

**ESD.864**  
**Problem Set #2**  
**Due Session 10**

**Risk Assessment Models**

Your assignment is to create a framework for a risk assessment process, continuing the work that began in class in Session 6. To focus your thinking, you can consider that the process will be applied to a new and potentially hazardous chemical (a pesticide). With reference to the “traditional” NRC 1983 risk diagram (see the slide from the Session 6 lectures notes on OCW), construct your own risk-assessment model diagram to address some of the criticisms of that model. To facilitate its use as a guiding and generalizable framework, your model should be similar in level of detail to the NRC risk diagram (for example, there is no need to specify exactly what sort of scientific studies are required) but may have different or additional boxes, arrows, etc.

1. Draw your model, and submit it on a Powerpoint slide.<sup>1</sup>

Questions 2-3 should be submitted separately from the powerpoint slide:

2. What criticisms of the “traditional” risk assessment model does your new framework attempt to address? Why is your model an improvement in these areas?

3. Based on the risk assessment model you’ve created and your expertise as an MIT researcher with knowledge about risk and science-policy interactions, the World Health Organization has contacted you to ask you to serve as a reviewer the new WHO Human Health Risk Assessment Toolkit: Chemical Hazards. (See background information here:

[http://www.who.int/ipcs/methods/harmonization/areas/ra\\_toolkit/en/index.html](http://www.who.int/ipcs/methods/harmonization/areas/ra_toolkit/en/index.html) where you can link to the whole document as a pdf)

Prepare a 1-2 page review and critique of this document for WHO. You should answer the following questions in your review:

- What are the strengths and weaknesses of the toolkit’s approach to risk assessment?
- Would you recommend any changes based on our best understanding of risk and science-policy interactions?

Please draw upon and cite relevant background readings from the course literature (and, optionally, any other sources you find appropriate).

<sup>1</sup> You may use any method or program to create the diagram, including pen and paper, but please submit it electronically as an image on a powerpoint slide for consistency (scanned and cut-pasted, for example, is OK too).

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