ENGAGING THE COMMUNITY:
a handbook for professionals managing contaminated land

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Contaminated site projects and community consultation

If you work in the environmental field and are assessing risk for contaminated sites or industry, then your job may require you to consider involving the local community in the assessment and decision-making process for managing site contamination. The readership of this guide is expected to include:

- state and local authority officers, site planners and environment agencies, and
- land owners, environmental consultants, contractors, and others involved in the management of contaminated sites.

To help your organisation achieve its objectives for managing risk and improving public trust, a community consultation should be undertaken early in the risk management process.

This handbook presents a framework for community consultation in the context of contaminated site projects and describes the communication principles that can be used in community consultation. Effective communication skills are vital for your organisation and community consultation is an essential process that requires active forward planning.

The aim of this handbook is not to replace existing guidelines, standards or codes, but to complement them by providing practitioner perspectives and practical guidance through each stage of community engagement. The handbook covers an array of topics pertinent to any professional working in the field of site contamination and remediation. Useful methods are provided that enhance learning skills, confidence and professional development, and encourage organisational involvement in effective risk communication. Reference is also made to the research and practitioner literature and to other more general sources of guidance on effective community consultation.
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Glossary of terms

**Community** means those individuals and/or groups residing in the locality where a site assessment is to be conducted and who may be affected by the assessment and/or possible site contamination physically (for example, through risks to health or the environment, loss of amenity) or non-physically (for example, via concern about possible contamination) (NEPC 1999).

**Contamination** means the condition of land or water where any chemical substance or waste has been added at above background level and represents, or potentially represents, an adverse health or environmental impact (NEPC 1999).

**EPA** means the relevant environment protection authority or equivalent agency responsible for the regulation and management of contaminated land.

**Exposure** occurs when a chemical, physical or biological agent makes contact with the human body through breathing, skin contact or ingestion, e.g. contaminants in soil, water and air (enHealth 2004).

**NEPM** means the National Environment Protection (Assessment of Site Contamination) Measure 1999.

**Proponent** means the person who proposes a remediation project.

**Remediation** means to treat, contain, remove or manage chemical substances on or below the surface of a site so as to eliminate or prevent actual or potential harm to human health or the environment (South Australia Environment Protection Act 1993).

**Risk** means the probability in a certain timeframe that an adverse outcome will occur in a person, a group of people, plants, animals and/or the ecology of a specified area that is exposed to a particular dose or concentration of a hazardous agent, i.e. it depends on both the level of toxicity of the hazardous agent and the level of exposure (NEPC 1999).

**Risk assessment** means the process of estimating the potential impact of a chemical, physical, microbiological or psychological hazard on a specific human population or ecological system under a specific set of conditions and for a certain timeframe (enHealth 2004).

**Risk communication** means a two-way process involving the exchange among individuals, groups and institutions of information and expert opinion about the nature, severity and acceptability of risks and the decisions taken to combat them (adapted from enHealth 2004).

**Risk management** means the decision making process involving consideration of political, social, economic and environmental factors associated with site contamination, together with risk-related information to identify, develop, analyse and compare the range of options for site management (adapted from enHealth 2004).

**Stakeholder** means one who has an interest in a project or who may be affected by it.

**Sustainable development** means development that meets the needs of the present without compromising the ability of future generations to meet their own needs (Bruntland 1987).

**Transparency** means an open and understandable process whereby the individual is able to test for truth, legitimacy and authenticity.

**Wider community** means individuals and/or groups, not necessarily residing in the locality of a site assessment, who may have an interest in the assessment (NEPC 1999).
Executive summary

Addressing issues of public confidence during contaminated site assessment and remediation is a necessary step requiring community consultation and participatory decision making. This is now widely recognised among the contaminated land practitioner community.

Nationally recognised standards and guiding principles of good practice for managing contaminated sites incorporate risk communication practices. A number of these are integrated into law and policy. At the federal, state and local government levels, risk communicators attempt to fulfil their regulatory mandates constructively by engaging the public in aspects of the risk management process. Contaminated land developers, businesses, environmental consultants and other individuals involved in site remediation also have a role in community consultation.

Therefore the readership of this guidance is expected to include state and local authority officers, site planners and environment agencies, land owners, environmental consultants, auditors, contractors and others involved in the management of contaminated sites.

This handbook is divided into five parts:
- Section 1 examines the development of community consultation techniques and risk communication in the context of contaminated site activities. The success of risk communication is measured by a number of key performance indicators that influence the attitudes and behaviours of those involved, including the affected community and the contaminated land practitioners. Examples throughout the handbook highlight situations where difficulties in risk communication have been encountered and how these might be overcome.
- Section 2 reviews risk communication practices in the wider context of international best practice. To assist the contaminated land practitioner through the transdisciplinary role of putting the technical aspects of risk into a more social and political context, examples of international best practice principles have been incorporated.
- Section 3 details the various state to state and state to local governments risk communication and participatory decision-making processes that are currently outlined in Australian legislation.
- Section 4 concentrates on Australian case studies that illustrate both good and poor outcomes for community engagement. These case studies highlight the complexities in public perception, the scientific and economic basis for decision making and the regulatory authority’s role in decision making. The benefits of greater participation between contaminated land practitioners and the public become both obvious and substantial.
- Section 5 presents a structural framework for involving the public in environmental decision making. The framework is a ‘route map’ for securing valued outcomes from a participatory process, the basic steps being: to form a team, establish objectives, plan, prepare, communicate and involve the public, and then evaluate and improve when necessary. This may include seeking out the assistance of professionals in communication, facilitation and conflict resolution to help you with the process.
The tools and techniques focus on a community consultation process which seeks to better inform the public, incorporate public values, build trust and reduce conflict whilst assuring cost-effective risk management. The effectiveness of the participation process often relies on the outcome of these interactions.

The key take-home messages for contaminated land practitioners in regards to community engagement are:

- risk is complex and inherently uncertain
- credibility is based on more than scientific and technical competence
- clarity is essential for effective communication
- avoiding community engagement will guarantee trouble
- do not promise more than you can deliver
- an unfair process will generate outrage
- communication is a two-way process
- resolving disputes requires a dedicated process
- validate your messages and behaviour with your own public surrogates, and
- trust and credibility are both essential.
Contaminated sites in Australia are a legacy of industrial development, military activities and mining history,¹ as well as agricultural activities. Historically, industry operated close to what are now current central business districts (CBDs). Businesses responsible for the disposal of waste on ‘non-productive’ land were not always aware of the potential harmful effects that their activities might have on human health or the environment.²

Some contaminated sites may also be the result of natural processes that produce toxic substances.³ The presence of contaminated land does not always mean there will be a risk to human health. There must first be an exposure to contaminants at a dose considered significant and through pathways of exposure to people, wildlife and the broader environment. The estimation of the potential adverse health impacts from exposure to harmful contaminants is evaluated by a risk assessment process which has become standard practice in contaminated land management.⁴

Although communities were historically disengaged from the risk assessment process, public consultation is now increasingly intertwined in the design of risk assessments, to ensure that risk-informed decisions proceed effectively, efficiently and credibly. The National Research Council’s guidance on risk assessment, Science and Decisions: Advancing Risk Assessment,⁵ recommends:

‘the establishment of a formal process for stakeholder (including impacted communities and less advantaged stakeholders) involvement in the risk assessment framework that allows for balanced participation of stakeholders in the risk-based decision making process.’

It is widely acknowledged that people need to be involved in the environmental decisions that may affect their amenity or livelihood. Yet there are wide-ranging views on what form that participation should take. In practice there is no ‘one size fits all’ that can be applied to all situations. There are some accepted general principles, but also a wide recognition for a flexibility of process that suits the specific circumstances.

Historically, ill-informed communication was founded on a view that technical data alone revealed ‘real risk’, and that the public perceived risk inaccurately. Yet risk is complex and inherently uncertain, and managing and communicating uncertainty is a substantive challenge for the contaminated land practitioner. Furthermore, discussions about the significance of a risk inevitably invoke debate about values – the priorities for preventing harm and the acceptability of various options for risk management.

Contaminated land practitioners should validate major concepts or messages intended for community engagement first with non-technical associates, who can be trusted to give frank feedback. This kind of feedback, provided without the additional tension that may exist during community engagement, should help sensitise practitioners to valid concerns. Acknowledging a number of perspectives means sometimes imagining yourself, family members or your peers living in the same situation.

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¹ Lewis 2003
² Lewis 2003
³ Wong & Bradshaw 2002
⁴ enHealth 2004
⁵ NRC 2008
In a democratic society, there will be diverging views about the merits and risk of many activities. Prompted by the public desire for inclusion in decisions about change of land use, the principles of community consultation are now well established in Australia.

Community engagement encompasses multiple and possibly conflicting goals in which the answers to even the most basic questions are not straightforward. Some confusion and complexity can be attributed to the way information is organised, interpreted and communicated, and its significance assessed. Recognising this is an important requirement for risk assessment professionals preparing technical reports.

Engagement means a commitment that allows the inputs from the engaged community to shape the directions of the project. Therefore, a well structured guide in risk communication for land contamination projects is desirable.

The communication process involves the selection and use of practical tools, techniques and guidance that supports decision-makers and regulators in community consultation. These practical tools are intended to facilitate understanding and approval of proposed developments within the community.

“Validate your messages and behaviour with your own public surrogates”

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*Stern & Fineberg 1996, p. 250*
1.2 Perspectives on risk

Risk is a multi-dimensional concept communicated in social, business or scientific contexts. Risk taking has an impact on the psychological, sociological, economic and political aspects of an individual’s life. For some individuals, risk taking is a ‘calculated judgement’ that may prove to be a rewarding experience; others will consciously fear taking risks.

Consider the fears about cancer risks from environmental exposure. When in contact with a known carcinogen the lay person draws their own conclusion about the risk event. These simple interpretive differences will lead to different conclusions about chemical safety. Discussions about chemicals and exposure draw on the principles of toxicology. Interpretations about exposure, dose and effect will inevitably differ from expert views on the significance of exposures. Lay audiences draw their own conclusions about risk and these differences of opinion about chemical safety are inevitable. Similarly, lay audiences typically rely on the internet for information. Here the spectrum for information for the same subject is so wide that any answer is possible.

No single universal strategy exists for changing complex human behaviour. If an individual has an allergic response to peanuts, say, the individual’s risks from contact with a peanut will appear greater than exposure to cigarette smoke. If an individual is a smoker, publicising harmful chemical exposure from smoking does not necessarily mean that the smoker will quit. Developing new behaviours is a process, not an event; and learning often requires repeated attempts to secure the desired behaviour. Simply raising awareness does not lead to long-term behavioural change. However, the more strongly a person perceives something to be risky, the more likely they are to take some action to avoid exposure.

The discrepancies between expert and public views on risk comprises multiple elements, including, at a minimum, the following expanded elements:  
- hazard – meaning a substance or situation with the potential to cause harm
- probability – meaning the likelihood that specified harm will occur for a specified scenario
- consequences – meaning the nature of harm that occurs (illness, disability, death) in a specified scenario
- time frame – meaning the duration over which the risk is quantified (immediate, short- or long-term) will influence the numerical estimate of probability (chance of harm in a day versus a lifetime)
- personal perspectives of those affected – meaning, regardless of the quantitative judgements about importance, the perspectives will differ from the same set of ‘facts’ based upon what an individual values (e.g. which is worse, death or long-term, painful disability?), and
- the vulnerable populations, i.e. the elderly, people with disabilities, and those that will protect infants and their children at all costs even if they cannot protect themselves.

Many approaches to risk communication in the past have been mistakenly directed towards getting the public to accept the risk estimates of experts. Technically orientated risk professionals have

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7 Slovic 1999 pp. 689-701  
8 MacGregor, Slovic & Malmfors 1999, p. 649-659  
9 Kaplan & Garrick 1981, pp. 11-27  
10 enHealth 2004  
11 Hrudey 2000, pp. 127-150  
12 Thomas & Hrudey 1997, p. 272  
13 Renn 1992, pp. 52-79
attempted to ‘fix’ the public’s misperception of risk rather than recognising that there are valid reasons for the differing views. Characterising different public beliefs about risk as being just ‘perception’ is guaranteed to undermine trust and mutual respect, and has the potential to create open conflict and outrage.

When people are excessively frightened or angry about a hazard, no matter how small the hazard may seem to the risk professional, telling people that the hazard is insignificant, or to ‘calm down’, becomes counterintuitive. This is because people assess risk according to a number of factors other than hazards, i.e. trust, control, voluntariness, dread and familiarity (widely known as outrage factors).\(^{14}\) The hazard component is the probability and magnitude of a bad outcome. This means that when outrage is high, the risk may seem to be very dangerous even though the technical risk or hazard is really low (risk = hazard + outrage).\(^{15}\) Similarly, increasing people’s outrage is socially valuable only if the hazard is genuinely large. One problem is that risk has so many different meanings that the concept itself poses a real communications challenge.

Starr, Langley and Taylor\(^ {16}\) conducted an Australia-wide study to assess the perceptions of risk by 2008 individuals. The study found cigarette smoking and illegal drug-taking ranked the two highest (first and second respectively) of 28 categories of risk to health. These highest ranked risks to health are considered to be lifestyle choices; a consequence of individuals taking known risks. Chemical pollution in general and contamination of soil by industry ranked seventh and fifteenth respectively in this study.

The results of Starr, Langley and Taylor’s risk perception study contrasts with other documented environmental health issues in communities scattered throughout Australia.\(^ {17,18}\) In the following example on page 5, when a group of individuals began to share perceptions about a particular event affecting their wellbeing, the dynamics of their risk perception changed.

\(^{14}\) Sandman 1993, pp. 13-41  
\(^{15}\) Sandman 1993, pp. 1-12  
\(^{16}\) Starr, Langley & Taylor 2000  
\(^{17}\) Lloyd-Smith & Bell 2003, pp.14-23  
\(^{18}\) South Australian Department of Health 2005
A regional town in South Australia\textsuperscript{19} had a significant increase in the incidence of lung cancer cases between 1999 and 2004. The community had for many years been voicing their concerns of the possibility of health effects from exposure to ‘red dust’ in the city.\textsuperscript{20} The red dust had been sourced from airborne iron oxide particles produced during the crushing and agglomeration of iron oxide ore at a nearby steel works. Emissions of the iron oxide dust occurred from conveyors, uncovered rail cars, and during vehicle movements. Citizens now fear that exposure to red dust is a contributing factor to elevated lung cancer cases within the community.\textsuperscript{21} To date, there is no clear proven causal link between lung cancer and red dust. There are no higher cancer rates in the areas of the city closer to the steel works – those areas most affected by the dust.\textsuperscript{22} However, the red dust has not been ruled out. The Department of Health has undertaken a study to investigate the possible adverse health effects from the red dust.\textsuperscript{23} The steel works is working towards reducing the level of dust emissions.

\textsuperscript{19} South Australian Department of Health 2005
\textsuperscript{20} Muriden & Parnell 2003
\textsuperscript{21} Jenkin 2007, p. 11
\textsuperscript{22} South Australian Department of Health 2005
\textsuperscript{23} South Australian Department of Health 2005

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The community’s response to exposure to contaminating activities outside of their control often heightens their perceptions of risks to health. In part, this may be fuelled by uncertainties about the extent and nature of contaminants, how exposures might occur and the performance of treatment technologies. Uncertainties arise from not knowing enough to meaningfully predict what will happen. Therefore, science tries to bring the uncertainties back into focus by collating the relevant scientific evidence to explain the estimates of risk. By addressing these uncertainties and working towards mitigating dust emissions the organisation is able to at least establish credibility within the community.

Risk is complex and inherently uncertain

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24 Russell 1999, pp.167-170
1.3 Contaminated sites and community risk perceptions

Contaminated sites are a legacy of historical land use decisions, inadequate zoning and industrialisation. The presence of abandoned landfills and industrial facilities close to residential developments may appear to the public as ‘blight’ on a changing landscape. These situations are socially undesirable, may decrease land and property values and exacerbate anxiety.

In individuals, perceptions and misperceptions of health risk may have an indirect health effect translated as stress. Heightened stress and anxiety to the point of ‘dread’ may be observed in affected groups who may feel a loss of control of their own destiny, particularly the elderly, the infirm, families with small children and the chronically ill. Depending on their familiarity with the pollutants, some may be more or less alarmed than others.

When children are involved the public response to a specific risk issue will be heightened.

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25 Petts 1994, pp.171-195
26 Heath, Bradshaw & Lee 2002, pp. 317-353
27 Slovic, Fischoff & Lichtenstein 1982, pp. 463-489
Example

More than 1500 cattle dips in regional New South Wales are contaminated with the pesticide DDT (dichloro-diphenyl-trichloroethane), metals and arsenic. During the mid 1990s, parents and staff at a nearby preschool became concerned that an active cattle dip in close proximity was a potential health risk for the staff and children attending the preschool. As a precaution, the local council closed and fenced off the dip. A formal site investigation and risk assessment was undertaken. The risk posed by the contamination was determined as too small to be quantified and the response was that an adequate management plan would be satisfactory. However, the community was not satisfied with this outcome. They continued to put pressure on the council to have the preschool relocated elsewhere. Eventually the preschool was moved to a location away from the dip site.
There are numerous uncertainties present in a risk assessment of a contaminated site. When characterising different risks, the most prudent way of handling some of these uncertainties is to take a precautionary approach. In this case, the preschool’s proximity to the dip and the physical components of risk (i.e. site erosion and the potential for leaching, public safety, psychological stress, and social uneasiness) became drivers for relocation.

When children are involved the public response to a specific risk issue will be heightened.

By recognising that the psychological needs of the community are as important as the scientific and technical risks, the experts have moved to satisfy the needs and concerns of the community.

Risk perception and the acceptance of risk also have cultural roots. The Australian indigenous communities who once feared displacement and oppression by Europeans, now encounter a European ideology of planning and resource development on their land. Mining operations produce economic benefits for some indigenous communities, but also amplify the perception of irreversible environmental harm to their country.

There will always be potential for dispute when the proponent’s objectives do not coincide with those of the affected stakeholders. For the Arabunna and Kokatha people, the issue of uranium mining at Roxby Downs and the Olympic Dam expansion (both in South Australia) presents a significant threat to their natural and cultural heritage. The Arabunna and the Kokatha people today continue their protest against the transformation of their landscape by mining operations.

Importantly, there have also been significant positive experiences of racial cooperation since the 1990s; some initiated by non-government organisations (NGOs). Whilst providing employment for its own company, Santos delivered substantial benefits to the local indigenous community in training and employment programs. Santos helped with the establishment of a camel farming enterprise, solely owned and managed by the traditional Aboriginal landowners. Sometimes, mining operations are the only viable option that remote communities have for social development.

Similarly, a partnership established between the Woorabinda people and Anglo Coal Australia Pty Ltd (Anglo) was formed in Queensland 15 years ago. The joint venture saw the development of two initiatives: the Woorabinda Shared Responsibility Agreement (SRA) and the Indigenous Training Program (ITP) at Anglo’s Dawson mine. The key factors in this partnership were recognition of the Woorabinda people’s culture, trust, respect for the traditional owners of the land and the importance of a two-way open communication process. Key initiatives included education, employment and local enterprise developments.

Notably, the diversity of culture and dialogue for indigenous communities across Australia is wide; yet the message is the same. Cultural recognition, cross-culture awareness and respect for their participation in decisions has become a way forward to resolving issues, ensuring mutual agreements for land use. Reaching a negotiated settlement, as long as both parties negotiate in good faith, is in the interest of both parties.

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31 Kinke & Renn 2002, pp. 1070-1091
32 Buzzacott 2008
33 Santos 2009
34 Industry Regional Partnerships Program 2002
Perceptions of risk to the environment and to human health are also linked to differences in gender and power. There is a notable difference in risk perception between white males and white females. Women (in general) tend to worry more about the well-being of others while men might worry less about risk taking. Women often feel more personally threatened by environmental problems than men. One reason for this is that women tend to be more community active than men, and more often familiar with environmental issues. In a risk-taking study involving 448 white participants (316 females and 132 males), males were found to have a greater acceptance of financial risk-taking, health/safety risk-taking, ethical risk-taking, recreational risk-taking and social risk-taking than women. 

In the context of race, there is also a socio-political dimension to the meaning of risk. The perception of risk for a white male is less than for non-white males. This is because white men tend to have more trust in the decision-making powers of institutions and authorities than non-white males who often have less power and control over what happens in their communities.

Any public participation program involving the characterisation and management of risk to suit a specific issue needs careful planning. Community engagement is the first step in better understanding the public’s underlying issues, values and concerns. All are relevant in developing a good risk communication plan. Skipping this step may lead to adoption of inappropriate communication methods and for different messages than intended.

Trust and credibility are both essential.
People who live near major industry may often be from lower income groups, are more likely to be members of racial minorities and more likely to experience more polluting incidents than people who live further away. Despite this, most individuals have a clear sense of place in their community and recognise the importance of cooperation and collaboration within it. Yet communities living in close vicinity to contaminated sites and major industries are sometimes harshly criticised for lobbying against change and for promoting their own interests. This said, neighbourhoods are entitled to legitimately question the performance of technology of the past and the unfamiliar technology of today.

Risk is communicated through numerous channels ranging from media reports to public meetings, and frequently still adopts a ‘top-down’ technocratic approach. When the expert attempts to inform the public about ‘the facts’ the decision to deal with those facts becomes unilateral. Frequently this promotes a growing distrust of the expert. The use of the top-down technocratic approach to risk communication may severely undermine trust.

most individuals have a clear sense of place in their community and recognise the importance of cooperation and collaboration within it.”

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41 Sandman 1994a, pp. 256-260
42 Lloyd-Smith 2002, pp. 131-150
A cast-metals foundry has been in operation for 70 years. The foundry is situated close to an expanding residential area. The foundry’s visual impact, noise, dust and odours emitted over the years have had a negative impact on the local community. Unsubstantiated adverse community health claims of cancer, asthma and breathing problems are perceived to be a direct result of the foundry’s operation.43 No constructive communication between the foundry owner and the community has taken place for many years. The affected community and the local government assumed that, one day, the foundry would relocate to one of the new state-funded industrial precincts in a non-residential area.

Contrary to the community’s expectations, the foundry proposes to increase production and in February 2007 announced an upgrade and expansion of its on-site facilities.44 The operator’s proposal included an aesthetically pleasing makeover of the existing buildings, landscaped gardens, noise abatement mounds and the best available technology to reduce air emissions. Risk management was sufficiently covered in a public environmental report (PER).45

On the basis of sustainability and local planning the local government rejected the development application. In the Mayor’s opinion:

‘it makes economic, political, social and environmental sense to relocate now not in five or ten years’ time’.46

The state government reviewed the development proposal and subject to EPA legislative conditions, approved the expansion. There is now a stand-off between the foundry owners, the local community, local government and the state government.

Example

43 Ellis 2007
44 Bradken 2007
45 Primary Industries and Resources SA 2007
46 Johanson 2008
Arguably, because the perceptions of risk to health from an earlier period were treated with disregard by the foundry operators, the announcement of the new ‘green’ expansion was not going to eliminate controversy surrounding that risk, nor build trust. It is highly unlikely that these industries with historical pollution controversies are going to be trusted by the community.

Acknowledging the community outrage from past practices and being accountable for past pollution incidences should be the industry operator’s first response. As a second point, engaging the community to assist with refining risk management options for the proposed expansion and committing to open, honest and fair long-term relationships is best practice advice. One response would be for the industry to have its own community liaison group, and engage a consultant to facilitate its discussions.

“Avoiding community engagement will guarantee trouble”
What can send mixed messages to the community are the apparent conflicting interests presented by different tiers of government as they seek to balance the risks and benefits of their respective decisions.

If unrealistic promises are made to the public, the chance of failure to deliver on those promises is a sure way of losing trust. Other sources of distrust include:

- disagreements among experts
- lack of coordination among risk management organisations
- insensitivity to the requirements for effective communication, public participation, dialogue and community outreach
- mismanagement and neglect, and
- a history of frequent distortion and secrecy.

The best intention of all agencies is to deliver information that is transparent and honest. That said, providing information alone does not constitute public participation unless there is a reciprocal communication channel. Effective public participation involves the exchange of views and opinions, mutual understanding and a commitment to transparency by all parties.

Susskind and Field describe in their work a ‘mutual gains approach’ to risk communication. The approach has been used to effectively resolve disputes and is based on six basic principles:

1. Acknowledge the concerns of the other side.
2. Encourage joint fact finding.
3. Offer contingent commitments to minimise impacts if they do occur, and promise to compensate knowable but unintended impacts.
4. Accept responsibility, admit mistakes, and share power.
5. Act in a trustworthy fashion at all times – remember trust is hard to gain and easily lost.
6. Focus on building long-term relationships.

Community engagement and risk communication is a process that develops from a need to assure that those most affected by the decision making process will be looked after.
“Do not promise more than you can deliver”
1.5 Environmental justice

Environmental justice is generally concerned with addressing inequitable environmental burdens borne by racial minorities, residents of economically disadvantaged areas, or residents of developing nations. Central to the environmental justice agenda has been the significance of community participation, the protection of human health and the environment, and informing and educating communities.50 At the grass roots level, it has been exemplified in the “Save Tasmania’s Franklin River” campaign in 1983, coordinated by the Tasmanian Wilderness Society (TWS) for the protection of the Tasmanian wilderness.51 Over 1200 protestors were arrested during the blockade. The tenets of environmental justice were formally recognised in the 1989 Statement on the Environment report which committed Australia to nationwide activities on ecologically sustainable development.52

“An unfair process will generate outrage”

50 Schlosberg 2007, pp. 3-11
51 Lines 2009
52 Hawke 1987
1.6 Project planning and public participation

The role of risk communication for decisions on contaminated land usually falls to the risk manager or proponent, whose expertise is more likely to be technical. Yet in such a diverse society, risk communication may have to address a vast number of individual perceptions such as perceived social and environmental injustice, social history, low income, and health and safety issues which may have an impact on the proposed project. The process of communicating risk to the public can therefore be daunting. There must be an expansion from the technical and scientific issues to encompass relevant social and potential pollution and amenity issues and their effective management.

Reasonable and effective public processes cannot expect unanimity, but it is equally certain that conflict will arise if decisions are made and imposed on parties who reasonably consider themselves to be directly affected.

In order to gain a better understanding of the nature and significance of the likely impact the proposal may have on the affected public, there are categories of development that necessitate public consultation.

Public involvement should occur:
- at the pre-assessment phase – focusing on the initial framing of the problem
- during the appraisal stage – focusing on discussion and debate that contributes to knowledge
- during risk characterisation and evaluation – focusing on guidelines or available prescriptive legislation to judge the acceptability of risks under consideration, and
- during the selection and implementation of risk management measures with potential for the development of new guidelines.

The level of involvement may differ for each project and so too will community expectations. At a minimum, public involvement must provide an opportunity for those directly affected by a proposal to express views on the perceived environmental and social impacts that may result from such a proposal.

"Effective communication must be a two way process"

Look...you're going to love this!
1.7 Engaging the community in risk-based decision making

Technical feasibility, sustainable development, cost-effectiveness and regulatory requirements are key factors that drive the remediation selection process. The application of contaminated land remediation technology is complex, and terminology such as natural attenuation, reactive barriers, in situ remediation, containment and soil vapour extraction will require facilitated learning among stakeholders less familiar with the technological processes.

As the decision-making process proceeds, each step may present a new set of predicaments that require discussion and trade-offs. The implementation of mitigation controls that fail to meet community aspirations may cause disillusionment, leaving the community feeling disempowered. Adverse social impact may be detrimental to a project outcome if public debate is not resolved.

In practice, the responsibility for choice of development and use of sustainable technology lies with the landowner/developer, the regulator and the service provider. The final decision will be a balance between economics and protecting the environment without disadvantaging the community.\textsuperscript{53}

The nature and magnitude of risk communication is dependent on site-specific conditions and the circumstances under which a proposal requires approval. The scope and need for community participation will differ from project to project with each situation being managed to a point where the process will develop its own dynamics.

"Credibility is based on more than scientific and technical competence"

\textsuperscript{53} Scotland and Northern Ireland Forum for Environmental Research 1999
Example

Consider a community’s assumption that ‘foul smells’ disrupt their quality of life and cause disease. Malodours emitted from on-site activities will bring forth numerous complaints from the residential locations affected by odour. No amount of persuasion will convince someone that a bad smell is good or that bad smells can be totally eliminated by one odour mitigation strategy.

Studies have shown that air containing a mixture of non-irritating odours and other non-odorous pollutants (e.g. moulds, carbon monoxide etc.) can trigger health symptoms such as an allergic response or asthma attack that may impair a person’s quality of life. Unpleasant odours can create mood impairment and stress which has been associated with cardiovascular morbidity and respiratory symptoms.54

54 Schiffman & Williams 2005, pp. 129-138
Two recurrent problematic issues are noise and dust. Amenity issues (eg dust, odour, noise, traffic) understandably cause a great deal of angst, and are difficult to measure (and therefore to set standards against which emissions/activity levels can be compared). A facility emitting such ‘nuisances’ will indeed generate problems in the community, and potentially a legacy of poor on-going relationships between the company and the local community if not addressed at the outset.

“Resolving disputes requires a dedicated process”
Section 2 – International best practice

2.1 Introduction

Internationally recognised standards and principles of good practice for managing contaminated sites now incorporate risk communication practices. Many are integrated into law and policy. Contaminated land professionals are aware of the need for better communication in technical matters; the primary obligation is to ensure that those critical facts are understood.

2.2 Best practice

The description of best practice is the continual development and review of standards which seek out, emulate and measure business performance against global best standards.55 Best practice guides are used as a benchmark by government agencies, owner/developers, consultants and other stakeholders. In risk communication, best practice principles are used to promote partnership and initiatives at the local level. Risk communication builds bridges between the affected parties, the regulators and business. It plays a vital role in terms of institutional reputation and trust.

2.3 Risk communication for contaminated sites in the international arena

The application of a risk-based approach to managing contaminated sites is common in many countries throughout the world including the United Kingdom (UK), Europe, the United States of America (USA), Canada, Australia and New Zealand. The responsible authorities in each country have established guidelines to assist contaminated land consultants and auditors carry out the analytical field work, laboratory testing, data processing, predictive modelling and site remediation plan. A community consultation plan is often incorporated into these criteria, but the implementation of the consultation process for risk-based decision making may differ. This section examines the shared characteristics of risk communication in the international context.

2.3.1 United States of America (USA)

In the USA, state regulatory authorities are the focus of brownfield site clean-up decisions. Section 624 of the Risk Assessment Act of 1997 requires that ‘agencies provide appropriate opportunity for public comment and participation during the development of a risk assessment’. When the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA),56 also known as ‘Superfund’, was enacted, the evaluation criteria for contaminated land remediation were:

- overall protection of human health and the environment
- compliance with applicable or relevant and appropriate requirements
- long-term effectiveness and permanence
- reduction of toxicity, mobility, or volume through treatment
- short-term effectiveness
- ‘implementability’
- cost
- state acceptance, and
- community acceptance.

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55 Seeger 2006, pp. 232-234
56 Superfund 2009
Community acceptance is measured by the public’s response to a proposed plan. However, CERCLA does not include transparency and trade-offs in its evaluation criteria. One criticism of CERCLA is that the practical decision-making process is considered to be driven more by the risk of litigation, rather than environmental risk.67

The United States Environmental Protection Agency (US EPA) is the federal agency with regulatory jurisdiction over contaminated sites (also known as brownfield land). By 2011 the US EPA plans to assess over 40,000 hazardous waste sites across the country.58 The goal for development of the hazardous sites is to clean up rather than assess risk directly. The US EPA pledges to address environmental justice concerns and provide equal opportunity for public participation in the clean-up decisions.

Brownfield redevelopments require a comprehensive approach that protects the health and quality of life of persons working or living on or near brownfield properties. Through its brownfield pilot initiative, the US EPA has learned that public participation is a critical factor in land reuse success.59

Numerous organisations in the USA promote and facilitate public participation in the remediation of federal facilities, private ‘Superfund’ sites and brownfield. The Center for Public Environmental Oversight (CPEO) is one organisation with its roots in community activism.60 It is part-funded by the US EPA to assist affected communities make key decisions on whether, how, and when to clean up.61 CPEO’s work ethics are based on:

- empowerment
- justice
- education
- communications
- partnership, and
- credibility.

Workshops and community advisory committees are two other forms of public participation in the USA. Workshops involve citizens in the task-orientated process of discussion, clarification, learning and decision making. Members of site-specific citizen advisory committees consist of citizens from the affected community, stakeholders, environmental regulators and other interested parties.

Risk communication has emerged as a core competency of the Agency for Toxic Substances and Disease Registry (ATSDR), created by US Congress in 1980. The main role of ATSDR is to advise the US EPA, other regulatory agencies across America and the public on health impacts from contaminated sites. ATSDR has initiated a broad range of communication strategies and interventions to help communities deal with these health concerns.

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57 Man 1997, p.375
58 US Environmental Protection Agency 2006
59 US Environmental Protection Agency 2002
60 Centre for Public Environmental Oversight 2009
61 Siegel 1998
Example

Residents in south-western Virginia were concerned with children eating contaminated fish from a river polluted with mercury, tributyltin and polychlorinated biphenyls (PCBs). Exposure to the low levels of contaminants did not pose a risk to human health. However, other chemical concentrations had not been tested, so fishing was banned. ATSDR participated in community meetings that served as forums for ongoing and planned activities at the river. Updated information was placed on the ATSDR website. With the help of the community, ATSDR developed an educational program to teach children not to eat fish from the river.

62 Agency for Toxic Substances and Disease Registry 2009
Social trust is one of the most valued assets an organisation can secure. It means the organisation is judged to have credibility. Trust is often seen as something that is eagerly sought in risk management, and its importance in shaping disputes and their resolution cannot be underestimated. If a community can trust someone else to analyse a complex problem and accept their judgement, then one has reduced the complexity of dealing with that problem.63

At the municipal level the National Association of Local Government Environmental Professionals (NALGEP) is a not-for-profit organisation that assists local communities prioritise and facilitate contaminated site redevelopment.64 Financial incentives have been created to encourage business participation in the redevelopment of contaminated sites for urban regeneration. These incentives are direct and indirect, and operate through grants, loans, tax credits, loan guarantees and tax relief. They facilitate voluntary clean-up of contaminated land for developer-specific projects, specifically for contaminated site redevelopment and public housing. Public consultation and involvement is an important component of contaminated site development in the US and a requirement for the disbursement of federal grant funds. In order to gain access to the federal funds many states have entered into a Memorandum of Understanding with the US EPA.

However, there is no one agency in the federal and state governments that controls contaminated site redevelopment in America. In the city of Los Angeles the contaminated sites redevelopment team consists of the community redevelopment agency (CRA), the environmental affairs department (EAD), the Mayor’s office of economic development (CRA), the community development department (CDD), city council officers and other agencies as needed.65 The one advantage of having so many agencies is the greater access to financial resources.

Los Angeles is one of 16 nationwide EPA brownfield showcase communities. Showcase communities have three main goals:

- to promote environmental protection, economic redevelopment and community revitalisation through the assessment, clean-up and sustainable reuse of brownfields
- to link federal, state, local and non-governmental action supporting community efforts to restore and reuse brownfields, and
- to develop national models demonstrating the positive results of public and private collaboration addressing brownfield challenges.

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63 Earle & Overtovich 1995, p. 221
64 National Association of Local Government Environmental Professionals 2009
65 US Environmental Protection Agency 2000
2.3.2 Canada

Relevant policies for contaminated land redevelopment in Canada exist at the federal and provincial level. The *Brownfields Statute Law Amendment Act, 2001*, encourages municipalities to engage in contaminated site redevelopment by offering financial assistance for community improvement schemes under Section 28 of the Planning Act.\(^{66}\) Community consultation is a legislative requirement at the planning and development stage of the Environment Assessment Process (EAP).

The Canadian Council of Ministers of the Environment (CCME) comprises environment ministers from the federal, provincial and territorial governments that work on environmental issues of national and international concern.\(^{67}\) As a model for negotiation, CCME uses consensus decision making (CDM) which promotes the resolution of an issue most likely to satisfy social, economic and political priorities. CDM by definition:

- looks beyond people’s positions to understand their interests
- invents options for mutual gain – what is fair versus what is best for each, or for all
- uses objective criteria to assess options, and
- builds sound solutions.

Ontario’s land use guidelines for federal site clean-up are operated in the Province by project proponents and qualified environmental consultants, rather than government.\(^{68}\) The land use guidelines for risk-based decision making recommends public consultation early in the contaminated land restoration process and throughout the period of site activity. Public participation for risk communication is limited to larger projects on public owned land.\(^{69}\) The redevelopment of federally owned sites (some of which may be contaminated) is usually managed by the Canada Lands Company (CLC).\(^{70}\)

The purpose of the CLC is to represent a cross-section of community views, concerns and ideas on project plans and activities and to ensure a two-way communication process between the project leaders and communities. The interface between the CLC, the agency and the general public must be a two-way communication process which includes information sharing, community outreach and reporting community feedback to the agency. Community consultation is encouraged during the design, implementation and monitoring phase.

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\(^{66}\) Environment Canada 2009

\(^{67}\) Canadian Council of Ministers of the Environment 2001

\(^{68}\) Environment Canada 2002 (TAB #25)

\(^{69}\) Environment Canada 2002 (TAB #12)

\(^{70}\) Canada Lands Company 2009
2.3.3 United Kingdom (UK)

In the UK most land redevelopment is planning-led. Financial incentives help stimulate contaminated site redevelopment and promote sustainable land use. The Environment Act (1990, Part IIA)\(^{71}\) adopts a risk-based approach for contaminated land management that seeks to ensure protection of human health and ecological systems, for which the local authorities are the primary regulator.

In some local governments working groups are formed to work through issues that may arise as a result of work on contaminated land. Implementation of Part IIA is overseen by the local authorities, with the environment agencies having responsibility for so-called 'special sites'. Typical local authority working groups consist of officers from sections including:

- environmental health
- development control
- planning policy
- legal
- property services
- information technology
- economic regeneration, and
- building control.

There is a growing recognition of participatory decision-making on issues of contaminated land and progress, i.e. local authorities have learned how to work closely with citizen groups.

\(^{71}\) UK Environment Agency 2002
Example

A forum for residents was set up to assist with the assessment and remediation of a former landfill site which might have been linked to two adverse health effects in the community. The residents’ forum was given the power to select the consultants and provide input to the development of conceptual site models and risk assessment. The joint approach including the Health Protection Agency, the Primary Care Trust, doctors and the media became a collaborative process that led to the remediation of the site to the satisfaction of the residents.
SNIFFER, the Scotland and Northern Ireland Forum for Environmental Research, has published (and is currently revising) a step-by-step best practice risk communication booklet for contaminated site redevelopment. The SNIFFER booklet is available for use by developers, private industry professionals, local authorities and the environmental regulators.

2.3.4 Europe

The European Union (EU) has funded several collaborative research and policy networks on contaminated site management through their framework programs for research and development. NICOLE (Network for Industrially Contaminated Land in Europe) is an organisation that aims to bring together professionals involved in the management of land and water contamination in the member states of the EU. NICOLE provides practical guidance on risk communication in the context of sustainable land management. The NICOLE handbook provides case studies from industrial and service providers, and highlights cultural differences, respect, empathy, proactive risk communication and trustworthiness as basic communication principles.

2.4 Insights into international success and failure in risk communication

There are notable variations in community dialogue with regard to risk communication for contaminated sites. Some of these can be attributed to cultural and political conventions. Europe recognises community dialogue as an essential component in balancing risk with public confidence.

In some countries a degree of regulation is considered necessary to ensure dialogue takes place. The USA mandatory requirement for community consultation is established in codes and standards of practice. One of its fundamental guiding principles for good practice is that consultation should be with the affected community at the project formulation, implementation and evaluation stages.

2.4.1 The siting of a lower-level radioactive waste (LLW) facility

One area where there has been extensive application of public engagement has been in the siting of radioactive waste disposal facilities.
Example

Two potential sites for a LLW repository in a county of New York were identified by the New York State Energy Research and Development Authority and the Siting Commission using the controversial top-down “technocratic” approach. Preconceived ideal locations for the LLW site were announced to the public during the mandatory community meeting. During the meeting the public questioned the wisdom of the decision makers; it appears that the public were more aware of the characteristics of the proposed sites than the authority. The public opposed the proposed siting of the facility. Health and safety, transportation and waste storage issues were raised by the public. These issues were not adequately addressed by the authority.

The objection to the siting of the LLW resulted in the community rallying together to form a number of citizen blockades that prevented site access for sample collection and analysis. The conflict resulted in the termination of the proposed project. Four key factors thought to have contributed to the project failure were:

- the failure to engage the public from the start
- the characteristic of nuclear materials and the ambiguity of harm
- community culture and distrust towards the relevant authorities, and
- the ‘make, announce and defend’ siting process.

75 Freudenburg 2004, pp. 153-169
When policy is used as a form of tokenism and not translated in practice then the guiding principles of community engagement become ineffectual. In contrast to the US situation, the successful outcome for the siting of a radioactive waste repository in Sweden\(^7\) was highlighted by four key factors:

- open public consultation
- widespread and reciprocated public trust for the government and industry
- flexible democratic institutions to efficiently channel opinion, and
- accepting only Swedish spent fuel.

Sweden focused on understanding the legal and licensing issues, as well as the decision process and public point of view. The location of the site was based on voluntary participation and the feasibility studies had taken place at the municipality level. Site selection was evaluated with respect to transparency. The Swedish best practice model, the so-called ‘Oskarshamn model’,\(^7\) uses best practice principles in the decision making process that incorporate:

- openness and participation
- the EIA (economic impact assessment) (the legal framework)
- the municipality council (the local client)
- the public (a resource)
- the environmental groups (a resource), and
- the regulatory authorities (the experts).

### 2.4.2 Nuclear power plant decommissioning projects

Three detailed reviews of public participation in the decommissioning process of nuclear power plants (Greifswald in Germany, Vandellós in Spain and Trawsfynydd in the UK) highlight a number of good practices in the EIA process that should be considered for all future contaminated land redevelopments.\(^7\) The key factors in the EIA process for ‘success’ were deemed to be:

- the value placed on public participation and the authorities acceptance of this
- the integration of public participation to comment on the scope of the EIA
- the decision making role of the public in the development of the decommissioning proposal
- transparency in the decision making process, and
- the provision of sufficient information to the public to facilitate participation.

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\(^{75}\) Andersson et al. 1999  
\(^{77}\) Sjöberg 2004, pp. 737-749  
\(^{78}\) Bond, Palerm & Haigh 2004, pp. 617–641
2.4.3 The role of community advisory boards

Public participation can be an arduous and time-consuming process. Therefore, some public authorities in the United States rely on community advisory boards (CABs) to facilitate public participation. CABs typically comprise 10–15 stakeholders whose task it is to inform and consult with local communities concerning monitoring and clean-up decisions. The advisory committee examines the issues, and provides a two-way communication channel between the proponent, regulators and affected citizens.79

2.4.4 Risk communication at the local level

Best practice risk communication at the national and state/provincial level may not be translated to the local municipality level, especially when the development does not include an EIA. Inappropriate risk management of contaminated land at the local government level may present complex problems in the future.

79 Chess & Purcell 1999, pp. 2685-2692
Example

Consider the UK approach used by a local authority (Council A) to inform the community of a contaminated site issue. The authority decided to use what they interpreted to be the ‘open communication approach’. Rather than proactively engage with the affected community, the authority decided to inform both the residents and the wider community via a press release. In the past the local council would not have been this transparent with contaminated site issues.  

During a public meeting some weeks later, the public expressed outrage at the council for publishing in the local press. In response the local authority’s reaction was to refuse the release of further information, unless formally requested. The council blamed the media for alarmist reporting. 

In contrast, a second council (Council B), having considerable experience with contaminated site issues, pursued a more open style of risk communication. On one occasion when bank mortgages to residents of a housing estate were refused because of assumptions that the homes were built on a contaminated site, the council actively intervened. At all times the council was up-front and transparent, taking time to listen to the community’s concerns.

At face value the comparisons between the two councils are distinct. Council A was distant, reluctant to share information and engaged in one-way communication. Council B was proactive, engaged in dialogue with the residents and supportive. Yet the results of an attitudinal survey by the residents indicated a high level of dissatisfaction for both their respective councils. The perceived manner of communication (attitude of some staff members) and the community’s perceptions of risk were highlighted by the community as two key issues for concern.

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80 Eiser et al. 2007, pp. 150-156
The example on page 32 serves to illustrate that listening and communicating isn’t always enough. Local authorities in the UK have been criticised by the public for failing to seriously consider citizen input in the past, and even the best planned communication strategies can have little impact if staff within the organisation are not confident with the communication process or do not support it.81

In a subsequent study undertaken in the UK, a number of local authorities were interviewed regarding their role in the risk communication process.82 They were asked if public participation brought about change in the outcome of an issue. One-third of those interviewed believed public participation had a significant influence in the outcome, whilst others failed to link consultation with the decision-making process.

A similar risk communication study in Sweden (2005) highlights the disparity in risk communication practices at the municipal level.83

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81 Lowndes, Pratchett & Stoker 2001b
82 Lowndes, Pratchett & Stoker 2001a
83 Wiseen & Wester-Herber 2007, pp.173-182

“Clarity is essential for effective communication”
Example

A risk communication study was used to evaluate the interaction between three municipalities, five consultancies and local communities on contaminated land issues in Sweden. All municipalities were familiar with contaminated sites within their jurisdiction and all companies had been involved in contaminated land remediation projects.

Of those interviewed all had considered risk communication an important issue relevant to their activities. However, not one had attempted to plan or set strategies for communicating risk in relation to contaminated land issues. The practice of risk communication, although written into policy, was only applied on an ad-hoc basis. Responsibility for community consultation fell to the local council’s environment officer or the company’s project manager. Information booklets and guidelines for effective risk communication through NICOLE were accessible on the website. However, risk communication at the municipal level was not a high priority.

Community consultation was instead viewed as a short-term means of getting the project accepted, or ‘to calm the public down’. Community engagement was usually avoided. Information was a one-way process usually via printed brochures, or posted on the website. Some consultants and municipalities briefed the local media and organised ‘open houses’. One municipality had a purpose-built letter box for public query on current local contamination issues.

Efforts to communicate to the public depended on:

- the extent of remediation – the larger the project, the greater the resources on communication efforts
- the location of the contaminated site to populated areas
- the attractiveness of the area for future redevelopment, and
- sites that generated substantial media attention and public debate compared to low media attention and little or no public opinion.
3.1 Perspectives on community engagement

In Australia there is an obligation that the community be informed of a contaminated site redevelopment and be given adequate time to respond to a development application. However, there is no agreement on how to ascertain the opinions of the public so they can be reliably used as the basis for risk characterisation.

Common steps in redeveloping a contaminated site may involve the excavation of the contaminated matter, the relocation/remediation of the contaminants, the rehabilitation of the land, and the cost and time associated with planning, approvals and public consultation. Depending on the size and extent of remediation, most environmental consultants undertake some form of community consultation for the developer/proponent. The success of public participation is usually measured by a number of performance indicators that influence the attitudes and behaviour of staff, contractors and subcontractors involved in the remediation program.

The multinational mining companies operating in Australia believe their standards extend beyond regulatory requirements and represent best practice. Compilations of case studies dealing with the mining industry’s practices in Australia and New Zealand that focus on community consultation are available. Numerous organisations who promote community consultation regard it to be at a level comparable to global best practice standards.

3.2 Legislation

The terminology ‘brownfield’ when describing contaminated land in Australia is not generally used. The contaminated site is instead defined in the NEPC as:

‘the condition of land or water where any chemical substance or waste has been added at above background level and represents, or potentially represents, an adverse health or environmental impact’.

Information relating to site contamination legislation, policy and practices at the national and state levels is in the process of development. Updates in each state can be accessed via the Contaminated Sites Law and Policy Directory website. This provides up-to-date information for industry, government policy makers, professional advisors, the interested public and academics.

3.2.1 National

At the national level, there are two Ministerial Councils directly concerned with environmental protection. Both Councils have overlapping membership and meet simultaneously – one has ‘normal’ ministerial council facilitation and policy development roles, and the other has a statutory basis.

The objective of the Environment Protection and Heritage Council (EPHC) is to ensure the protection of the environment and heritage of Australia and New Zealand.
The National Environment Protection Council (NEPC) is a statutory body with law making powers established under the National Environment Protection Council Act 1994 (Commonwealth), and corresponding legislation in other Australian jurisdictions. The primary functions of NEPC are to:

- make National Environment Protection Measures (NEPMs), and
- assess and report on the implementation and effectiveness of NEPMs in participating jurisdictions.

NEPMs are designed to foster harmonised approaches to environmental protection throughout Australia. NEPMs may comprise a combination of goals, standards, guidelines and protocols, and have a similar legal basis to that of statutory Environment Protection Policies.

EPHC comprises ministers for the environment from the Commonwealth, states and territories, New Zealand and Papua New Guinea. NEPC comprises ministers from Australian jurisdictions (Commonwealth, states and territories). EPHC and NEPC meet simultaneously, as the membership from Australian jurisdictions is the same for both.

The Assessment of Site Contamination NEPM provides the basis for a nationally-consistent approach to the assessment of site contamination to ensure sound practices by regulators, site assessors, contaminated land auditors, land owners, developers and industry.

Information on community guidance for contaminated land issues in Australia is provided in the Assessment of Site Contamination NEPM at Schedule B(8) Guideline on Community Consultation and Risk Communication. In this guideline the process of community engagement and risk communication in relation to assessment of site contamination is compatible with the international best practice model developed by the International Association for Public Participation (IAP2), a not-for-profit organisation that has developed a public participation toolkit on information sharing, feedback and group cohesiveness.

At the federal and state/territory level the environment and public health sectors are represented by the National Public Health Partnership (NPHP). The partnership incorporates representatives from the Australian Institute of Environmental Health. The enHealth Committee, a subcommittee of the NPHP, focuses on public and environmental health issues. The enHealth Committee and its predecessors have issued four publications that incorporate risk assessment, community consultation and risk communication in an Australian conceptual framework. The enHealth publication Responding to Environmental Health Incidents, Community Involvement Handbook contains information relevant to environmental health practitioners addressing community exposure to hazardous materials. Contained within the handbook are retrospective case studies that highlight how organisations respond to environmental health incidents. These publications are designed for use by regulatory authorities, and state and local government organisations.

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88 NEPC 1999
89 IAP2 International 1990
90 enHealth 2001
91 enHealth 2003
92 enHealth 2004
93 enHealth 2006
3.2.2 New South Wales (NSW)

At present the principal legislation for NSW is the *Contaminated Land Management Act 1997*.\(^{94}\) Section 105, (2) (a)-(d) allows the public opportunity to make comment on the guidelines.

A community consultation paper titled *Ideas for Community Consultation: A discussion on principles and procedures for making consultation work* is available from the NSW Department of Urban Affairs and Planning.\(^{95}\) This focuses on principles and practices for community consultation. It is not specific to contaminated land issues.

3.2.3 Western Australia (WA)

The legislation for Western Australia (WA) is the *Contaminated Sites Act 2003*.\(^{96}\) A community consultation guidance document for contaminated sites is provided by the Department of Environment and Conservation (DEC) in WA. The document is a guide for consultants, local government authorities, industry and other interested parties in the community consultation process for contaminated land issues. The guideline provides limited information on the consultation technique. DEC refers to two other detailed information documents – the *Community Involvement Framework* and the *Interim Industry Guide to Community Involvement Review*.\(^{97,98}\) These publications contain key facilitation techniques and sample worksheets for use in the communication process.

The facilitation toolkit booklet *A Practical Guide for Working More Effectively with People and Groups*\(^{99}\) was published by the then Department of Environmental Protection, Water and Rivers Commission and the Department of Conservation and Land Management in 2003. This practical guidance booklet is an excellent information source for staff use in what is now the Department of Environment and Conservation.

3.2.4 Queensland

The principal legislation for Queensland is the *Environmental Protection Act 1994*.\(^{100}\) The public consultation policy and guidelines, *Engaging Queenslanders: Get Involved*,\(^{101}\) recognises the importance of effective communication. This refers to best practice and capacity building, but makes no mention of the community consultation process for contaminated sites. The general public has no formal role in the contaminated sites clean-up process but can search the contaminated land register (CLR) to obtain copies of any site management plan.

A range of toolkits are available for practitioners to support urban, rural and regional communities in problem solving techniques in general. An online training program titled *Engaging Queenslanders: Managing Community Engagement*\(^{102}\) is available for government staff use. The Queensland Government website makes no mention of contaminated site community consultation processes.

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\(^{94}\) *Contaminated Land Management Act 1997*

\(^{95}\) Carson & Gelber 2001

\(^{96}\) Western Australia Contaminated Sites Act 2003

\(^{97}\) WA Government 2003a

\(^{98}\) WA Government 2003b

\(^{99}\) Keating et al. 2003

\(^{100}\) *Qld Environmental Protection Act 1994*

\(^{101}\) Queensland Government 2009

\(^{102}\) Queensland Government 2004
3.2.5 Victoria

The principal legislation for Victoria currently is the *Environment Protection Act 1970*. Under the EPA enforcement policy, the voluntary environmental improvement plan (EIP) makes provision for community participation and evaluation to meet the objectives of a contaminated site development plan. The EPA have produced two useful publications that focus on the best practice framework for establishing a community consultation program. \(^{104,105}\)

EPA Victoria has a specialist Community and Stakeholder Engagement Unit (CSEU). Their role is to help EPA people, industry, community and stakeholders understand and value the importance of strong relationships, and apply effective engagement processes and activities. EPA Victoria believes:

“The practice of relationships is an essential part of a modern regulatory authority.

EPA recognises that better environment outcomes are achieved through strong relationships with industry, stakeholders and the community.”

EPA Victoria’s CSEU provides engagement advice to industry clients. The EPA website (www.epa.vic.gov.au) also provides engagement tools and resources that can be accessed by industry and the public. Some of these include:

- a planning process for community engagement
- some examples of engagement
- *Ten Steps to Successful Community/Industry Consultation* (publication 520)
- *Guidelines for the Preparation of Environment Improvement Plans* (publication 739)
- *Guidelines for Running Community Liaison Committees* (publication 740)

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\(^{103}\) Victoria Environment Protection Act 1970

\(^{104}\) EPA Victoria 2001

\(^{105}\) EPA Victoria 1996
Example

Remediation of a former gasworks site in Ararat was undertaken from 2004 to 2008, involving processing contaminated soils from past practices. This occurred on a site which was located in the township of Ararat and had many residents close by. During remediation residents endured significant odour, dust and noise issues, plus many time delays due to mishaps with the process.

Initially the engagement approach was not well planned. However, a couple of years into the process EPA, recognising the community and council concerns, commenced a considered community engagement process. This initially involved one-on-one and focus group meetings to build shared understanding between the parties of their respective concerns and limitations. Communication continued through monthly email updates and letters. Once communication became more free-flowing, EPA learnt that by keeping people informed and involved about the progress of the remediation, community outrage dissipated.
The urban development agency of the Victorian government, VicUrban, is one of the state’s largest residential land developers. The remediation of state-owned contaminated sites, risk management and the community consultation program are usually managed by VicUrban.

A number of community engagement publications, on-line information and electronic engagement plans are accessible from local government and state government websites. These publications refer to best practice principles for community consultation. Some include tools for assisting in the planning, implementation and evaluation of community engagement activities which will benefit facilitators of projects involving the community and other stakeholders. None are contaminated-site-specific.

3.2.6 Tasmania

The principal legislation for Tasmania is the Environmental Management and Pollution Control Amendment (Contaminated Sites) Act (EMPCAA) 2007. The legislation is incorporated into the Environmental Management and Pollution Control Act 1994. Part 5A, Sec 4; (2)(c) states that in determining the best practice environmental management of an activity, regard to public consultation must be carried out by the proponent. To assist in best practice management of land and groundwater contamination Tasmania refers to the NEPM and enHealth publications.

3.2.7 South Australia (SA)

The current principal legislation for South Australia is the Environment Protection Act 1993 (SA) (the SA EPA), incorporating the Environment Protection (Site Contamination) Amendment Act 2007.

Community engagement is strongly encouraged by the EPA, the Department of Health, and Primary Industries and Resources SA (PIRSA). Community consultation is a condition of all new mine approvals. In conjunction with private contractors, the Land Management Corporation (LMC) manages numerous urban revitalisation programs including state-owned contaminated site remediation projects. The LMC emphasises community engagement initiatives to enhance community relationships.

Numerous EPA publications outline communication strategies for industries and other organisations considering community consultation programs for risk management and activities relating to on-site remediation.
3.2.8 Australian Capital Territory (ACT)

The principal legislation current for the Australian Capital Territory is the *Environment Protection Act 1997 (ACT)* (the ACT EPA), and the *Contaminated Sites Environment Protection Policy (2000)*. The Environment Protection Unit is responsible for management and assurance to the community that public health and environmental concerns are being addressed as far as soil contamination is concerned.

3.2.9 Northern Territory (NT)

The principal legislation current for the Northern Territory (NT) is the *Waste Management and Pollution Control Act (1999)* (WMPCA). In relation to community consultation for contaminated sites the NT refers to the NEPM publication.

3.2.10 Local government

Most local councils in Australia translate state planning and management policies and legislation into local actions. The role of land-use planning by local authorities is to ensure that urban development delivers sound, long-term risk management outcomes consistent with sustainability principles.

Councils have been the drivers of community consultation at a local level for many years. Some councils may interpret consultation as a subject of participation and engagement, while others see a process that involves greater interaction with the community beyond information provision. How councils interpret community consultation is reflected in their policies, procedure manuals and guidelines. The extent to which contaminated site remediation and risk management are included has not been evaluated.

Risk management for contaminated site activities is considered to be the shared responsibility of the proponent, the EPA, the environmental consultant, the environmental auditor, and/or public health departments. Whilst the enHealth document *Working Papers 2* clearly states a role for Environmental Health Officers (EHO) in the planning development and risk management of contaminated sites, in most states the EHOs in local councils are not usually involved in the risk management of contaminated site remediation activities.

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117 ACT Environmental Protection Act 1997
118 Environment ACT, EPP 2000
119 NT WMPCA 1999
120 Windsor and Associates 2009
3.3 Non-government organisations and their role in risk communication

Australia has certainly grasped the concept of community consultation. This is evident by the number of articles on community engagement published Australia-wide. Most risk assessment and risk management publications make mention of risk communication as a component of the risk assessment model.

An Environmental Defenders Office (EDO) is located in each state/territory in Australia. The EDO is a non-profit, community-focused environmental law network that facilitates public participation in environmental issues. The main role of the EDO is to assist the wider community, including indigenous peoples, to understand the law and participate in environmental decision making. Education programs through conferences, public workshops and publication programs are designed to build the community’s skills and knowledge in environmental justice and social equity.

Many multinational companies and environmental consultants have their own community consultation programs. These programs adopt various consultation techniques. The extent to which they are used and reviewed is unknown.

The Australian Contaminated Land Consultants Association (ACLCA) has representation in New South Wales, Victoria, South Australia, Queensland and Western Australia. The members are required to adhere to a code of practice that provides them recognition by the wider community. There are also a number of non-government organisations that provide environmental, health and safety, risk and community consulting services on behalf of the proponent, and state and local governments. The Australasian IAP2 provides general training and information on public participation.
Australia has witnessed the developing adoption of public engagement processes as environmental legislation has matured. Public environmental impact assessment processes have been in place in Western Australia since 1972 and the Commonwealth EPIP Act came into force in 1974. Drawing on documented academic evidence, eight case studies are presented in this section. Four are examples of less effective risk communication and four illustrate good participatory governance. The scope of the problem, levels of public concern and the risk communication procedures illustrate good and bad methods and strategies for risk communication.

4.1.1 Case study 1: But you don’t have to live here!

The first case study demonstrates considerable gaps in the understanding of effective risk management processes during the remediation of a contaminated site. It reveals that even when the risk of harmful health effects is ruled out, other factors may be responsible for grievances among the exposed population.

Consider the perceived harm imposed on a community when exposed to odorous emissions, dust and noise during the clean-up of a 52-hectare former gasworks in the inner-western suburb of Mortlake in Sydney (NSW) in 1998. The Mortlake site contained odorous residues of tar, ammonia, phenol, cyanide and sulfur. The rehabilitation of the site became highly controversial. The site was being remediated for residential and public use.

The community complaints began soon after clean-up was underway. Despite the EPA quantitative risk assessment outcome of ‘no risk to health’, some residents of Mortlake reported health symptoms ranging from headaches, itchy eyes and nausea whenever the odour was present. Others expressed concerns about cancer risks and long-term effects on their children’s health from the odorous chemicals emitted during the remediation process.

The EPA described the odour as a nuisance issue. Health agencies acknowledged the public’s concerns but denied any long-term biological damage. The observations made by the EPA and health authorities were in all probability correct. However, when citizens cannot enjoy outdoor entertaining, opening their windows or turning on evaporative air conditioners without the intrusion of odour, they will continue to voice concerns about their risk to health from the odours.

An independent risk assessment was performed and ‘no risk to health’ from benzene and naphthalene emissions was found. Naphthalene is a known irritant and benzene is a known human carcinogen. The recommendations to the community liaison group from the independent consultancy were:

- in order to maintain community confidence in responsible remediation activities the EPA frequently monitor records of site activities and report to the community, and
- the EPA provide a rapid investigation response to adverse reports by the public of the remediation activities.

121 Rutherford 2003, pp. 171-173
122 Rutherford 2003, pp. 171-173
123 Rutherford 2003, pp. 171-173
To ease public concerns, the Central Sydney Public Health Unit (CSPHU) using the NSW Cancer Registry researched the rate of all types of cancer in the local government area against the rest of NSW. No significant difference in cancer rates was found, as might be expected from such an exercise. Better odour mitigation strategies were implemented and the number of odour complaints fell.

As the remediation progressed, other issues began to surface (i.e. truck movements and dust issues). Over 100 trucks containing clean backfill were going onto the site each day. Over 80% of the dust was generated by the importation activity and the subject of health concerns resurfaced. The response by the environmental consultants was to spray seed the surface of the remediated area.124

In conclusion, the community concerns were not of the site remediation per se, but rather about the ongoing remediation process. To reduce the magnitude of the perceived risk within the community the potential for off-site impacts and the proposed mitigation activities could have been foreseen earlier and communicated in the project planning phase. This may have resolved some of the issues before they could become the subject of complaint.

4.1.2 Case study 2: When the RATS became IRATE123

In this study the community successfully mounted a legal challenge against the reopening of a previously closed copper smelter at Port Kembla (NSW),126 located in a residential area. However, the court case was dropped after the swift introduction of new legislation permitting the reopening of the smelter.

Since the closure of the smelter one year previously, there had been a strong perception in the local community of environmental improvement. Emissions from the smelter during its previous 40 years of operation had been excessive, and at times emission levels had exceeded the National Health and Medical Research Council (NHMRC) and World Health Organisation (WHO) standard guidelines for lead and sulfur.127 During 1991–1994 the smelter repeatedly breached pollution control standards. The current developers were part-owners during this period.128

In response to the reopening announcement the community formed a group known as ‘Residents Against The Smelter’ (RATS), to oppose the reopening of the copper smelter. An environmental impact assessment (EIA) was undertaken prior to the smelter reopening, but the local community claimed little or no consultation was sought. An estimated 80% of the local community objected to the reopening of the smelter and 300 residents marched in protest. In 1997 the RATS became the ‘Illawarra Residents Against Toxic Emissions’ (IRATE).

124 Douglas 1999
125 Arcioni & Mitchell 2005, pp. 363-379
126 Jones 1999
127 Mowbrey 1997
128 LEAD 1998
The University of Wollongong’s Undergraduate Students Association (formerly SRC) and IRATE opposed the reopening of the smelter at Port Kembla. They insisted that:

- a public consultation process be undertaken which incorporated an extensive release of all data and information regarding the smelter’s pollution emissions and their impact on health and the environment
- the smelter’s expansion, upgrade and reopening not proceed until the uncertainties regarding the smelter’s pollution emissions from the copper smelter be removed
- the state government was destroying the principles of due process and democracy by stopping a community-mounted court case, which challenged the validity of the development consent from proceeding
- the lack of public consultation concerning the redevelopment perceived by the government as a ‘legal technicality’ undermined the importance of the legal process as a mechanism of governmental accountability.

The response from the Premier was that the reopening of the copper smelter would create 270 jobs; therefore there was a need for the smelter. Within 12 hours of the pending court case the NSW Government swiftly drafted a bill that was to deem the smelter opening valid. The elected parliamentary members of the Port Kembla community sided with the state government. As a consequence the case was thrown out of court and the smelter opened in 2000. There were no further avenues for the residents to challenge the development.

Some of the primary determinants for the outrage expressed in these situations are:

- voluntary versus coerced
- natural versus industrial
- not memorable versus memorable
- not dreaded versus dreaded
- controlled by individual versus others
- fair versus unfair
- trustworthy versus untrustworthy.

Many of these factors can drive individual reaction and ultimately behaviour to risk-related scenarios. It is not always the lack of understanding that constrains the public’s consideration of science, economic and political issues, but the lack of political framework that outlines clear choices, benefits and trade-offs in decision making.

Over the following two years the company operating the smelter breached numerous air quality criteria. In 2002 the NSW Land and Environment Court imposed fines on the company for breach of environmental conditions, and compliance orders to improve the air quality were set by the EPA. However, the regulatory orders set by the EPA were not in the financial interest of the company. The facility stopped production and closed in 2003. What remains now is a legacy of mistrust for the state government and the local council.

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129 LEAD 1998
130 Sandman 1993, pp. 13-64
131 O’Malley 2002
4.1.3 Case study 3: Lead pollution – a rapid response

Between April 2006 and March 2007 a number of key dust incidents at the Esperance Port (Western Australia) released a significant burden of lead into the air. The lead, from lead carbonate mining at the Magellan mine, near Wiluna, became airborne during bulk handling, contaminating the town and surrounding environment of Esperance with lead dust on several occasions.\textsuperscript{132} Given the history of lead contamination in Australia, the likelihood of lead becoming airborne during handling and transport activities is well known. The mine operators claim they were following procedures imposed by the mine licence and the port’s licence. The extent of the lead contamination included the death of thousands of birds in the surrounding environment and elevated blood lead levels in a number of young children. Rainwater tank water, dust swabs and ceiling space dust revealed elevated levels of lead that exceeded maximum regulatory amounts.\textsuperscript{133} Isotope testing confirmed the source of the lead contamination as the Magellan mine lead.

The response by the government was reactive and swift, with the implementation of safeguards to avoid such an incident happening again. Health and ecological risk assessments were undertaken by an independent consultancy. The Esperance community was invited to participate actively in the risk assessment. To better understand the community’s perception of health risk relevant to lead contamination, a social impact survey was undertaken.

A number of community initiatives were created. One in particular was the introduction of new legislation to establish an advisory committee to improve the accountability and transparency of the Esperance Port Authority. The Western Australia State Parliament’s Education and Health Standing Committee, with the assistance from community groups, made 46 recommendations on how to safeguard against such occurrences in the future. As part of the future development assessment process, the Western Australian Government suggested that a health impact assessment (HIA) be an integral part of any approval process.

The Esperance Port Authority is currently implementing these recommendations.\textsuperscript{134} Magellan has pledged $9 million to clean up the port and win back community support. There are claims that damage to the corporate reputation includes diminished team morale, loss of community trust and financial loss to the industry.

Making a commitment to doing things differently from this point forward is a necessary step to take. An outraged community can become difficult, if not impossible, to deal with constructively if actions are not carried out quickly. In this instance the outsourcing of the community consultation process to an independent company was well received. Communication strategies such as outsourcing can reduce information risks and establish trust between the communicating parties.

Lessons learnt:\textsuperscript{135}
\begin{itemize}
  \item accountability and responsibility do not end at the mine gate
  \item understand all business risks and manage them proactively
\end{itemize}

\textsuperscript{132} WA Government 2007
\textsuperscript{133} NHMRC & NRMMC 2004
\textsuperscript{134} Education and Health Standing Committee, WA 2007
\textsuperscript{135} WA Government 2007
• transparency and stakeholder engagement are important
• respond to crisis swiftly and credibly
• earn and retain your social operating license
• there will be financial implications for the industry.

In hindsight, the clean-up of the Port has turned out to be a more expensive exercise for Magellan than the responsible handling and transporting of lead carbonate in sealed rail trucks. Esperance is now the most highly monitored port in Australia. It is unfortunate that it took an event of this magnitude to recommend the implementation of the best practice model for better management of bulk handling in the ports by the Esperance Port Authority and the Department of Environment and Conservation.

4.1.4 Case study 4: Asbestos and its impact on residential property values

This case study was selected to highlight the stigma associated with properties containing buried asbestos. With the potential to be labelled as a contaminated site the property brings about issues that create a potential for economic loss by the property owner.

During 1997 in a suburban area of South Auckland, New Zealand, asbestos products were discovered in the soil.¹³⁶ Five heavily contaminated sites were located in the Flat Bush area; possibly a legacy of the 1930s when farmers would use the asbestos as landfill for gullies and dam making. It was not known whether the soil on the residential properties contained residual asbestos.

The council had been responsible for dumping and burying asbestos on previously owned council land. None of the residents were aware of the asbestos contamination when purchasing their homes. In 2001 the government recommended the council undertake soil tests on residential properties for asbestos contamination. In the event of the results being positive the council was to remove the asbestos from the properties in a manner that would prevent releasing fibres into the air. The properties were tagged with an asbestos warning on the land information memorandum (LIM) report. On completion of the remediation process, the government recommended the tags be removed.

An independent environmental consultant with experience in non-occupational asbestos contamination undertook a risk assessment. The recommendation was for remediation to be undertaken only if bulk asbestos contamination was present on-site, rather than as residual fibres. That said, there are no official guidelines for acceptable contamination levels of asbestos in soil. If left undisturbed, the asbestos is considered not to present a health risk. The risk to health is dependent on the potential for disturbance and generation of airborne asbestos particles that may be inhaled.

Soil heavily contaminated with asbestos was removed from the local dump and from a number of residential properties in the Flat Bush area. Most was buried on the affected properties beneath one metre of clean soil. The council landscaped the properties. All properties within the 925 hectare study area, whether contaminated or not, were automatically tagged, even those that were shown to have clear soil samples.

¹³⁶ Yeates 2009
The LIM reports were never amended. To date, the asbestos warning remains on all the properties within the 925 hectare study area. This may be because the potential for litigation is far too great for the council, should the ‘cleaned’ properties later be found to contain asbestos. As a result, the resale value of a number of houses in Flat Bush plummeted. The public perception of Flat Bush as a suburb riddled with asbestos has created a stigma on property values. As a consequence of living within the asbestos-contaminated zone, some property owners are alleged to have lost tens of thousands of dollars.\textsuperscript{137}

Two attitudinal surveys were conducted three years later following the asbestos revelation. One survey was undertaken in an area not affected by the asbestos contamination (control), and the other within the affected area. Thirty residents from each location were questioned about Flat Bush, the asbestos contamination, their opinions of Flat Bush as a place to live and property prices. Of the residents interviewed:

- 13 of the residents who were living in the affected area were unaware of any contamination in Flat Bush
- 15 of the respondents living in Flat Bush considered their area to be a less desirable place to live in, although only one person stated that it was due to the asbestos contamination
- in hindsight and with knowledge of the asbestos contamination 17 of the residents living in Flat Bush stated that they would not have moved there.

Of the control group interviewed:

- 27 were aware of the asbestos contamination at Flat Bush and would not consider moving there
- 27 considered Flat Bust to be a less desirable place to live, but gave no specific reasons why
- 14 considered property values in the affected area would drop by 11–15\% due to the asbestos contamination.

The stigma on the area is alleged to have affected property values. The issue of contamination and the tagging of properties deemed to be contaminated with asbestos have not been resolved. The market perceives the risks to be much higher and hence the associated property value loss to be greater than in similar socio-economic areas with no contamination issues.\textsuperscript{138}

4.2 Key messages

For cases 1–4 the obstacles for effective communication and community engagement were due to a number of issues, i.e.:

- the use of the top-down technocratic approach and implementation of own management decisions
- limited options for community participation in the decision-making process
- tokenism (a symbolic effort to meet the minimal requirements of the law)
- inequitable political processes when dealing with the affected community
- lack of transparency and the withholding of data
- failure to adequately address and communicate uncertainties to the public
- lack of clear, interactive communication with the affected community
- lack of periodic evaluation of the decisions made to determine its effectiveness in meeting the affected community’s needs, and
- promising more than can be delivered.
4.3 The participatory approach in community consultation

Lessons from good communication practices undertaken in Australia are described in the next four case studies.

4.3.1 Case study 5: The Homebush Bay Olympic site

As a part of Sydney’s bid for the 2000 Olympic Games, the NSW Government made the decision to remediate a contaminated site project with the profile of the ‘Green Games’. The site of the 2000 Olympics in Sydney was a domestic and industrial landfill used throughout the 1960s and 1970s.139 Much of the landfill was uncontrolled, resulting in a variety of chemical contaminants. Hydrocarbons, mixed municipal waste, dioxins and uncontrolled municipal/industrial landfill constituents were found. Other land uses included navy armaments storage, a brickworks and an abattoir.140 The abattoir was closed down entirely by early 1990s.

The health of workers, neighbours and future users of the site were considered to be an important element of the remediation works. A risk assessment approach was important in obtaining worker confidence considering the type of contamination on the site, particularly early in the history of remediation work in Australia. The application of risk assessment increased the feeling of ‘ownership’ of the project between the government and public.141

Early investigation reports and data were sent to the local government, placed in libraries and made available for the environment groups. Development plans, risk assessments, remediation data, and site development reports were made available to the public.

The stakeholders were various governments, the Olympic athletes and participants, the general public utilising facilities and land around the site, adjacent neighbours and three environment groups – Greenpeace, Green Games Watch 2000 and Auburn Greenspace.

A proactive approach involved unions, residents and the public in assessment and dialogue. A privatised body known as the Olympic Coordination Authority was established. The approach was used due to the number of people potentially utilising the site (e.g. moving in and out of entertainment venues) and the public benefits to be obtained from the site.142,143 The Homebush 2000 Olympic Games consultation process included:144

• an independent consultant being appointed to assist with the community consultation process
• an initial three-day workshop to establish community consultation – the public were encouraged to attend, and issues of environmental protection and public health protection were discussed
• Auburn Greenspace, Greenpeace, and Green Games Watch 2000 – three environmental groups involved in the community consultation process
• a limit of 30 people at each meeting so that everyone could express their concerns

139 Smith & Scott 2006, p. 153
140 Smith & Scott 2006, p. 242
141 Smith & Scott 2006, p. 243
142 Smith & Scott 2006, p. 155
143 Smith & Scott 2006, p. 244
144 Smith & Scott 2006, p. 243
• meetings spread over a period of time
• information sharing incorporating clean-up options and preferences, i.e. the remediation of Wilson Park to render the site suitable for active and passive recreational use\textsuperscript{145}
• minutes of meetings sent to everyone who registered, and
• reports and data of site investigations sent to the local council, placed in local libraries and made available to environment groups. The sharing of information aimed to establish and reinforce trust between the local community and the remediation managers.

The contaminants of concern were kept on-site and sealed underground, rather than transported elsewhere. This lowered the risk of exposure at the immediate site and off-site. Positive attributes of the overall project included:
• the public perception and quality of the project
• the development profile
• the ability to deliver on deadlines, and
• public acceptance of the final development.

Based on the criteria above, the Homebush Bay Olympic site redevelopment may arguably be considered a success. Communication between the various stakeholder groups was clear and trust established between government and private groups. An open and holistic approach was used in the risk assessment process. One view is that the International Olympic Committee should incorporate environmental planning into the decision making process, to ensure the Games will not leave a lasting burden on the local community and nation.

4.3.2 Case study 6: Lednez remediation site

The Lednez site at Rhodes (NSW) was previously used for industrial and chemical activities. Products manufactured in the area included coal tar, xanthates, chlorobenzenes, various herbicides and insecticides such as DDT (dichlorodiphenyltrichloroethane), and DDE (1,1-dichloro-2,2-bis (p-chlorophenyl) ethylene), a breakdown product of DDT.\textsuperscript{146} The site also previously contained several clay containment cells holding contaminated material including dioxins (totalling approximately 300,000 m\textsuperscript{3}).\textsuperscript{147} A proposal was for the site to be remediated for residential development. This involved the excavation and treatment of contaminated soil and sediment. The proponent was the state government who worked in conjunction with the Department of Environment and Climate Change (DECC), NSW Department of Health, Thiess Services and local stakeholder groups.\textsuperscript{148}

Initially, 5000 residents received a letterbox drop regarding the project proposal. A dedicated telephone hotline and email system was established to facilitate public feedback on environmental performance in addition to a notice board being established at the Walker Street boundary of the site. Site open days were held where key team members would be available to discuss the project.

A meeting of the NSW Health/Rhodes Community Liaison group was held November 2003. The meeting was intended to provide an opportunity
to discuss health studies being undertaken in the area prior to site remediation.\textsuperscript{149} The first such study involved a review of cancer incidence statistics near Rhodes Peninsula. The second consisted of answering a short questionnaire and the collection of 50 ml of blood from each of some 200 participants for dioxin analysis, with a repeated blood collection to take place once clean-up was complete.

The community consultation approach to the remediation project included:\textsuperscript{150,151}

- a briefing of the site history and proposed remediation to government agencies, local government, environmental groups and Rhodes Community groups (24 organisations in total)
- the formation of a community group – the Rhodes Community Consultative Committee (RCCC)
- CDs of the environmental impact statement made available
- an independent consultant appointed to oversee the staged implementation of the commissioning process, and provide advice on environmental and safety performance of the technology and remediation work to the community
- monthly meetings and a community newsletter which contained updates on the remediation and development of the project and frequently asked questions. The proponents were involved in the monthly meetings, and
- RCCC members reviewing the project progress reports and environmental monitoring data with feedback to the company’s project team members.

Two alternative remediation strategies were considered: the indirect and direct heat thermal desorption (IDTD and DHTD respectively), and capping of the soil. A description of the chosen remediation technique (DHTD) was incorporated into the community newsletter. A number of odour and dust mitigation strategies were also trialled. The community members were notified electronically whenever odorous excavations may impact them and a proactive odour management plan was developed.

The DHTD method was chosen and performed on-site. The EPA considered on-site treatment to be the most appropriate management option because the movement of contaminated soil off-site introduced complex risks. These risks included:

- increased traffic movement
- site problems with sludges
- air emissions
- the potential for road accidents
- the problem of soil remediation elsewhere, and
- the impact on other environmentally sensitive sites.

A parliamentary inquiry committee was convened to discuss the project. Apartments were being built and offered for sale on the cleaned portions of the site. There have been significant public concerns with volatile fugitive emissions impacting local residents and businesses. A detailed risk communication program was undertaken, and risk-based air quality criteria developed with the EPA for the continuing remediation.

\textsuperscript{149} NSW Health 2003
\textsuperscript{150} Rhodes Remediation Projects 2008
\textsuperscript{151} Rhodes Remediation Projects 2008
The public was briefed on the potential impacts of the chemical being assessed based on:

- the concentration of chemicals present in the air when human exposure may occur
- the duration of contact at that concentration, and
- the toxicity of the key contaminants and potential additive effects of the chemicals.

A screening risk assessment was conducted to assess potential human exposures (as a ‘receptor’) and chemical toxicities occurring in the remediation situation. Off-site public exposure was considered to be limited to inhalation with no specific dermal or oral public exposure expected. In order to prevent public impacts beyond the site boundary air quality characteristics were assessed under particular work programs and meteorological conditions.

Based on the above, the Lednez remediation site in terms of risk assessment can be described as an ongoing success based on intensive planning approvals, remediation technologies and risk assessment activities, and detailed ongoing risk communication over several years. Currently (2009) the remediation – using DHTD – is nearing completion. A project that was perceived to be high risk by the community has become well accepted.

### 4.3.3 Case study 7: Marrangaroo army depot

Marrangaroo (NSW) is a Commonwealth of Australia Defence site that previously had several small munitions landfill disposal sites dating from around World War II. The site is being remediated in order to remove landfill constituents including waste and scrap metals such as lead and heavy metals. The chemical agents of concern include sulfur mustard and phosgene.

Sulfur mustard changes to a gas when in contact with water. If sulfur mustard is accidentally released as ‘gas’, it will stay in the air or on the ground for about a day. Sulfur mustard gas can enter the body easily and quickly if the gas vapours are breathed in or if it comes in contact with the skin. Sulfur mustard gas causes chemical burning of the skin and is carcinogenic to humans. Phosgene is a highly toxic gas which causes respiratory irritation and lung injury, and long-term exposure to the gas may have a fatal outcome.

Environmental studies have been conducted across the site since 1996. Remediation work is being undertaken on-site. To date, more than 20 burial areas have been excavated and more than 4000 items have been removed. Munitions and chemicals once stored and buried at the site have tested negative for the presence of mustard and phosgene chemicals. Once the remediation work is complete, the site is to be rehabilitated. The property will continue to be used for training purposes.

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152 Smith 2007, sec. 3.1, p. 5
153 Australian Government, Department of Defence 2009b
154 Keats 2008, pp. 6-7
155 Agency for Toxic Substances and Disease Registry 2003
156 Keats 2008, pp. 6-7
157 Wyatt & Allister 1995, pp. 212-213
158 Ashworth 2009
159 McGilchrist 2008
The stakeholders are the Lithgow community, Lithgow Council, Defence personnel, the NSW emergency services and local residents. Some homes are within one hundred metres or so of the suspect disposal pit. During the risk assessment process thorough precautionary work methods were developed to ensure the safety of personnel and local community during the excavation work. Specialist contractors were employed to inspect munitions casings inside a vapour containment tent. Personal decontamination facilities were also installed. The most affected local residents were invited to leave their homes during the retrieval of the munitions, and as part of the safety procedure roads were cordoned off by the NSW police. Work was stopped while the local community and emergency services were advised of the find.

The community consultation and risk communication process incorporated:

- a hotline number and website address to provide information about the Marrangaroo environmental remediation project
- a letter sent to local residents, local government and businesses to outline the work to be conducted. The letter described the project, its reason and purpose, and how it might affect local residents, and provided contact details for more information
- an open day which was held by Defence at Marrangaroo to further explain the remediation project. Residents were given the opportunity to organise meetings one-on-one with Defence representatives at their homes. All homes (around 30) were door-knocked pre-remediation
- a precautionary planning day with the local community members, emergency response agencies (fire, police, rescue, hospital) and Defence personnel in the event of a phosgene gas release during the excavation of the munitions casings
- an open response to all community questions, based on factual information and presented in a timely manner. Special requests for pre-notice of specific types of work were adhered to for individuals who might want to adopt their own precautions, e.g. management of children during certain work periods
- a number of media releases of the remediation progress made available via email and on the website for residents and the general public.

The Department of Defence acknowledges the community for its ongoing support and patience and continues to extensively engage the local community during the remediation process. The Marrangaroo Defence site has the potential to be a success in relation to community consultation and risk communication. The project specifically sets out to engage stakeholders and provide relevant information in several different formats. The communication process is open and accessible to residents and other impacted parties. Trust has been created between the involved parties through open communication and planning, and because of the presence of the Defence facility in the area/community for decades.

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160 Australian Government Department of Defence 2009a
161 McGilchrist 2008
162 Ashworth 2009
163 McGilchrist 2008
164 McGilchrist 2008
4.3.4 Case study 8: A proposal for a new mine site

In 2006, the mining company Terramin Australia Ltd (Terramin) applied for a Mineral Lease to mine the mineral resource known as the Angas zinc deposit, located 40 km southeast of Adelaide near the historic town of Strathalbyn in the Adelaide Hills (South Australia). Terramin was to establish an underground zinc mine, injecting $29 million into the local economy and creating more than 100 jobs. The mine has an operating life of seven years.

From the outset the proposal was opposed by the ‘Residents For Future Strathalbyn Inc’. Five hundred residents rallied in protest against the proposed lead and zinc mine. The activist group considered the development to be ecologically unsustainable. Local residents protested against the project because of its proximity to the town, and some sections of the community were concerned with the potential for environment and health risks.

The key stakeholders were the state government, the local council and residents of Strathalbyn. A community consultative committee was established and chaired by a respected ex-premier. The committee, known as the Strathalbyn Community Consultative Committee (SCCC), was also used to represent the key stakeholders at the Mindarie mineral sands mine, located approximately 150 km east of Adelaide in the Mallee region of South Australia.

All members of the SCCC were given a comprehensive understanding of the assessment process for both mining proposals. Summaries of meetings and other relevant information were made available to the public via the committee’s monthly newsletter. The chair of the committee and appointed delegates, on behalf of the committee, were the only persons to speak to the media. Community meetings at the community hall were held regularly.

Prior to the project being given approval, a wide range of risk issues were addressed. Some eighty-three issues were raised by the community. The issues were address one by one by Terramin Australia and amended to the satisfaction of PIRSA (state mining regulator), the EPA, the SCCC and the community.

These issues ranged from:
- the potential for an increase in traffic noise
- groundwater impacts, dust etc.
- the tailings dam,
- the rehabilitation process once the mining lease has expired.

The outcomes of the issues raised were:
- the tailings storage facility was to contain all tailing materials from the mining activity
- Terramin agreed to limit noise generating activities, such the operation of crushers, to between 7am and 7pm Monday to Saturday, with no crushing on Sunday and public holidays

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165 Primary Industries and Resources SA 2009a
166 Australian Broadcasting Corporation 2006
167 Wandel 2006
168 Wandel 2006
169 Primary Industries and Resources SA 2009b
170 Australian Broadcasting Corporation 2006
• several engineering design changes were made to address the community concerns of impacts from noise, dust, odour, traffic and proximity to township
• dust extractors were connected to the crusher and sealed surfaces, cladding was placed around equipment and the mine entrance was relocated
• an odour model for use at the mine site was developed by an independent consultancy on behalf of Terramin
• Terramin welcomed the opportunity for a local school to conduct the air quality monitoring program Airwatch\(^1\) (an EPA initiative) within the school grounds
• dust, noise, odour and water quality were to be monitored throughout the mine life and post-closure
• there will be no further expansion of the lease beyond seven years
• no open-cut mining
• no future smelter close to the mine site
• at closure of the mine the site will be returned to a stable non-polluting condition
• an appropriate remediation and revegetation program undertaken during the mine closure rehabilitation process, and
• site to be monitored post closure by Terramin until the site becomes stable.

The mining company also agreed to:
• zero discharge of contaminated water from the site
• recycling of water on-site
• monitoring of rainwater tanks at nearby residences, and
• lining of the tailings storage facility.

A monthly community newsletter has been established by Terramin, which contains mining and community updates. The community consultation process took eighteen months to complete and the mine was officially opened on 16 September 2008. The ongoing revegetation program has now begun. Terramin conducts regular organised tours of its above-ground operations.\(^2\)

Based on the outcome of an early public participation program, fundamental changes to the draft mining proposal were undertaken. The communication process incorporated a frank and honest approach to issues that focused not only on the proposed mining activities but issues that went beyond the seven-year mining lease. The industry was clearly attuned to the socio-economic dimensions of mine closure.

\(^1\) EPA South Australia
\(^2\) Terramin Australia Ltd 2009
4.4 Key messages

Consensus between all relevant stakeholder groups on a sensitive issue requires a communication process that is tailored to include public involvement, learning and information sharing. **Consensus does not mean unanimity.** There will often be some who disagree with any decision. For those individuals involved in the shaping of a decision-making process, a good communication strategy will see the emergence of commonly constructed and shared realities for the present and future.

The four ‘good practice’ case studies highlighted that:

- The risk communicator must commit and embrace public participation as an integral component of best practice principles in risk communication and risk management.
- Environmental, biological, social and economic uncertainty is a fact of life. Risk communicators need to interpret scientific findings to enhance the technical understanding of a broad range of stakeholders. This information will inform the community about choices they need to make.
- Conflict over information, data, ideas and knowledge is an integral part of many environmental conflict resolution processes. Conflict resolution means working through the issues until there is an agreed outcome.
- Peer review is a powerful tool and sometimes trade-offs will need to be made.
- Individuals have a right to understand the science that informs their choices rather than being asked to trust the experts, and
- In three of the four cases an independent community consultant/facilitator was appointed to assist with the public participation process.
Section 5 – Raising the bar on community consultation

5.1 Introduction

The basic principles of risk communication that help the lay person make complex decisions about environmental health risks involve technical and non-technical two-way consultation. These risk messages are dynamic interactive processes which constantly change to meet changing audiences and conditions. The scope for community engagement and risk communication for contaminated land issues and remedial goals will therefore need to be adjusted in each case.

The enHealth general guidance on risk communication for local and state governments clearly outlines steps for the effective management of incidents involving exposure to hazardous materials.173 The NEPC guidance (Schedule 8B) is also a useful document for stakeholders involved in community engagement and risk communication relating to site contamination.174

In order to prevent panic and encourage the public to participate in problem solving and conflict resolution, this guidance can be used to assist with the transformation of risk information, scientific information and uncertainty into community-compatible language. Effective communication will allow the public to weigh up the benefits of choosing alternative remedial technology against the costs of achieving ‘acceptable’ levels of risk.

5.2 Stakeholders in the decision making

When developing a risk communication message to the public, consultation should be considered early in the planning process and continue through all stages of the risk management process. The affected public are clearly stakeholders in risk management decisions and have a major interest in decision outcomes. They should be involved in shaping the decisions through consultation and dialogue. The requirements of the relevant statute, however, are important. Whilst it is useful for communities to have a degree of ownership in decision outcomes, the final decisions are usually reserved for the Minister under the relevant legislation.

5.2.1. The risk communication team

To assist with defining the project parameters and better project planning, a risk communication team whose focus is on public participation should be established. An important step in establishing a risk communication team is to determine the roles and responsibility of staff involved in the project. Be conscious of different group dynamics within your own organisation and ensure early dialogue with the regulator. Ensure that the internal organisational culture and structure is supportive of the risk communication plan and its implementation. The organisation’s senior management/Chief proponent should endorse the communication, consultation and coordination plan. Before going live, a detailed communication strategy which defines the project parameters needs to be developed. Consider the roles and responsibilities of all those involved in the developing, reviewing, agreeing, implementing, monitoring and evaluating of the communication plan.

173 enHealth 2006
174 NEPC 1999
Find out whether your organisation can deliver effective risk communication:

- Is your organisation able to assign representatives in negotiation and problem solving with the public?
- If unsure you may need to seek advice from a facilitator/mediator or outsource this responsibility to an independent consultant who specialises (and has proven experience) in this type of activity.

A good communicator should have:

- experience with the media
- a broad subject knowledge
- credibility
- availability
- patience
- empathy
- a willingness to say ‘I don’t know’
- truthfulness
- confidence
- a modulated voice
- direct eye contact
- humility
- experience in consultation
- knowledge of the most appropriate consultation model to be adopted for the particular circumstance
Training in negotiation and problem solving is a critical aspect for communicating contaminated land issues. In preparing for community consultation the nominated staff will need to address the importance of the risk management options arising from the specific land contamination issues, i.e.: 

- the relative health and environmental benefits
- the decision making factors (technologies, costs)
- the benefits, costs and uncertainties in each option

- how the decision should be communicated
- the necessity to evaluate the effectiveness of the decision, and
- if YES, then how should this be done?

The next task is to plan why, who, what and how you want to communicate with the public. Think carefully about the different avenues for public engagement. Using the features in Figure 1, consider a combination of different approaches that can be used to meet your specific needs and those of the target audience.

Figure 1. Avenues for public participation

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175 NRC 2008
If the remediation strategy involves non-negotiable goals, consider disseminating community information to explain the reason behind the non-negotiable goals. Be clear in which aspects of the project you intend to receive feedback from the community and which aspects of the project you are providing the opportunity for the community to become part of the decision making.

Be aware of the types of communication channels being used:

- If public involvement is more a case of data gathering, then collating the information is one-way communication.
- If the proposal is a do-nothing strategy (i.e. a contaminated site is to be landscaped to an acceptable standard without removal of all contaminants), the public may need an explanation, which is one-way communication. This is especially so if the public have knowledge of historic contamination and fear that the contaminants are being "hidden" rather than removed.176 Public consultation may need to be flexible in this case (to inform or to educate). The risk communicator should be ready to deal with changing circumstances.
- If the goal is to inform the public (i.e. "the contaminated groundwater will cause a loss of amenity"), the dissemination of the facts can be in the form of bulk mail-out to a community or a subset of a community, personal visits to homes, a door knock, or via a telephone help line (the help line should be manned by a staff member who can give direct assistance to the caller allowing individuals to evaluate the risks within their own life plan). Informing tends to be one-way communication.
- If the goal is to consult (i.e. "contaminated groundwater is to be remediated to make reparation"), then one-to-one communication with the owner/owners of the affected bores along with information sheets and a contact number may work best. If the participants are informed of the results this process becomes two-way communication.
- The exchange of information relating to contaminated sites, perceived risks, remedial activities and mitigation options that involve the public in participatory decision making will require two-way dialogue, usually in the form of a public meeting. A meeting can involve a large number of people, or a smaller (under 10) number of people who may be affected by the key issues:
  - if a large meeting cannot be avoided be clear about the goals for the meeting. The meeting should enable both the risk communicator and the community to be treated fairly
  - depending on the extent of the project, a media consultant may need to be appointed to give advice on strategies to present and disseminate information to the public
  - decide who will inform the community, i.e. an independent technical consultant, or an experienced risk communicator, or an expert panel.

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176 Lester & Temple 2006
5.2.2 Identification of the affected community

To locate groups who are interested or potentially affected by the issue, the local council can be of assistance. They usually have a list of schools, community and interest groups within the area. Ensure local minority groups, i.e. low socio-economic groups, those with disabilities and those from non-English speaking backgrounds, who are most sensitive to the issue and likely to be affected by the proposal, are informed.

Your audience should also include local people, community groups, local businesses, local government and other interested non-government agencies. Consultation provides an early opportunity for local communities and stakeholders to raise issues and concerns about the site and any proposed remediation process. Survey the community early (see Appendix A ‘Collating the information’) and recognise that increasingly, communities may include retired professionals, who are able to analyse the situation for themselves and formulate highly pertinent questions.

5.2.3 Understanding the behaviour of people in groups

People gather in like-minded groups for many reasons. Some form groups for social support, others are task-oriented. ‘Group culture’ refers to values, beliefs, customs and traditions held in common by group members. Among these groups there are relevant stakeholders with specialised knowledge and experience who may help ground a discussion.

Become familiar with the five main groups of people listed below.178

1. The groups with positive attitudes regarding the task at hand are willing to engage at a high level of commitment.

These people will commit to change if they see the benefits of a planned project. They are usually responsive to plan-driven approaches if the evidence and rationale is explained. When expectations of group members are understood and addressed, they feel part of the decision making process. The communicator should help members clarify their expectations, and strive for comparison between expectations of members and the purposes of the group. A high level of open interaction in this group promotes cohesiveness.

2. The empowered group who do not perceive the issue to be angering, feel that something can be done to ‘fix’ the issue.

These people are information-givers and receivers; they may be experts or non-experts with regard to the subject in question. This group is willing to interact with the communicator. They usually have an invaluable source of local knowledge and useful information. Every effort should be made to engage individuals from this group. Consider setting up a special forum for them to meet you at regular intervals. Giving and receiving information will convey to the community a sense of identification and personal investment in the process of project planning and decision making.

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177 Evans & Plows 2007, pp. 827-853
178 Turner 2007, pp. 114-117
3. **The angry group** who are outraged about the current state of affairs and perceive that nothing can be achieved.

These people tend to be opinion-givers who have trouble disengaging from the past. They usually feel a sense of loss and fear with having to ‘let go’ of their old and highly valued ideologies and comfort zones. This group will often require a sympathetic approach; a state of mind that requires the communication of feelings.

4. **The uninterested group** who may have a positive attitude towards the specific issue but do not care and will not become involved in the issue.

These people may appear to be uninterested. Whilst not wanting to become involved in the process they do however listen to others’ opinions and information. They may not engage in conversation or interact, and may not even bother to attend meetings. They rely on others to disseminate information and usually refrain from assuming responsibility.

5. **The stubborn group** are found within community organisations whose mandate is to resist any type of development rather than collaborate.

These people foster negative reaction largely because change brings with it increased pressure, stress and uncertainty for them. The significance of resistance is compounded by the high rate of change failure. Distrustful citizens tend to respond with contentious, legalistic actions which can become time consuming and expensive for the project. Building positive beliefs, perceptions and attitudes is critical for successful change interventions. Therefore the design of public participation process is crucial.

If a community representative group is required, the relevant stakeholder groups – involved in the collaborative process – should be directed to assign a trustworthy delegate or a small subgroup from within their group to represent them. These representatives should be able to form a group and engage in joint fact-finding and if delegated to do so, engage in decision making dialogue.

During a consultation process you will notice multi-stakeholders utilising different dialogues that will be either competing, complementary or have compatible interests. The audience will also consist of individuals who may be frustrating and annoying. Some disputants in environmental cases are repeating players, who voice their own agenda no matter what the issue. Be careful not to stereotype these individuals and stop listening to them. Even if you disagree with what they have to say, listening to and acknowledging these people is necessary. Communication must be a two-way process. Sometimes it is best to let the ‘natural mediators’ among the stakeholders decide how best to deal with these individuals.

If the community dislikes the negative attention sought by some individuals and/or activist groups who are voicing concerns that are unrelated to the project, an alternative approach is to restrict meetings to those that are directly affected by the proposed project.
All members of the group should be given the opportunity to be fully involved:

✓ ensure groups are small and controllable – no more than 20 participants at each group meeting. It is easier to create positive communication in a small group

✓ ideally a person of good repute and known within the community should chair a committee of representatives, each chosen from various stakeholder groups to represent the members, and

✓ keep in mind that this is a two-way communication process.

The rules of community engagement are:

✓ representatives are not there to state their own opinion but that of their constituents

✓ products of the conversation should be taken back to their constituents, and on return, the representative group will work out a final outcome, and

✓ if a facilitator/mediator is required, the facilitator of the group should be a person who is not biased to the views of the convening authority or proponent.

Compile a picture or map of the key players and group them together with regards to importance, i.e.:
• those with interest that might be left out of the process
• those that might be affected
• those that might contribute to a solution, and
• those that could potentially sabotage the whole process.
5.3 The risk communication framework

The following stages of community engagement are considered in the risk communication framework. Each has a different purpose and focus which requires two-way consultation and a continuous feedback mechanism. The guiding principles demonstrated in Figure 2 include:

- defining the risk problem
- predicting the impact
- analysing the options
- participatory decision making
- implementation and monitoring, and
- performance appraisal.

Figure 2. Community engagement and feedback mechanisms (adapted from Health Canada 2000)\(^\text{79}\)

\(^{79}\) Health Canada 2000

Section 5 – Raising the bar on community consultation
5.4 Defining the risk problem

A risk communication strategy which critically analyses, evaluates and documents the views of the community relating to the contaminated site and the proposed remediation process will facilitate a clearer understanding of current and future risk issues.

By following the process outlined in Figure 3, you will have an idea of how your subject matter will be received and what your goals and objectives will be.

Figure 3. Defining the problem
Section 5 – Raising the bar on community consultation

The community’s risk problems will include both technical and non-technical points. Your key issues will relate to the information that identifies with the drivers and goals for the remediation work, that is:

- the contaminants at the site
- why the site needs to be remediated
- how the remediation process is undertaken
- what the remedial approach will achieve
- what the anticipated obstacles for achievement might be, and
- what the likely implications of using this approach are:
  - environmental side effects
  - time
  - safety – protection from accidents
  - security – prevention of sabotage
  - noise issues
  - dust issues
  - odour issues, and
  - social acceptance.

5.5 Predicting the impact

The approaches to consultation will depend on the nature and impact of the contaminants, the proximity of the community, the magnitude of the clean-up anticipated and the financial implications. When local residents living in a specific radius to the contaminated land are informed of a proposal to remediation the site the response may not always be welcomed. All information sought by the public is subject to questions about validity, accuracy, authenticity and reliability.

For the public, the areas of concern are more related to:

- health than engineering
- risk magnitude than probability (what is the worst that will happen, not what is the probability of it happening)
- economic effects
- lifestyle effects
- stigma effects, and
- what is going to be done about it.

Become familiar with the type of information the public may use when researching the issue. Google or Bing searches are standard internet tools used by community groups and individuals to access information they believe is relevant. The origins of some electronic media are a mix of information from a variety of sources. Arming oneself with this knowledge is important preparation. If there is outrage within the community:

- identify the sections of the community who have concern, meet with them individually or as a small group
- listen to their specific concerns, and
- interpret and communicate the factual information that is needed to answer stakeholder concerns.

Reducing stakeholder outrage and settling risk controversies are better strategies than continuing to fight.
Establish contact early and maintain contact with third parties who may provide comments and/or additional information to the inquiring stakeholders and journalists. Be aware of media that have negative opinions of your messages. Present messages that are most likely to be transmitted without confusion or distortion. Media that best carry forward your message should be sought (see Appendix B ‘Media liaison’).

Media coverage is only one form of communication. There are a number of other communication tools that deliver information to the community. One idea is to hold an open house information session, which is essentially a poster display meeting that encourages one-on-one conversation and meets a variety of information needs. The meetings typically include a number of displays, with each display focused on a key message or topic, and is manned by one or more subject matter experts.

The open house format may also be an ideal time to identify and invite individuals within the community who have valid questions to a more formal meeting. In this way the numbers for attendance at any one meeting is controlled and a network of like-minded groups is being generated to help in the dissemination of information.

For a contaminated site problem you might want to consider the following information displays:

- a summary of the history of the issue to answer the ‘what happened’ question
- highlights of remediation or mitigation actions to be considered or planned to correct the problem
- plans to prevent future problems and ways that residents or the community can help in the future
- educational material on remediation and mitigation options – what it is, why action needs to be taken, and ways in which the remediation process can be achieved.

Another useful tool for effective communication with the public is in the form of a ‘message map’. Message mapping is a computer based tool used for achieving message clarity and conciseness. Message maps are constructed according to the principles of risk communication and have three goals:

- to organise information in an easily understood and accessible framework
- to express the current organisational viewpoint on important issues, questions, concerns, and
- to promote open dialogue both inside and outside the organisation.

A well created, well constructed message map is a tool that can be used to assist the risk communicator with a clear explanation of the issue. A well constructed message map can be utilised for the creation of fact sheets, newsletters, education resources, public presentations etc.

The creation of a message map is a step-by-step process that:

- begins with the establishment of a message mapping team with:
  - expert knowledge on the subject
  - a communications specialist
  - members of policy and management, and
  - a facilitator
- identifies stakeholders, i.e. members of the public who are:
  - interested
  - affected, or
  - influenced by the proposed remediation process
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- lists the specific community concerns or perceptions, and places them into categories of concerns
- develops three key messages from each category of concerns
- constructs supporting facts, information, or evidence for each key message
- validates the accuracy of the message map information with experts in the field – who are independent of the message mapping team
- the core messages be delivered to the intended audience are:
  - what you believe the people should know about the issue
  - what you want the people to know regardless of the questions they have asked, and
  - what the content of the opening statement will be for a presentation or press conference on the issue
- the delivery of the message map is through:
  - a trained spokesperson
  - appropriate communication channels, and
  - suitable media.

To discover the benefits of message mapping, training is necessary.

Other communication tools include:
- information packages for local residents including a fact sheet and a cover letter to grab attention and explain why you are providing the information
- one-to-one with the individual: door knocks, telephone, fax to individuals, email, electronic response sheets
- group delivery– attending small group meetings, public meetings, auto call, fax or email list serve
- organisational – leaders or members of influential community or cultural organisations
- community – employers, schools, malls, health groups, or local government agencies
- mass media – radio, television, newspaper, direct mail, electronic media (i.e. internet sites, email, podcasts, webcasts etc.).

Determining the best channels for your message depends on understanding when and how to use the tools and how the community prefers to receive the information. Depending on the nature of the message to be imparted and the expectations of the public, the risk communicator should identify who is best placed to deliver these messages.

Some common objectives for public participation are to:181
- satisfy regulatory requirements
- resolve conflicting views (see Appendix C ‘Conflict management’)
- increase transparency (see Appendix D ‘Transparency’)
- increase defensibility (professional judgements and decisions)
- change people’s views
- improve services
- determine needs and desires
- empower citizens, and
- optimise trust and credibility.

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181 Petts & Leach 2000
5.5.1 Timeliness of disclosure

Many of the stakeholders and members of the public may never have been involved in a consultation forum before. They will require assistance with the community consultation process. Guide and shape your community consultations plan with a set of objectives that are:
- clear
- specific
- realistic, and
- practical.

Early involvement means options can be considered and adjustments made to a proposed project prior to a substantial investment of time and money. Focus on what you want to achieve from the communication strategy. Different messages and channels may be needed for different audiences, so try to understand the audience’s values, concerns and perceptions. The aim of the first public meeting is to:
- provide enough information to the audience for them to understand what is being proposed
- meet and greet each other
- read and discuss background material, and
- ask questions.

People come into meetings focused on their questions. Acknowledge their questions, write them down for everyone to see and respond to each of them accordingly at the appropriate time. If you are unable to answer the questions reassure the audience they will be addressed at the next meeting or via some other form of communication. Demonstrate at the next meeting that you have followed through on this commitment.

Be empathetic and listen to their concerns. Acknowledge their preconceptions, especially if you are going to contradict them. Empathy is a state of mind that requires the communication of feelings and an agreement on the appropriate outcome of the communicated emotions. Imagine yourself in another’s place, be aware of their beliefs and desires, and understand their feelings. Concentrate on developing trust and long-term cooperative relationships (see Appendix E ‘Mutual trust’).

Should there be little response from the initial meeting ensure that alternative lines of communication are available. Silence in a meeting does not mean acceptance and agreement. You will need to seek feedback from the community.

Depending on the number of meetings required, successive meetings will need to be more formal, well documented, and have a set time frame. The meeting should be held in an accessible venue, at a suitable location and suitable time.
5.5.2 Presenting the data

The delivery of environmental data and technical information can have a major impact on how the public view risk. To assist people in acquiring knowledge, an effective delivery of the technical information requires the delivery of key points. These are:

- what the audience wants to know
- what you want them to know (be clear about what your proposals are)
- what the consequences will be if they misunderstand or you don’t explain it clearly, and
- to preserve trust, don’t leave out details that would seem to contradict your main points.

Don’t use the data:

- as coercion for agreeing to a decision that has already been made
- to sway the public to the fact that the risks are small, or
- for risk comparisons that try to influence the decision.

Some cultural groups prefer that the information comes from trusted cultural representatives rather than government authorities and technical experts. A mediator/facilitator or independent consultant specialising in risk communication may be of assistance in such cases. When explaining the hazardous components of a contaminated site issue, the key is to present it in simple language with simple graphs and simple content.

For a contaminated land practitioner who is an expert at the complexity of scientific language, simplifying information is sometimes a difficult task to master. Some rules for simplifying language and content for professionals who must try to explain risk data in simplified language and content have been taken from Peter Sandman’s training video titled *Quantitative risk communication – explaining the data:* \(^\text{182}\)

- do not try to impress people with words they do not understand
- if a word needs defining, define it, e.g. ‘potable water’ is water suitable for drinking. Then cut out potable and call it ‘drinking water’
- if you have to use the jargon, introduce the concept before the word, i.e. ‘science’ has a word for this and it is ‘potable water’
- ask the audience to stop you immediately if you use jargon they don’t understand
- be especially careful about words that have different technical meanings than their common meaning, e.g. ‘significance’, ‘conservative’ and ‘bias’
- beware of risk messages that are culturally sensitive
- keep messages consistent – they help to develop a more coherent understanding of risk
- don’t skimp on the non-technical information your audience already knows:
  - demonstrate that you know and share the same issues as the community – it keeps the technical information credible
  - If you don’t show the history they may not believe your new information, and
  - show slides of the site – this provides them with visual information and demonstrates you have visited the site
- personalising yourself empowers the audience:
  - introduce yourself and your colleagues
  - provide a background of yourself
  - allow your emotions to show (not anger though)
  - be honest and transparent – the audience will raise issues more respectfully and courteously

\(^{182}\) Sandman 1994b
• if you act impersonal the audience may not treat you as a person

• in order to get a response from the audience:
  – read their body language, i.e. glazed eyes, restlessness, excessive writing – this may mean they don’t understand what you are saying
  – ask ‘am I making this complicated?’; do not ask if people understand – this statement only leads people to say ‘yes’ when they may not understand what you have said, and feel embarrassed if they say no, and
  – ask for questions, seek feedback!

• uncertainties do exist and they should be acknowledged by saying them upfront. Don’t wait to be confronted about them
  – clarify those issues you are certain about, i.e.:
    o the location of the contamination
    o what the contaminants are
    o the magnitude of the problem
    o ways to mitigate the problem, and
    o ways in which the community can assist
  – explain what you have done and what you are doing to reduce the uncertainties:
    o what have you learned so far
    o what you are doing about it
    o when will you know more
  – explain where the greatest uncertainties lie
  – be honest about uncertainties
  – review expert judgement and the assumptions recorded
  – look for comparable situations elsewhere within Australia if possible
  – if clear scientific and technical information does not exist, say so, don’t over-promise

• be conscious of making risk comparisons – they can harm trust and credibility
  – rank your risk comparisons in terms of their acceptability to the community.
5.6 Analysing the options

The choice of remedial action depends, among other factors, on the environmental risk associated with the contamination, finance and the proposed land use after remediation. Some remediation strategies involving non-intrusive mitigation techniques may not be well received by the public because they are perceived as ‘doing nothing’, i.e.:

- the application of thin soil covers, designed to support minimal vegetation, and
- natural attenuation of contaminated groundwater.

With regards to removing or isolating the contaminant source, a number of different clean-up and risk management techniques for soil, groundwater or vapour intrusion may need to be explained to the public. The common ones include:

- excavation with off-site or on-site disposal
- in-ground impermeable barriers or liners
- coverings and capping systems
- protective membranes to inhibit vapour intrusion
- passive or active sub-slab vapour movement
- pump and ex-situ on-site treatment.

Some of these techniques do not lessen the toxicity, mobility or volume of the impacted material. Some cannot prevent the horizontal (or vertical) flow of groundwater. Some prevent only the vertical entry of water into the impacted material. Some other techniques require long-term maintenance and monitoring. There are pros and cons for every remedial option.

When describing the application of any remedial technology to an audience, anticipate the types of questions they may have. Introducing a new science may amplify the perception of risk and compound a problem. This is especially so if the clean-up process is complex and the number of technologies to be considered will deliver more uncertainties. Risk is a dynamic process – make sure the information provided is conveyed to all segments of the audience at a level they can understand.

To reach a consensus view on each of the remediation options from a number of alternatives, the community may need to attend informal community workshops or presentation evenings. This information will reassure participants that a range of remediation options have been considered, and the reasons for the selection will be understood.

When seeking consensus for mitigating risks created by on-site activities, present all mitigation options and consider a combination of technical measures to prevent or reduce complaints and increase tolerance during the clean-up activity. The choices for mitigating risk will refer to a number of issues, such as:

- odour impact
- increased traffic movement
- increased traffic volume and safety
- dust issues
- noise impact
- visual impact
- accidental spills
- short-term closure of local playgrounds
- restrictions to groundwater access, and
- road closures.

A remediation management plan, written in collaboration with the affected community, will identify specific problems and a number of methods of mitigating them. The goal is to have a final product that accurately reflects the environmental conditions, encompasses the concerns of all stakeholders and has a commitment for implementation.

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183 EPA South Australia 2006
5.7 Participatory decision making

During the consultative process, if a consensus cannot be achieved by the decision makers, stakeholders and interested parties, the next step is to engage in a mediation and negotiation process which aims to find a solution, or to seek a compromise. If reasonable options are being proposed to reasonable people, then some level of consensus can be achieved. If encountering nothing but obstruction, then it may be necessary to step back and spell out the viable options, with a clear message that a decision will be made ‘in the public interest’. If, however, the decision among the options cannot honestly be justified as being ‘in the public interest’ then the community will lose interest in the decision makers. At this point an independent consultant specialising in community consultation may be required. Negotiation and mediation are highly specialised activities. No simple methodology exists.

Alternative dispute-resolution strategies such as negotiation and mediation are the cornerstone of conflict resolution. The introduction of a neutral third party to work with the conflicting parties and revisit initial plans may be the preferred option for your organisation. The third party will need to be a professional arbitrator hired specifically to bring the parties together, draw out critical questions and undertake a comparative assessment to resolve issues. However, mediation has its limitations. If information to the public is not forthcoming, accessible or credible, the dispute may continue no matter who mediates.

When the consultative process has reached a consensus, the next step is to commit to those decisions. The goal is to make the community feel they have some control over its own destiny. It is also important at this point to maintain a relationship with the community. Consensus does not mean the questions will stop flowing. Communicate often, keep the community interested and keep them involved. Ensure there are channels for a two-way communication (e.g. community hotline, email, on-site communications person). If a monitoring program is needed, it should detail:

- the proposed monitoring strategy
- parameters to be monitored
- monitoring locations
- frequency of monitoring, and
- reporting requirements.
5.8 Implementing and monitoring

Monitoring and managing risk is a continuous assessment process in the course of day-to-day operations. Monitoring risk management actions involves collecting information that will help you answer questions about the effectiveness of your project. It is important that this information is collected and reported in a planned, organised and routine way.

Information is monitored daily, monthly or quarterly. Monitoring can answer questions such as:
- how well are we doing? (performance)
- are we doing the right things? (any deviation)
- what difference are we making? (impact)

To address accountability, monitoring and evaluation helps to answer questions such as:
- has the project worked?
- how have resources been spent?

To find lessons learned, an evaluation helps to address the following questions:
- what are the project’s strengths and weaknesses?
- what are the implementation problems?
- why have things worked, or not?
- what are the good practice issues?

An evaluation may reveal that:
- the implementation process was not effectively addressed by some stakeholders
- there were faults in the design, or
- there were critical information gaps during the planning stage.
5.9 Performance appraisal

Evaluating the risk management performance involves quality control measures that track and manage the quality of operations at an organisational and operational level, and during follow-up. At the organisational level the challenges are time and resources, meeting with stakeholders, meeting community expectations, and the engagement process. Reflection on these processes will reveal the organisation’s strengths and weaknesses.

Although checklists and frameworks with clear aims and objectives can be utilised to monitor, evaluate and adjust the communication process when required, a regular exchange of information and experience with other companies/agencies might also prove to be valuable. Analyses of past contaminated site projects can help diagnose the gaps between public perception and reality. Each scenario should be reviewed within the context of site-specific ‘risk perception factors’. It is important to recognise that these factors are cumulative in their impact on fear.

5.10 Summary

Every development proposal is unique and every remediation process has to be considered on its merits. The main task of risk-based management is to develop adequate tools for dealing with problems of complexity, uncertainty and ambiguity, whilst communicating and managing these problems. Therefore, effective risk communication is a balance between procedure and outcome. Achieving this balance requires the use of practitioners who can adjust and adapt their communication techniques in different situations.
5.11 Key points

The ten key take-home messages for contaminated land practitioners in regards to community engagement are:

1. Risk is complex and inherently uncertain. Risk, in the context of contaminated land, is an inherently uncertain, multi-dimensional estimate that is useful in trying to prevent future harm from happening. Because predictions of risk inevitably rely on a mixture of evidence, assumptions and judgment, characterising any differing beliefs of the public about risk as being just ‘perception’ is guaranteed to undermine trust and mutual respect, if not create open conflict and further outrage.

2. Credibility is based on more than scientific and technical competence. Scientific competence is essential to establish credibility, but is by itself not sufficient to assure trust. Openness, honesty and transparency are also necessary to demonstrate credibility and warrant trust. This includes a frank and honest approach to dealing with uncertainty, which is inevitable in any risk assessment. Denial of uncertainty (both knowledge uncertainty and uncertainty caused by variability) will eventually backfire and undermine credibility.

3. Clarity is essential for effective communication. Scientific and technical evidence is often complex and difficult to understand. If an audience is presented with confusing information they can at best ignore it or at worst be angered by it. (However, regardless of how carefully or compassionately it is presented, scientific or technical evidence will have no constructive impact if the public has been allowed to become outraged.)

4. Avoiding community engagement will guarantee trouble. There is no all-purpose, sure way to avoid problems simply by engaging communities. However, it is equally certain that failing to engage a community about an issue that many citizens care about will create problems that could be reduced, if not avoided, by effective community engagement.

5. Do not promise more than you can deliver. Overly zealous claims (even if they are sincere) about what or how quickly something can be achieved will, when not achieved, cause disappointment that may boil over into distrust. It is better to be realistic from the outset. With the public engaged from the beginning, they can make the journey through a project with some sense of ownership and reality that can lead to tolerance of missed targets.

6. An unfair process will generate outrage. People who believe they are being treated unfairly, in a condescending manner, or being ignored altogether, will become aggrieved, possibly to the point of active opposition. An outraged public is extremely difficult to engage in a constructive manner.

7. Effective communication must be a two-way process. One-way communication is simply preaching or selling. Any risk communication process that lacks an effective means to listen to community concerns and a commitment to seriously seek to understand those concerns will be dismissed by the community as merely public relations.
8. **Resolving disputes requires a dedicated process.** Because proponent objectives for dealing with contaminated land may not coincide with the objectives of other stakeholders, there is always potential for disputes that are unlikely to be resolved purely by communication. Because litigation is expensive and often ineffective, there is now extensive international experience with alternative dispute resolution that should be pursued before disputes are allowed to become unmanageable.

9. **Validate your messages and behaviour with your own public surrogates.** Everyone involved in a project will have associates, whether they are family members, friends or non-technical staff, who can offer perspectives on key issues that will not be based on or limited to narrow scientific and technical interpretation.

10. **Trust and credibility are both essential.** Trust and credibility are closely related and interdependent. Credibility (being worthy of confidence) is usually necessary to establish trust, but credibility alone does not guarantee trust. Because we are all busy and we already have more things to think about than we have time for, we inevitably have to rely on the views of others for most of the things that we face in our lives. When we rely on the views of others rather than analysing a problem for ourselves first-hand, we are placing trust in others. In essence, trust often serves as a means for dealing with complexity that we have insufficient time to resolve for ourselves.
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Appendices

Appendix A. Collating the information

When surveying the community:

✓ talk to the local council and ask for further information regarding the community concerns with the contaminated site:
  • was there an issue before?
  • who was at risk?
  • what was the nature of the risk?
  • when did this happen?
  • who was involved?
  • what was the outcome?

✓ find out if the general audience has knowledge of your proposed plan and what the consensus attitude is towards the plan (concerns, opinions, values)

✓ is there a potential conflict here – worst case scenario?

✓ are there any local or social conditions that affect the risk communication process?

✓ create a stakeholder file.
Appendix B. Media liaison

Media attention heavily favours the reporting of sensationalised risks, as opposed to the risk of day-to-day situations. The subject of contaminated sites and public risk perception is usually viewed as more negative than it often actually is. When using the media take time to plan a media relations campaign:

- talk from the viewpoint of the public’s interest, not the organisation’s
- speak in personal terms whenever possible
- if you do not want a statement quoted, do not make it
- state the most important facts at the beginning – the benefits of the proposed plan
- do not argue with the reporter or lose your temper
- if a question contains words you do not like, do not repeat them even to deny them
- if the journalist asks a direct question, give an equally direct answer
- if you don’t know the answer, say you don’t know
- tell the truth, even if it hurts
- do not exaggerate the facts.

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184 Bonlitz & Brezis 2008, pp. 202-204
Appendix C. Conflict management

Conflicting messages relating to people’s judgments about risk are nothing out of the ordinary. Maintaining the right to disagree openly is a choice that we all have. Sometimes the conflict is directly attributed to the way information is organised, interpreted, communicated or judged. If stakeholders feel that what is being told to them isn’t clear, they will not hesitate to say so.

Misinformation or the withholding of information from the public may lead to an increase in community apprehension, conflicting interests and uninformed decision making.\textsuperscript{185} It is therefore essential for people to ask questions, possess enough knowledge about the contiguous issue, and make informed decisions that empower the community.

A good understanding of the public’s risk perception and the exchange of information and perspectives during any planning process will help to resolve numerous issues which could otherwise become drawn-out, time consuming and even litigious.

Approaches to resolve conflict:

- before confronting the public, scope out the issues, questions and considerations

\begin{itemize}
  \item if there is an outrage acknowledge the outrage. Failure to do so will often exacerbate the problem. An individual’s attitude to risk depends critically on perceived benefits, or lack thereof
  \item instead of arguing or ignoring the conflicting messages, approach the situation with a sense of curiosity. Question the public risk perception viewpoint so that you have a better understanding of their outrage
  \item if the counter-question doesn’t help the situation you need to be honest and calmly explain why
  \item be aware of the difference in your pace of thought and speech as the outcome may be information lost in translation, mind-wandering or interjections on the part of the listener
  \item there may be more constructive ideas coming from the public; have some tentative ideas and strategies in mind to mitigate the problem and then ask for questions.
\end{itemize}

\textsuperscript{185} Turner 2007, pp. 114-119
Appendix D. Transparency

To be more transparent, organisations should provide information to the stakeholders about assumptions and uncertainties so they can make a judgment on whether a particular risk is acceptable or not. By encouraging transparency both the organisation and public will have a clearer idea of expectations and concerns:

- Consider the openness of the decision-making process and decide at what stage you want the community to become involved
- Involve the community in a mutual, cooperative problem-solving process whilst focusing on the ultimate goal
- Be transparent, accountable, open and inclusive

- Recognise and be honest about the values incorporated in your organisation’s decisions
- Expect trade-offs which must be assessed between cost and benefits for mitigating consequences
- Address uncertainty by saying what you know, what the uncertainties are and what is being done to reduce them.

Be aware that uncertain information may increase risk perception for some individuals who were once unconcerned about environmental risk.
Appendix E. Mutual trust

At this stage it is most important that stakeholders in the community have trust in your organisation. If there is tension within the community then this must be resolved before your organisation and the community can work together.

Trust is fragile, created slowly, can be destroyed in an instant and once lost may never be regained. Negative events are more visible and will give rise to powerful special interest groups that will use their own media to communicate their concerns. Effective communication should incorporate the following points:

- body language and the manner in which the information is imparted from one person to the next are important, therefore practice routinely
- cooperation amongst members of your organisation, government and non-government organisations is necessary to ensure consistent messaging
- if your organisation had previous success reaching this type of audience, provide this information for your audience
- take into account similar instances where remediation of contamination was supported by the local community.