

EDITORIAL

Juggling with Toxics: Dilemmas for Ethics and Practice

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How many environmental professionals make their living trying to keep the benefits and risks from toxic chemicals in perpetual, acceptable balance? I refer, metaphorically, to the dilemmas arising from societies wanting the benefits that come from products and processes that generate poisons. The professionals seem to have become the jugglers, who seek to keep all the balls in the air (the benefits) and who risk ruin (risks) if the balls fall down.

Our juggling professional may be competent, well trained, well meaning, honest, and socially responsible, but even these admirable traits will not protect him or her from barbed taunts and siren calls from the sidelines:

- Hey, fool, don't juggle at all. You might drop the ball and make an awful mess that will hurt everyone. The act is never worth it. So just say "no."
- Come to me, my sweetie. I'll pay you plenty to say that any dropped ball was just part of the act and was of no consequence.
- Look, chum, you're not the juggler, you're just the hired MC, and all we want you to do is say that all is well, even when sometimes it looks like a ball has fallen.
- Psst, bud. Want to make a bundle? I need a new act invented, and there are stock options aplenty for the clever one who can make the new act look good.
- Come on, friend, you're not a philosopher, you're just a professional. Nobody knows whether the act is worth it or not. Our job is just to respond to market

forces, and lots of people are willing to buy tickets, whether they know what they're getting or not. So let's get on with it. Besides, there really is no other way to go: the act is life.

I'm sure I exaggerate with parody, but my tongue-in-cheek rendition of the commentary surrounding professional work on toxics seeks to illustrate the many serious distractions and confusions surrounding this complex field. This special issue of *Environmental Practice* portrays a portion of the noisy din.

How is our competent, well trained, well meaning, honest, and socially responsible professional to make his or her way through this mine field of complex problems and ethical dilemmas and temptations? This one editorial can't lay out a complete manual, but two guideposts may be of help.

Problems Past and Problems Future

First, a major context issue lies in the question, Is the toxics puzzle I'm faced with a matter of dealing with problems past or problems future? If the toxic demon is already out of the cage and spilled all over the place, then the professional faces a *fait accompli*. In these circumstances, the question becomes, How can we best clean up the mess and what degree of cleanliness is appropriate?

Delicate and troublesome problems of course abound in such a situation. Will the neighbors believe my proposed remedy? Ought they believe my proposal? Am I doing the job with least-cost practices? Who bears those costs? Are the ones bearing the costs bearing them fairly? Will my proposed practices themselves cause other problems that might even be worse? Worse to whom, and is that fair?

In other words, just because a job is "merely clean up" does not mean that it is

free of knotty practical and ethical matters. At the same time, the ethical points are relatively simple in the sense that existing Codes of Ethics, such as NAEP's, are generally sufficient to provide guidance. Essentially those codes are based in a premise of "use all the relevant data, and be honest with it." The practitioner is not, however, called upon to even think about the larger contextual issues like, Was the activity generating this mess ethically defensible?

Practice is not so simple when problems future are at stake. These are problems involving environmental impacts that need to be minimized, often involving the release of toxic materials, but they have not yet occurred. Sometimes the toxic action is intended, as with pesticides, and sometimes it is inadvertent and unwanted, as with pollution from manufacture or use of a device.

Environmental professionals appropriately play a role in managing problems future, but the ethical considerations become much more difficult. Not only does ethical work require using all the data honestly, it also requires thinking about:

- Should this activity be done at all?
- Are no feasible alternatives possible?
- How far must we extend our imagination to judge feasibility?

Maybe answering these questions is not, strictly speaking, the sole responsibility of the environmental professional. Still, it seems ethically deficient to think that wisdom lies in the practitioner putting such concerns out of mind.

What is the practitioner to do if he or she decides that ethical behavior lies in objecting to the activity involving toxic releases from problems future? Refusing the work is one avenue, and in some cases is surely the appropriate one. Another is doing the work in good faith but trying to promote thinking on alternatives with equal vigor. Perhaps a third is to conclude, with resignation, that personal objections

notwithstanding it is better to have the environmental work done than not, and nothing done by the professional has a ghost of a chance of generating alternatives. Unfortunately, no easy way exists to distinguish among these three or other possible courses of action.

Politics of Risk Assessment

The second guidepost concerns the politics of risk assessment as a way of thinking about toxics problems. In the past two decades, some practitioners involved with toxics have worked to create a science of risk assessment. The promise was that this new science would inform the professional on where the most serious risks lay and thus help guide priority management practices for toxics problems.

The science of risk assessment was based on four steps: (1) identify hazards; (2) establish dose-response relationships; (3) identify exposure; and (4) quantify the probability of harm from the dose-response and exposure information. Together these activities promised rationality and objectivity on toxics issues through quantification of risks from known hazards.

Unfortunately, there was always a kicker in this science: How far afield should one go in seeking to identify a hazard? Critics quickly pointed out that risk assessors were sometimes challenged in thinking about the hazards needing study. For example, a persistent toxic material released in small doses may create little risk at the time of release. The fact that it persists, however, means that over time the risk will grow. It is not OK, then, to release a little bit on the grounds that a single release in itself bears little consequence. A risk assessment based on study of a one-time release would be hopelessly flawed.

Even more troublesome was the prospect of thinking that acceptability of risk was merely a matter of calculating a probability of harm. For example, if a toxic material had a low probability of causing harm, that does not by itself mean the risk of releasing it is therefore acceptable. Other questions had to be answered:

- What if the probability of harm is small, but if it occurs the loss is catastrophic?

- What if the person suffering the harm derives few or no benefits from the toxic release?
- What if the endurance of the risk is involuntary?

Skilled risk assessors quickly learned that these “supplementary” issues surrounding quantitative risk assessment were in fact integral to the exercise. Enough insensitive risk assessments, however, have been performed over the years to leave a permanent bad taste for the “alleged science” in others. Many non-governmental, environmental activist groups have concluded that the only good risk assessment is no risk assessment. They have tended to congregate instead around prohibitions, a fortress of regulations, and promotion of alternatives as the only feasible ways to protect the health of people and other species from toxic chemicals.

Industry, government, and many elements of the scientific community, in contrast, tend still to flock to risk assessment as the key to “good science” in the management of toxics issues. A protection of profits of course often lies at the base of such arguments, especially for industries seeking to market a product. More fundamentally, however, an ideological commitment to “progress through rationality and science,” the hallmark of the modern era, generates a positive image for any method that promises objective and true knowledge. Such an ideological commitment will generate blind spots about the criticisms of risk assessment.

I accept many criticisms of risk assessment yet still do not want to completely eliminate it from the toolbox of the environmental professional. Resolution of when and how to use it is partly tied to the matter discussed earlier: problems past and problems future.

For making decisions about problems past, risk assessors are given a simpler set of tasks. Largely it is a matter of scope. The problem is already here, and something must be done. It is not that the criticisms noted above of risk assessment don't count. Instead it is a matter that the scope of the exercise does not have to concern itself with the question of whether the activity gener-

ating the toxic mess should happen or not. It did happen, so let's get on with doing something about it. Risk assessment still faces genuine ethical land mines, just fewer of them.

For problems future, risk assessment itself becomes a risky way to think. As many critics have observed, to do a risk assessment generally involves the assumption that the risk will occur. Unfortunately that is precisely the sticking point in working on problems future: Should this activity, which we know will create toxics problems, occur at all? Have we really considered all alternatives? Practitioners who gravitate first to risk assessment to manage problems future should expect to find themselves, legitimately I think, in hot water with some portion of the public.

Risk assessment may be a helpful and legitimate tool. But if it is done without sensitivity to real ethical questions, it is the basis of poor, indeed unethical, professional practice.

The Route toward Competent, Ethical Practice with Toxics

In this short editorial, I have tried to indicate that a good professional has matters technical, social, and ethical to consider. Disciplinary training in such fields as toxicology, epidemiology, hydrology, chemical engineering, microbiology, and many others generally provides the foundation for competency. But practice is much more than mere technical competency. A good practitioner must also consider issues of context, both social and ethical.

Attention to the distinction between problems past and problems future and to the politics surrounding risk assessment will provide considerable help to the professional who wants to have his or her expertise accepted by the public. These themes are to be found in all of the articles appearing in this special issue on toxics. We hope the information here helps you keep all the balls in the air. Good juggling!

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