NANOMATERIALS DISPOSAL AND END-OF-LIFE ISSUES: ECOTOXICOLOGICAL CONSIDERATIONS

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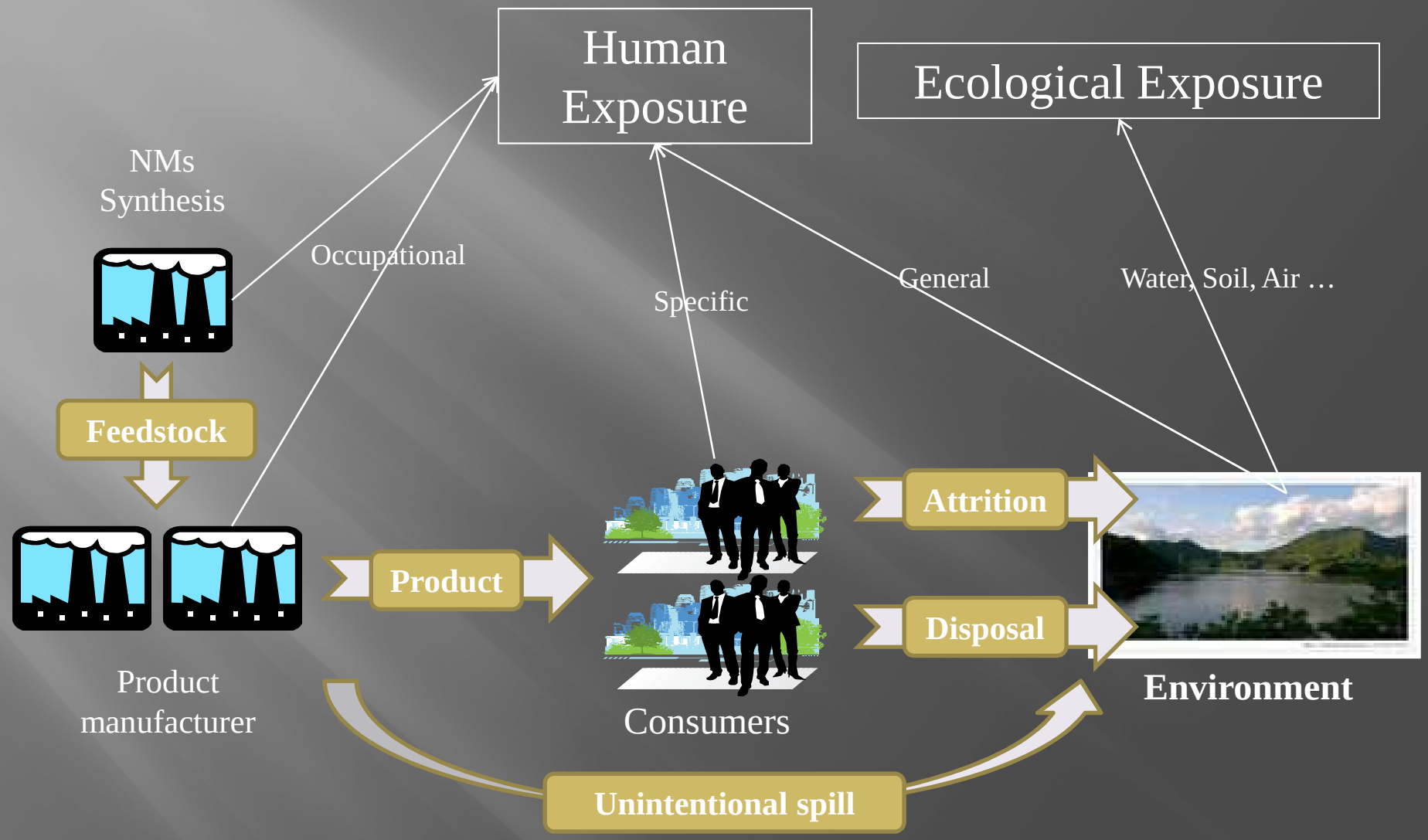
Release and Exposure of NMs



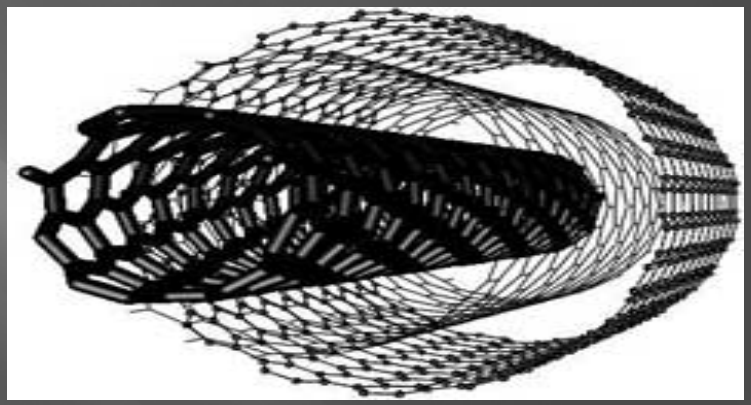
Kathleen Sellers, AMEC Inc.

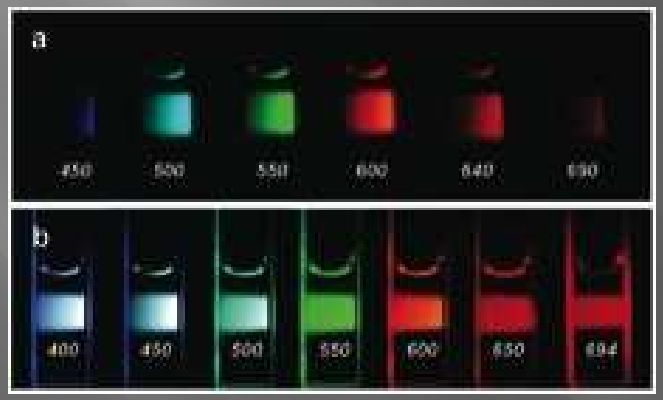
Issues

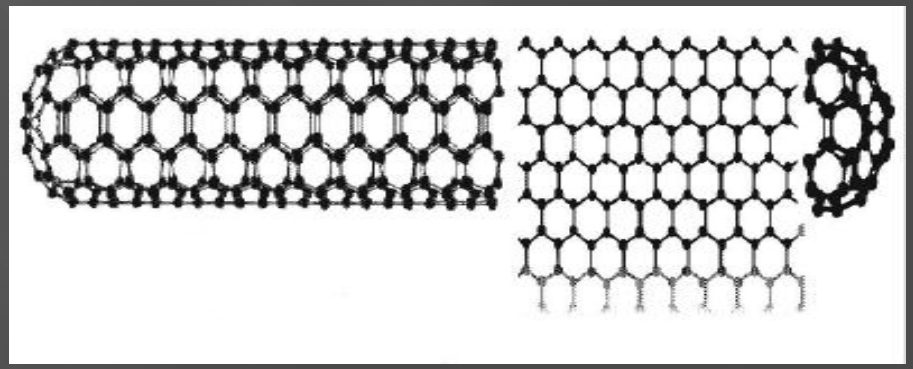
- Fate and behavior of nanomaterials in waste streams.
- Nanomaterials in waste effluents
- Fate of nanomaterials in landfills
- Fate, behavior, bioavailability, and toxicity of nanomaterials in sludge amended soils
- Fate, behavior, bioavailability, and toxicity of nanomaterials in surface waters

Challenges

- What to test?
  - Material source
  - Material consistency
  - Material stability
  - As produced or modified

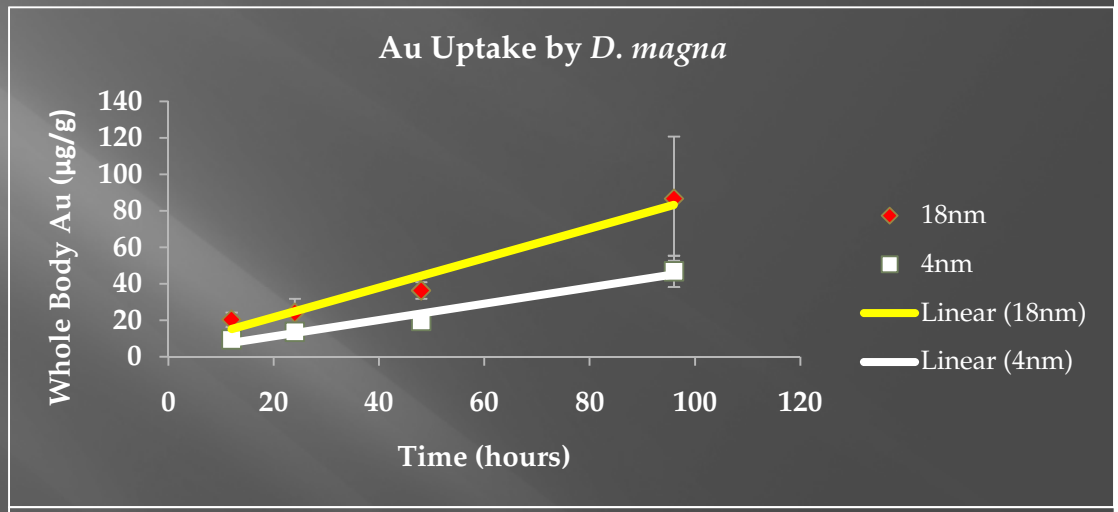


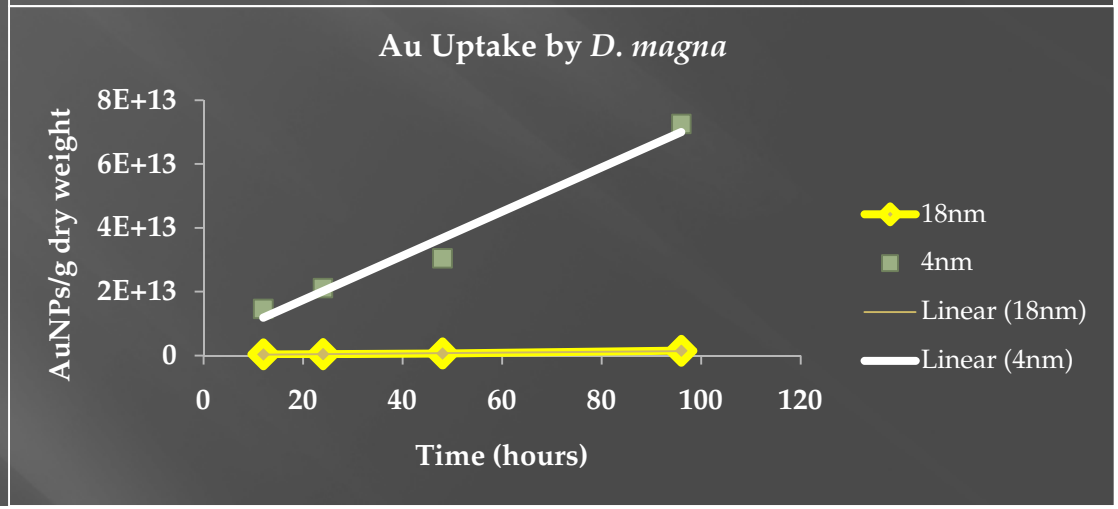




Challenges

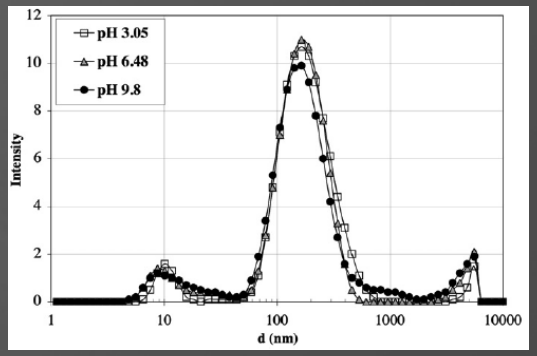
- How to measure it?
  - Gravimetric
  - Particle number
  - Surface area

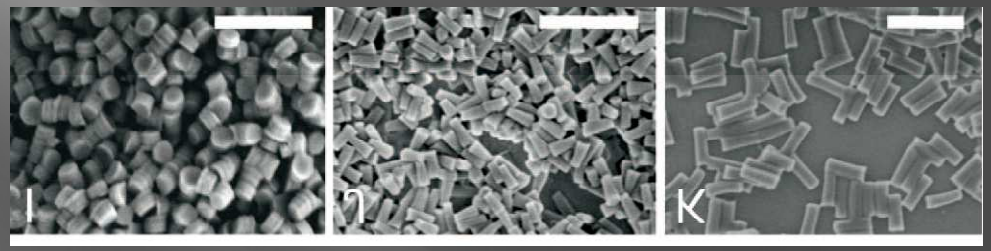


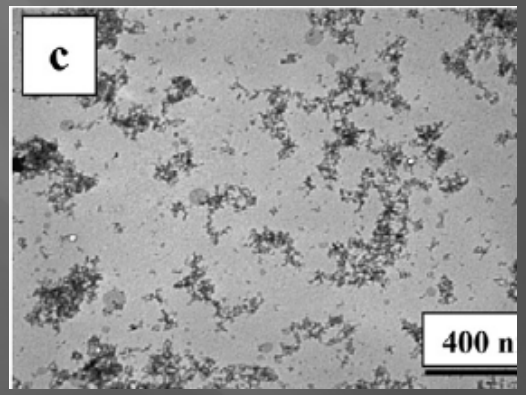


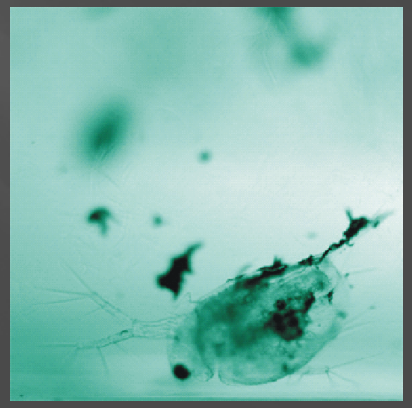
Challenges

- How to characterize it?
  - Size
  - Shape
  - Surface chemistry
  - Core chemistry
  - Stability



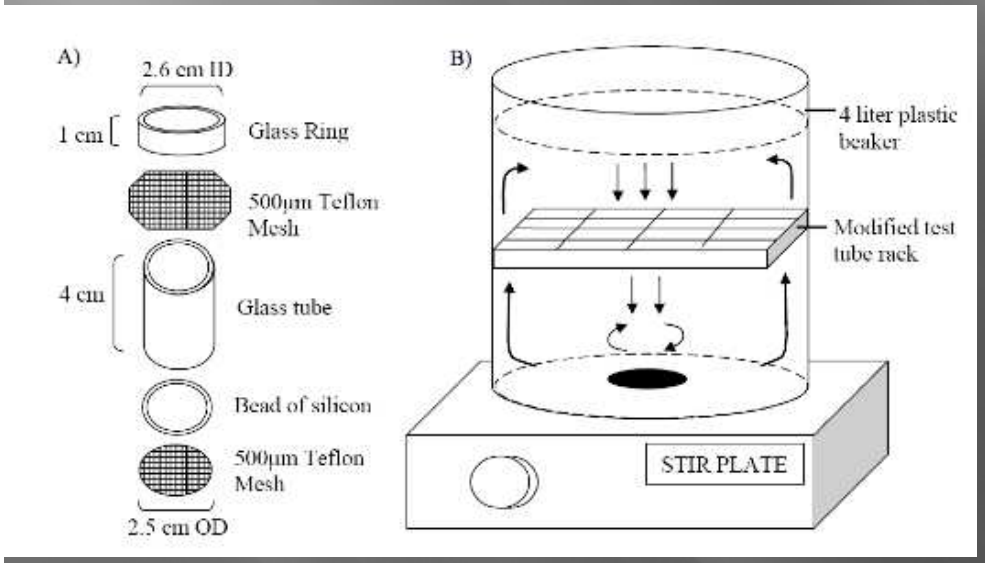






Challenges

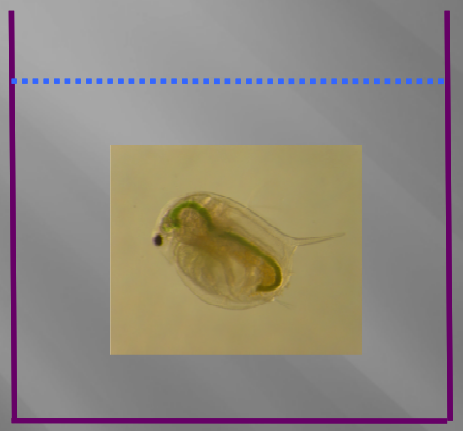
- How to test it?
  - Test organism
  - Test apparatus
  - Single organism or multiple

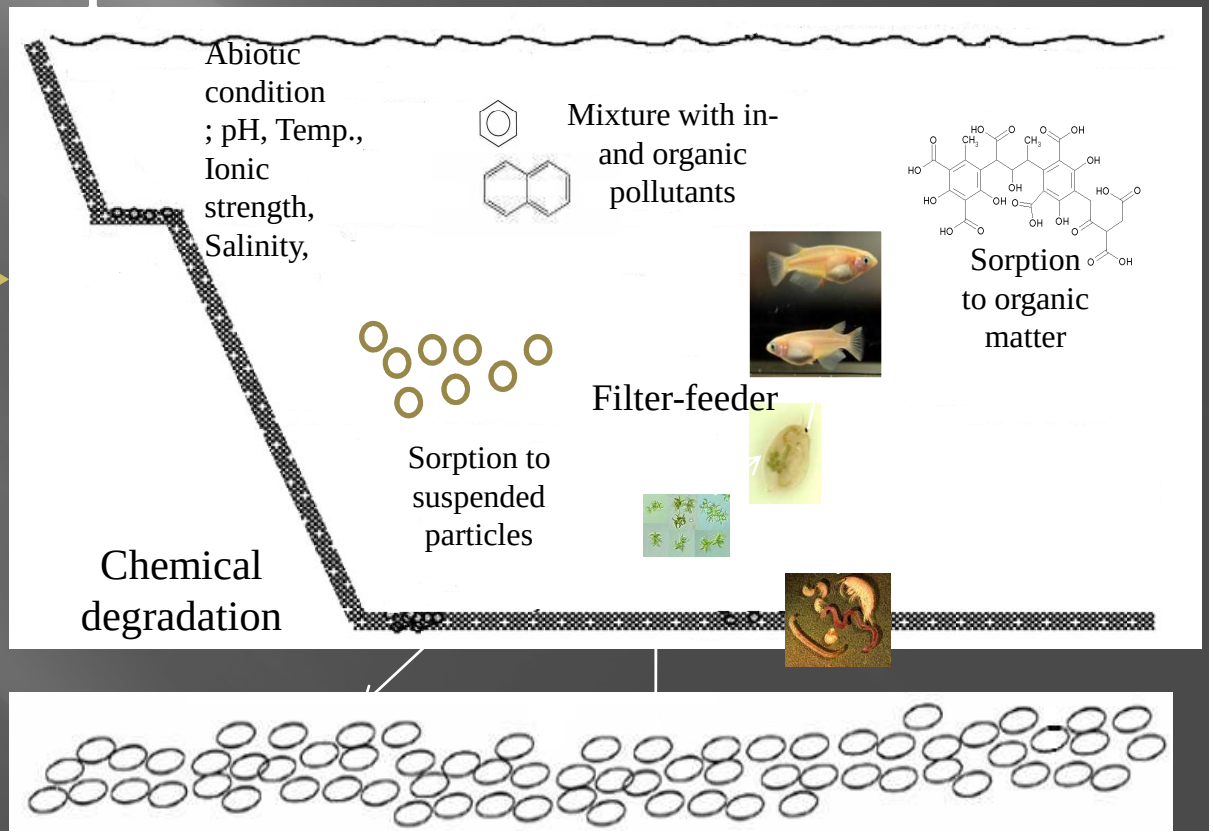


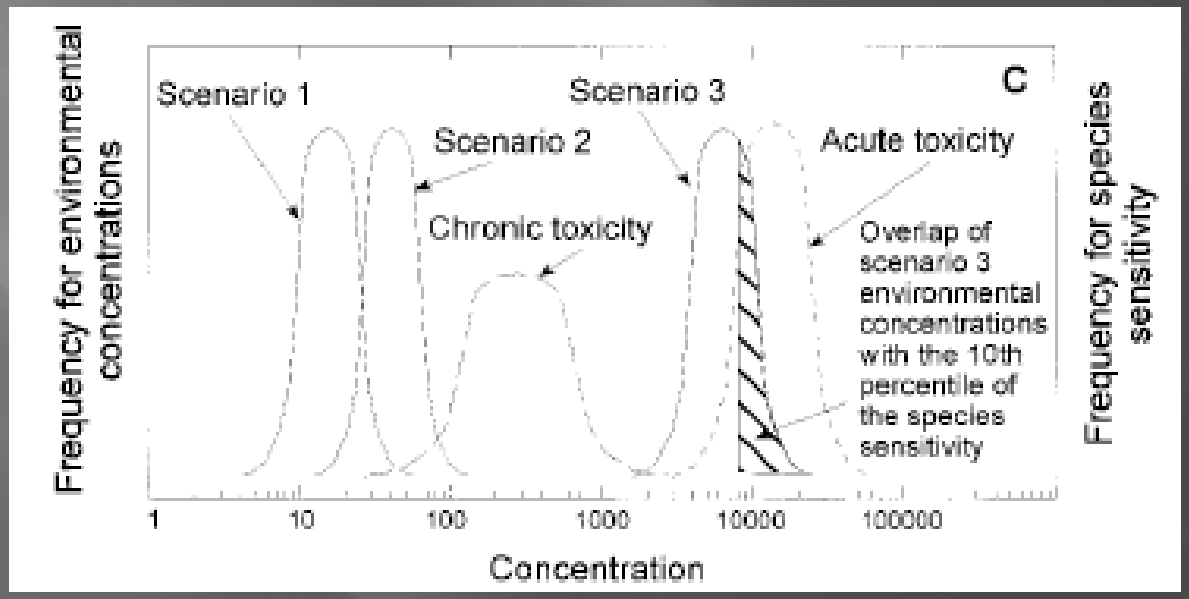
Completely Stirred Static System

Challenges

- How to interpret test results?
  - Comparative toxicology
  - Lab to field extrapolation





Challenges

- Utilizing results in ecological risk assessment
  - Quantifying exposure
  - Hazard assessment