the media informed neighbouring villagers.

The main interest of the local people was their safety. Once the message ‘everything under control’ was received, the representatives of the village wanted to know what exactly had happened. They were disappointed about the little, and sometimes inadequate, information they received but were happy with the immediate actions of the company. It was interesting to note that the village representatives regarded the company as more trustworthy than the local authorities. The (good) image the people had of the company, the good skills of the communication manager and some bad experiences with local authorities were the main reasons for their view.

Case 3: Novel techniques

Soil and groundwater contamination was caused by inappropriate disposal of solvents over a thirty-year period. When a new company acquired the site, a novel remediation technique – a reactive barrier containing iron filings – was used as remedial action. It entailed an environmentally friendly process, which was visually discrete and required little or no energy use (therefore ‘sustainable’) and low maintenance. Local communities, environmental consultants and staff were informed through meetings, presentations, letters, and the media.

The local community exhibited little concern or anxiety, however, towards developments on the site while the reactive barrier was under construction. This reaction was almost certainly a result of the company’s proactive communication policy and reputation as a company attentive to its environmental impact and performance.

Indirect cases

An interview with a representative of an environmental lobby organisation gave indirect access to several cases. In the guide, examples and conclusions from

these cases were used. Personal experiences of the authors from cases were also used.

IMPLICIT REPRESENTATIONS OF SOIL CONTAMINATION

We observed several different implicit representations and the impact these representations had on the company’s communication strategy.

1. Soil contamination as a difficult problem

Soil contamination was described as a problem which had been present for several years. It caused no immediate hazards, was ‘under control’ and remediation planning was very vague with dependence on the actions of other parties such as authorities, as well as management commitment, etc. In this scenario communication was considered to be a problem. The subject of discussion was how to communicate about complicated soil investigations, dealing with uncertainties in the present and preventing negative effects in the future. Company representatives were unsure of what information they could share and much information was classified as ‘restricted’. They were afraid that they would lose control once the contamination was discussed openly.

2. Soil contamination as a chance to show the company’s abilities

Soil contamination was described as a ‘challenging maintenance job’. Company representatives were proud to tell how they solved difficult technical problems. The subject of discussion was ‘things that have been done and things that will be done in the near future’. Communication was not considered to be a problem. Company representatives were a bit disappointed that although there were some actual risks, local people showed little or no interest in the remediation.

3. Soil contamination as a temporary problem that could be quickly rectified

Soil contamination was considered to be only a minor problem that should be dealt with immediately. Company representatives were convinced that they would solve any related problem within the short time period of several weeks. Safety regulations during the job were the main subject of discussion. Communication about human health and safety required special attention, but was not really a problem. Community representatives did not regard soil contamination as an important subject, ‘since it was only a temporary problem’.

4. Soil contamination as a situation that will only improve slowly, eventually to be solved in the long run

Soil contamination was considered as a local environmental problem, but not one endangering public health. Communication is aimed at explaining this and the fact that, although remedial actions are implemented or under study, this will take time due to technical and financial constraints.

5. Soil contamination as a long-term natural attenuation problem

Soil contamination was considered a problem that would solve itself within 30 or 40 years. During that time it would need some attention, but problems were not expected. We observed two communication attitudes which produced very different effects. The first was 'we don't want to talk about it now because we do not have enough information yet'. The second was 'we will give you all the information you want, because we are convinced that this information will point out that there is not really a problem'. The first attitude led to many communication problems, while the second did not. This was interesting, as the actual information that was given in both situations was more or less the same. A key issue appears to be whether people believe that the risks are very low.

PROBLEMS AND POTENTIAL SOLUTIONS

FOR RISK COMMUNICATION

The problem: disturbed or non-existing relationships

A proper relationship with the person(s) that you communicate with is essential, especially when it comes to risk communication where mutual trust and respect for another viewpoint are important for success. But how do you know whether a relationship is good enough to reach your communication goals? Our interviews suggested that people use the following criteria for recognizing the quality of the relationship.

The solution: improving the relationship

- *Bring yourself in an open state of mind*
The people you talk with are always right from their point of view. Be curious about their views and perceptions. Be aware of your role and your goals in the meeting.
- *When you meet, focus on forming a good relationship and not on your (technical) message*
Be clear about your goal of a good relationship and ask the people what they think is needed for that to be achieved.
- *Work with a 'focus group' drawn from the leaders or the most affected people*
It is easier to create positive communications in a small group.
- *Avoid 'right-or-wrong' discussions*
Asking questions will improve relationships – probably more than making statements.
- *Say what you do and do what you say*

Table 1. Criteria for recognising the quality of the communicative relationship

Criteria	Disturbed relationship	Good relationship
Trust	'They will never give us all the information'	'Let us first find out what they are doing about it'
Emotional involvement	'They only talk about technical procedures and costs'	'Mr X said we could always contact him if we have the feeling that something is going wrong'
Prepared to follow each other's suggestions	'We will never go along with what they are up to'	'Maybe you have some suggestions to help our company solve this problem'
Respect for each other's point of view	'Your only concern is to make more profits' 'We're going to prove that you are just a bunch of cowboys'	'What are your safety regulations?' 'We want to understand'
Prepared to see the difference between individual and the group	'You industries are <i>all</i> the same. Why should we trust your company in particular'	'How is <i>your</i> company planning this remediation'
Behaviour	People forming opposing groups	People talking in a relaxed way with each other
Tone of voice	Firm, without melody, staccato	Questioning, melodious
Body language	Following the mood of the group	Relaxed, adapting to the others

If people ask for specific information which they know is available, give it to them willingly.

- *When you have come to a better understanding end the meeting by giving the audience a time schedule of what they can expect from you and what you expect from them*
Ask them for their time schedule and try to agree on a shared schedule.

The problem: misunderstandings

When there is a good or neutral relationship between the company and the community, these cases showed that there can still be problems because of misunderstanding between two or more communicating groups. Many misunderstandings will have a negative effect on the relationship, even up to the point where a disturbed relationship will block the process. We encountered many smaller and larger misunderstandings and classified them into four groups:

- *low quality language and insufficient quantity of information.* We noted that people are not satisfied when they do not get enough information about the situation. The companies, meanwhile, are convinced that they had provided an appropriate amount of information;
- differences in *perceived control* regarding the situation. Without necessarily being aware of the fact, technical people working on soil contamination or remediation have many problem scenarios and solutions in their minds. They know what they have to do when a problem arises and they know that they can make a choice at that moment. They are in control. In contrast, the community involved has no control at all and can feel threatened. Many expert-messages have the format of 'don't worry, we'll take care'. These messages will have the opposite effect, because they are underlining the fact that the community has no control over the situation (a potential outrage factor);
- unawareness of the *different positions of perception*. In several cases community representatives stated that they feel they were not taken seriously. When asked how they know that they are not taken seriously, there were many answers like 'they don't feel what we feel';
- unawareness of the *subjective criteria* people use to value the situation. Experts have 'objective' criteria used in their profession to value a situation. They know, for example, the concentration levels of heavy metals in soil that make soil 'contaminated' and the levels of concentration that can be regarded as a natural background level. These 'objective' criteria are the result of many expert discussions and are used in official rules and regulations.

Non-experts have no knowledge of many of the 'objective' criteria and use their own 'subjective' criteria. An example is the smell of peat which people regard as a proof of oil contamination. The opposite also can be found, for example, people often regard the presence of flowers as proof that the soil is not contaminated. In a communication process where people only talk about conclusions and not about the (subjective or objective) criteria they use to value the situation, many misunderstandings can occur.

The solution: avoiding misunderstandings

Aim for a good relationship and a 'general understanding'. Under that condition people are prepared to ask questions of the type 'what specifically do you mean when you say ...?'. A company representative who communicates with the community about soil contamination, the associated risks and remediation should:

- avoid highly specialised language;
- be as specific as possible with the information you give;
- get a clear picture of the other's point of view;
- offer people his/her impression of the actual situation, and criteria to value the situation, but give them the freedom to draw their own conclusion.

The problem: amplification of perceived risks

Amplification can take place at two levels. At the *psychological* level people have the ability to focus on certain topics. This ability is usually advantageous. When people are afraid of something, they can focus on it with the effect that they try to avoid it. Unfortunately this focus can be so overwhelming that the positive effects of avoiding danger become a continuous paralysing feeling. Psychologists classify such patterns as phobias. There are all kinds of intermediate thinking/behaviour patterns between an effective fear of toxic chemicals and a 'chemophobia'.

The second level of amplification is on a *social* level, but is essentially the same as the psychological amplification. In the same way as an individual can focus, a society can focus on certain topics. We can see them as trends, newspaper items, political issues, etc. Focusing mainly has advantages for society: problems are solved, money can be raised or legislation can be changed to evolve to a more desired state in society. From this point of view, attention in the press can be very valuable as it will help to set the conditions for change and for solving problems. From another perspective, there can be many side effects of this social amplification, which in the end may even prevent the problem being solved. A company can have some influence on the amplification process through its com-

munication, but there is a point where the company is no longer in the position to influence the process. In cases of soil contamination local residents' groups feel powerless and consider that they have to use amplification to have any chance of being heard. Strategies employed by experts in our cases to avoid amplification included:

- immediate reaction to the concern by direct communication (e.g. meetings);
- availability of information (facts and figures) on the soil contamination;
- acknowledgement that people have 'freedom of conclusion' when presented with information.

The solution: avoiding amplification of perceived risks

Prevent amplification of perceived risks by:

- giving people all the information they need to make their own representation and to draw their own conclusion. People could come to the site and have a look for themselves, they could ask questions and speak to experts, etc.;
- working interactively ensures that you can react immediately when you notice that your message has an effect other than that which you expected. If something doesn't work, you can try something else after first assessing what the reaction is likely to be. Then you can say that 'in communication there is no failure, only feedback';
- do what you say and say what you do;
- change any negative representation by the press or by environmental pressure groups into a neutral or positive one.

ORGANISING RISK COMMUNICATION

Step 1. Determining communication goal(s)

Risk communication for a contaminated land issue can have several goals and objectives, ranging from informing stakeholders to joint problem solving and conflict resolution. However, the main goal should be clearly identified and agreed.

Step 2. Identifying stakeholders and the social context

When identifying relevant stakeholders it is important not only to look at conflicting interests but also at complementary interests as a continuous strategic task of the (communication) managers. The stakeholders should be ranked with regard to importance (to us and to them), interests, requirements, etc. The resulting picture gives an impression of the social context. A clear

picture of the social context allows the company to establish a good relationship before any incident occurs or other problems arise. An open strategy starts before contamination has been discovered. It is therefore wise to maintain good open relationships with local communities, authorities and the press.

Step 3. Understanding risk and trust perception

Understanding issues of risk perception and whether you are trusted by 'putting yourself in the other person's shoes' and listening to and understanding the other's viewpoint is essential for risk communication to be effective. Several authors (e.g. Covello *et al.* 1988; Sandman 1989) provide overviews of factors that may cause public outrage. With respect to soil contamination, factors such as lack of control, uncertainty and unfamiliarity with the health risks, as well as the absence of clear benefits, all contribute to increasing public concern. It is worth finding out what prior information and knowledge stakeholders have and what previous experience they have of the company. In addition, it is useful to know where stakeholders get their information.

Perceptions may also change over time, as is the case with the acceptance of (monitored) natural attenuation. This previously considered 'no action' alternative is becoming acceptable in many countries as a cost-effective, long-term remediation option.

Step 4. Designing and testing risk communication messages

Communication is a continuous effort of sending messages, observing the response and acting on it by sending a new message. This doesn't necessarily mean that it is just a trial and error process. From the cases we have seen a 'community testing' panel may help in determining the proper contents of the message, before it is released to a larger audience. Other stakeholders or opinion leaders should be invited to help develop or to have a look and comment upon the risk communication strategy and message(s) to be released. This can prevent major mistakes from occurring during the actual communication process and may give confidence and credence to the messenger.

Step 5. Selecting appropriate communication channels

A range of communication channels (presentation, door-to-door leaflets, newspaper articles, television, radio, Internet, etc.) is available. If a company decides to use an external medium like a newspaper or television broadcast, or if it has been decided for them and the news is already released to the public, the company may lose control over the communication process. A good strategy is to keep some control by pre-writing a

press release and asking for the opportunity to pre-screen the final article or television broadcast. Once the news has been taken from the control of the company, the company can only react by presenting their views and action plans for dealing with the soil contamination in an open, non-defensive and pro-active manner.

Step 6. Selecting a communicator

This step is linked to the previous one. If the message is presented orally, who will be the communicator? Certain skills are required to be a good communicator. A risk communicator should be perceived as trustworthy or credible, open, honest, respected and respectful and have good communicative skills, such as eloquence and being able to listen. The choice between an internal and an external communicator depends on the trustworthiness of the company, the social context and the importance of the issue. Trust and credibility of a company can be increased by collaboration with credible sources outside the organisation that can help to communicate the company's message to the public. At all times it has to be clear who is responsible for the communication.

Step 7. Implementing the communication plans

Implementation requires authorisation of plans, including budgets required. Proper timing and organisation of communication activities are also important. Releasing information as early as possible, before people start to ask for it, is generally a good strategy.

A clear division of tasks is necessary so that everyone knows what to do and when to do it. Most activities require a thorough preparation. This holds especially true for public meetings. The logistics, meeting agenda and objectives need to be planned and presentation material, including handouts, need to be prepared. A rehearsal of the presentation to be given is recommended. Aftercare of a meeting, including follow-up actions, is critical.

Step 8. Monitoring, evaluating and adjusting the communication process

Before, during and after a communication activity, such as a public meeting, the release of a door-to-door leaflet, a newspaper article or media coverage, the effects should be monitored for evaluation purposes. Necessary adjustments to the communication strategy and programme can then be made immediately.

There are several tools available to evaluate the communication performance. They range from meeting reaction forms to discussion groups as well as internal observation and debriefing. Basically, these tools help answer questions like: 'what went well?', 'what

went wrong?' and 'what could we do to improve the communication process?'. The lessons learned should be documented to support future choices in communication strategy. A regular exchange of information and experience with other company communication managers might also prove to be valuable.

CONCLUSIONS

Many companies will experience problems with contaminated land and communication of the associated issues. This paper gives an indication of the types of preconceptions and misconceptions that are likely to be encountered. We hope that it has convinced readers of the need to recognise that all stakeholders are important and must be involved in any remediation programme. We have tried to illustrate that while similarities might exist between remediation activities, every communication effort will vary, necessitating knowledge of the particular prevailing circumstances.

Our observations revealed several effective communication strategies. One company used a pro-active communication strategy and made available ample manpower, time, money and other resources. Another company focused their strategy on actively informing and involving the local community in the company's plans. But even the company that was more reluctant to provide information for their stakeholders and certainly did not involve them was successful in that it had never experienced any major problems. The socio-cultural context will, to some extent, have an influence on which strategy will be the most successful in the end.

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