



Risk communication, public participation and the Seveso II directive

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Abstract

Risk communication and public participation are considered in the context of the forthcoming requirements of the 'Seveso II' Directive. The discussion draws substantially on the findings of a research project which has investigated public perceptions of the risks from major accident hazards in seven communities in the UK. Implications for the Directive's requirements on emergency information provision, public access to safety reports and consultation on emergency plans are considered. Our conclusions stress the need for risk communication to be seen as a long term and ongoing process, involving active listening to public reasoning about risk and a sensitivity to the context in which communication is taking place. In meeting both needs and rights to information and encouraging and enabling public participation, we conclude that the Directive should contribute in some degree to an improved environment for dialogue and the building of trust. © 1999 Elsevier Science B.V. All rights reserved.

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1. Introduction

Over the last decade we have seen a clear recognition that, for practical, political and moral reasons, the argument for involving 'the public' within the realm of major hazard regulation is a strong one. Not only do those at risk 'beyond the boundary fence' need to know how best to protect themselves in the event of an accident, they also have a right to know that they are at risk, and a potentially powerful voice in a society increasingly conscious of risk and its spatial and social distribution [1]. As can be painfully

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experienced by those on the sharp end of sceptical, distrustful and concerned public responses to environmental, health and food risks, it is not possible to hide from the social implications of people being at risk; to ignore the need to have public consent to operate hazardous processes; or to simply dismiss public views as misguided, irrational and ill-informed.

The need to 'include the public' has been acknowledged within the Seveso II Directive in various ways. The provisions it contains build on experience with the original Seveso Directive, as well as reflecting the broader evolution of relationships between government, industry and public in the handling of risk problems. In part, the Seveso II view of 'the public' revolves around 'need to know' communication about emergency action—but 'right to know' access to information and rights of participation in decision-making and planning are also now part of the Directive's agenda.

In this paper, we consider questions of risk communication and public participation in the context of the forthcoming requirements of the Seveso II Directive. In doing so we draw substantially on the findings of a 3-year research project which has investigated public perceptions of the risks from major accident hazards in seven communities in the UK [2]. This project has been funded by the UK Health and Safety Executive with the intention of informing various aspects of the development of major hazards policy and the wider practice of major hazard management by site operators, emergency and land use planners. A key part of the project has been concerned with questions of information and risk communication and it is on these aspects of the project that the paper concentrates. Although our research has been undertaken in the UK, the general conclusions we draw are of wider relevance and applicability.

2. Seveso, Seveso II and public information

Perhaps the most innovative feature of the original Seveso Directive was its requirement for information to be provided to the public, with member states typically faced with a significant challenge to accepted practice [3]. In the UK, for example, major hazard regulation had historically been exercised within strong confidentiality constraints, with information on even the location major hazard sites withheld from the public [4]. The requirement of Article 8 of the Directive for members of the public 'to be informed of safety measures and how they should behave in the event of an accident' was not initially welcomed by industry in the UK and there were many concerned about the public reaction to the first round of giving out information in 1985/1986. In practice though the near-universal experience was of a muted, if not entirely absent public response. This combined with post-Bhopal concerns about the public image of the chemical industry, produced a greater willingness by companies to communicate with the public and to become actively involved with local communities.

Research undertaken across Europe examining the implementation of the public information requirements of the Directive raised various concerns about the extent of implementation, the quality and amount of information provided, the lack of any obligation to repeat information dissemination on a regular basis and the extent to which the public were taking on board the communicated information [3,5,6]. In the UK, where the overall level of compliance was good and information was actively distributed to

local people [7], there was an observed tendency for content to be more about company image and reassurance than about communicating about risk and achieving public understanding of appropriate emergency responses. There was also a wider debate about whether the public information should be performing a ‘right to know’ or ‘need to know’ function—the latter implying an emphasis on ‘what to do in the event of an accident’ the former a broader right to be informed about sources of hazard and levels of risk [3,8].

As a result, the second amendment to the Seveso Directive, made in 1988, strengthened the original public information provision by requiring that information is always actively supplied to local people (rather than passively made available), with this repeated on a ‘regular’ basis, that it is also made available to anyone who requests it and that it should cover at minimum a specified set of eleven listed topics. Additional best practice guidance on how to implement these revised requirement was also produced by the EC joint research centre [9], with other related guidance provided for example by the OECD [10].

The Seveso II Directive, in Article 13, to an extent simply reproduces the revised provisions of the second amendment. However, there are a number of additions to these provisions contained in Articles 13 and 11.

- The maximum period between repeat provision of information is specified as ‘no longer than 5 years’, with information content needing to be reviewed every 3 years and where necessary updated and repeated, at least where there is significant modification to the hazard (Article 13-1).

- The public must have the right of access to safety reports, although ‘confidential information’ can be excluded from these where approved by the competent authority (Article 13-4).

- The public must be able to ‘give its opinion’ on land use planning decisions about new establishments, modifications to these and development in their vicinity (Article 13-5). Land use planning comes within the Seveso II Directive as a new element [11].

- Information on the notified inventory of substances held at top tier Seveso II sites must be ‘made available’ to the public (Article 13-6).

- The public must now be consulted on the drawing up of external (off-site) emergency plans (Article 11-3). There is also a requirement for off-site plans to be tested at least every 3 years (Article 11-4) which may involve, or come to the attention of the public if ‘live’ rather than ‘table-top’ test exercises are carried out.

Whilst these extra elements represent significant additions to what was required before, moving some way beyond the ‘emergency action’ focus of the original Directive, their impact on established practice will vary between member states—reflecting amongst other things national ‘regulatory styles’ [3,12], pre-existing access to information legislation (beyond that specified at a European level), and participatory traditions within land-use planning systems [13]. In the UK, for example, only public access to safety reports and public consultation on external emergency plans will require a change from current practice. Other provisions are effectively already implemented—repeat circulation of information has typically (although not always) been taking place on 2- or 3-year cycles; inventories of hazardous substances are part of the information contained on existing public registers accessible at local authority offices under ‘hazardous

substances consents' legislation; 'table-top' testing of emergency plans has typically already been taking place and UK implementation of the Directive is unlikely to require that 'live' exercises are carried out; rights of participation in planning decisions are already enshrined within planning law. In the latter respect, planning (or consent) applications involving hazardous materials have to be advertised and members of the public have the right to make written representations to the local decision-making committee, or to submit representations and, in some situations, present evidence to planning inquiries if these are held. The public also have a right to comment on local development plans which may allocate land for hazardous developments or lay down policies on controlling developments in the vicinity of hazardous sites. The Health and Safety Executive have also taken steps to allow public consultation and comment on the policies it follows in providing expert advice for local planning authorities dealing with major hazard planning issues.

Other countries where, for example, planning controls are less well-established [14] and public information provision has been less thoroughly taken up will find additional challenges in what Seveso II requires. Furthermore and as discussed later, with the chemical and petrochemical industries increasingly looking towards proactive processes of risk communication, to an extent emulating recent practice in the USA, the impact of Seveso II may extend significantly beyond its regulatory requirements.

3. Researching risk perceptions

So far we have examined the Seveso II risk communication and participation requirements from a regulatory and legislative point of view—a 'top down' perspective. It is equally, if not more important, to consider the public or community context within which these requirements are being introduced and implemented—a 'bottom up' perspective. As stressed by Otway [15], the Seveso Directive introduced a form of 'community level' risk communication, quite distinctive in a number of respects from other forms of risk communication for other types of risk. Information provision for major accident hazards is focused on a spatially restricted component of 'the public' living near to hazardous sites, with the emphasis also on 'ordinary' people living on a day-to-day basis with this source of risk. Other 'publics' such as those organised into active pressure groups will also be relevant to the Seveso II provisions, particularly where participation rather than communication is being sought, but the key focus has been on and remains on the local community at risk.

It is this component of 'the public', and how they perceive living at risk that we have been researching near to seven major accident hazard sites in the UK. These seven sites were selected, in order to provide variety in the following characteristics:

- the nature of the hazard at the site (toxic, explosive/flammable),
- the regulatory designation of the site (five came within the 'top-tier' remit of the Seveso Directive, two did not),
- the physical size of the installation (ranging from a major petrochemical complex, to a small LPG storage site),
- the length of time the installation has existed,

- the history of accidents or publicised incidents at the plant,
- the socio-economic characteristics of the surrounding population.

The research undertaken in each of the case study areas was intended to provide a fuller and more detailed understanding of both the local context within which the site is operating, and the factors influencing and shaping perceptions of risk, than is usual in much risk perception research [16]. To this end we adopted a socio-cultural approach employing a combination of research methods.

A key objective of the research design was to allow the definition and construction of relevant issues and ways of thinking to emerge from the participants in the research, rather than these being imposed beforehand by the research team. Accordingly, a series of focus groups were held in each area involving people living within the ‘consultation distance’ or public information zone specified by the HSE around each site. In these groups participants were guided through a series of discussion topics and asked to respond to statements about risk regulation and public information and to two siting decision-making scenarios (see Ref. [17] for a fuller discussion of methodology). In total we met with 45 groups of people providing a rich source of research data. A large number of observations and conclusions are being drawn out this research project. There is insufficient space here to discuss each of these or to present the project results in any detail. Instead, over the following sections we will focus on our conclusions regarding risk communication and participation issues, both in general terms and specifically in relation to the implementation of the Seveso II Directive

4. Risk communication: context and diversity

A key and fundamental conclusion of our research relates to the importance of the *context* within which sites and communities co-exist, and risk communication takes place. This context has a number of dimensions.

In running the focus group sessions we found that people drew on a wide range of information and knowledge in talking about their local site, and on a diversity of resources in constructing arguments about risks, their significance and management. For example, people drew on immediate day-to-day sensory evidence (such as smells, sirens, plumes from chimneys) experienced over long time periods; on information passed through the community from friends and relatives and between generations (for example about accidents happening many years ago); and on media reports, forming a body of ‘informal’ risk communication through which they construct their perceptions of the site and the range of risks it presents. The nature and content of this informal risk communication varies substantially between different major accident hazard sites, which apart from their common accident potential, present an enormously diverse set of functional and physical characteristics. Some sites, for example, provide immediate and powerful sensory messages through the scale and nature of their operations (e.g. a chemical processing plant) which are absent at others (e.g. a water treatment works). Some sites are major local employers leading to much informal communication within the community about on-site activities, whilst others employ very few local people so that there is much more ‘distance’ between company and community. Some provide evidence of safety through their history and good accident record, whilst others provide

evidence of risk through incidents and accidents both on and off-site. Some have experienced sustained media interest, whilst others have had a very low media profile.

We also found that there is rarely a clear compartmentalisation made between the different aspects of the sites operations and impacts, so that ‘major accident hazards’ and the effectiveness of their management are not neatly separated away from issues to do with pollution, smell, noise and general plant management in the way that evidence is interpreted. We found repeated use of analogies and stories in the way that people reason about risks and their management, with linkages drawn between seemingly disconnected activities and issues; for example, between the management of BSE, asbestos and nuclear risks and those of chemical risks, between questions of major accident hazard regulation and experiences of health and safety in a range of very different workplaces. As has been identified in various ‘effective risk communication’ guidelines [18], analogies and stories are particularly powerful forms of communication which whilst open to criticism in technical terms (e.g. BSE and chemical risks are not the same) can provide telling justifications for more generic concerns and arguments.

These various points in combination lead to the clear conclusion that formal risk communications about major accident hazards do not take place in a vacuum; there is a history, a context, a body of existing knowledge and concerns and a set of pre-existing relationships within which risk communication activities are received and interpreted. This context varies between different major hazard sites and is subject to change over time (for example, accidents and, more subtly, changing employment patterns can create important changes in context). It is also evident from our case studies that where formal risk communication has taken place, it features very little within the range of evidence that people draw on when reasoning about risks and their management. Formal risk communications also typically take place far less frequently than the ‘messages’ received by local people on a day-to-day basis through observation and conversation.

This is not to argue that the context for risk communication will inevitably be antagonistic to site operators. Indeed, a repeatedly encountered set of perspectives, particularly at the smaller and more anonymous sites in our research, was that the site was just ‘part of the area’, that there were ‘other more important concerns in everyday life’ and that there was in any case nothing that anyone could do to change the situation ‘so it wasn’t worth worrying about’ (a form of entrapped fatalism). In such contexts, the challenge for risk communication will be one of communicating at all with a largely uninterested and sceptical community. In contrast, where there is more active local interest and concern, and particularly where a community feels stigmatised by the presence of the major hazard site as a result of accidents or other site impacts, the context for risk communication can be far more charged, and, from the site operators perspective, problematic.

5. Information rights, agency and participation

In terms of rights of information on risks, the group discussions showed strong (but not universal) support for public information provision. People argued that they had a basic right to know about risks, that it was in particular important to be informed about

emergency actions and that information provision would lessen rather than heighten any public anxieties. There was, however, an equally strong view that information needed to be provided in an appropriate manner avoiding technical detail and concentrating on basic messages—but with additional more detailed information being made readily available for individuals to seek out if they so wished. The less frequent arguments made against public information provision contended that it could lead to unnecessary anxiety, that it was better ‘not to know’ (often linked to a fatalistic view of risks) and that there was little that individuals could do to respond to risk information so what was the point in being given it.

This overall support for information provision was set alongside a recurrent view of, in particular, the chemical industry as secretive and unwilling to divulge information on, for example, accident events or pollution-related health risks. The installations themselves could be seen as rather mysterious and forbidding places, with, for example, perimeter security measures generating as much anxiety as reassurance. Where companies had pursued active programmes of community information and interaction with, for example, the holding of site open days, these, for some people, were seen as evidence of a greater openness; but for others suspicions remained that they were not being told ‘the whole truth’ and that only a very partial view of site activities and risks was being given.

One context in which issues of information provision repeatedly and rather unexpectedly arose in the groups was in relation to decisions made over residential location. A major theme of discussion was one of choice, with much contention over the extent to which people had a real choice about where they lived (with contrasts drawn between those owning their own homes and those having to accept allocated council rented accommodation) and whether or not it was fair to argue that people could exercise an informed choice about whether or not to live near to an existing source of major accident hazard. In this context many people pointed to the fact that there was no mechanism through which prospective buyers of houses in areas at risk were required to be informed of the existence of the major accident hazard. Indeed, it was seen as being in the interest of all other parties involved in property transactions not to disclose such information.

When questions of public participation and the ability of ordinary members of the public ‘to make a difference’ arose in the groups, only very few people felt that registering complaints, contributing to local meetings or, for example, making representations over planning decisions would be worthwhile. Far more typical was a cynical and disenchanted view of the public’s role in decision-making and local political processes.

6. Implications for Seveso II Directive requirements

The conclusions and observations already made, combined with other research findings, lead us to suggest the following implications for the key Seveso II requirements on communication and public participation.

6.1. Active information provision

Information on the nature of the risk and actions to be taken in the event of an accident, has been circulated at some ‘Seveso’ sites for over 10 years. Whilst the

retention of emergency action information was not the main focus of our research, evidence from the focus group discussions supports the results of other studies which have shown a far from complete pattern of reception, recall and retention [5,19–21]. Some people were able to recall the ‘shelter in place’ instructions in some detail, particularly where there had been a recent distribution. Many others were unable to remember receiving the leaflets, had not kept them or were unable to remember what they said in any detail. There was some scepticism about the emergency action instructions given, particularly at those sites where people had experienced incidents at first hand and had been able to compare the complexity of real emergency situations with the simplicity of the messages conveyed in the leaflets.

In terms of ‘right to know’ information about risks, there is little evidence from our case study sites that this is having an impact on local knowledge. At sites where information had been given out, we found little awareness of the major hazard substances held on-site, and a continued focus on ‘big bang’ accident events even where the predominant risk described in information leaflets is that of a toxic release. We also identified a potential problem at least in the relationship between ‘Seveso’ information and other public relations material distributed by site operators. There is a real danger that in some contexts all information distributed by companies becomes seen as ‘PR’ (with the negative connotations that this engenders), and that this overshadows and obstructs the reception and retention of important risk and emergency action messages in ‘Seveso’ literature.

These observations support the need for continued evolution and improvement of information provision practice. There has been considerable development of distributed information resources over the last 10 years, a process which needs to continue in the future. For those sites brought within the public information requirements of Seveso II for the first time, there is now much experience and guidance on which to draw in formulating strategies for implementing public information requirements. Whilst, as already noted, the Seveso II Directive adds little to the existing list of information which needs to be provided to people at risk, the specification of a 5-year maximum repeat period really needs to be treated as a maximum with a shorter period appropriate at most sites—especially where there is a high turnover of, or additions to existing populations.

6.2. Public access to safety reports

For industry, public access to safety reports has been one of the more contentious aspects of the new Directive. From a public perspective the commitment to greater openness that this represents can only help address public concerns over the secrecy of industrial operations and the lack of trust that is often seen as following from the withholding of information (as long as the Directive’s provision for aspects of the reports to be treated as commercially confidential is not too generously applied). However, it is highly unlikely that many of the ‘ordinary’ members of the public involved in our research will be actively seeking out and digesting the contents of safety reports when they first become available. In this sense, for local publics the availability of safety reports may serve more of a symbolic rather than a practical purpose, but becoming more important in particular circumstances where public attention is aroused by an accident or by development controversy.

It is likely though that other parts of ‘the public’, such as environmental groups will scrutinise safety reports when they become available and seek to actively publicise their contents through the media. In part for this reason, some sections of industry are looking to the US experience of actively communicating about ‘worst-case scenarios’ through extensive programmes of information provision and dialogue with communities at risk—as undertaken, for example at Kanawha Valley [22]—and considering whether to adopt such approaches in advance of the implementation of the Seveso II Directive requirements.

It is difficult to predict the likely outcomes of such initiatives—as stressed earlier much will depend on the pre-existing context of site–community relations. On the one hand, there is evidence that many people living around major accident hazard sites already have a general notion of worst-case events being possible; there was continued reference across our case studies to sites having the potential to destroy large areas in a sudden dramatic accident event. In this context the presentation of ‘worst-case scenarios’ may create little surprise or anxiety. Indeed, it may serve to reassure through acknowledgement that the worst is being recognised (and is perhaps less extreme than people imagined) and that many provisions are in place to prevent such extreme events from happening.

On the other hand, the actual worst-case scenarios for particular sites, may bear little relation to the expectation of a ‘big bang’ (for example, where toxic releases are involved) and if worst-case scenarios extend beyond existing consultation or emergency planning zones this may serve to raise questions about the appropriateness of management provisions and extend risk concerns to populations less familiar with being ‘at risk’. It is also the case that if genuine two-way dialogue is attempted it is very unlikely that scenarios will be accepted in an unquestioning manner. Experience in our focus groups shows that people draw on a diversity of evidence and argumentational repertoires to challenge expert assumptions and reassurances about risk [2].

6.3. Public consultation and testing of emergency plans

The implications of ‘public consultation’ in the drawing up of off-site emergency plans being required by Seveso II, depend in part on the interpretation of ‘consultation’. This could be limited to discussion with locally elected representatives, or could entail more active processes of publicity and dialogue with members of the ‘ordinary at risk’ public. Discussions in the focus groups would tend to support a more active and expansive interpretation of this requirement. The public expectation of emergency responses to incidents was not one of a ‘well-oiled machine’, with the capacity to effectively protect local people. Instead, particularly where incidents had been experienced at plants, people were all too ready to point out the difficulties, complexities and failings of responses to real events. Consulting the public could therefore in part serve to build more confidence in emergency planning, but also draw on local knowledge and observations on human behaviour to make real practical inputs into more effective external plans.

The requirement to test off-site emergency plans, as noted earlier, does not necessarily entail full scale ‘live’ tests. However, it may be that emergency planners and site

operators will choose to carry out 'live' testing in some cases. In implementing 'live' exercises it would usually be essential to pre-warn, if not involve the local public. How this could influence public perceptions or generate responses from the public is hard to predict. However, again it could be argued that active public involvement in the process of testing, and post-test evaluation, may both improve local preparedness and reassure as to the capacity of the emergency services to respond effectively.

If two-way dialogue with the local community is to be sought as part of emergency planning consultation, or in response to public access to safety reports as discussed above, a major issue, at least in an UK context, will be actually achieving a reasonable level and spread of participation. Even the most carefully thought through risk communication initiatives are likely to fail in the face of long-standing public disempowerment and distrust, so finding effective and locally appropriate forums for public dialogue will present a significant challenge.

7. Conclusions

In this paper, we have reflected on the likely implications of the new risk communication and participation requirements of the Seveso II Directive from both a 'top down' and 'bottom up' perspective. What this has shown is that, in the UK, the regulatory requirements of Seveso II will require comparatively little change to established practice. However, there is a case, depending to an extent on local context, for site operators and others involved in risk management to be doing much more than the bare minimum and to be proactively seeking improved and more effective risk communication practice. From our research, there is little evidence of a trusting public, confident in the ability of the regulatory system to do its job, well-informed about risks, well-prepared for accident events and happy that any public concerns will be listened to.

Whilst it is quite possible to ignore this situation, particularly when it does not lead to actively expressed public opposition, it is an unstable basis on which to base public consent for, or toleration of living at risk. The experience of a number of sites shows that where accidents have taken place, where public concerns have been aroused by pollution or nuisance impacts, or where new development has been proposed, this tacit toleration of risk can be quickly withdrawn. Once lost, any trust in the credibility of safety assurances can be very difficult to restore. Communities have long memories which can survive the most well-thought through programmes of communication and image building. Risk communication, in this light, needs to be seen as a long term and ongoing process, as one which involves active listening to public reasoning about risk and which has a sensitivity to the context in which communication is taking place and to the appropriateness of different mechanisms of communication in different settings. The Seveso II Directive will not in itself put public confidence on a more stable basis. The agenda it presents though is in tune with the expectations of many people living near to major hazard sites. In meeting both needs and rights to information and encouraging and enabling public participation, the Directive should contribute in some degree to an improved environment for dialogue and the building of trust.

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