# A guide and a toolbox for public involvement in the assessment and the management of contaminated sites

Benoît Hazebrouck, Geneviève Baumont, Céline Legout, Franck Marot

# A GUIDE AND A TOOLBOX FOR PUBLIC INVOLVEMENT IN THE ASSESSMENT AND THE MANAGEMENT OF CONTAMINATED SITES

Benoît HAZEBROUCK[1], Geneviève BAUMONT[2], Céline LEGOUT[3], Franck Marot[4]

[1] Institut National de l'Environnement et des Risques Industriels (INERIS), Parc Technologique ALATA, B.P. 2, 60550 Verneuil-en-Halatte, France, 03 44 55 61 12, benoit.hazebrouck@ineris.fr
[2] Institut de Radioprotection et de Sûreté Nucléaire (IRSN), BP17, 92262 Fontenay-aux-Roses cedex, 01 58 35 82 29, genevieve.baumont@irsn.fr
[3] Cellule interrégionale d'épidémiologie (Cire) d'Ile de France (InVS - Drass Ile de France), 58-62 r Mouzaïa 75019 Paris, 01 44 84 23 54, celine.legout@sante.gouv.fr
[4] Agence de l'Environnement et de Maîtrise de l'Energie (ADEME), responsable du projet., 20 Avenue du Grésillé - BP 90406, 49004 Angers cedex 01, 02 41 91 40 59, franck.marot@ademe.fr

**Key words**: Public involvement, Stakeholder, Communication, Guide, Tool, Contaminated Sites, Risk.

## 1 INTRODUCTION

Public participation is increasingly considered as a plain part of the assessment and the management of a contaminated site. It is also perceived as a difficult and sometimes risky challenge. In Europe, to our knowledge, beside academic virtual experiments on "test groups", feedback and recommendations on the subject are scarce and dispersed.

Following own experiences on real cases, INERIS and IRSN, in collaboration with the Cire Ile de France, have developed for ADEME a guide and a toolbox for organising public involvement in the assessment and the management of contaminated sites.

The guide and the toolbox are intended for all actors dealing with a contaminated site: public authorities, site owners, consultants, and representatives of the public (organisations, elected representatives, ...). They are available to all on a dedicated website (www.comrisk.com).

This article presents and discusses the outlines and the rationale of the guide and its related tools.

## METHODOLOGY

The guide and the toolbox are based on a comprehensive review of the state of the knowledge and of the praxis concerning risk perception, risk communication, and public involvement in risk assessment, with emphasis on local environmental and technological risks and more specifically on contaminated sites.

The praxis review addressed national contexts, guidelines and tools, communication documents, and case studies. It considered mainly France, Germany, Switzerland and the European bodies (NICOLE, 2004; RESCUE, 2004; COWAM, 2006; Trustnet, 1999; Trustnet In Action, 2007), as well as the USA and Canada where community involvement belongs to everyday site management. Direct contact and interviews were established with American engineers in charge of contaminated sites at ATSDR and at an environmental consultant operating on a Superfund site.

Additionally, in order to fill in gaps in the available documentation, two *ad hoc* inquiries were conducted in France:

- a poll-study on perception of contaminated sites and related risks, conducted within communities concerned by contaminated sites;
- a questionnaire-and-interview case study on cases of public Involvement in the assessment and management of contaminated sites and of some other local risks, conducted among public authorities, site owners, consultants, and representatives of the public.

A third inquiry, conducted by the Cire Ile de France with a public health Engineer from ATSDR, in the frame of another project, was also integrated in the study: it consisted in interviews of the same type of actors of assessments and management of contaminated sites and of some other local risks with public involvement, and of the subsequent analysis with emphasis on the differences between France and the USA.
Besides, two authors have taken part to actor-interviews, thinking tanks, and guideline writing, within a group of experts from five French leading public institutes for health and ecological risk assessment and management: AFSSET, INERIS, INRETS, InVS, IRSN.

The whole study benefited from remarks and recommendations by a steering committee gathering different points of view : environmental consultants and institutes, public and private site operators, administrations, local and national citizen organizations ; industrials, environmental engineers (chemicals and nuclear) et health engineers, communication consultant, sociologists, ...

## 2 RESULTS

### 2.1 Definitions

In this article, ***public involvement*** is used as a general term including information, consultation, dialogue, collaboration of or with the public.

An ***actor*** is understood here as gathering of people entering the case as a group. The persons which represent an actor is designated here as a *interlocutor*. Three main types of actors are considered here:

- ***Site operator***: last operating company on the site or site owner, liquidator or public agency taking over orphan sites (ADEME). The operator's team includes consultants (technical, lawyers, public relation,...).
- ***Authorities***: mainly the local authorities (Prefect or Mayor) with his technical staff (Industrial site inspectors, health engineers,...), sometimes also the ministries.
- ***Community***: individuals, local or national organisations, elected bodies, concerned by the risk (***stakeholders*** according to the *International Risk Governance Council* (2005)), and the media.

Note that the mayor can be in each of the three categories, depending on the case.

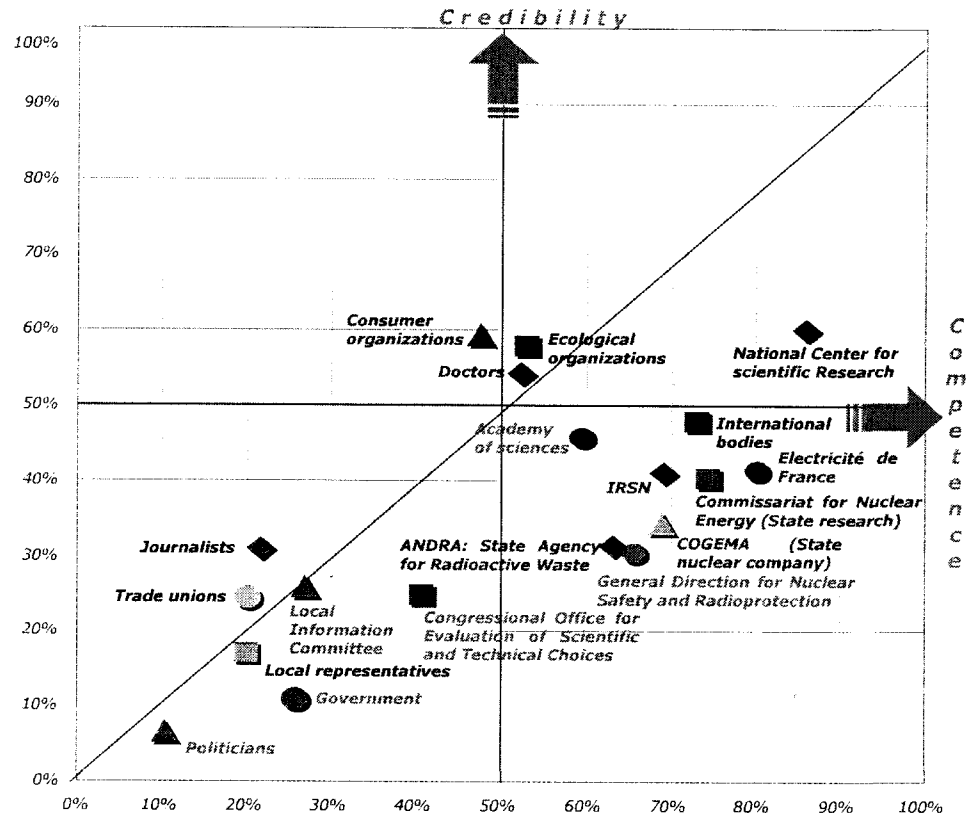
### 2.2 Why involve the community in the assessment and management of contaminated sites?

The following reasons/interests for involving the community in the assessment and management of contaminated sites have been identified:

Respecting democratic principles, and regulatory requirements: the right to take part in the elaboration of public decisions regarding the environment is written in the French constitution and laws. However, the practical requirements generally describe the public access to the information in the hand of the administration. The 2007 soil management circulars (MFE, 2007) also call for active public involvement when the public is directly concerned by site investigations or remediation measures.

Expert's legitimacy is limited to the technical studies, the experts are not legitimate to make management decisions, decide according to values or perceptions. Those decisions belong to the site operator, the authorities and the concerned community.

But the public confidence towards the institutional decision makers (authorities, industrials,...) is low, as shown on Figure 1 on nuclear electricity production ; Figure 2 for soil contamination. The lack of confidences concerns the risk management and the information delivered. Other similar results were found in the literature and obtained in our poll-study on perception of contaminated sites and related risks among local communities concerned by contaminated sites. Thus, direct local public involvement seems necessary to allow some confidence and some acceptance in the management of each specific site.




Questions: "*Do the following information sources tell the truth on nuclear in France?*" and "*In the field of nuclear industry and energy, do you think that the following interlocutors and organisms are technically competent?*"

The full name of the organisms was given to the persons interviewed.

Answers : yes / no / do not know.

Reported on the figure is the percentage of "yes"

(IRSN 2006, Inquiry 2005)

Figure 1 : Credibility of actors of civil nuclear activities

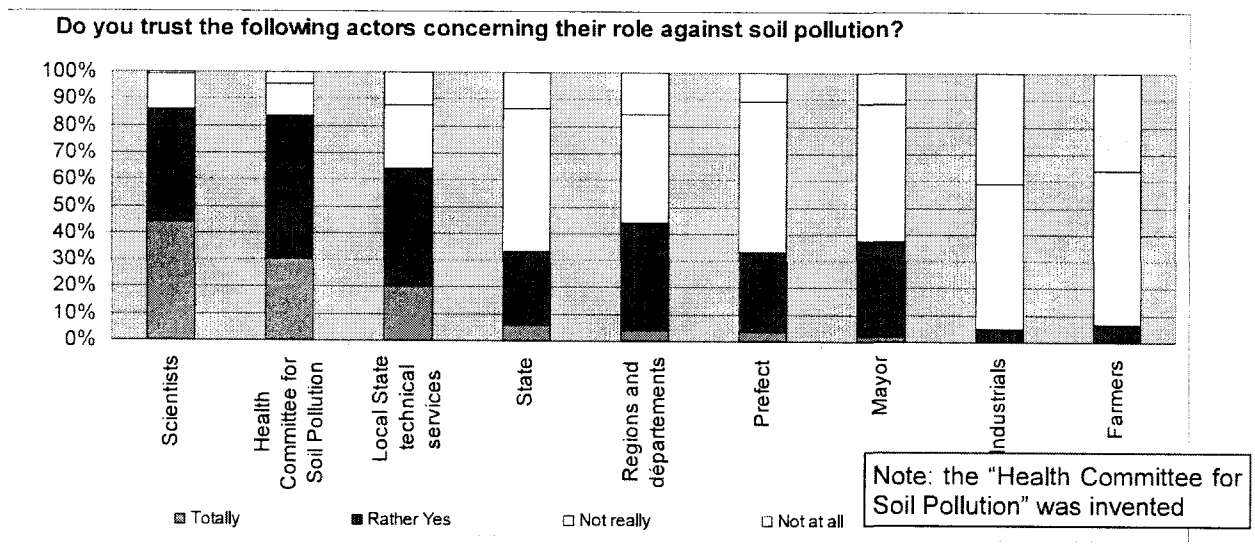



Figure 2 : Trust towards the actors in the field of soil pollution (Angignard, 2006)

Community concerns and wishes regarding the site are complex and multiform, but actually strongly determine the agreement/acceptance on the solutions that are proposed for the site. They result from a large frame of local interactions between local actors and with the territory, in relation with an history (Figure 3). Some are hidden, for example concerns on local social change or on the public image of the area and the financial value of estates. Perception and emotions play a major role. In order to be sustainable, a remedial response should meet the actual local needs, not just the issues that are put forward (e.g. health risk) or the expert's views. The best way to get to know and understand the community concerns and wishes is to talk to people. And precisely this attitude of -genuinely- taking interest in the community's concerns, acknowledging their legitimacy and importance, instead of trying to "educate" the public to the expert's supposedly right vision of the question, builds trust and credibility, in regard to the site assessment and management, and also between the persons of both sides for further co-operation: « *Do not make assumptions about what people know, think, or want. Instead, take the time to find these out by listening to parties with an interest in the issue and recognizing their feelings. People often are more concerned about trust, credibility, competence, control, fairness, caring, and compassion than mortality statistics or quantitative risk assessments* » (US EPA, 2005).

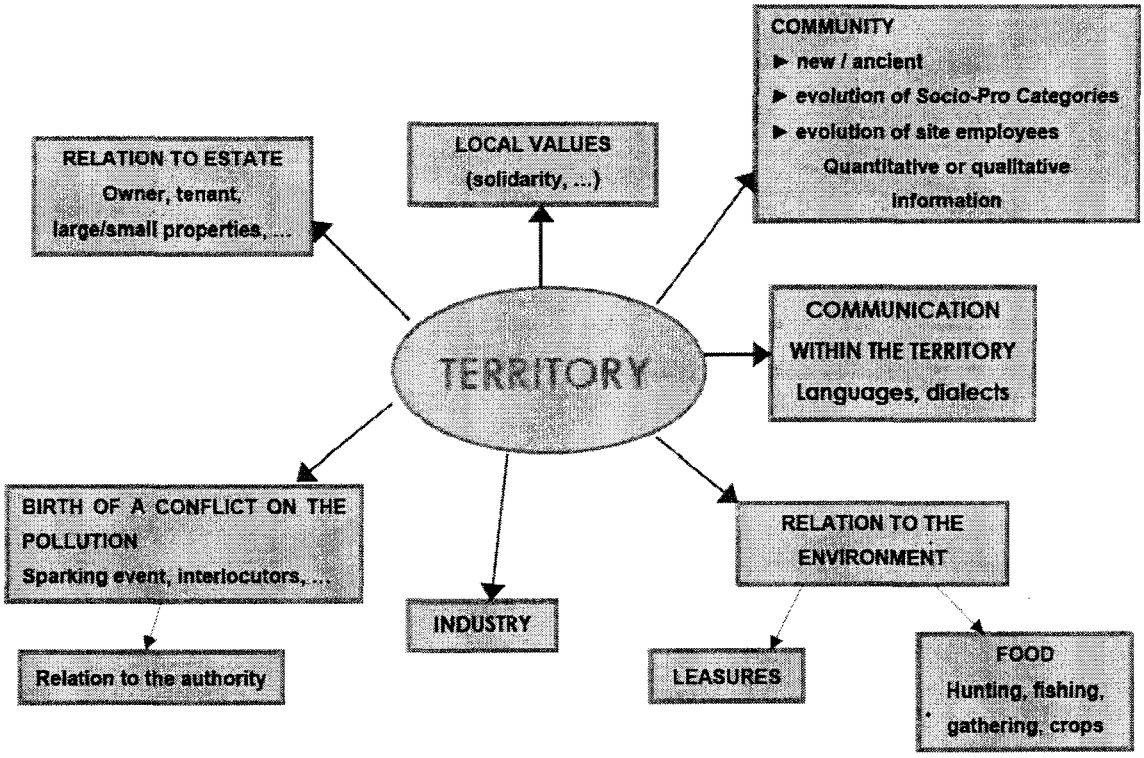



Figure 3: The community : diverse interactions and issues

The community's wish to be involved in the site assessment and management is one of those concerns, which is confirmed in poll studies as well as in case studies (US EPA, 1999). Through this wish, people generally ask for consideration, and also expect a better information and understanding for them, but before that they expect to contribute to a better risk assessment and reduction (Table 1). However, some people or organisation do not want to be involved, for different reasons : stress of mentioning the problem, fear to raise new problems, inability to consider long term risks or to defend their situation against the "establishment", lack of confidence in the process and fear to just bring caution unacceptable remedial responses.

| « *According to you, what would be the advantages of a structure gathering scientific experts, political decision-makers, industrials, citizen organizations, and citizens, and which aim would be to take charge of risk-bearing situations ?* » (IRSN 2004) | |
|---|---|
| Better identify risks | 29% |
| Contribute to reduce risks | 28,9% |
| Have access to reliable information | 16,7% |
| Facilitate the dialogue between employees of a risk-bearing facility and the local residents | 14,5% |
| Make new points of view and new ideas emerge | 10,7% |

Table 1 : Perception of the advantages of a multipartite dialogue structure for risk-bearing situations

Public Involvement as a quality factor in site assessment and management: The community contributes to site investigations in private areas (homes, gardens), brings valuable questions and valuable information on the site history and site characteristics and on the people exposure factors, and finally also is often itself the actor of individual remedial responses (building ventilation, stop of crop consumption, dust avoidance,...). The plurality of points of view is recognized as an important means towards a comprehensive site assessment and realistic conception of the remedial response.

Complexity is a bad reason not to involve the community. Actually, risk assessment is based on everyday concepts. As well virtual experiments on test group (e.g. Bonano *et al*, 2000, Petts *et al.*, 2003) as the case studies on real sites, and the comments of their actors show that the assessment and the management of contaminated sites is fully accessible to lay people, with some time and personal engagement from all sides: with time, an acculturation process takes place, and the lay people become experts. Besides, the personal relation with the site managers is generally more important to the public than technical details.

Balance : successes and limits: the following possible benefits -and objectives- of community involvement in the assessment and the management of contaminated sites through the bibliography and verification on real cases:

- Improve information of the community and its understanding of the case;
- Improve the understanding by the managers of community's point of view regarding the site;
- Respond to community's legitimate wish for information, listening attitude, consideration;
- Improve the transparency and equity of the decision-making;
- Respond to the regulatory requirements;
- Improve the technical quality of the risks evaluation and reduction;
- Better Respond to community's wishes and concerns and other parts regarding the site;
- Prevent and alleviate crises, handle the dissensions with serenity;
- Lead to a certain adhesion on a project of management for the site.

On the other hand, community involvement does not automatically solve all the dissensions with the community: « *Dialogue does not suppress conflicts, it makes them explicit* ». Relative failure have been observed on certain cases, which could also be attributed to insufficient and insufficiently sincere dialogue.

## 2.3 Difficulties

In most cases in France, community involvement in the assessment and the management of contaminated sites is imposed under the pressure of crises (and thus in the worse starting conditions) or of the need for community contribution in the investigations and safety measures. It is then mostly limited to the strict necessary in time (to the crisis) and extension (to the technical aspects). The same conclusion was drawn by Trustnet (1999) at the European level.

Doubts appear among the public on the sincerity of the community involvement, which is then seen as a manager's or authority's trick for winning time or for letting the community "caution the unacceptable", or for performing social treatment of the question instead of treatment of the pollution.

Many attitudes opposite to dialogue have been observed in French case studies, showing the rejection of the other as an interlocutor, distrust towards the other, language and communication difficulties, and also lies and manipulation. For example, a sub-prefect has described the local inhabitant organization as "our adversaries", whereas some organization explain how to make as much fuss as possible so as to get the authorities to move. In the opposite, extreme shyness of community members and experts before the authority (Prefect) in official and solemn meetings may hinder the open discussion.

The French frame for community involvement for contaminated sites is still under development : there is no official reference procedure or dialogue structure, no or very little training of the public actors, no organized feedback. This is exactly the opposite in the USA, where furthermore financial and technical support is offered to the community.

A partitioned, hermetical and un-reactive organization of site management: the responsibility of site management is divided between different public bodies (Environment, health,...) and the site operator. Each one has its own logic procedures, and organization. Information does not circulate easily between them, and differences of positions are often observed. Community involvement is closely managed by the prefect and not by its technical services directly. This affects the credibility and the reactivity of the action of these actors in the eyes of the community. All the more that the public has a poor knowledge of that organization. It also difficulty accepts the principle that the polluter has the responsibility and then the say in the site studies and remediation operations. This results in misunderstandings, suspicions, distrust, and often rejection of the project. Hence a "French" definition of dialogue as an « *attempt to overcome a country's rigidities* » (Mermet, 2007). Experts must often ask themselves for whom they are working : for the prefect or for the community.
In comparison, the North-American organization for contaminated site management appears much more simple, compact, direct, reactive: the US EPA and its local agencies is at the same time operator, decision-maker, site-evaluator, expert and manager, on a specific site and for the national policy as well. Their staff has extended police authority (inclusive criminal investigation and use of force with weapons). They manage Community involvement themselves, through thoroughly organized procedures and tools, and can then describe themselves as « *working for the community* ». It seems that the European (relatively new) role separation between expertise and decision is there replaced by a control by the community: community involvement appears thus at the heart of the US system. The US EPA and ATSDR collaborated closely, through common procedure and tools, and through a "site team" where the mission comes before the belonging to each Agency.

Comparing the French situation and the German and North-American situation in regard to public involvement in health-environmental issues, the authors suggest some deep cultural differences as possible reasons for the lower openness to dialogue in France: at school, in the family and the "adult society", a French culture of "honour" and confrontation can be opposed to a culture of dialogue and compromise.

Community involvement has its price, in terms of delays, costs, also burden and risks of unusual, irregular and uncertain work with extraordinary personal commitment, emotional context and often open aggressiveness. Those risks also concern, and for some of them mostly, the members of the community who participate. The **question of the overall cost-benefit balance of** community involvement on a site has still to be worked out, especially for the financial aspect. Some institutes insist on the cost reduction allowed by a more sustainable solution (INSPQ, 2003). For US EPA (1999), « Although time and energy must be invested to promote public involvement, the investment pays significant dividends in community understanding and goodwill», and « will reduce the likelihood that the risk assessment and cleanup plans will have to be redone». US EPA (2005a) mentions several **cases where the concerted solution was actually less expensive** than the original solution imagined by US EPA, thanks to the improvement in the studies.

## 2.4 Strategies for community involvement on a site

The discussion above shows the diversity of site situations in which community involvement may take place. The community involvement strategy should be adapted to that site situation. Four components community involvement strategy have been identified, described below :

- Objectives (see the "balance" chapter above);
- Degree of involvement, for example through the continuum of public involvement by Health Canada (2000, Figure 4);
- Field of involvement: possible fields identified are listed in Box 1;
- Implementation strategy: actors' positioning, methods, means (knowledge, tools, budget), schedule.

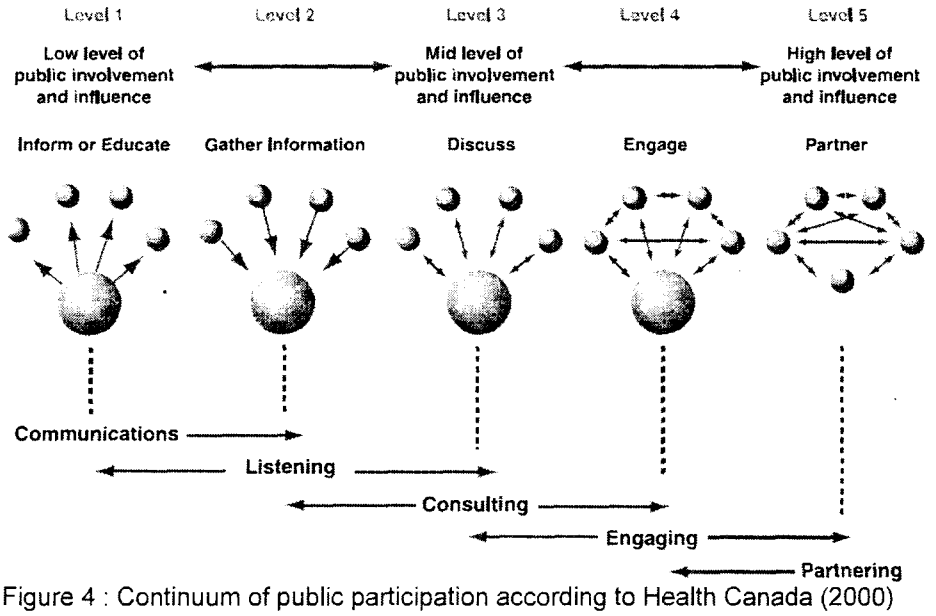



Figure 4 : Continuum of public participation according to Health Canada (2000)

| |
|---|
| Site assessment and remedial response, technical expertise |
| Decision-making about site studies and remedial response |
| Implementation of risk mitigation de measures |
| Collateral issues of the site management: estate value, image of the place, employment,... |
| Time schedule of the studies and works |
| Choice of validation procedures and of contractors |
| Communication with the "passive" public (less involved) |
| Organization of the public involvement |

Box 1 : Possible fields of public involvement

## 2.5 Elaboration of the community involvement strategy and involvement plan

The elaboration of the community involvement strategy and involvement plan is divided in two steps:

1. Characterisation of the issues and of the context, starting from an inventory of the community and their characteristics, and also of the corresponding characteristics of other actors:
   - Education, social level and typology, past conflicts and current splits, relation to the site, relation to the nature,...
   - Wishes and concerns with regard to the site, including risk perceptions (an adaptation of the Covello (1985) list of perception factors is proposed for contaminated sites).

   This step leads to a reformulation of the question set by the site pollution.

2. Analysis of the issues and of the context towards the choice of a strategy:
   - **No degree of involvement is better than another** one in absolute. For example, in case of urgency, information alone could be the best. Or a community may prefer not so much debating and more direct remediation action.
   - But a good information and a technically optimised and more sustainable site management requires a broader relationship, where trust is as important as technical details, where it becomes possible to explain the assessment logics and models, and to discuss on perceptions, ideas, questions, languages and discussion modes. Therefore, **dialogue should be favoured for contaminated sites**, as actually in the US EPA guidelines (1999, 2005).
   - « *A strategy should consider the size and diversity of the community, level of interest expressed by community members, geography of the site and community, and resources and time available to community members and the site team* » (US EPA, 1999). A grid of orientation between the 5 degrees mentioned above was adapted from Health Canada (2000).
   - Community **involvement should start as soon as possible**, and especially before « problems surface », so as to « build-up trust before it is needed ».
   - If possible, community **involvement should concern the whole field of the studies**, from the definition of the question and the conception of the studies, to the control of the remediation, for the sake of coherence, of transparency, of trust. The end of the dialogue should be concerted.

Individual and team commitment on values and attitudes of respect and openness are necessary for taking part to community involvement: listening attitude, availability, empathy, language adaptation, humility, coherence between administrations. The practical implementation requires some training on the culture of dialogue.

## 3 THE OUTPUTS : GUIDE AND TOOLBOX

The guide is organised in a flexible set of files of recommendations (Box 2), each for a step or a specific point of the public involvement process. Each file says the why, for what, how and who, and provides positive and negative examples from real sites.
The guide also proposes separately a synthetic discussion of the rationale of the recommendations.

The toolbox includes: a set of "event supports" for communicating on risks related to a contaminated site; several sets of slides and leaflets explaining risk-based site management for lay people; a FAQ review; and a frame for a "public involvement plan".

**Constitute and organise a site team**

- Constitute and structure a site team
- Commit the site team on values and attitudes
- Train the site team for the required competencies
- Support the site team

**Elaborate your own community involvement strategy**

- Elaborate your own community involvement strategy, overview
- Inventory the interlocutors and their wishes/concerns
- Analyse the context and its issues
- Define the objectives, the degree and the field wished for the community involvement:
- Define your implementation strategy and action plan for the community involvement

**Set up and adjust the community involvement process**

- Set up and adjust the community involvement process, overview
- Show some principles for community involvement
- Make the roles regarding site management, the wishes/concerns, and the question, clear
- Choose and share objectives, a degree and a field for the community involvement
- Choose and share interaction rules between actors
- Elaborate, share and monitor an implementation strategy and an action plan for the community involvement

**Communicate well**

- Communicate well, overview
- Be proactive
- Demystify the expertise and make it accessible
- Let people feel
- Organize the meetings
- Have successful first contact(s)

Box 2 : Index of the recommendations in the guideline

## 4 CONCLUSION

A main conclusion of the study is that communication on a contaminated site should be integrated in a broad public involvement approach taking into account site-related concerns and wishes of all actors: health risks, but also property value, employment concerns, trust or mistrust between actors, former local conflicts, relation to the local environment and to the site, etc. Public involvement actually helps find the most adequate solution for the site, acceptable to all parties as "honest" if not consensual, and not necessarily more expensive. The guide helps analyse the site-specific context, define accordingly objectives and a strategy for the public involvement, and choose and adapt involvement tools.

## 5 REFERENCES


Health Canada, 2000. The Health Canada Policy Toolkit for Public Involvement in Decision Making, ISBN:0-662-29243-X.

Angignard, Marjory, 2006. Enquête sur la perception des sols pollués et de leurs conséquences sanitaires. Rapport de Stage du Master de "*Science du Risque*" des universités Montpellier I, Montpellier II et Montpellier III et de l'Ecole des Mines d'Alès, stage encadré par G. Baumont de l'IRSN.

Angignard, M., Ferrieux, D. (2007): Pollution des sols: perception des conséquences sanitaires, In Préventique sécurité n°91, Pages 34-38.

COWAM, 2006. Roadmap for Local Committee Construction - Better paths towards the governance of radioactive waste. Community Waste Management (COWAM). Summer 2006. www.cowam.org/final/docs/pdf_Cowam_2_WP1_ROADMAP_for_Local_Committee_Construction.pdf.

Bonano E. J., G. E. Apostolakis, P. F. Salter, A. Ghassemi and S. Jennings, 2000. Application of risk assessment and decision analysis to the evaluation, ranking and selection of environmental remediation alternatives. Journal of Hazardous Materials. Volume 71, Issues 1-3, 7 January 2000, Pages 35-57. PII : S0304-3894(99)00071-0. Elsevier Science B.V.

IRGC, 2005. Risk governance : towards an integrative approach. International Risk Governance Council. September 2005.

IRSN, 2004. Baromètre IRSN 2004. La perception des situations à risques par les Français.

IRSN, 2006. Baromètre IRSN 2006. La perception des situations à risques par les Français. Résultats d'ensemble. Avril 2006.

Mermet, Laurent, 2007. «La concertation ne supprime pas les conflits, elle les explicite». Journal de l'Environnement. 12/02/2007.

MFE, 2007. Sites et sols pollués - Modalités de gestion et de réaménagement des sites pollués. French Ministry for Ecology and Sustainable Développement. 08 February 2007. « Lettre de la Ministre au préfets » and 3 appendixes.

NICOLE, 2004. Communication on contaminated land. Lida Schelwald – van der Kley. 54 p 2004. www.nicole.org.

Petts J., Pollard S., Gray A.J., Orr P., Homan J., Delbridge P., 2003. Involving lay audiences in environmental risk assessments. Proceedings Consoil 2003. 12-16 May 2003. 8th International FZK/TNO Conference on Contaminated Soil.

RESCUE, 2004. Methodological guide of «best practices» in citizen participation for brownfield regeneration). Programme RESCUE (Regeneration of European Sites in Cities and Urban Environments). Work Package 5 - Deliverable 5-1. August 2004. www.rescue-europe.com.

RIVM, 2004. The influence of outrage and technical detail on the perception of environmental health risks. Jochems D, Bruggen M van. 131 p, 2004. RIVM Rapport 300060001. http://www.rivm.nl/bibliotheek/rapporten/300060001.html.

Trustnet, 1999. The TRUSTNET Framework -A New Perspective on Risk Governance. September 1999. www.trustnetinaction.com.

Trustnet In Action, 2007. Final Report. 25th June 2007. www.trustnetinaction.com.

US EPA, 1999. Supplement to RAGS Part A : Community Involvement in Superfund Risk Assessments. US EPA, Office of Emergency and Remedial Response Publication 9285.7-01E-P. March 1999. http://www.epa.gov/oswer/riskassessment/ragsa/ci-ra.htm.

Covello VT. 1985. Social and Behavioral research on risk: uses in risk management decision-making. In NATO ASI Series G, *Environmental Impact Assessment, Technology Assessment and Risk Analysis*. Vol. 4, Springer Verlag, Berlin, p. 1-14.