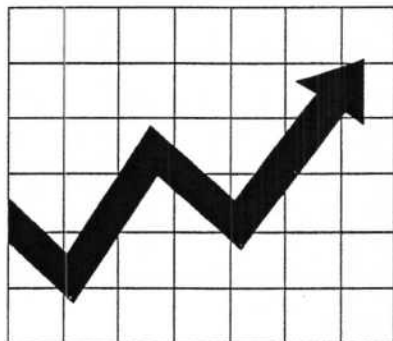
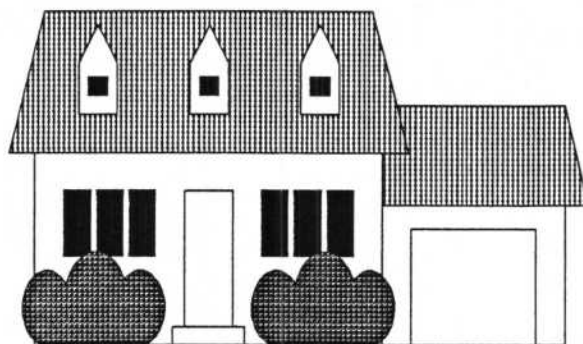


RISK ASSESSMENTS A COMMUNITY PERSPECTIVE



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RISK ASSESSMENTS FROM A COMMUNITY PERSPECTIVE

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Risk assessments are a major issue communities face today. The following is a perspective of risk assessments from a community perspective. As a former resident of the Love Canal neighborhood in Niagara Falls, New York, I have had first hand experience with this issue. Throughout my twelve years as Executive Director of the Citizens Clearinghouse for Hazardous Waste, I continuously meet groups who face the issue of risk assessments applied to their communities. Community people do not support risk assessments, because these are used to justify involuntary exposure of communities to toxic chemicals. Many community groups have a passionate distaste for risk assessments, and a ground swell of opposition is growing as people actively work to abolish their use.

HOW DOES THE GRASSROOTS COMMUNITY PERCEIVE THE USE OF RISK ASSESSMENTS?

To truly understand how a person feels when faced with regulatory or health agency experts coming to his or her neighborhood to discuss risk assessments, it helps to put yourself in the shoes of such a person. Consider the following scenario.

You have brought, hook, line and sinker, the "American Dream." You and your spouse have invested all of your resources and bought your first home. You are the proud parents of a young child to whom you want to give the best that you can provide. You would do anything to protect your child from harm. Your life has never been "wonderful" as a working class family, living from paycheck to paycheck, but you're happy. Then something happens. You learn that there is a hazardous waste site a short distance from your home. No one knows quite what is buried in that site, but it is believed that the site may pose some level of danger to your community. Your first response is fear. As you look at your child, you feel this in your gut. You have a desperate need for answers to the many questions now running through your mind. Has my child been harmed? Is his asthma (or constant

earaches or skin rashes) caused by the chemicals? Will he suffer later as a result of exposure to this contamination? You want to hug your child but resist because you do not want to communicate your fears to him. You look at your home, which always gave such a sense of security. Now it feels like a trap, a threat, a place that could be poisoning you and your family has become a liability instead of an asset. You look to your spouse for comfort and help. But your spouse feels helpless. He does not understand the problem. He feels inadequate because he does not have enough money to move the family. He feels as if he has failed to protect his family.

This scenario is not that far from reality in communities faced with an existing toxic chemical problem or with a proposed facility such as an incinerator or a dump site. To such a community come the experts with their risk assessments. These risk assessments are presented as hard science, believable numbers, to the community. They are used as a tool to achieve an end point, a decision, which is a reflection of a certain set of values.

These values differ depending on where you sit and what you stand to lose. Since corporations and government hold the "power," it is their values and judgements that determine the outcome of a situation. The values of government or industry have to do with economics: how much money will it take to clean up a site or how much profit can be made if this proposed disposal facility is built. The values of the local community have to do with health, environment and the quality of life. Both sets of values are legitimate, but health and environmental effects are much harder to quantify than profits or cleanup costs. As a result, the community's values are not perceived as tangible or worthy, and that translates into a lack of respect for the values of the local families. This lack of respect is validated through the use of risk assessments that fail to consider health and environmental effects beyond cancer.

At a proposed site, this issue of respect is conveyed from the very beginning. Why is this incinerator being sited in our community? Why is it not being suggested for a more affluent neighborhood? People consider the siting of an undesirable facility in their community as a lack of concern for their health and well being. They see the siting as disregard for their families, for their neighborhood and for their efforts to improve their

community. Comments such as, "You have chosen our community because you feel we can be sacrificed, that our worth and the worth of our families is below others" is not uncommon. Such feelings are, in fact, justified. Statistics clearly show that undesirable facilities are more often placed in communities of color or in economically depressed, rural areas. These sites are not chosen for their unique soil or ground water characteristics but rather because of the lack of "perceived political power" that exists in these communities. Reports by consultants to the State of California and State of North Carolina provide written documentation that government officials are advised to place undesirable facilities where people are poor, rural, minority, or Catholic (1,2).

Given the fact that local communities feel that those who are making the decisions do not respect them, the stage is set for adversarial relationships. Think for a moment what would happen if you believed that I thought you and your family were of little value to society. Would you believe me if I tried to speak with you honestly about a particular dumpsite? If I assured you that no more than one in a million people would be harmed by this dump or that no harm would come to you or your children, would you believe me?

Trust is the basis of any relationship. Trust is not just given to people, it must be earned. Often government or a corporation enters a community situation thinking people will trust them because they are more powerful, smarter, or wiser. This attitude is very damaging. Why should the community trust anyone who intends to expose them to involuntary risk? Most people are not willing to take a personal risk without a direct benefit and even less willing to accept a risk for their children regardless of the benefits.

Recently, I asked to give a lecture on risk assessment to an evening class in a Maryland University. Most of the students were adults working in consulting firms in the Washington, DC area. I carried a large bottle of water to class. After speaking about Love Canal and other communities faced with environmental threats, I discussed the issue of trust briefly. Then I demonstrated how communities feel when asked to trust people whom they perceive to have different interests and values than they do. I described the bottle water as coming from a source that our government had tested and validated to be safe for human consumption. I also explained the water did contain some chemicals that at high doses could cause cancer, liver

damage, and central nervous system problems. I reminded them that the government said the water was perfectly safe as I poured a small paper cup of water for each student and asked them to drink it. After a few awkward minutes, no one had touched their cup of water. When I asked why, no one would volunteer a reason. The reason was trust; they did not trust me.

Even though I am an environmental advocate, opposing the poisoning of people, these students could not trust me when I said the water was safe. In fact, the water had come from my kitchen tap and the toxic chemicals it contained were chlorine and fluoride. Even though I was perceived to be on the "right side" of the issue of protecting public health, that was not enough to gain the trust of these professional adults. How then can government or corporations gain the trust of local communities, especially when making decisions that will expose the community to involuntary risks?

Communities perceive many flaws in risk assessment. The first is who is being asked to take the risk and who is getting the benefit. From a community's perspective, risk assessments are "the risks that someone else has chosen for you to take." What is a life worth is the burning question, but equally important is whose life. Is, for example, the life of a professor who teaches at a university worth more than a farmer? These debates over risks usually are not occurring in communities where highly educated and affluent people live. People who are more affluent can choose to move out of a contaminated community or to buy organic fruits and vegetables while working class and lower income families have no realistic choices. Consequently, the people who are most often asked (or told) to bear the risks of a polluting industry or facility often have little ability to escape the poisons. As a result, the use of risk assessments is seen by many as a part of societal racism and classism. They are used to justify victimizing poor communities or communities of people of color.

Another major flaw in risk assessments from the community's perspective is that they are almost always cancer risk assessments. A mother with an asthmatic child is not as concerned about cancer as she may be about respiratory problems associated with an incinerator or contaminated site. What is especially upsetting to a community is that when they report to their health agency that the children in the community have increased respiratory

problems, learning problems and seizures, and birth defects, the health experts return with a cancer risk assessment. The community feels as if their concerns have been ignored or that the expert is rather stupid. No health expert tells the community that he or she does not know how to do a risk assessment for respiratory disease or learning problems. It is like the old joke of a man looking for his keys under the street light because he can see there, when he really lost his keys further down the block where there is no light. When the community says there is an increased incidence of asthma, they do not want an assurance that the cancer risk is negligible.

An additional major flaw with risk assessments perceived by the community is the risk to people who are already sensitive for other reasons. If studies show that adult workers can tolerate a certain level of sulfur oxides in the air, what does that mean for an asthmatic child and an emphysemic grandmother? No expert answers these questions for the community.

Risk assessments are further flawed in that exposure in real life situations is to a complex mixture of chemicals, but risk assessments are based on exposure to a single compound. Every homemaker knows that if you mix ammonia with bleach, you will have a chemical reaction. Homemakers understand that either chemical alone poses some small risks, but together you could have a serious problem. When the government or a corporation says there is only a one in a million chance of getting cancer, people know that statement is flawed because they are being exposed to multiple chemicals that collectively can increase the risks. Yes, the incinerator may cause one in a million chance of cancer, but what happens when we are also exposed to the emissions of the industrial plant down the street? How much does our chance of disease increase when our water is also contaminated "a little?" All of these exposures must be added, not treated as individual isolated exposures.

The most disgraceful use of risk assessments I have experienced was at Love Canal in Niagara Falls, New York. After the original neighborhood had been evacuated, and some limited cleanup had been carried out, the State wanted to determine if the Love Canal neighborhood was habitable, so they could resell the homes and resettle a new community in the area. The state used a risk assessment strategy that compared the air, surface water,

ground water, and soils at Love Canal with two other census tracts within the City of Niagara Falls (3). If the levels of "indicator chemicals," which were 5-6 of the 250 chemicals found at Love Canal, were similar to those found in the control areas, then Love Canal would be declared habitable for resettlement.

This approach seems reasonable at first glance. However, the two census tracts chosen by the State were both contaminated with the same chemicals by the same corporation that dumped their waste at Love Canal. One control area was downwind of the corporation's incinerator, and the second tract was found to have barrels of waste from this company illegally buried beneath the surface. Despite vigorous protests, the State refused to use a control area in a nearby community that had no chemical industry. Not surprisingly, no significant difference was found between contaminant levels at Love Canal and the control areas. Therefore, Love Canal was declared to be habitable. But is it really? Comparing a rotten apple with a rotten apple and concluding they are the same does not indicate whether it would be safe to eat the apple.

Communities wonder why one of our important civil rights- to be treated as innocent until proven guilty- is extended to a chemical. Risk assessment re-enforces the assumption that chemicals are innocent until proven guilty and exposed communities are simply hysterical until proven right. Communities feel that when there is doubt, public policy should be conservative and err on the side of protecting public health. When communities report an increase in childhood leukemia or birth defects, this is the health damage, the "miner's canary," that should alert us to a problem. Yet in almost every instance that "alert" is dismissed as a "random clustering of disease" or the result of "lifestyle" rather than taken seriously as a warning.

WHAT IS WRONG WITH THE SCIENCE OF RISK ASSESSMENTS?

Risk assessments are based on a number of assumptions:

Assumption 1:

Humans can manage the environment by deciding how much damage the earth and humans can absorb without causing harm. Scientist call this the "assimilative capacity" when talking about the earth or the "threshold level" or "no effect level" when talking about the human

body. According to this assumption, scientist can reliably determine how much of any harmful chemical the earth or human body can safely assimilate or absorb without causing harm.

Assumption 2:

Once a system's "assimilative capacity" has been determined, then we can and will see to it that no greater exposure is permitted to occur. We will set limits (regulations) river by river, factory by factory, chemical by chemical, neighborhood by neighborhood.

Assumption 3:

We already know which practices and substances are harmful and which are not; or, in the case of practices and substances that we never suspected of being harmful, we will be warned of their possible dangers by traumatic but sublethal shocks that alert us to the danger before it is too late.

The problem with these assumptions is that none of them are true. We do not know with any accuracy or certainty what health or environmental problems will result from low level exposure to toxic substances, and we know even less about exposure to mixture of chemicals. It is presumptuous to assume that we can control or manage exposure to mixture of chemicals. It is presumptuous to assume that we can control or manage exposure in the face of these uncertainties. In fact, it was the lack of scientific certainty about the effects of low dose exposure that led to the development of the risk assessment process in the first place.

The scientists who carry out the risk assessments are often well aware of all the uncertainties (the problems of extrapolating from animals to humans or from adult male workers to the general population, the unknown shape of the curve in extrapolating from high dose to low dose, the uncertainty of the exposure numbers, the degree of variability among humans in response to chemicals). However, when the risk assessments are provided to others, the limitations of the process are ignored and the numbers are treated as truth or hard science rather than guesses. The experts using the risk assessments seem to have forgotten that the risk assessment process is an attempt to bridge uncertainties by making assumptions about real world

conditions that may not be accurate. The greatest failure of risk assessment is that the experts have begun to believe that their numbers are more valid than the facts and conditions of a real life situation. Make no mistake, the risk assessment process is more art than science.

At the same time that governmental agencies are using risk assessment to assure us that chemicals are being managed and controlled, our ecosystem and public health are being damaged in many ways. The press warns us daily of declining productivity of the ocean and farmlands, of holes in the ozone, the global warming, of increases in many health problems such as asthma, infertility, attention-deficit disorder, ectopic pregnancies, and birth defects. We should not forget that the end result of a risk assessment is an opinion, not a fact, and those opinions may be wrong. Often risk assessments are used by polluters and government agencies to justify bad decisions that protect special interests. Risk assessments are used to justify dumping huge quantities of toxic chemicals into rivers and lakes and to justify leaving families in communities that are heavily polluted despite having statistically significant adverse health outcomes.

IF RISK ASSESSMENTS ARE NOT ACCEPTABLE TO COMMUNITIES, WHAT IS ACCEPTABLE?

What is acceptable for proposed facilities?

The first thing that communities want is to change the way society deals with its waste. By buying into the concept of risk assessments, one perpetuates the core of the problem, which is generating too much hazardous waste in the first place. People in communities quickly become educated on waste reduction methods, cleanup, and disposal technologies. When local leaders hear, "it must go somewhere" they are no longer fooled into believing that society must generate large quantities of waste or return to the dark ages without modern conveniences. They know that corporations are making very little effort to reduce their waste. At best, some token attempts are made for the purposes of creating a "green" public image. Many communities have family members who work in the industrial plants, so they know from first hand experience that changes that result in less waste can be made but that company officials do not want to change.

Communities understand that there are reasonable alternatives that can be used. They observe the lack of commitment on the part of the waste producers to manage the waste stream in a manner that protects resources, environment and public health. Those same corporations that refuse to sacrifice profits in order to manage waste safely ask communities to make sacrifices and accept the hazardous waste facility, thus accepting the risks in terms of adverse health consequences, lost property values, and eventual cleanup costs. Why should people be willing to accept involuntary risks for someone else's benefit? Even the supposed benefit of added jobs in the community often turns out to be a false benefit as a hazardous waste site depresses the property values in a neighborhood and drives other businesses away. In Sumter, Alabama, unemployment actually increased substantially after a large hazardous waste site was built. Risk assessments for new hazardous waste or incinerators are seen by communities for what they are - a tool to justify decisions that are wrong but financially profitable.

Community leaders say to regulators and corporate representatives, "do everything you can to reduce, recycle, reuse, substitute chemicals, change manufacturing processes and use small on-site advanced technologies for your wastes. Once you have done that, then come talk to us about what to do with the residue and what risks people are willing to take." Until that point is reached, community groups will work to stop every proposed hazardous waste site and every new incinerator.

What is acceptable for existing facilities?

What community groups want when faced with leaking landfills, polluted air, or contaminated water is full participation in the decisions that will affect their lives. They want a seat at the table, a voice in the decision-making process. What they want is old-fashioned democracy. Once the community has a seat at the table, then risk assessment may be one of the tools that they will use in coming to an informed judgement on the appropriate actions. But they will apply their common sense and intelligence to the risk assessment. Any acceptable one must contain the following elements:

1. The risk assessment must be concerned with the health problems that are experienced by the community. A risk assessment for cancer because that is what the experts know how to do is not acceptable when miscarriages are the problem.

2. The risk assessment must take into account exposure to multiple chemicals, which is the real life situation.
3. The risk assessment must take into account the chemicals that the community is exposed to in food, air, water, soil, and on the job. The risk assessments must be additive at the very least.
4. The risk assessment must take into account the most susceptible parts of the community: the pregnant woman, the babies and children, the elderly, the already sick.

Risk assessments as currently done fail to address these critical issues. As a result, they do not provide a realistic picture of the true health risks people living in contaminated communities face. At known contaminated waste sites people are exposed to hundreds of chemicals in low doses. Site investigators typically select only a small number of those chemicals, assess the risks of getting cancer, and then assure the community that everything is OK because the risks are only one in a million of getting cancer. How can this be good science? Can you blame community people for being outraged? The clustering of diseases is often dismissed by these same investigators as due to lifestyle, "spicy foods," or some other reason. Rarely is it ever said that the health investigators do not know what the risks truly are. Instead they hide their ignorance behind a risk assessment.

Concluding remarks

The use of risk assessment in the building of a new waste disposal facility, cleaning up an existing waste site or in deciding what level of chemicals we will allow on food is wrong. The basic assumptions that go into such assessments are inaccurate and invalid, and thus risk assessments fail to assess the true risks of a situation. We cannot accurately predict what the earth or the human body can safely absorb. The amount of ignorance about the health effects of low level chemical exposures is greater than the amount of knowledge.

As long as risk assessments are used to justify poisoning our air, water, soil, food and people, we will not move towards building a sustainable society. As long as risk assessments are used to say it is acceptable to pollute at the expense of human health and our natural environment, then we have

eliminated the incentive for corporations to change or government officials to act. Instead of using risk assessment to determine how much of a pesticide can be allowed on apples, for example, why do we not ask how much can we reduce the use of this toxic chemical and still grow apples. Such an approach has been used in Scandinavian countries and has resulted in very large reductions of pesticide use.

As many local community leaders have said, "If we can put a man on the moon, then we can find a way to eliminate the risks we now accept as normal." Although the comment is simply stated, it is true. Technologies do exist to eliminate the need for incinerators, to permanently cleanup existing waste sites, to reduce the pollution and discharge from the manufacturing industries, and to grow and process foods without heavy chemical usage. What is missing is the political will by our leaders, who hide behind risk assessments to justify decisions.

Groups that are part of the Grassroots Movement for Environmental Justice and other environmental groups are joining together to abolish the use of risk assessments and to change the way society deals with its wastes. We have blocked every proposed new hazardous waste dumpsite in America for the last 10 years, and we plan to stop every proposed incinerator during the next 10 years.

Once these inappropriate and dangerous methods of dealing with hazardous waste are stopped, then society will be forced to deal with waste in a more environmentally sound manner. This grassroots movement is also coalescing to protect the Delaney Clause, a 1958 addition to the Food and Drug Act that prohibits adding cancer-causing chemicals to our food. The Environmental Protection Agency wants to eliminate the Delaney Clause and replace it with risk assessment. During the next few years as this issue is being debated, a much larger segment of our population will become educated about the inherent problems of risk assessments. As a result of this new level of understanding, people will be motivated to act and their actions could significantly change and perhaps abolish the use of risk assessments.

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