

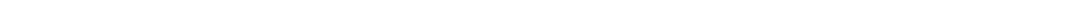
A dramatic photograph of a lightning bolt striking a tree against a blue sky. The lightning bolt is bright yellow and white, branching out as it descends towards the dark silhouette of a tree in the lower-left corner. The sky is a clear, deep blue.

Risk Communication Workshop Handbook

Risk Communication Workshop Handbook

**CAENZ would like to acknowledge the support
of Kestrel Group in providing this workshop and**

TRANSPower 



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Preface

A March 2004 note from the United States General Accounting Office (GAO) reports that risk communication principles may assist in the refinement of the Homeland Security Advisory System. Specifically the GAO found that:

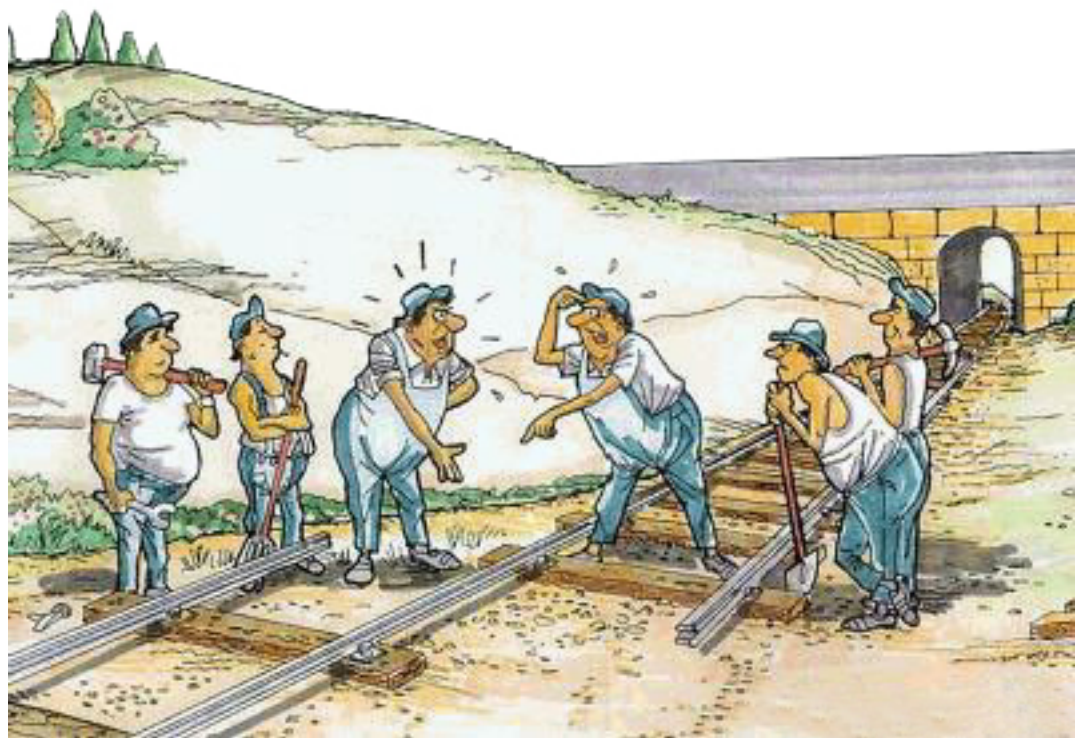
“Risk communication principles may provide useful guidance for disseminating terrorist threat information to the public. Public warning systems should, to the extent possible include specific, consistent, accurate and clear information on the threat at hand, including the nature of the threat, location, and threat time frames. Additionally public warnings should include guidance on actions to be taken in response to the threat. The public’s perceptions of the threat can also be affected by the content and method of public warnings. Without adequate threat information, the public may ignore the threat or engage in inappropriate actions, some of which may compromise rather than promote the public’s safety.”

This statement helps to define what risk communication and encapsulates much of the basis for risk communication.

Risk communication differs from other communication processes by the nature of the information that is being communicated. While risk communication may include information about matters that are not strictly ‘risks’ the foundation for the process is associated with the existence of a threat or potential risk.

As noted above public perceptions of the threat may be affected by the nature of the communication and the type of information that is communicated. Thus people involved in communicating about risk must have a basic understanding of risk perceptions and the critical factors that affect individual’s and community’s perceptions of risk.

This manual summarises the key factors associated with communicating with the public on matters relating to risk. It is intended to give the user an introduction to the notions of risk and risk management, the special features that make communicating about risk different to other communication processes, and a guideline for ‘how to’ communicate about risk.



1

Introduction to Risk

— What is Risk?

Risk is an important part of our everyday existence. We continually expose ourselves or are exposed to risk over which we may have little or no control. Our perception of the risks we encounter varies according to factors such as whether our exposure is voluntary or involuntary, how much control we feel we have over the risk, and whether or not we feel that the risk is 'fair'.

Increased knowledge, as well as technological and institutional changes are giving us greater control over our environment and at the same time allowing us to modify it at a much faster rate than previously. The number of risks involved is increasing and as greater knowledge does not necessarily reduce total uncertainty, the magnitude of technological and environmental risk is also increasing. Man is now able to create his own catastrophic events, without the aid of nature. Thus the danger of proceeding with new projects and activities without careful examination of the possible consequences is becoming increasingly apparent. Therefore, it is important that we make greater efforts to understand the risks involved in new projects and technologies so as to avert possible future disasters.

Some of the types of risks we encounter as a society include environmental, psychological, physical, future oriented and political risk. It is noteworthy too that as well as having varying perception as to the degree of risk involved in a particular activity, individuals and groups have different perceptions of the types of risks involved.

Because we cannot eliminate risk from our society, a common objective in all risk studies and analyses is the reduction of risk, or the minimisation of loss (maximisation of gain). This is particularly important when we do not know with any certainty what the effect of our choosing a risky action is likely to be. The most appropriate way to reduce risk is by improving our understanding and thus increasing our ability to manipulate situations so as to get 'good' results.

Understanding Definitions

Risk is defined in the Australian and New Zealand risk management standard (AS/NZS 4360: Risk Management) as *"the chance of something happening that will have an impact on objectives"*.

But what does this mean? The most important aspect of risk is that it has two dimensions, and is commonly measured in terms of the magnitude of an (adverse) effect and the likelihood of that effect occurring. Often people talk about risk as the probability of something happening without addressing the consequence – for example, the risk of a bridge collapsing. This is incomplete: it doesn't include any time period for the bridge collapsing, and it doesn't address the consequences of the collapse (people being killed, property damage or simply the cost of repair).

When we talk about a risk we must be sure that we are clear about what might happen, and we must include both the defined consequence and the likelihood. For example a Wellington earthquake risk might be described as 'the likelihood of an earthquake occurring in Wellington in the next year and resulting in the death of more than 100 people'.

When we identify risks we look at the source of the risk, the area of impact, and how the event might occur (sometimes we refer to this as the exposure pathway).

The **source of risk** is sometimes referred to as a **hazard**. More specifically a **hazard** is a source of potential harm, or a situation with the potential to cause loss or adverse impacts. In the environmental context **hazards** can sometimes be of a continuous nature, such as an ongoing

emission or consumption, or a slow leak.

An **incident** is something that happens that releases the intrinsic potential of a **hazard** and turns it into a risk.

For example, consider a large rock at the top of a cliff above a village. The rock is a hazard because if it falls, it will hit the village and cause damage (to people and property). If there were a road along the cliff top past the rock, an incident might be a truck driving off the road and hitting the rock and causing it to fall.

Note that, the risk is not the likelihood of a truck hitting the rock: the **likelihood** component of the risk must apply specifically to the end-point or the final environmental impact, and not the incident. The event of the truck hitting the rock is sometimes called the 'initiating event'. Often you need to analyse a 'chain of events' leading to the final environmental impact or effect, where each event in the chain is dependent upon the previous event occurring in the first place.

Other useful terms are defined as follows:

- **Frequency** is the measure of the rate of occurrence of an effect, expressed as the number of occurrences of an event in a given time. By definition, frequency is a numerical measure and can be used in quantitative risk approaches. Frequency can also be expressed in other suitable quantitative measures, such as per million units, per head of population, and per thousand births.
- **Probability** is the likelihood of a specific event, measured by the ratio of specific events to the total number of possible events. Probability is expressed as a number between 0 and 1, with 0 indicating an impossible event and 1 indicating an event that is certain. By definition, probability is a numerical measure and can be used in quantitative risk approaches.
- **Likelihood** is a qualitative description of probability or frequency, in relation to how likely it is that something will occur. Likelihood is used in qualitative risk analysis approaches. It is also commonly used in environmental risk management.



Risk management is about people working together to achieve objectives.

AS/NZS 4360 defines **risk management** as “the culture, processes and structures that are directed towards realising potential opportunities whilst managing adverse effects”.

The standard also defines the **risk management process** as “the systematic application of management policies, procedures and practices to the tasks of communicating, establishing the context, identifying, analysing, evaluating, treating, monitoring and reviewing **risk**”.

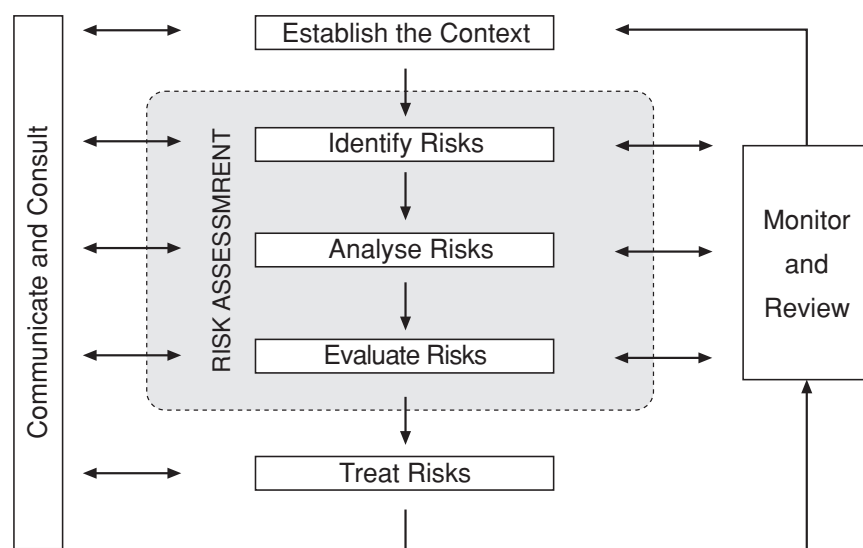


Figure 1: Adapted from AS/NZS 4360: Risk Management (2004)

From this it can be seen that communication and consultation are an intrinsic part of the basic risk management process.

The first step in implementing risk management in an organisation, or applying the risk management process to an activity, involves establishing the context. This is important for communication because it is at this point that you should identify the stakeholders, and establish a communications plan. You will need to decide which stakeholders you intend to communicate with, how you plan to do it, what you intend to say and when you will do it.

Organisations will not always want to communicate with the public. This may be for commercial or legal reasons, or because communication and consultation is expensive and may not provide value. While these are valid reasons for organisations not to want to consult and communicate, the decision **not** to do so must be made consciously.

Remember too that good internal communication is part of good management and can enhance productivity and minimise errors through ensuring that key staff understand the purpose of guidelines and assignments.

Communication and consultation need to be considered at each stage of the risk communication process (as indicated by Figure 1). How this will be done should be considered as part of the ‘Establish the Context’ step in the risk communication process.

Establishing the context for risk management, includes identifying stakeholders and deciding

on the approach to communication and consultation. This involves developing a communications plan, which may be a formal communication plan or at the very least an informal plan description.

When identifying stakeholders it is desirable to involve as wide and as diverse a group as practicable. However, in practice you will need to consider resource limitations and the scope of the risk management process. It may be useful to start by identifying a wide group of stakeholders and then to progressively select particular groups for communication.

At times an organisation may not consider it appropriate to be involved in communication with external stakeholders, for commercial or security reasons or because of political or other sensitivities. In these circumstances the communication plan should document a conscious decision not to involve stakeholders.

The communications plan may be a formal plan or simply a checklist used to make sure that all required aspects have been covered. Whichever approach is used the essential elements include:

1. The objectives of the communication.
2. The participants that need to be included, and their perspectives:
 - stakeholder groups and who specifically needs to be included;
 - (any) required specialists/experts; and
 - the members of the team.
3. The communication methods that will be used.
4. When communication and consultation will occur.
5. Criteria for evaluating the communication process.



A general definition of risk communication is:

“...any purposeful exchange of information about health or environmental risks between interested parties. More specifically, risk communication is the act of conveying or transmitting information between interested parties about levels of health or environmental risks; the significance or meanings of such risks; or decisions, actions, or policies aimed at managing or controlling such risks.”

(Davies et al., 1986).

There is no single ‘right’ way of estimating or assessing risk and because expert and lay estimates of risk are different, this does not necessarily imply that lay estimates are ‘wrong’.

Therefore, risk communication should not be viewed as a means for experts to ‘educate’ the public into their way of thinking about the world. It is a two-way process aimed at improving the credibility of decisions; it involves the technical community, the public and the media. It is a means of transferring information between all interested parties and provides an arena for discussing different viewpoints.

The key feature of effective communication is that it should be a genuine effort to involve all parties for the purpose of resolving an issue. In the same way that risk assessment should be directed towards making a decision (choice is one of the elements of risk), risk communication must have an outcome.

However, this does not necessarily mean that we can now resolve all risk conflicts. It may be that we can provide an extremely effective community participation process achieving excellent communication between all groups involved in an issue. However, if the conflict arises from a conflict of values, then there may be no possible consensus solution. Information can assist conflict resolution only when there are misunderstandings between interested parties, when misconceptions have arisen or when opposing groups are prepared to make trade-offs.

Risk communication comprises two facets: “scaring people” and “calming people down” or alerting and reassuring people. There are moderate hazards that people are apathetic about or minor hazards that people are outraged about. Risk communication tries to create a level of ‘outrage’ appropriate to the level of hazard.

When risk communication processes were initially proposed some experts believed that it would be possible to solve all conflict simply by providing the public with ‘better’ information. This has indeed been the case in some instances, however, there have also been a number of studies of conflicts where the public is not prepared to accept that the experts’ viewpoint is ‘better’ and, with hindsight, most experts who have been involved in risk communication processes now have a greater understanding of the public’s attitudes and concerns.



The experience of risk communication to date has at times been unsatisfactory for everybody involved. Those who are sending messages may feel that they have not been listened to or understood, and those receiving the messages may feel that they are not being provided with the information they are asking for. Although a two-way communication process may be in place, the messages are still missing their targets.

At the other extreme, a number of excellent risk communication processes are operating on an on-going basis, but they are not being recognised as such.

Risk analysts and decision makers see the process of risk communication as a way of potentially reducing conflict between experts and the public. Both experts and decision makers have become concerned about the public's apparent unwillingness to accept expert technical assessments without question. The public, for its part, is eager both to put forward its own point of view as long as it believes that this point of view is being given a fair hearing and, for the most part, is in return prepared to listen to expert opinion.

From the political perspective, risk communication initiatives have arisen from a recognition that ultimately 'power' resides with the public. Incidents such as Bhopal, Chernobyl, Love Canal and Three Mile Island have shown decision makers that an erosion of public trust can affect areas beyond the immediate focus of the incident. The net effect is that the question becomes not why communicate, but how can agencies involve the public and still make effective, efficient decisions.

At a different level, the public has been shown to be willing and able to bring economic pressure to bear by refusing to purchase products that it believes are unsafe (beef from hormone-treated cattle, foods containing certain chemicals or genetically-modified components, etc.).

The importance of communication and public involvement in decision-making processes is associated with the need to 'make decisions stick'. If the public is unhappy about a particular outcome then it can reduce the efficacy of a decision by intransigence, the instigation of costly appeal processes, and by simply refusing to purchase an item. If the public has been involved in the decision there is a greater likelihood of commitment to making the outcome work as a result of a sense of ownership of the decision.

Risk communication differs from risk assessment in that risk assessment deals with the physics and chemistry and probability of something happening. Risk assessment defines risk as magnitude (how bad the problem could be) times the probability (how likely it is to happen).

Experts tend to focus on this definition (let's call it hazard), and so underestimate actual risk, because they ignore outrage. The public tends to focus instead on outrage and pay less attention to risk (hazard).



Any approach to risk communication requires first identifying all those groups and individuals who might be expected to be involved. This initial exercise should be very broad and include those who might be indirectly affected as well as those who have a direct stake or interest. It is better to include some who may choose not to be involved than to ignore or neglect groups or individuals who believe they should have been included, since bringing them into the proceedings at a later date may negatively bias their reactions to the process.

It may also be necessary to include representation for groups who are not currently involved, such as future generations, or prospective tourist interests (in the same way that non-market valuation methods attempt to take account of 'existence' values).

Having determined all the potential groups and individuals involved, it is time to consider the operation of communication channels by establishing lines and directions of communication - who transmits messages to whom. At this stage the credibility of those giving the message should be considered (see Section 7: Trust and Credibility).

Part of the process of determining who should be involved may involve training and mobilising mediators who will identify parties and provide a vehicle for the communication.

Risk Communication is a dialogue...

- Match communication methods with audience.
- Match message types with audience.
- Learn how to work with the media.
- Anticipate public needs.
- Above all, keep it simple!

Risk communication Myths

Myth: There is not enough time to develop a risk communication plan.

Response: Establish protocols and procedures before the event. Once the structure is in place it can be quickly modified to a specific situation.

Myth: Risk Communication is more likely to alarm than calm.

Response: Not if done properly. Educate and inform, don't simply alert and alarm. Give people the chance to express their concerns, ask questions and receive accurate answers.

Myth: Communication is less important than education. If people knew the true risks, they would accept them.

Response: Education is achieved through effective communication. Pay as much attention to your process for dealing with people as you do to explaining the content of the information.

Myth: Many issues that arise in times of crisis are too difficult for the public to understand.

Response: No, they aren't. Risk Communication helps the public understand these issues no matter how complex they may be. The public may not make technical decisions, but their opinions deserve consideration by those who are making those decisions.

There are no hard and fast rules for choosing what method to employ in reaching people. Different circumstances will require different responses and it is very much a case of matching the method to the particular situation. A pamphlet might be appropriate to a known local issue, but it would obviously be useless in the event of a crisis. Crisis situations, involving angry or frightened people, require a more immediate response and most likely one relying on human interaction rather than the printed word.

Communication methods basically fall in to four categories:

- written or audio-visual;
- person-to-person (either individual or group);
- via radio, TV and newspapers; and
- interactive approaches (such as questionnaires, workshops and freephone numbers).

Communication methods

- Media (print and broadcast)
 - newspapers
 - magazines
 - radio and TV
- Websites
- Seminars/workshops
- Meetings (both formal and informal)
- Site tours
- News releases and fact sheets
- Videos
- Direct mailings

In choosing the most appropriate communication method, the following need to be taken into account:

- The lead time in preparing a response (this will depend on the issue being addressed; if time is not an issue written material can be prepared. If time is short, informal meetings or media interviews would be the better options);
- Audience needs (people may not want what you are offering them);
- Degree of interaction needed (situations involving angry or frightened people need an interactive response, such as a question and answer meeting; a one-way approach, such as a pamphlet or letter, may exacerbate the situation);
- Degree of controversy (the more controversial an issue, the more likely it will need person-to-person interaction. Controversy also suggests the need for smaller rather than larger meetings);

The First Questions to Ask...

- 1 What information is crucial to convey in initial and subsequent messages in order to prompt appropriate public responses?
- 2 What are the messages to be delivered prior to, during, and after an incident?
- 3 What are the obstacles to effective communications and how can they be minimized?
- 4 What are the opportunities for effective communications and how can they be maximized?
- 5 What questions can be anticipated from the public?
- 6 What are the news media's responsibilities and how can you help reporters meet them?

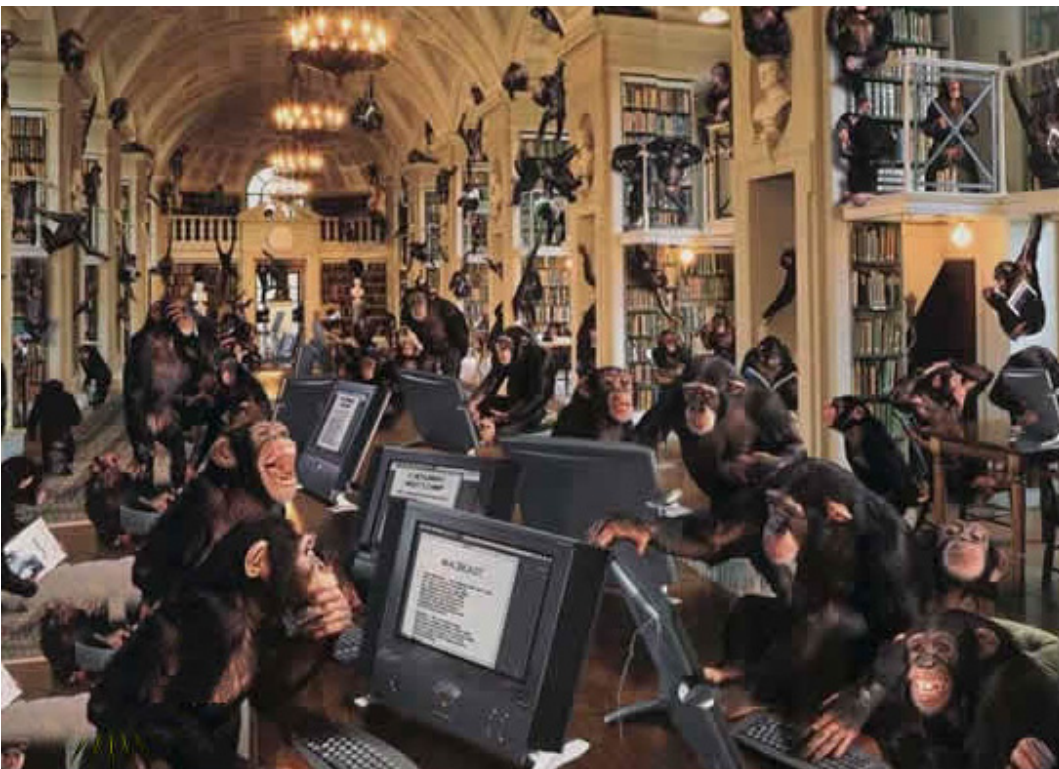
- Distribution methods (before producing anything you need to ensure that the delivery method is feasible, appropriate and timely);
- How much detail is required (in general, more detail requires more written communication).

Whatever methods are used, ensure that information is given out early enough to allow people to feel part of the decision-making process and that there are feedback mechanisms for soliciting their response. You may need to modify your communication methods at short notice. Be prepared!

How do you know you've succeeded?

“Successful risk communication does not imply optimal risk decisions; it only ensures that decisions are informed by best available knowledge and that people feel they’ve been both heard and adequately informed.”

National Research Council (1989)



7

Trust & Credibility

— can what you say be trusted?

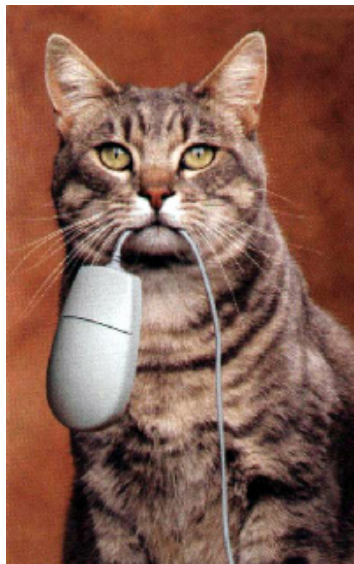
Credibility is one of the major issues associated with risk communication. It is extremely easy to lose, and very hard to build it up again. If credibility is lost (for example by withholding or misrepresenting information), people will no longer trust what you have to say and the risk communication process can be doomed to failure.

The way in which material is presented is an important aspect of the credibility of the information. People react well to graphs and pie charts, but do not react well to statistics in terms of percentages especially when dealing with very small numbers. One part per million or one part per billion is totally meaningless. Equivalently, publicity stunts such as offering to drink a glass of water output from a sewerage plant offends the intelligence of the public.

The timing of communication is another crucial aspect. 'When' depends upon the type of risk situation such as siting, emergency preparedness or emergency response. For prospective projects the emphasis should be on commencing the communication process as soon as possible by informing the public immediately the project is planned or as soon as any evidence of risk becomes apparent. The public always prefers the option of making up its own mind given the available evidence.

Establishing Trust and Credibility

- People trust a message if they think it's true and reliable and the communicator is competent and honest.
- The information conveyed must be perceived as accurate, objective, and complete.
- People have confidence in a source if their trust has been rewarded over time.
- Many people sharing this confidence creates credibility.



Who does the public trust?

(Source: *Trust in People*, MORI, 2002)

- 91% — Doctors
- 85% — Teachers
- 80% — Clergyman/priest
- 77% — Professors
- 71% — Television news readers
- 64% — Scientists
- 54% — The ordinary/man woman in the street
- 45% — Civil servants
- 25% — Business leaders
- 20% — Government ministers
- 19% — Politicians generally
- 13% — Journalists



Two messages – but which is the more important?
(whether this is a genuine sign is open for debate...)

- Avoid secrecy.
- Help people quantify risk.
- Communicate broadly.
- Remember that knowledge of local history and circumstances is essential.
- Acknowledge that when you are dealing with the public there are no ‘dumb’ questions.
- Examine all aspects of your communication.
- Look for economic issues.
- Beware of ‘killer’ words.
- Identify common themes and deal with them.
- Take the initiative, especially when you have negative information.
- Co-operate on an industry-wide level.
- Give people time to assimilate complex issues.
- Avoid ‘duelling’ scientists (a yours and ours situation).
- Evaluate your efforts (risk management and communication procedures improve when they are properly evaluated).
- Be frank when dealing with the media.
- Be available to approaches from journalists and develop good relations with local media representatives.
- Follow some basic rules for preparing news releases concentrating on the questions ‘who’, ‘what’, ‘when’, ‘where’, ‘why’, and ‘how’.
- Write clearly and simply.
- Look for opportunities to tell your own story.
- Look for ways of developing your profession or agency’s profile in the community.
- Make sure all members of your organisation are aware of the need for good public relations.
- Be aware of local, regional and national issues.
- Admit uncertainties.
- Be aware of the factors that inspire trust.
- Pay attention to process and explain (agency) process.

First, do no harm...

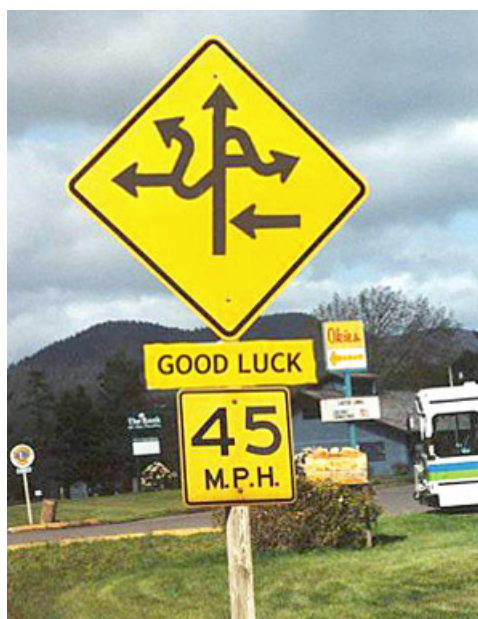
The cardinal rule of risk communication is the same as that for emergency medicine: first do no harm. A threatening or actual crisis often poses a volatile mix of public action and reaction.

Seven Rules of Effective Risk Communication

1. Accept and involve public as a partner.
2. Plan carefully and evaluate efforts.
3. Listen to concerns.
4. Be honest, frank and open.
5. Work with other credible sources.
6. Meet the needs of the media.
7. Speak clearly and with compassion.

- Be forthcoming with information and involve the public from the outset.
- Focus on building trust as well as generating good data.
- Only make promises that you know you can keep.
- Provide the information that the people need (and want - the two may be different).
- Enlist the aid of credible community organisations.
- Pay as much attention to the community's perception of the risk, and to the community's concerns, as to scientific variables.
- Involve the community in the decision-making process as much as possible.
- Pay attention to process matters.
- Release information early (even if this means saying that you don't know).
- Address community concerns when explaining risk (try to consider their perspective).
- Put data in context.
- Choose risk comparisons carefully.
- Remember that communities - not the agency - must decide what is acceptable to them.
- Remember that effective communication must be supported at all level of agency management.
- Acknowledge uncertainty.
- Listen to what groups are trying to tell you.

A discussion of statistical probabilities and how they translate into a “relatively minimal-risk scenario for the average citizen” might be fine for scientists, but for the general public such a discussion will only confuse the issue and fail to meet the goals of informing and easing concerns. If the risk is low, say, “the risk to the public is low.”



- Assume people on the other side of the risk issue don’t know the subject.
- Assume that low turnout at official meetings means a lack of interest.
- Rely on the media to tell you how you are doing (that is, evaluate your own efforts).
- Give mixed messages.
- Tell the community that things cannot be done because it is too expensive.
- Provide great quantities of statistics that have little meaning to the general public (try to find out what they really want to know about).
- Alienate your public by using analogies that are meaningless in the context.
- Never use the phrase “no comment”; it implies a sense of secrecy and suggests that you know something you are not willing or allowed to share.
- Don’t make comparisons with risks that the public does not see in the same terms (e.g. compare road accidents with nuclear power plants).

Top Ten Top Worst Actions

1. Appearing unprepared.
2. Handling questions improperly.
3. Apologising for yourself or organization.
4. Not knowing your information.
5. Unprofessional use of audiovisual aids.
6. Seeming to be off schedule.
7. Not involving participants.
8. Not establishing a rapport.
9. Appearing disorganised.
10. Providing the wrong content.

Notice that the ‘do’ list is much longer than the ‘don’t’ list. This gives emphasis to the final point of DO be positive rather than negative (but not to the point of suppressing negative information).

This doesn’t work!

Radon risks can equal or exceed the 2% risk of death in an auto accident for anyone who lives 20 years at levels exceeding about 25 picocuries per liter.

(R.A. Kerr, *Science* (1988))



Major Steps in Developing a Risk Communication Plan

1 Determine objectives for the communication

set clear objectives for the particular proposal or action

The types of risk communication are:

- information and education
(example: comparing options for electricity generation)
- behaviour change/protective action
(example: road safety campaign)
- emergency information/disaster warning
(example: natural disasters, fire, contamination)
- conflict resolution
(example: siting of a new landfill)

Each will require a different approach and timeline; emergency situations do not allow the luxury of time, thus these must be prepared in anticipation.

2 Identify stakeholders, their objectives and motives

involve as wide a group of affected/interested parties as possible

Stakeholder involvement may be influenced by:

- personal/business concerns (health, environmental, economic, aesthetic, fairness, etc)
- prevailing attitudes
- level of interest in a particular proposal/action
- local or institutional histories
- level of knowledge/understanding
- preconceived opinions/influence of media or others
- reason for interest (personal; professional; business)
- type of involvement (active or passive).

It is better to involve too many than too few at the beginning; it is obviously harder to involve people once the communication process is underway.

3 Prepare information and pre-test

Unless an emergency situation, allow sufficient time to prepare, test and revise your message

- tailor the information to the audience
- if uncertainty exists, admit it
- relate risks by meaningful comparison

- concentrate on brevity and clarity- the aim is to get the message across and understood
- avoid ‘blinding with science’; statistics, tables and charts may encapsulate your message, but you may alienate your audience in the process.
- decide on spokespeople if the message requires a ‘human face’.
- pre-test your message with representatives of the intended audience.

4 Determine communication channels

Timing, complexity and communication objectives will dictate preferred media

- find out which media people trust
- learn how to work with the media
- match the medium to the message (public meetings serve a very different role to a posted brochure for example)
- match the medium to the audience (older people, for example, may not use the internet).
- to gauge opinion or solicit a response use interactive processes (public meetings, surveys, web pages);
- anticipate what information stakeholders will need!

5 Design feedback mechanisms

risk communication is dynamic; if at first you don’t succeed, try another way

- consider from the outset what mechanisms are available for stakeholder response (these might be formal or informal meetings, telephone hotlines, surveys or interviews).
- have alternatives available for when it is clear your message isn’t reaching the intended audience.
- listen to what you are told and react accordingly.

6 Start the communication process

- get information out early enough to allow people to feel part of any decision-making process
- allow for different lead-times in different media (don’t promote a web site in your brochure if the site isn’t yet live)
- make sure all resources are in place before you start!

7 Evaluate strategies throughout the process

- analyse feedback from all sources (both formal and informal)
- be prepared to modify message, medium or both
- monitor the media
- ensure any changes you make in the process are consistent with what has gone before!

8 And finally— review the entire process at its conclusion

what went right, what went wrong...

General Risk Communication Issues

- establish goals
- what are the key issues?
- public perception vs reality
- different risks require different responses

Major Steps in Developing a Risk Communication Plan

- determine objectives
- identify stakeholders
- design and pre-test messages
- determine appropriate communication channels
- design feedback mechanisms
- disseminate information
- evaluate continuously!

Trust/Credibility Issues

- openness vs sensitivity
- when and how to release information
- planning before the event
- avoiding conflicting/contradictory information
- left hand/right hand issues
- organisational procedures – make sure all are involved
- not underestimating concern/level of knowledge

Effective methods of communicating risk

- choose appropriate communication channels
- provide clear access points for information
- ensure the clarity of message
- deal openly with uncertainty
- match the method to the degree and longevity of risk
- the aim is to reassure, not alarm!

Effective communication strategies

- know what methods are available and when one is more appropriate than another
-

- know the best ways to disseminate critical/non-critical information
- determine actions to take before, during and after the event (anticipation/preparation)
- target the message – different groups might require different levels of information

Evaluating Risk Communication programmes

- did the message reach the intended audience?
- how well was it understood (and how will you assess this)?
- did it achieve the desired outcome?
- did people change their behaviour/take appropriate actions?
- was any one communication method better than another?
(if so, how can this information be used in the future)

Explaining Risk

- put data into the appropriate context (target the explanation to the audience)
- make numbers meaningful (eg use 'one in a million' rather than '0.0001%')
- don't 'blind with science' (again, target the explanation to the audience)
- avoid trivializing risk
- people's concerns should receive equal emphasis to technical data
- anticipate and respond to people's concerns
- what do people want to know?
- avoid comparisons/explanations that can be misinterpreted

Dealing with the Media

- know *what* to say (prepare and anticipate)
- know *who* is going to say it (thus avoiding contradictory/conflicting information)
- make the message personal and relevant to the audience
- know what *not* to say (don't lecture, obfuscate or trivialise)
- know *how* to say it (use plain English, speak to the audience, avoid ducking questions, be honest, etc)

What not to do

- be unprepared
- mismanage questions
- apologise – for inactivity, lack of information, etc
- use inappropriate media/level of presentation, etc
- ignore/not include those affected/involved
- provide the wrong/outdated/contradictory information
- dismiss people's concerns

Case Study

Project: The Clyde Dam

Background

The Clyde Power Station is New Zealand's third largest hydro power station, with a generation capacity of 400 megawatts. It is the largest concrete gravity dam and incorporates the latest "state of the art" technology. There are a million cubic metres of concrete in the dam, with a further 200,000 in the powerhouse. Construction took place from 1977 to 1989. The station can produce 432 megawatts of power from its four turbine generator units. The dam had a controversial history, with enormous public debate around its construction and the consequent submersion of part of the Cromwell township and gorge. It was subject to labour disputes and enormous cost overruns, setting a foundation of distrust and cynicism before lake fill.



Before Lake Dunstan, behind the dam, could be filled and the power station commissioned, a great deal of landslide stabilisation work was carried out behind the dam. More than 14 kilometres of tunnels were excavated into the hillsides to prevent water build-up that could destabilize the hillsides. Huge buttresses of compacted rock and gravel have been built to strengthen the hillsides and a total of 3,500 measuring and monitoring instruments have been installed around the lakeshore. Stabilisation work is still being carried out on the hillsides of the Cromwell Gorge.

The risk: Movement of the hillsides behind the Clyde Dam, caused by high water tables, and presenting a risk of landslides into the new lake and resulting waves overtopping the dam.

The communication approach: Dam owner, Electricorp, took a reactive approach to its communication with the community and media, keeping information from the public until pressure required comment.

The outcome: Public pressure combined with community anecdotal knowledge forced acknowledgement of the instability of the hillsides behind the dam. The organisation embarked on a strong issues communication programme, using media tours, experts and release of information and reports to regain public trust.

Assessment: This was a public safety issue. The local community in Cromwell and downstream of the dam perceived themselves as bearing the risk in order to benefit the country as a whole in electricity generation. There were also vested commercial, government, government departmental and SOE interests. The Cromwell community also had a financial interest, through potential economic development opportunity losses.

Evaluation

The communication process

Once the question of hillside instability became a public issue in mid-1989, dam owner Electricorp gave repeated reassurances about the safety of the hillsides, still citing lake-fill as taking place in September of that year. Renewed questioning and comparisons drawn with a dam-break in Italy brought about a commissioning of a risk assessment and report, with a "calming" approach taken when acknowledging this and the possibility

of a delayed lake-fill. Information was provided through the media and to the local council, as work proceeded and to counter rumours. In late 1989 Electricorp responded to speculation with a major media conference and a tour of the earthworks to reveal the full extent of the known landslide areas, with senior executives on site to field media questions. From this point onwards, the SOE was increasingly open with information. They also brought in overseas experts to provide a positive perspective on the actions taken during the 1980s and to counter the generally cynical climate of local public opinion.

So what went wrong?

Electricorp did not undertake communication with the public when it became aware that already identified land movement (in 1977) was more extensive than first thought. As a result, communication was reactive and defensive.

Honesty and transparency were absent in the first few years, with first denial, then release of small amounts of information when pressed. Information was technical, with little attempt in the first instance, to put complex geological and engineering data into lay language. This left room for error and misunderstanding as journalists attempted to translate for readers.

There was little, if any, acknowledgement of the public's concerns or validation of local knowledge. Communication when undertaken, was one-way, with the media initially relied on as the main conduit of information.

Because of a now-cynical media, efforts to communicate the risk probabilities were perceived as an attempt to sidestep the issue and downplay the risk in the face of a moderately high level of public outrage.

By 1990, Electricorp released a report that stated the landslides were potentially catastrophic, and acknowledged that lake fill would probably be as late as 1993.

Blame for the delays and consequent cost overruns was publicly shifted on to the contractor, Works Corporation, which in turn denied liability.

Regret for the effects of the delays on Cromwell in particular, was not expressed.

Glossary

Consequence:	the outcome of an event expressed qualitatively or quantitatively, being a loss, injury, disadvantage or gain. There may be a range of possible outcomes associated with an event.
Event:	an incident or situation which occurs in a particular place during a particular interval of time.
Frequency:	a measure of likelihood expressed as the number of occurrences of an event in a given time. Frequency may also be expressed in other suitable measures, such as per million units, per head of population, per thousand births.
Hazard:	a source of potential harm, or a situation with a potential to cause loss or adverse effect.
Likelihood:	used as a qualitative description of probability or frequency.
Outrage:	a term that has been used to describe the reaction of the public to certain risks that they believe are being imposed on them. It comprises a subset of the hazard factors listed above. The factors that trigger 'outrage' are related to the degree of voluntariness, familiarity, control, equity, and moral relevance, distribution in time and space, and the nature of the risk.
Perceived risk:	<i>see risk perception</i>
Probability:	the likelihood of a specific outcome, measured by the ratio of specific events or outcomes to the total number of possible events or outcomes. Probability is expressed as a number between 0 and 1, with 0 indicating an impossible outcome and 1 indicating that an event or outcome is certain.
Qualitative risk assessment:	As explained in the text, where the likelihood or the magnitude of the consequences are not quantified, the risk assessment is referred to as qualitative.
Quantitative risk assessment:	risk assessment where the probability or frequency of the outcomes can be estimated numerically and the magnitude of consequences quantified so that risk is calculated in terms of probably extent of harm or damage over a given period.
Residual risk:	the remaining level of risk after risk treatment measures have been taken.
Risk:	the chance of something happening that will have an impact upon objectives (It is measured in terms of consequences and likelihood).

Risk acceptance:	an informed decision to accept the consequences and the likelihood of a particular risk.
Risk identification:	the process of determining what can happen, why and how.
Risk management:	the culture, processes and structures that are directed towards the effective management of potential opportunities and adverse effects.
Risk management process:	the systematic application of management policies, procedures and practices to the tasks of establishing the context, identifying, analysing, evaluating, treating, monitoring and communicating risk.
Risk perception:	the way in which individuals estimate risk. Risk perception cannot be reduced to a single parameter of a particular aspect of risk, such as the product of the probabilities and consequences of any event. Risk perception is inherently multi-dimensional and personal, with a particular risk or hazard meaning different things to different people and different things in different contexts (adapted from Royal Society, 1992).
Risk reduction:	a selective application of appropriate techniques and management principles to reduce either likelihood of an occurrence or its consequences, or both.
Stakeholder:	those people and organizations who may affect, be affected by, or perceive themselves to be affected by, a decision or activity. The term stakeholder may also include interested parties.
Tolerable risk:	risk which is accepted in a given context based on the current values of society.
Uncertainty:	a lack of knowledge arising from changes that are difficult to predict or events whose likelihood cannot be accurately predicted.

Selected Useful Resources

There is an extensive literature on risk and risk communication. The following lists resources that would be useful in developing and implementing a risk communication plan.

Books

Chess, C, Hance, B J and Sandman, P M, 1989. *Planning Dialogue with Communities: a Risk Communication Workbook*, Environmental Communication Research Programme, Rutgers University, New Brunswick, New Jersey.

Elms, D (ed.), 1998. *Owning the Future: Integrated Risk Management in Practice*, CAENZ, Christchurch, New Zealand.

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United States Presidential/Congress Commission on Risk Assessment and Risk Management, 1997. *Framework for Environmental Health Risk Management*, Presidential Commission, Washington.

United Kingdom Cabinet Office Strategic Unit, 2002. *Risk: Improving Government's Capability to Handle Risk and Uncertainty*, London.

Articles and reports

Flynn, J and Slovic, P, 1999. "Expert and public evaluations of technological risks: Searching for common ground", *Risk Analysis* 19(2):153-66.

Gough, J D, 2001. *Changes in Understanding, awareness and preparedness for natural hazard risk - Franz Josef Glacier*, Institute for Geological and Nuclear Sciences Science Report Institute for Geological and Nuclear Sciences Science Report 2001/22.

New Scientist, 2002. "Don't keep secrets", *New Scientist*, Editorial 18 March 2000.

Renn O, 1998. "The Role of Risk Communication and Public Dialogue for Improving Risk Management", *Risk Decision and Policy* 3: 5-30.

Rohrman B, 1998. "Assessing hazard information/communication programs", *Australian Psychologist* 33:105-12.

Slovic, P, 1987. "Perception of Risk", *Science* 236:280-285.

Websites

- New Zealand Society for Risk Management* — www.risksociety.org.nz
- Society for Risk Analysis* — www.sra.org
- Center for Environmental Communication* — <http://aesop.rutgers.edu/~cec/>
- Articles by Peter Sandman* — www.psandman.com/webpubs.htm
- Riskworld* — www.riskworld.com

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