

**A Primer on  
Perceptions of Risk,  
Risk Communication and  
Building Trust**

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## PREFACE

The Keystone Center with support from the U.S. Department of Energy National Energy Technology Laboratory (NETL), produced this paper to aid in outreach and education for carbon sequestration activities, specifically to address methods for communicating any risks and benefits of geologic carbon sequestration to the public. Geologic sequestration (or geo-sequestration) involves injection of carbon dioxide in geologic formations, such as unused oil and gas wells or coal bed seams, to prevent emission to the atmosphere and can help reduce potential climate change, without large shocks to the nation's energy infrastructure.

This paper was written primarily for those involved in sequestration research, to help as they begin to engage people in the communities surrounding their planned research sites. Though this paper can be applied to any large energy-, land- or water-intensive project, many of the examples given in this paper will be relevant to geo-sequestration.

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## INTRODUCTION

*Statistically speaking, there is a far greater chance of being run over by a motor boat than being eaten by a shark. The reality, though, is no one will ever make a movie called 'Propeller'*  
-- Kirk Smith, East-West Center of Hawaii.

A reading of the daily newspaper often feels like it was written by Chicken Little, with the sky falling at every turn. Headlines are filled with new diseases such as West Nile Virus and Severe Acute Respiratory Syndrome (SARS); the threat of terrorist attacks that could unleash biological and chemical weapons; crazed snipers in Columbus, Ohio and Washington, DC and new studies that show some everyday product causes cancer. At the same time, movie thrillers offer other risks: the threat of a meteorite crashing on Earth, of nuclear radiation causing mutations to create monsters like Godzilla, or invasions by extraterrestrials. Humans are fascinated, scared, and thrilled by catastrophe and the perceived risks.

Some of the more fantastic risks, like those we see in the movies, are mainly entertainment. Others may be strictly technical issues with mutual agreement on the problem at hand and the solution to remedy it. Some risks though, such as safety and security risks and the possible erosion of civil liberties, pit one segment of society against another or even one nation against another, and may involve fundamentally different approaches by stakeholders with core values that are polar opposites. The more challenging the risk, the more difficult it is to manage. Identifying the types of demands that are faced by different prospective audiences is one of the key first steps to communicating and managing risk and building trust with the public.

Those responsible for ensuring safety to the public face two key challenges. The first is to communicate risks in a manner that acknowledges the emotional content and provides information to assuage concerns. The second is to engage the public so that they become effective partners in addressing and overcoming risks. Communication and engagement are key elements of effective stakeholding.

Different groups can view the same set of issues through different lenses. Working with different stakeholders provides different frames of reference and units of analysis to approach the same issues. Rather than a one-size-fits-all approach, listening to and using the language of

different stakeholders allows for different approaches to a similar set of issues, yields higher levels of trust, and creates longer lasting decisions.

This paper will touch on effective diagnostic tools to help practitioners identify problems, communicate effectively, and engage the public. It is intended as a guide for those engaged in projects with potentially large impacts on the environment or to society. This is particularly true for projects that affect local communities, but may simultaneously have national repercussions.

The common thread through problem identification, risk communication, and stakeholding is the element of trust. As will be noted throughout this paper, trust is difficult to create and easy to lose; once lost, it is extremely difficult to regain. If risks are identified properly and communicated effectively, those people or agencies creating risks can become an effective partner with the public. Done awkwardly or poorly, the reaction from the public can be the same as if Godzilla was approaching to destroy the town.

## **PROBLEM DIAGNOSTICS AND TYPING**

*“For every complex problem there is a simple solution. Normally, the solution is wrong.” -- Anonymous*

American culture is built on different stakeholder interests, each, according to Susan Podziba, reflecting “a chaotic mix of passions, values, interests, emotions, self interest, and altruism.”<sup>1</sup> Hence the power to accelerate, stop, delay, or checkmate good projects is pluralistic and rests in many hands.

In the best case, problems are diagnosed early through anticipation strategies and then averted through smart project plans and early interaction with stakeholders. In the extreme, projects become embroiled in disputes which become protracted, entrenched, politicized, and unpredictable. There are a number of tools that decision makers can use to increase their chances that stakeholders become part of the solution rather than part of the problem. One of the first tools is identification of the kind of communication that is needed. This is accomplished through evaluation of the complexity of the problem.

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<sup>1</sup> “The Human Side of Complex Public Policy Mediation,” Susan Podziba, in *Negotiation Journal*, October 2003, p. 285-290.

Decision makers, project planners, and project managers need to distinguish at least three broad categories of problems.<sup>2</sup> As illustrated in Table 1, these categories or “types” are defined by two factors: a) the degree to which there seems to be a common and accepted definition for a problem, and b) the degree to which there is agreement on a list of possible solutions.

**Table 1: Problem Typing**

	<b>TYPE-1 ("Technical/ Convergent")</b>	<b>TYPE-2 ("Value/ Divergent")</b>	<b>TYPE-3 ("Wicked/ Intractable")</b>
<b>Agreement on Problem Definition</b>	Yes	Yes	No
<b>Agreement on Possible Solutions</b>	Yes	No	No

Issues with any degree of depth, breadth, or complexity rarely fit perfectly into these neat categorizations. Use of this typology is therefore diagnostic rather than formulaic or prescriptive. Project managers as well as researchers will do well to examine potentially stubborn issues and problems with an eye towards (a) identifying the Type-I, II, or III characteristics; (b) identifying different potential leadership strategies and interventions (including the option of waiting and doing nothing) that are suggested by the problem diagnostic; (c) designing an appropriate choreography for bringing people, process, and data together when and if “doing something” is appropriate; and (d) approaching implementation as an improvisation, as if one were playing jazz.<sup>3</sup> We explore each of these types of problems and some suggested strategies and leadership models to guide the communication and public engagement which is appropriate.

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<sup>2</sup> The three categories described in this paper have been distilled from the work of different writers including James Adams in *Conceptual Blockbusting* (1974), Ronald Heifetz in *Leadership Without Easy Answers* (1994), Edward deBono’s many books, especially *Lateral Thinking* (1970), E.F. Schumacher’s *A Guide For the Perplexed* (1977), Edward Tenner’s *Why Things Bite Back* (1997), and -- most especially, the writings of Professor Nancy Roberts which include *Wicked Problems and Network Approaches to Resolution*, at <http://www.willamette.org/ipmn/test2/issue1/ejchapter1.htm> (Sept. 23, 2000) and “The Transformative Power of Dialogue” in Vol. 12, *Research in Public Policy Analysis and Management*. New York, JAI, 2002.

<sup>3</sup> See Howard Bellman, “Some Reflections on the Practice of Mediation,” *Negotiation Journal*, Vol. 14. No.3, July, 1998 pp. 205-210.

## **Type-I Problems and the Myth of Conventional Problem Solving**

*“Each situation changes each situation.” -- John Madden*

“Type-I” problems are fundamentally “how to” questions. They are technical or, to use E.F. Schumacher’s term, “convergent” in nature, meaning they can be intellectually bounded and there are high levels of agreement on both the definition of the problem and a short list of possible fixes. The more that people of reasonable intelligence and reasonable good will study these problems, the more likely it is that possible solutions will congregate into a narrow range of choices.

Generally, Type-I problems are amenable to expert-generated solutions. Intrinsicly, these problems tend not to require much consideration of values and beliefs and may not even always require high levels of participation and involvement by those who have the problem. Hypothetical examples of Type-I problems might include retrofitting an older water system for conservation (“how do we best fix up old pipes”), finding the best route to Mexico City (“how can we get to Mexico City as quickly and comfortably as we can”), setting a broken arm (“how do we reduce the fracture so it heals the fastest and with the least amount of discomfort”), or eradicating a termite infestation (“how do we get rid of the termites without poisoning the people inside”).

To say that Type-I problems are technical in nature is not to say that they are simple. Think, for example, of the Apollo 13 mission during which astronauts Lovell, Haise, and Swigert were stranded 205,000 miles from Earth in a broken spaceship and with most of their life-support systems at or near failure. Or consider the challenges of designing, testing, and commercializing a new generation of hydrogen-fuel cell vehicles, to say nothing of the roadside service stations that will be needed to support them, and the energy infrastructure to manufacture hydrogen. Or searching for survivors in the aftermath of a major earthquake, or designing and drilling a mile-deep hole to test deep geologic formations. Or even the more day-to-day professional tasks performed by traffic engineers, tree trimmers, dentists, architects, forklift operators, plumbers, and social workers.

Most professionals and trades-people – truck drivers, lawyers, printers, and doctors, to name a few more – are taught one or another version of a basic planning and problem-solving

model that has many variations. While steps and phases will differ from author to author, the usual fundamentals are described in Table 2.

**Table 2: Conventional Type-I Problem Solving Model**

<ol style="list-style-type: none"><li>1. Problem identification;</li><li>2. Analysis and information gathering;</li><li>3. Formulation of alternative solutions;</li><li>4. Formulation of criteria for weighing alternatives;</li><li>5. Scaling and weighing choices;</li><li>6. Choosing the optimal solution;</li><li>7. Implementing the solution;</li><li>8. Evaluating the solution and making appropriate changes as needed.</li></ol>
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This problem-solving model has many variations.<sup>4</sup> Interestingly, research suggests that few professionals use it.<sup>5</sup> More often, professionals tend to first formulate their own (rather than a collective) sense of the problem, leap intuitively to a possible fix, then find the flaw with the fix, then find a new possible fix, and so on. This “intuitive” rather than analytical approach sometimes works, but it is also vulnerable to breakdown. The reasons for this have little to do with the nature of the problem or the nature of the fix, but more because of interaction issues: competing egos, differing agendas, divergent paces, dissimilar mental roadmaps (deductive vs. inductive reasoning, big picture vs. detail orientated, etc.), and the perennial tension that emerges in groups between “good” and “perfect” solutions.

Conversely, the disciplined, sequential, and bounded problem-solving processes learned by most professionals turn out to be quite useful when problem-solving requires people to work together on issues that are dominated by Type-I characteristics. Bringing leadership to more

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<sup>4</sup> For two examples, see Roger Fisher and William Ury’s *Getting To Yes*, Houghton-Mifflin, 1981, p.70 and Gary Goodpaster’s *A Guide to Negotiation and Mediation*, TransAtlantic Publishers, 1997, p. 92.

<sup>5</sup> Notable research includes an experimental simulation done at the Microelectronics and Computer Technology Corporation (MCC).



challenging Type-I problems seems to require a disciplined version of the steps outlined in Table 2 when experts need to work together, when other conflicts are present, or when a problem appears to be extraordinarily complex. The conventional model doesn't need to be used all the time, but it will have salutary effects when chaos threatens to overwhelm the usual "problem-fix" intuition. In this kind of situation, skilled third-party facilitators can potentially do a great service by holding people's feet to the fire and keeping them working in a disciplined manner.

### **Type-II Problems and the Misapplication of Type-I Problem Solving Strategies**

*"People, things, unseen forces, sort of come together from time to time."* --Michael Connelly

If Type-I problems are characteristically "Technical/Convergent" in nature, Type-II problems are best thought of as "Value/Divergent." The more that people of reasonable integrity, reasonable good will, and reasonably good working relationships study such matters, the more likely it is that ideas about "the reasonable solution" seem to swerve away from each other. Even though there may be general agreement on the definition of the problem, there is little or no agreement on potential solutions. In fact, solution-seeking discussions force confrontations between people; many individuals find such confrontations so uncomfortable that they often try to avoid them entirely or dominate others aggressively.

Consider the scene in Kevin Costner's film *Dances With Wolves* when the Lakota Sioux chiefs are sitting in council pondering what to do about Lt. John Dunbar who is stationed alone at a remote cavalry post nearby. There is general agreement among the chiefs on the problem: the whites are overrunning the traditional lands of the Sioux. However, one faction favors sending warriors over to Dunbar's encampment and shooting a few arrows into him to see if he really has "medicine." Another faction believes they should try to talk with him and see if agreements can be made. A third chief says: "No man can tell another what to do, but killing a white man is a delicate matter. If you kill one, more are sure to come." After everyone else has spoken, the high chief urges the group to talk further before deciding what to do, in effect, to not act precipitously or impulsively and to continue exploring the different value premises that are at play.

Unlike Type-I problems that lend themselves to the diagnostics and interventions of experts, Type-II matters require a serious consideration of values, not just by the experts, but by those who in some way must implement the solutions or live with the outcomes. In these circumstances, information alone won't fully inform decision-making because the problems invoke matters of the heart. Not only can the full contours of the problem not be well described intellectually, the consequences of any one single proposed course of action cannot be fully predicted or relied upon. Type-II problems evoke the emotions and stubborn responses associated with worldviews, ideologies, and belief systems.

Technical experts can help inform possible solutions to Type-II problems, but without the participation of those who actually bear the full brunt of the problem – the stakeholders or “holders-of-the-problem” – progress remains elusive. In day-to-day life, examples might include determining how we will expand a water supply once existing sources have been tapped out (“gray-water recycling? desalinization? importing from elsewhere?”), or deciding “why” we want to go to Mexico City and what we are going to do once we get there (“see the cultural sites? take in the nightlife? go to language school and learn Spanish?”). From an energy perspective, the U.S. relies heavily on fossil fuel resources for its energy source. However, decisions about how to diversify (“build more wind and solar power? switch to nuclear? build advanced clean coal power plants?”) are quite divergent.

Bringing leadership to Type-II problems requires skills and strategies very different from those needed for Type-I problems. Faced with more emotion-laden and value-driven problems, the inclination of many professionals is to apply one or another version of the conventional problem-solving model outlined in Table 2, i.e., systematic problem identification, analysis and information gathering, formulation of alternative solutions, etc. The elements of this model may be useful, but *only* after some of the following other tasks may have been set in motion, if not accomplished:

- Gathering together a strong, representative cross-section of voices and perspectives.
- Establishing the goals and protocols needed for sustained and disciplined discussions.
- Collecting multiple narratives that help illuminate different descriptions of the problem as seen through different eyes.
- Naming the fears and risks associated with different problem definitions.

- Reframing narratives into mutual questions.
- Managing the pace of problem solving.
- De-positioning and/or preventing premature negotiation.
- Helping everyone to avoid the wishful thinking that one value set will ultimately prevail.
- Helping everyone understand the trade-offs involved in tough choices.

### **Type-III Problems and the Challenge of Bringing Leadership to “Wicked” Problems**

*“Dance with your demons and they become angels.” -- Anonymous*

In the various literatures on problem-solving, Type-III problems are often referred to as “wicked” or “intractable” because they seem to be diabolically complicated by multiple stakeholders, overlapping jurisdictions, powerful moral dimensions, and deep, nasty, much remembered histories. The situation can be especially troublesome when the remedies are complicated and expensive and there are other competing demands for resources. Simon Shum says these problems cannot be easily defined so that all stakeholders actually agree on the problem to solve. They require complex judgments about the level of abstraction at which to define the problem, have no clear starting or stopping rules for defining the problem, and have no objective measure of success.<sup>6</sup> Similarly, the concept of “intractability” carries a variety of connotations and denotations, not the least of which is the inability to find or create a traction point from which to try to tame or resolve the problem.<sup>7</sup>

“Type-III” problems preoccupy us because of their volatility, drama, high public consequences, and difficulty to tame. One key indication of a Type-III problem is that communication channels have been clogged, if not actually severed. Stakeholders are unable to talk with each other without inflaming the situation. If there is communication, it takes place through lawyers, press releases, high tone and ambiguous diplomatic exchanges, symbolic acts (violent or non-violent) that “send a message,” and through escalatory or retaliatory behaviors.

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<sup>6</sup> Simon Buckingham Shum, “Representing Hard-to-Formalise, Contextualised, Multidisciplinary, Organisational Knowledge” at <http://kmi.open.ac.uk/people/sbs/org-knowledge/aikm97/sbs-paper2.html>.

<sup>7</sup> For a comprehensive and in-depth collection of materials on intractable problems, see the “Beyond Intractability” website assembled by Guy and Heidi Burgess at the University of Colorado at <http://www.beyondintractability.org/iweb/>.

This does not mean that simply restoring communication is the answer. Communication failures are a symptom and must be part of a solution-finding process. By itself, good communication is insufficient.

In Type-III problems, there is inevitably broad disagreement on what “the problem” actually is and competing solutions that create ongoing discord among stakeholders when they try to discuss “it.” Further, there is a diffusion of power that makes any one party incapable of either defining the problem in a way that sticks, or imposing a solution. Because integrity, good will, trust, and working relationships are perceived to be missing, people often act impulsively and actively seek to defeat each other. The conflict seems to have a life unto itself and in the most extreme stages, writes Friedrich Glasl, disputants give up their deepest instincts for self-preservation and charge headlong and together into the abyss. They want to annihilate each other, even if it costs them their lives, fortunes, or futures.<sup>8</sup>

Like Type-II problems, Type-III problems are driven by deeply conflicting values. Unlike Type-II challenges, proposed solutions are suspect simply because they are brought forward by someone who is typically defined as an essential part of the problem. For example, a proposal from Ariel Sharon or the late Yasser Arafat was distrusted simply because it came from Sharon or Arafat. Intentional and unintentional signals create additional complexity. Offers are seen as bribes and demands are viewed as extortion.

While the climate change debate has not yet reached the level of vitriol found on Middle East issues or on abortion rights, we posit it as an example of a Type-III problem. There is growing agreement on the issue of climate change, but by no means is there unanimity on a pathway towards solutions. Aspects of the global climate issue, including the water cycle, the carbon cycle, and the ocean “conveyor belt,” to name but a few, are not well understood. It is still unclear to what extent natural variability is playing a role, and whether or how the Earth may adjust to atmospheric changes. Similarly, as there is a difference of opinion as to the extent or importance of man-made emissions, so too is there a broad range of potential responses, ranging from a Luddite view of stopping all fossil-based energy use, to a model based upon adaptation to

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<sup>8</sup> Friedrich Glasl, *Konfliktmanagement. Ein Handbuch für Führungskräfte, Beraterinnen und Berater*, Bern: Paul Haupt Verlag, 1997.

potentially warmer climates and higher sea levels, as well as many options of mitigation (i.e., actions that reduce man-made emissions) and reduction in between these extremes.

Bringing leadership to Type-III problems requires both the right political timing (the “open window”) and a suite of different strategies, tools, and formats that can be used to organize and sustain disciplined problem naming, problem framing, and problem taming efforts. Most writers believe that these kinds of problems can only be solved by groups of disputants made up of people with knowledge pertinent to all aspects of the problem, and artfully organized into sub-groups that correspond to the elements and structure of the problem. Further, the process must be choreographed as a series of events or meetings with time-breaks between events. And the team must be unconstrained in applying knowledge tools, creative intuition, and common sense. Finally, the group must be unshackled when it comes to finding unconventional solutions.<sup>9</sup>

### **Anticipating Challenges**

To best respond to a given challenge, it is important for responsible parties to correctly type the challenge, and to respond with the best strategy. Therefore, anticipating challenges leads to the following questions:

- As we anticipate or study a situation, what are the various Type-I, II, or III characteristics we see?
- What kinds of strategies might best be used for some of these attributes?
- Who best can help bring leadership, coordination, and inspiration to the problem solving effort?

The above-described typology is a diagnostic tool, not a formula to be inflicted or forced onto problems.

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<sup>9</sup> “A General Problem Solving Approach for Wicked Problems: Theory and Application to Chemical Weapons Verification and Biological Terrorism” by R.W. Hutchinson, S.L. English, and M.A. Mughal in *Group Decision and Negotiation*, 11: 257-279, 2002, Kluwer Publishers.

## RISK EVALUATION

*“I define major surgery as anything being done to me.” -- Woody Allen*

When planning the best way to communicate and engage the public, it is important to not only identify problems by their level of complexity, but also to understand the different lenses through which stakeholders view problems and possible solutions. To expand on this distinction, a *technical* definition of risk could be written as:

[Probability of a Hazard × Impact of the Hazard Occurring]

For example, the probability of a hurricane hitting the U.S. multiplied by the damage to both property and lives caused by a hurricane. However, to communicate effectively, we need to recognize that individuals may have similar reactions or perceptions of risks based on characteristics of the hazards, but any given hazard may engender widely divergent perceptions of risks based on an individual’s personal context: their life experience, values and culture. Therefore, a definition of *perceived* risk has additional factors to the technical definition, and would look as follows:

[Technical Risk × Nature of the Hazard × Context of the Perceiver]

Below we explore both these aspects of communication, how we typically react to different types of hazards and how our life view also influences our perception of risks.

### Nature of Risks

Table 3 displays a common method established by Fischhoff and expanded by others to describe how characteristics of risks influence people’s perception of risks and their readiness to accept those risks.<sup>10</sup>

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<sup>10</sup> From Fischhoff et al. A Primer on Health Risk Communication Principles and Practices. Agency for Toxic Substances and Disease Registry. 1981. <http://aquaticpath.umd.edu/appliedtox/module3-astdr.html>. And from Ropeik, D. “What Really Scares Us,” *Parade Magazine*, Mar. 30, 2004.

**Table 3: The Nature of Risks**

<b>Risks Perceived to...</b>	<b>Are More Accepted Than Risks Perceived...</b>
• Be voluntary	• As being imposed
• Be under an individual's control	• To be controlled by others
• Have clear benefits	• To have little or no benefit
• Be distributed fairly	• To be unfairly distributed
• Be natural	• To be manmade
• Be statistical	• To be catastrophic
• Be generated by a trusted source	• To be generated by an untrusted source
• Be familiar	• To be exotic
• Affect adults	• To affect children
• Affect you personally	• To affect others

On the issue of trust, people are more likely to trust the explanation from a scientist from the Centers for Disease Control on the risks of anthrax than a presentation from a representative from the company that manufactures the vaccine with a decided interest in the outcome. So too will the risks of geologic storage of CO<sub>2</sub> be more accepted when explained by a local geologist than by an official from the Department of Energy.

The level of benefits relative to the risks also influences people's perception. Research has shown that people view *medical* technologies based on the use of radiation and chemicals as high in benefit, low in risk, and clearly acceptable.<sup>11</sup> Our relatively high degree of trust in physicians who manage these devices makes them acceptable. However, people tend to view *industrial* technologies involving radiation and chemicals as high in risk, low in benefit, and less acceptable. This is consistent with numerous polls which have shown that government and industry officials who oversee the management of nuclear power and non-medical chemicals are not highly trusted.<sup>12</sup>

Another factor that influences individuals' perception of risk is the unequal distribution and nature of the impacts of the hazard. For instance, impacts of climate change will be felt across the planet in different ways, with some areas potentially becoming more agriculturally productive, others suffering from drought, and still others experiencing flooding. These effects may be felt across the globe, and some of those same effects may be felt even across the U.S.

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<sup>11</sup> Slovic, Paul. "Perceived Risk, Trust, and Democracy." *Risk Analysis*, Vol. 13, No. 6, pp.675-682. Society for Risk Analysis, 1993

<sup>12</sup> Ibid.

Consequently, views on the need for and urgency of addressing the risks will also vary. When the individuals most affected by the proposed solutions are also the individuals who are less affected by the problem, policymakers face an even greater challenge in public communication and engaging the public in decision-making.

For policy makers and researchers involved in climate change or sequestration research, many of these factors come into play. For example, on the issue of control, it is well documented that many people have a greater fear of flying than of driving a car, because they are not in control of the airplane, even though the risk of injury is far greater in a car. Another factor to consider that falls under the nature of risk category touches on whether the hazard is agreed upon by those facing it, or is imposed by others. Safety standards governing injection of carbon dioxide into deep geologic formations, if made behind closed doors will be viewed with much more suspicion than those that allow for full public participation and input.

### **Context of the Perceiver**

Understanding how the *nature* of risks affects reactions by and from the public, as much as the risk itself, can aide policy makers as they engage with stakeholders. As noted earlier, news media – a main source of information – tend to highlight sensational catastrophes, and this, in turn, affects our perception of risk. Indeed, Frederick Allen notes that “people often overestimate the frequency and seriousness of dramatic, sensational, dreaded and well-publicized causes of death and underestimate the risks from more familiar, accepted causes that claim lives one by one.”<sup>13</sup> To return to the airplane example, the fear generated by airplane crashes that kill several hundred people on occasion is far greater than fear generated by the thousands who are killed in automobile crashes every year. Some risk communication experts refer to this as the level of “outrage” attributable to a risk.

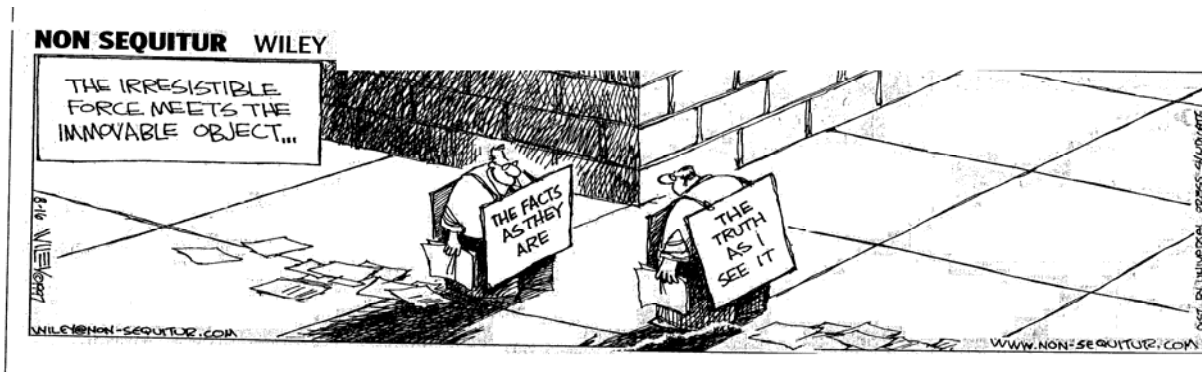
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<sup>13</sup> Allen, Frederick W. “Towards a Holistic Appreciation of Risk: The Challenge for Communicators and Policymakers,” *Science, Technology & Human Values*, Vol. 12, Issues 3 and 4, pp. 138-143. Massachusetts Institute of Technology and the President and Fellows of Harvard College, 1987.



It is important to understand how risks are perceived in the first place. Over history, only organisms that could recognize and respond to danger survived and evolved. Though modern humans have evolved to possess great mental capacity, human brains seem “hard-wired” to instinctively fear first and think second. In order to protect ourselves, we very quickly respond to potential hazards. Fear of *potential* dangers is a completely rational response to our survival instinct. Furthermore, once a fast judgment has been made based on information available at the time, it is hard for subsequent information to change our minds.<sup>14</sup>

**Figure 1: There’s a saying: Where you stand depends on where you sit.**



As the above cartoon so pleasingly demonstrates, facts alone rarely sway personal perception. Factors that influence perception are highly variable, and for any given risk, several factors are usually involved, each with varying importance. These can include life experiences, values, social context, as well as culture, age, and gender. These same factors can either mitigate or intensify potential perceptions of fear. Some risks may seem more exotic and frightening to some segments of the population than others. For example, an oil field worker in a rural area is likely to be less concerned about a research drilling project at his worksite than would someone from an urban area less familiar with these types of projects, i.e., someone who would have difficulty placing such a project within their own life experiences.

<sup>14</sup> Friedensen, Victoria P. Risk Manager for Project Prometheus, Office of Exploration Systems, NASA. “Risk Communication 101” Presentation to the Carbon Sequestration Regional Partners Outreach Coordinators group, Third Annual Carbon Sequestration Meeting, Alexandria, VA, May 2004.

In a paper from 1987, when climate change was becoming more recognized by scientists, interviews of various stakeholders found that global warming was ranked low by the public and relatively high by an EPA task force.<sup>15</sup>

“The EPA task force ranked it high because of the massive potential implications for the entire world. The most probable explanations of the low public ranking are the following: 1) the consequences are very much in the future and hard for many to imagine because they extend beyond ordinary experience; 2) the problem is diffuse and there are many causes (the scapegoat problem [i.e.,– there is no one person or thing to blame]); and 3) there is simply a general lack of public familiarity with the issue.”<sup>16</sup>

The way an issue is framed dramatically impacts the way risks are evaluated. Today, for example, some insurers are taking note of climate change and sea level rise and beginning to factor it as a risk for certain locales and populations; yet some in the oil industry look at climate variability in past eras, and suggest the overall risk of anthropogenic climate change is small and can be addressed through adaptation. Both actions are logical from their respective positions.

Indeed, the evaluation of risk is always personal. *Ipsa facto*, the communication of risks to the public requires an understanding of the personal ways risks are seen to affect people individually and as part of stakeholder groups.

## **RISK COMMUNICATION**

As defined by the *Society for Risk Analysis*, risk communication is “an interactive process of exchanging of information and opinion among individuals, groups, and institutions.”<sup>17</sup> It often involves multiple messages related to the types and levels of the risk, or to the concerns, opinions, or reactions to risk messages, or to the legal or institutional arrangements for risk management. For the purposes of this paper, a working definition of risk communication is “the

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<sup>15</sup> Allen, Frederick W. “Towards a Holistic Appreciation of Risk: The Challenge for Communicators and Policymakers,” *Science, Technology & Human Values*, Vol. 12, Issues 3 and 4, pp. 138-143. Massachusetts Institute of Technology and the President and Fellows of Harvard College, 1987.

<sup>16</sup> Ibid.

<sup>17</sup> “Risk Communication: Working with Individuals and Communities to Weigh the Odds.” Prevention Report. U.S. Public Health Service, Feb./Mar. 1995. <http://odphp.osophs.dhhs.gov/pubs/prevrpt/Archives/95fm1.htm>.

method by which the public can be informed as to the potential risks and benefits of specific projects and programs.” It includes *all written and oral external communication* with the media, interest groups, Congress, other government agencies, and the public at large regarding programs that are controversial or related to the controversial aspects of such programs.

Successful risk communication serves many roles. It increases institutional and interpersonal trust. It reduces the length, strength, and frequency of controversies, and may also reduce the frequency and magnitude of lawsuits. This in turn improves the programmatic success of a given venture.<sup>18</sup> Risk communication includes the open sharing of information and acknowledgement of concerns. It incorporates and appreciates diverse opinions and perspectives in an atmosphere of consensus building. It accepts that the dialogue sometimes may be more about feelings than facts. If messages are consistent, if the process is open and accountable, the success of the planned project increases dramatically.

There are essential elements of communication that form a solid foundation of understanding. Once the foundation is laid, it is then possible to build upon it and customize it for various groups. In the following section, we outline the basic “dos and don’ts” in risk communication.

### **Evolving Theories of Risk Communication**

*Scarecrow: I haven't got a brain... only straw.*

*Dorothy: How can you talk if you haven't got a brain?*

*Scarecrow: I don't know. But some people without brains do an awful lot of talking... don't they?*

*Dorothy: Yes, I guess you're right.*

*--The Wizard of Oz*

There are many ways in which risk communication has improved over the years, and there now are well-established ground rules that communicators must know and use instinctively as they communicate about various risks and hazards. According to Fischhoff, there has been a decided progression, starting from just trying to get people to behave “rationally” by providing

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<sup>18</sup> U.S. Department of Health and Human Services. “Communicating in a Crisis: Risk Communication Guidelines for Public Officials,” 2002.

them with information to today’s more modern view that risk communication is a two-way communication that involves providing information, understanding people’s perception of the risks, and developing solutions in partnership. This progression is demonstrated in the following table (See Table 4, below).

**Table 4: Developmental Stages of Risk Communication**<sup>19</sup>



- |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>➤ All we have to do is get the numbers right</li> <li>➤ All we have to do is tell them the numbers</li> <li>➤ All we have to do is explain what we mean by the numbers</li> <li>➤ All we have to do is show them that they’ve accepted similar risks in the past</li> <li>➤ All we have to do is show them that it’s a good deal for them</li> <li>➤ All we have to do is treat them nice</li> <li>➤ All we have to do is make them partners</li> <li>➤ All of the above</li> </ul> |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### **Elements of Successful Risk Communication**

In their seminal paper on risk communication, Vincent Covello, Peter Sandman and Paul Slovic established seven golden rules for effective risk communication:<sup>20</sup>

**Table 5: Seven Golden Rules of Effective Risk Communication**

- |                                                                                                                                                                                                                                                                                                                                                                                                   |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ol style="list-style-type: none"> <li>1. Accept and Involve the Public as a Legitimate Partner</li> <li>2. Plan Carefully and Evaluate Performance</li> <li>3. Listen to Your Audience</li> <li>4. Be Honest, Frank and Open</li> <li>5. Coordinate and Collaborate with Other Credible Sources</li> <li>6. Meet the Needs of the Media</li> <li>7. Speak Clearly and with Compassion</li> </ol> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

<sup>19</sup> Baruch Fischhoff, “Risk Perception and Communication Unplugged: Twenty Years of Process,” *Journal of Risk Analysis*, 15:137-45 (1995).

<sup>20</sup> Covello, Vincent T., Peter M. Sandman, and Paul Slovic. “Risk Communication, Risk Statistics, and Risk Comparisons: A Manual for Plant Managers” Washington, DC, Chemical Manufacturers Association, 1988.

**Rule 1: Accept and Involve the Public as a Legitimate Partner.** In a paper on risk communication, the U.S. Public Health Service notes:

“Risk communication can be considered successful only to the extent that it first improves or increases the base of accurate information that decision makers use... and second, satisfies those involved that they are adequately informed within the limits of available knowledge.”<sup>21</sup>

Indeed, effective risk communication is a two-way process with participation seen as an individual’s and a community’s democratic right. Demonstrate your respect for the public and your sincerity by involving the community early, before important decisions are made, and return to the public often.

In a landmark article in the magazine *Science* in 1969, Chauncey Starr made a statement that seems as true today as it was 35 years ago. He noted:

“The bulk of evidence indicates that the time from conception [of a new technical idea] to first application (or demonstration) has been roughly unchanged by modern management, and depends chiefly on the complexity of the development.... What *has* been reduced substantially in the past century is the time from first use to widespread integration into our social system.”<sup>22</sup>

With modern day advances in telecommunications and computer technology, diffusion of innovations and widespread integration occur with ever-greater speed. With this in mind, it is critical to begin to formulate messages at the earliest possible stages before controversy develops. In developing guidelines for public outreach, the U.S. Department of Health and Human Services recognized that a key to good risk communication is to determine what information is crucial to convey and then to convey that information before a controversy develops.<sup>23</sup> It also recommends engaging the public in a long-term coordinated dialogue using a variety of formats, prior, during and after an event.

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<sup>21</sup> “Risk Communication: Working with Individuals and Communities to Weigh the Odds.” Prevention Report. U.S. Public Health Service, Feb./Mar. 1995. <http://odphp.osophs.dhhs.gov/pubs/prevrpt/Archives/95fm1.htm>.

<sup>22</sup> Starr, Chauncey. “Social Benefit Versus Technological Risk: What is our Society Willing to Pay for Safety?” *Science*, Sept. 19, 1969. Vol. 165: pp.1232-1238.

<sup>23</sup> US HHS 2002 Communicating in a Crisis: Risk Communication Guidelines for Public Officials

**Rule 2: Plan Carefully and Evaluate Performance.** Effective risk communication must be aimed at the concerns and information needs of specific target audiences. It may be prudent to initiate interviews with small, representative groups of local people and ask for early input or try out the communication informally on non-experts. Indeed, it is often beneficial to hold smaller, more informal meetings rather than large public hearings or consider breaking large meetings into smaller groups. In some situations, one-to-one communication may work best.

The National Research Council notes that it is important to make sure that the right participants are involved, which can be ascertained by asking those that have been invited initially to nominate other potential stakeholders.<sup>24</sup> In addition to getting the *right* participants, it is critical to make sure that the participants become part of the *process*. Participants should feel that they were adequately consulted and that they had adequate opportunities to offer concerns or ask questions.

The Department of Health and Human Services notes that spokespersons must be identified well in advance and must be well prepared.<sup>25</sup> It is vital that a risk communicator know the audience and their attitudes. It is important to determine what information is crucial to convey and to determine whether messages differ prior, during, or after an event. This can be accomplished in part by anticipating questions from the public and preparing thoughtful answers ahead of time.

**Rule 3: Listen to Your Audience.** Communication is a two-way activity. Do not make assumptions about what people know, think, or want done about risks. Recognize that people's values and feelings are a legitimate aspect of environmental health issues and that such concerns may convey valuable information.

When people are speaking passionately they are responding to their emotions. It is both ineffective and often inappropriate to simply follow with data. Show respect by developing a system to both acknowledge and respond promptly to concerns raised by community residents without becoming "technocratic."

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<sup>24</sup>\*NRC 1996. *Understanding Risk: Informing Decisions in a Democratic Society*, p. 152.

<sup>25</sup> US HHS, "Communicating in a Crisis: Risk Communication Guidelines for Public Officials," 2002.

Community residents, site personnel, citizen groups, health professionals, and state and local government representatives are also important sources of information. They can provide information concerning site background, community health concerns, demographics, land and natural resource use, environmental contamination, environmental pathways, and health outcomes. It is also important to recognize the “hidden agendas” and broader economic or political considerations that often underlie and complicate the task of risk communication.

Effective risk communication is highly dependent on tailoring the message to the audience. The public is not a single, undifferentiated mass. For example, women often show a greater interest in problems of chemical risks than do men.<sup>26</sup> In one pilot study, interviewing three different constituencies on market acceptability of new nuclear technologies resulted in three quite separate risk priorities.<sup>27</sup>

1. Utilities viewed the risk as investment risk. They were also concerned with health and safety risks, but viewed them as part of the technical design.
2. State Public Utility Commissions were concerned with economic risks. Their concern for health and safety risks was incorporated into their general concern that, from the public’s point of view, costs will outweigh the benefits.
3. Public interest groups focused almost entirely on health and safety risks, pointing out that because these risks are imposed by one group and inevitably fall unevenly on others, they cannot be treated as acceptable under any circumstance. For them, risks must be spread equitably.

By acknowledging and understanding the different lenses through which different stakeholders view the world, it will be easier to identify concerns and to better address them .

**Rule 4: Be Honest, Frank and Open.** Trust and credibility are difficult to obtain; once lost they are difficult, if not impossible to regain. The community is more interested in trustworthiness and credibility than in risk data and the details of quantitative risk assessment. People want the person communicating to acknowledge, respect, and share those concerns.

Uncertainty is seldom if ever an acceptable excuse for waiting to communicate risk information, particularly if the information is alarming. It is far better to announce a possible

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<sup>26</sup> Covello, Sandman and Slovic, 1988.

<sup>27</sup> Rayner, Steve and Robin Cantor. “How Fair Is Safe Enough? The Cultural Approach to Societal Technology Choice,” *Risk Analysis*, Vol. 7, No. 1, pp. 3-13. Society for Risk Analysis, 1987.

problem right away than to be accused later of having covered one up. Acknowledging uncertainty is not to be confused with declaring ignorance. If there is total confidence in the data, do not hesitate to say so. But if there is some uncertainty, state as much as is known and then explain a) what you propose to do to get better risk data and b) what you propose to do in the meantime to reduce risk or protect people against it. If the affected public is satisfied, it will “hardly consider many of the low-probability, high-consequence events that currently obsess us to be worthy of the term *risk* at all.”<sup>28</sup>

**Rule 5: Coordinate and Collaborate with Other Credible Sources.** Former U.S. Congressman Tip O’Neill’s famous statement that “all politics is local,” can also be translated to “all pollution is local.” People care most about that which is closest to them. As Covello, Sandman, and Slovic note:

“The prospects for overcoming distrust are much better locally than globally. People stereotype less and scapegoat less when they are dealing with someone they know. The outsider from the home office is probably not as good a spokesperson as a plant manager.”<sup>29</sup>

People understand the benefits from a local factory or energy facility and understand the negative aspects, as well. Because of this dynamic, a competent and conscientious plant manager may matter more than a particular risk itself. For this reason, it is imperative that risk communication be done at the local level and by a credible intermediary.

Collaboration also turns out to be a key to success. If more information is needed, communications can be issued jointly with other trustworthy sources such as credible university scientists, physicians, trusted local officials, and opinion leaders. With highly technical and complex issues, it is rare that one individual or even one institution can be the sole source of information. Collaboration can occur among institutions conducting similar research, such as that of the Regional Carbon Sequestration Partnerships, where different universities, environmental groups, corporations and state and local governments are leveraging the research capabilities of the partner organizations to greater overall effect. In addition, collaboration can

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<sup>28</sup> Rayner, Steve and Robin Cantor. “How Fair Is Safe Enough? The Cultural Approach to Societal Technology Choice,” *Risk Analysis*, Vol. 7, No. 1, pp. 3-13. Society for Risk Analysis, 1987.

<sup>29</sup> Covello, Vincent T., Peter M. Sandman, and Paul Slovic. “Risk Communication, Risk Statistics, and Risk Comparisons: A Manual for Plant Managers” Washington, DC, Chemical Manufacturers Association, 1988.



also be among nations, such as the efforts underway with the Carbon Sequestration Leadership Forum, which shares research among nations at the ministerial level at periodic meetings. This collaborative dissemination of knowledge helps assuage fears that a particular locality is somehow being hoodwinked.

***Rule 6: Meet the Needs of the Media.*** The media are generally more interested in politics than risk, more interested in simplicity than complexity, more interested in danger than safety. Media relations are essential. Be open with and accessible to reporters, respect their deadlines, and provide graphics and visual aids. It is better to provide and explain two or three numbers, carefully selected, than to inundate the media (or any other audience) with meaningless facts. Pick a few numbers and explain them well. In addition, try to establish long-term relationships with editors and reporters, built upon a foundation of openness, credibility, and trust.

***Rule 7: Speak Clearly and with Compassion.*** Local managers need good presentation skills, must be able to speak well in public, and be able to recognize and avoid jargon and clarify technical concepts. Also, he or she should have good interactive skills, be able to deal well with people, listen, give feedback, and respond to emotions.

The best language to use in communicating risks is simple and non-technical. Language about deaths, injuries, or illnesses makes risks seem distant and abstract. Worse, it makes the communicator seem unfeeling. On the other hand, anecdotes and real stories about real people can make technical risk data come alive. Use comparisons to help put risks in perspective, but avoid comparisons that ignore distinctions that people consider important. It is important to demystify the risk assessment process by talking about how the risk estimate was obtained and by whom. Always try to include a discussion of actions that are underway or can be taken. Promise only what you can do, tell people what you cannot do.

An important element of clear communications is to boil down complex scientific information into useful analogies. That said, while good analogies can help explain risks in an easy format and engage the public, irrelevant or misleading comparisons can harm trust and credibility, especially those that imply that a personal risk is just about money. In Table 6, we outline the best and worst types of analogies, according to Vincent Covello.

**Table 6: Good and Bad Analogies<sup>30</sup>**

<b>Best Analogies</b>	<b>OK Analogies</b>	<b>Poor Analogies</b>
Those that compare the same risk at two different times	Alternative solutions to the same problem	Compare costs
Compare a risk with an existing standard	Look at the same risk experienced in different places	Compare cost/risk ratios
Compare different estimates of the same risk	Compare the risk of doing something versus not doing it	Compare risk/benefit ratios

Comparisons between an occupational risk and an environmental risk or unrelated risks such as smoking, or driving a car, are especially poor because they confuse risks of personal control with risks that are out of one’s control.

### **Pitfalls in Risk Communication**

Communication can fail for a number of reasons. Communicators may not recognize why people, or specific stakeholders in particular circumstances, may respond to risks the way they do. Steeped in statistical analysis and actuarial charts, a risk communicator tends to express risk from the viewpoint of the communicator, with a “just the facts, ma’am” approach. The communicator may dismiss adverse reactions to risk messages as “irrational,” even though they are part of the typical “outrage” or “fight or flight” phenomenon. The likelihood of communication failure is increased by a lack of empathy or “simpatico” with the public.

In addition, communications often fail because they are made *after* a problem has arisen, and the public has already formed opinions and ideas about the extent of the problem and who is to blame. People with a vested interest in the organization that created the risk are often those called upon to explain it, and so have a *perceived* (or real) conflict of interest that makes their

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<sup>30</sup> Using Risk Comparisons (Covello et al 1988, Covello 1989)

facts circumspect. This is exacerbated when explanations of risk take on the manner of a school lecture rather than a conversation. Furthermore, the causes of the controversy are often not the facts of the risk exposure, but rather what is being done (or not being done) to safeguard the public, and who is taking responsibility.

There are other mistakes that are made in addition to those mentioned above, including those that do nothing to build trust and everything to destroy it. In a paper on earning trust and building credibility, Vincent Covello at Columbia University describes a long list of “pitfalls” often made by communicators and provides some suggestions of what to do instead.

**Table 7: Avoiding Pitfalls<sup>31</sup>**

<b>Pitfall</b>	<b>Do</b>	<b>Don't</b>
Jargon	Define technical terms	Use language that anyone in the audience does not understand
Humor	Direct it at yourself	Use it in relation to environment, health and safety issues
Negative Allegations	Refute the allegation without repeating it	Repeat or refer to them
Negative Words/Phrases	Use positive or neutral terms	Refer to national problems (e.g., “This is not Love Canal”)
Reliance on Words	Use visuals to emphasize key points	Rely entirely on words
Temper	Remain calm. Use a question or allegation as a springboard to say something positive	Let your feelings interfere with your ability to communicate clearly
Clarity	Ask whether you have made yourself clear	Assume you have been understood
Abstractions	Use examples, stories, and analogies to establish a common understanding	Talk about new or unfamiliar topics without grounding the audience
Nonverbal messages	Be sensitive to nonverbal messages you are communicating. Make them consistent with what you are saying	Allow your body language, your position in the room, or your dress be inconsistent with your message
Attacks	Attack the issue	Attack the person or organization (e.g., “You’re being irrational”)
Promises	Promise only what you can deliver	Make promises you can’t keep or fail to follow up.
Guarantees	Emphasize achievements made and ongoing efforts	Say there are no guarantees
Speculation	Provide information on what is being done	Speculate about worst cases
Money	Refer to the importance you attach to EH&S issues; your moral obligation to public health outweighs financial considerations	Refer to the amount of money spent as a representation of your concern
Organizational identity	Use personal pronouns (I, we)	Take on the identity of a large organization
Blame	Take responsibility for your share of the problem	Try to shift blame or responsibility to others

<sup>31</sup> Covello, V. “Risk Communication, Trust, and Credibility,” Health and Environmental Digest. Vol. 6, No. 1. 1992.

**Table 7: Avoiding Pitfalls, continued.**

<b>Pitfall</b>	<b>Do</b>	<b>Don't</b>
Off the Record	Assume everything you say and do is part of the public record	Make side comments or "confidential" remarks
Risk/Benefit/Cost comparisons	Discuss risks and benefits in separate communications	Discuss your costs along with risk levels
Risk Comparison	Use them to help put risks in perspective	Compare unrelated risks (e.g., "compared to driving drunk while talking on your cell phone, this risk is miniscule")
Health risk numbers	Stress that true risk is between zero and the worst-case scenario. Base actions on federal and state standards rather than risk numbers.	State absolutes or expect the lay public to understand risk numbers.
Numbers	Emphasize performance, trends, and achievements	Mention or repeat large negative numbers.
Technical details and debates	Focus your remarks on empathy, competence, honesty, and dedication	Provide too much detail or take part in protracted technical debates
Length of presentation	Limit presentations to 15 minutes, if possible	Ramble or fail to plan the time well

## **STAKEHOLDING AND PUBLIC PARTICIPATION**

*"The public have an insatiable curiosity to know everything. Except what is worth knowing. Journalism, conscious of this, and having tradesman-like habits, supplies their demands."* -- Oscar Wilde

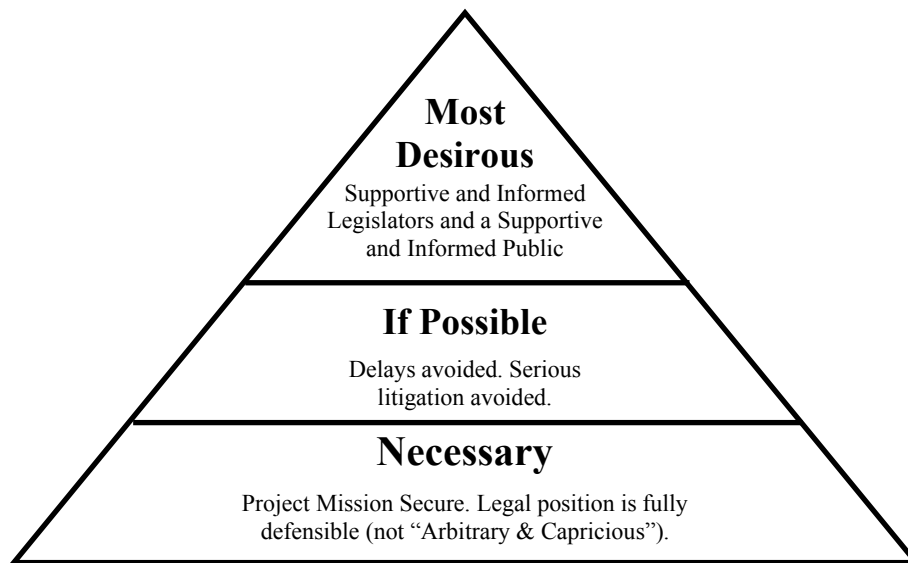
No matter how benign, innocuous, or socially beneficial a project may seem, constructive public engagement is now a political necessity. Powered by the landmark air, water, and open meeting laws of the 1960s and 1970s, and by four decades of administrative and court tests, the American public expects to be involved in governmental decision-making at the local, state, and federal levels. While this has increased the confidence the public has in governmental decision making processes, it has also slowed that process down, and at times, brought it to a halt as different public interest groups clash over the most desirable option to pursue.

In theory, agencies that anticipate potential controversy over the creation or implementation of a proposed project, policy, or plan have three strategic choices. Strategy #1 might be called "The "Letter of the Law Approach." This approach focuses on *rights* and *permissions* and involves doing what is required to withstand legal challenges. Strategy #2 is "The Intensive Information Dissemination Approach." Essentially, the predicate of this strategy is providing high quality information to the public through as many channels of communication

as possible. Strategy #3 is “The Direct Engagement Approach.” The focus here is on stakeholder engagement, proactive two-way interactions, and problem-solving around issues of concern. These strategies, like all those referenced in this document, are not mutually exclusive – quite the opposite. Skilled project leaders will braid all three strategies together to maximize success.

Governmental agencies or anyone seeking to plan, fund, or site specific on-the-ground and potentially controversial projects need to implicitly or explicitly embrace a hierarchy of three goals, as follows in Figure 2:

**Figure 2: Hierarchy of Goals**



Achieving the highest and most desirable level of acceptance requires building trust, maintaining credibility, and ensuring confidence in government. In turn, this usually requires moving beyond the conventional public participation procedures that are required by law. Said differently, public hearings and expert advisory bodies are necessary but insufficient. More sophisticated strategies are needed.

## **Beyond Public Relations**

*"What we have here is a failure to communicate."  
-- Warden Struther Martin in Cool Hand Luke*

“Public Relations” has been the dominant method for government entities, corporations, and non-governmental organizations (“NGOs”) in the United States to communicate to the public. Generally speaking, public relations works to inform a public and help them understand the work of the company or agency as it relates to its mission and goals. PR is useful, but by itself will not reduce the frictions involved in a potentially volatile and challenging project. In the words of Peter Johnson, Administrator of the Bonneville Power Administration:

“I don’t know how many times I have heard business leaders say, ‘If we could just inform them of what we’re doing, they’d support us.’ Hogwash. Hogwash. Public relations alone won’t make it in the new era. Society has become so complex that hardly any of us does anything that doesn’t affect the other guy. Everything is too interrelated. Instead of pretending that those opposing interests are not there, instead of hoping to vanquish the vocal, start including them. That way, there are almost no limits to what can be accomplished.”

“Public Involvement” is a public process that seeks to involve constituents in framing both the problems they anticipate as well as the solutions to those problems. Where PR tends to be primarily one-way communication, public involvement is interactive and consultative. It is a dialogue. The driving belief behind public involvement is that people should have the opportunity to participate in decisions that affect them. It is typically a means by which the public is not only heard from before a decision, but has an opportunity to influence the decision from the beginning to the end of the decision making process.

Public involvement processes give the public the ability to influence how a question or problem is posed, which alternatives are to be considered, how alternatives are evaluated or reviewed, and which adjustments or mitigations are necessary to reduce impacts. It is understood that public involvement processes are “advisory” in nature and do not confer formal decision-making to those who are not directly accountable. However, decisions generally gain greater legitimacy when the public is able to be involved in every step of the process. Even if some groups do not like the decisions that are made, the fact that a decision making process was

open, visible, and fair makes the decision legitimate in the eyes of the general public. “Public Information,” it turns out, is a key component of public involvement. Its purpose is not to convince the public of a predetermined position, but to inform so that people can make a considered judgment.

The most common (but often ineffective) form of public participation is the public hearing. Here a panel of government agency or industry representatives gives a presentation on a proposed decision and the public is then asked to stand up and give short testimonies indicating their thoughts on the proposed action. Typically, only the people who are opposed to a decision come to such hearings. Although the government agency or company can get a feel for the extent and nature of the opposition, public hearings rarely give a good indication of overall public opinion, nor do they yield good information about why people may feel the way they do because viewpoints tend to be expressed in positions and demand statements rather than articulations that give insight into interests and needs. Thus, they do not contribute effectively to problem solving or mutual cooperation. That said, government agencies are often required to conduct public hearings by law, for example, under the National Environmental Policy Act (NEPA) and the Federal Advisory Committee Act (FACA).

### **Choosing the Right Public Involvement Process**

*"Whenever I'm confronted with a choice between two evils,  
I always choose the one I haven't tried." -- Mae West*

In the United States, government agencies and private companies tend to anger the public by not involving them in decision making when the stakes or impacts are perceived to be high. In the extreme, this leads to lawsuits, delays, boycotts, and negative media. However, there is one thing that is guaranteed to anger the public even more than not involving them—involving them with no real intention of listening. Government officials, business leaders, and community members may want to consider establishing a public involvement process, when the following conditions exist:

- ✓ Public support will be required to accomplish the goal;

- ✓ Public opposition could delay or terminate the project;
- ✓ The problem involves conflicting and/or competing public values or goals;
- ✓ A decision will be compounded by turbulence in the political climate, or by controversial issues that are already being hotly debated in the public arena, whatever they are related or not; and/or
- ✓ The government official wouldn't want the proposed project in his or her own neighborhood.

Typically, energy projects have career paths with at least three distinct stages. At the start, project proponents must establish their “right to operate.” In the second, project sponsors must maintain public support as the enterprise matures and as the problems of start-up emerge. Once a project succeeds, the challenge shifts to the problems associated with success, i.e., how can we expand the project or replicate it.

In determining what kind of public involvement process might be most appropriate, other considerations also come into play. One is the degree to which an active conflict has already arisen. At the political “front end” public engagement strategies can focus on a proactive invitation to comment on proposals or plans or even a concerted collaborative partnership effort. At the “back end” when conflict has emerged, public participation efforts may involve resolving differences, mitigating existing plans, or even changing strategies altogether.

The goal of any effort, whether early in the life of a project, or later when problems have arisen, is to build and maintain trust. Trust, which is always ephemeral in human affairs, seems to have four psychological components:

- Acknowledgement – being known, recognized, and heard.
- Disclosure – sharing weaknesses, flaws, and challenges as well as strengths.
- Accountability – doing what you say you will; becoming “predictable.”
- Commitment – creating or negotiating reciprocal and verifiable behavior.

As in many other areas of strategy development, form follows function when considering a public involvement process. Possible functions or purposes could focus on conflict resolution (averting or reducing a fight), assessing risk, gathering input and advice, networking (exchanging information), coordination (altering activities to achieve common purposes), cooperating



(sharing resources to achieve common purposes) or collaboration and partnering (sharing risks, responsibilities, and rewards). In turn, many different forms, forums, and venues for public participation can be created, for example:

**Table 8: Types of Public Participation Forums and Venues**

• Task Forces	• Consultative Workshops
• Restoration Advisory Boards (RABs)	• Community Advisory Boards (CABs)
• Visioning Processes	• Planning Charettes
• Working Groups	• Partnering Projects
• Study Groups	• Roundtables
• Joint Fact Finding Workshops	• Policy Dialogues
• Science Summits	• Future Searches
• Community Planning Meetings	• Joint Problem Solving Workshops
• Open Space Meetings	

Some of the above formats can be used to elicit input to a project or plan. Others are best aimed at networking, coordination, and cooperation efforts. Still others are useful for collaborative fact finding, planning, and problem solving. Additional ideas on formats, strategies, and participation tools can be found at the website of the International Association for Public Participation.<sup>32</sup>

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<sup>32</sup> Available at: <http://iap2.org/practitionertools/index.shtml>

**Collaborative Efforts:  
Communities, Corporations, and Government Agencies Working Together**

*"None of us is as smart as all of us."* -- Cowboy Saying

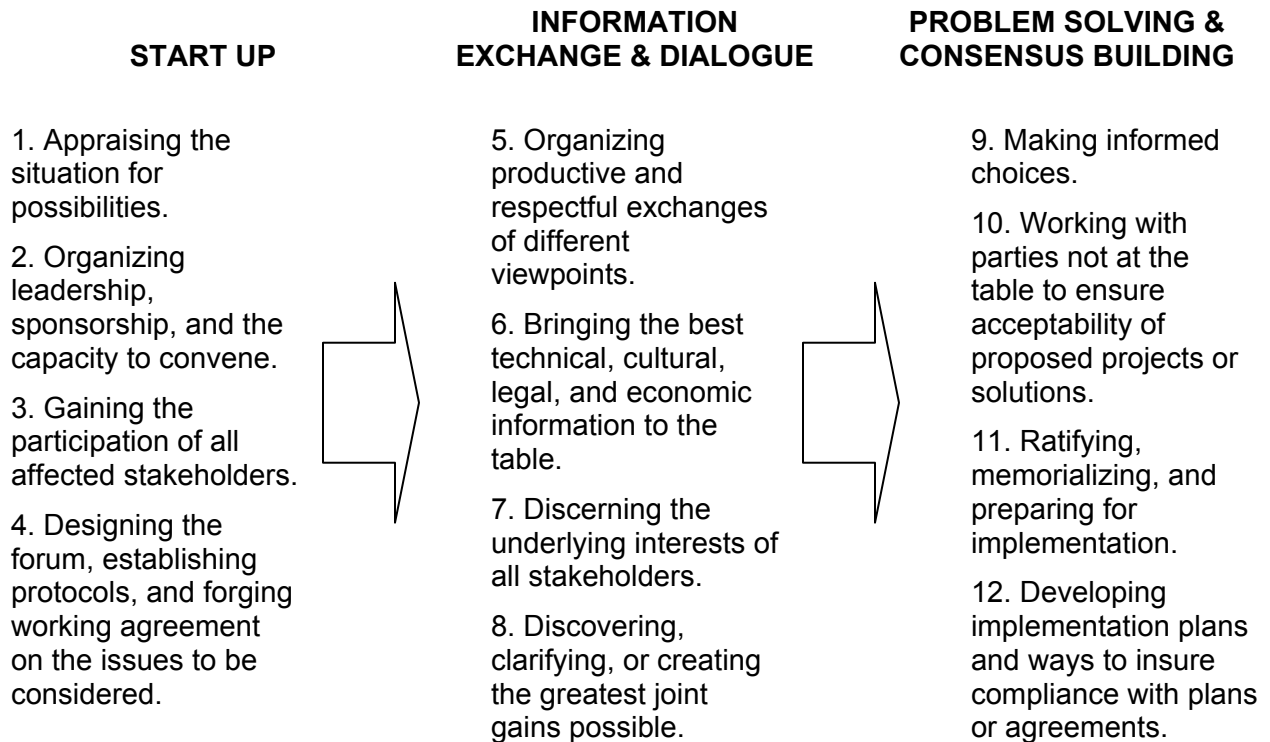
All collaborative processes have beginnings, middles, and ends, and no two are exactly the same. Some have short life-spans. A group meets a few times, conducts its business, comes to conclusions, and disbands. Others go on for years. Some are high in complexity, conflict, and drama. Others are slow, easy going conversations. All involve groups of stakeholders who hold an interest in the issues under consideration. Some stakeholder groups are composed of parties who have established standing in a lawsuit or who are on a trajectory toward administrative rule-making, standard-setting proceedings, or contested administrative hearings. Others, like appointed or nominated advisory boards, are convened to exchange ideas or provide reactions to proposed policies, projects, or programs.

Some groups – alternative energy collaboratives, forest management groups, watershed protection committees, or re-vegetation groups, for example – work together over years to improve the definition of issues and solutions. Sometimes an independent facilitator or mediator is involved. More often than not, collaborative leadership must come from the group itself, often with government officials acting as conveners or moderators. Regardless of the specifics, collaborative efforts have common underpinnings and premises:

- People want to be asked their opinion on issues that impact them.
- People tend to support solutions they helped craft.
- Autocratic management processes – the “decide, announce, defend” model – may work in moments of crisis, but it tends not to work for more ordinary issues and problems that do not have sudden deadlines.
- To get to get to an agreement that has traction and durability over time, you need a critical mass of moderate people to create and hold the center.
- It is a given that everyone walks in with their own narrow interests, and consensus solutions must inevitably be composed of those interests.

Typical collaborative processes involve a variety of functions and activities organized into three broad phases, as defined below in Figure 3:

**Figure 3: Collaborative Process Phases**



Building true collaborations with stakeholder groups composed of people from the public, private, and civic sectors takes time, careful planning, and thoughtful management. It requires identifying all of the people and perspectives that are needed to create and hold a center, working with all participants to improve the way issues and problems are named and framed, fostering peer-to-peer exchanges of ideas and views, and bringing collective focus to salient technical and scientific facts.

## BUILDING TRUST

*“You can’t shake hands with a clenched fist.” -- Indira Gandhi*

At the start of the 21<sup>st</sup> Century, citizens and decision-makers are hungry for ways to improve environmental discussions. As a country, we need wiser outcomes that are conceptually sounder, more explicitly equitable, and that have practical staying power. Simultaneously, we need to reduce the transaction costs (both human and financial) that are associated with public interest conflicts over environmental protection and energy development.

The use of strategies based on collaboration, “joint gains,” problem solving, mediation, facilitation, and consensus building offer promise for many projects. While these approaches are not a panacea, thousands of significant cases involving public health, public lands, and natural resources have been successfully resolved since the early 1970s. This includes “upstream” cases when rules and policies are being made and “downstream” issues when parties are involved in enforcement and compliance.

### **Twenty Tips for Building Trust, Collaboration, and Smart Outcomes**<sup>33</sup>

*“Be the change you wish to see in the world.” -- Mohandas K. Gandhi*

1. Begin With Co-Hosting. When two or more groups are potentially or actually at odds with each other over environmental matters, it is always better to co-convene, co-host, or co-manage a stakeholder process. A respected farmer working side-by-side with a respected environmentalist (or Native American, or government representative) sets a tone from the beginning that all points of view and all ways of knowing will be welcome.
2. Create a Game Plan and Group Covenants. Stakeholder processes usually have beginnings, middles, and ends but, at the start, not everyone knows the plan. Make game plans negotiable and transparent. Groups come with expectations that a collaboration will be made up of diverse interests. They also may have expectations about how long it will take to accomplish

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<sup>33</sup> Adapted from Building Trust: Twenty Things You Can Do To Help Environmental Stakeholder Groups Talk More Effectively About Science, Culture, Professional Knowledge, and Community Wisdom by Peter S. Adler and Juliana Birkhoff, Policy Consensus Center, 2000.

the work. Stakeholder groups require flexibility for work to go faster or slower, but “time” is a key element of culture and handled differently by different people. Engage the group in some gentle discussions about how much time people can devote to meetings and how they will handle attendance, alternates, and “logistics.”

3. Concentrate on Relationships First. People need to know each other as individuals, not just as energy experts, scientists, community members, or representatives of organizations. Learn each other’s histories. Share a meal together. If people do not know each other, they will not trust each other and will revert to fear-based interactions. As a collateral procedure, it is often useful to have stakeholders create interpersonal “contexts” by having each participant identify what the impacts of a decision or agreement might mean in their own lives versus for their community or group.
4. Be Transparent About Decision Making. Clarify the “rules of the road” before you start trying to build agreements -- who will make final decisions, how representation will be established, how the group will decide things. Craft opening moves that will help the parties manage complex technical discussions. Set the stage also for informal versus formal across-the-table discussions by asking stakeholders to identify when they are speaking officially or unofficially.
5. Pay Attention to Power. Community groups, scientists, indigenous people, government professionals and environmental advocates come to the table with different kinds of standing, control over resources, and access to decision-making. Although power relationships are rarely as fixed as people think, most groups have a “predominant” way of knowing things, a shared prism through which group members take in and give out information. This way of knowing may be institutionalized in laws, rules, and protocols or it may simply be “the way we do things around here.” Ask group members: “What is the dominant way of knowing in this group?” “Who has power to control what information gets considered and what information is not salient?” “How can we give opportunity, credence, and value to the ways of knowing that are not predominant?”
6. Create Rituals. Stakeholder groups often invent or discover small habits that give members a sense of identity, though as individuals they represent different organizations and interests. Small routines – starting with a traditional song or chant, bringing homemade food,

celebrating birthdays, ending with a story, buying everyone a hat with the name of the group -- can become a small reference point that helps a group develop good working relationships.

7. Balance Linear Processes With Iterative Strategies. Overly structured processes and agendas with detailed times are off-putting to people who come from story telling traditions. Resist the temptation to bear down directly on “problems” and “solutions” and “getting right to work.” Instead, make sure the process has enough forward momentum to satisfy some people and enough story telling and circling back to values and history to satisfy others.
8. Talk About “Values.” Explicitly talk about the values participants bring to the table before you talk about problems, data, or potential solutions. As for the issues at hand, discuss what they cherish most, what “truths” they hold dearest, what they hope to leave behind as a legacy for their children, how the past informs the future, and what values they believe are “absolute and unconditional.” Most people hold multiple values, few of which are actually unequivocal or categorical.
9. Acknowledge Different Kinds of Knowledge. From the beginning, explicitly legitimize that there are different ways of “knowing” and different modes of communicating important facts and ideas. No one -- scientists, Native Americans, planners, farmers, ranchers, people from the neighborhood -- wants to see their kind of knowledge trivialized and most people have specific “ways” they want to be engaged.
10. Generate Multiple Problem Definitions. Do not assume that problem solving proceeds from a single definition of the issues. No definition is wrong or “off the table.” Scientists will see the problem one way. Community people will define it their way. Business professionals will bring yet another approach. All problem definitions are helpful starting points because they reveal issues and aspirations.
11. Step Out of the Normal Conversation Mode. Do not rely solely on meetings, conversation, and negotiating sessions. Too much talk can weigh a group down and actually confuse discussions about values, identity, issues, and options. Invite hand drawn (rather than slick) diagrams, maps, and pictures. Try to create joint maps and pictures with everyone

contributing to a common picture. Take field trips. Go look at the landscapes or sites under consideration and allow people to educate each other in ways other than words.

12. Create “Jointly Owned” Knowledge. If information really is power, then information that has been jointly brought to the table is especially powerful. To the greatest extent possible, create a “group inquiry” in which all stakeholders jointly frame the questions that need to be answered (who actually lived here before, what are the migratory paths of the elk, what is the interaction of ground and surface water, etc.) and actually bring it into the process. Stakeholder groups go through a “learning curve” which deepens over time and often matures into truly mutual understandings. Choreograph the learning curve so that scientific and technical information is not privileged over the information brought to the table by community groups, native peoples, and citizen advocates.
13. Explore Validity and Accuracy With Care. All information -- scientific, technical, traditional, cultural, local, or remembered -- is subject to questions about validity, accuracy, authenticity, and reliability. Create a climate in which, in the spirit of problem solving, it is acceptable to respectfully ask people to substantiate what they are saying. Every type of knowledge, cultural assertions no less than scientific models, can be reviewed. The issues of what is examined, how it is examined, who examines it, and when it is examined are all negotiable.
14. Talk Politics . . . But Do It Gracefully. The higher the level of interpersonal trust in a stakeholder group, the easier it is to speak candidly about internal and external political pressures. Environmental conflicts are inevitably embedded in political contexts where tough value choices are at play. While these value choices can be informed by cultural, professional, and scientific considerations, underlying values are the ultimate arbiters of political decision-making.
15. Be Patient Teachers to Others. When professionals present their knowledge, it is important that they explicitly present and clarify the assumptions behind what they are saying. It is often useful that initial technical presentations not be done through power-point, overheads, or fancy models. Without dumbing things down, keep presentations as simple and clear as possible. Community groups, native peoples, and others also have a burden to present their knowledge from in ways that make sense to outsiders or people who do not share in local

ways of doing things. Without violating matters that are sacred, and without talking down to outsiders, it is critical that context, history, and background are explained in ways that do not leave things inexplicably mysterious.

16. Organize “Sidebars”. When matters of great technical or cultural complexity arise, establishing sidebar groups or working committees is usually useful. There are many different design strategies worth considering, among them a special committee of “cultural experts” or scientists. Sometimes, it is useful to create public sessions for the stakeholder group to meet other interested members of the public and to report progress, test out new ideas, or gather feedback. In all such meetings, balancing local knowledge with outside expert knowledge is important.
17. Create a “Public Learning” Culture. Build a group norm to support joint inquiry. This means that knowledge will be built slowly with contributions from each participant. It also means that ground rules and agendas should take account of constantly evolving information. Additionally, it implies that the stakeholder process should allow for small meetings and group breakouts for those who are shy or don’t share the western norms of public meetings.
18. Engage in Storytelling. Stories are the single most accessible way for human beings to communicate in groups. Often local or cultural knowledge is located in stories. For scientists and technical experts, telling stories can provide important context and help people understand the assumptions and values that are embedded in models and findings.
19. Explicitly Articulate Outcomes. No matter how we try, not all collaborative processes end up with integrated solutions. If the outcome leads to ongoing relationships, try to create structures that reinforce continuing relationships and trust building. If the outcome means loss or change for some, acknowledge the transition and grief and create rituals that memorialize changes and losses.
20. Create Strong Endings. Stakeholder groups often run out of steam toward the end of the process. Resist the temptation to leave things unsaid or undocumented. Besides developing well-crafted written agreements, make sure everyone is acknowledged. With or without



agreement, close the process with dignity by inviting different cultural and professional voices to help summarize what they have learned. Then, find ways to celebrate.

## CONCLUSION

*Phil: Do you know what today is?*

*Rita: No, what?*

*Phil: Today is tomorrow. It happened.*

*--Groundhog Day*

In the movie *Groundhog Day*, the protagonist is stuck in time, repeating the same day over and over until he finally gets it right. By the end of the movie, he is able to anticipate every problem that happens in the small town before it happens – ready with a jack to help the old ladies with a flat tire, ready to catch the boy as he falls out of the tree, ready to rescue a man from choking. As the title of this paper suggests, the future remains unknown to us, but there are hints of the future that cast visible shadows into the present. Future problems can be averted with proper preparation, including steps suggested by this guide. Importantly, it must involve interactions that engage the public as partners, as this is the only way to build trust. With community trust, tomorrow's problems can be averted today.