
Ethical, Legal and Social Implications of emerging technologies

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ELSI

- ELSI: Ethical, Legal and Social Implications of emerging science and technologies
- Initiated by James Watson, a director of Human Genome Project, in 1988
- Role of ELSI research = Informed Consent through;
 - Prediction of impacts of emerging science and technologies in a variety of perspectives,
 - Collaboration among different disciplines to understand a big picture of the problem,
 - Proposing solutions to policy makers.



Example of ELSI related questions

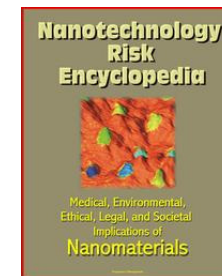
■ Genome research

- What strategies should be used to balance the needs for privacy and safety of individuals and groups with the scientific goals of creating resources for DNA sequencing and human variation research?
- Will the discovery of DNA polymorphisms influence current concepts of race and ethnicity?
- What new concerns are being raised by the commercialization and patenting of DNA sequence information?



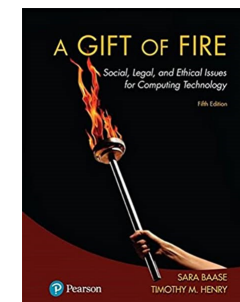
■ Nanotechnology

- What are life cycle environmental implications of nanomanufacturing?
- Is there any occupational health hazards of nanoparticles?
- How ethical, legal, and social issues are addressed will determine public trust and the future of innovation driven by nanotechnology?



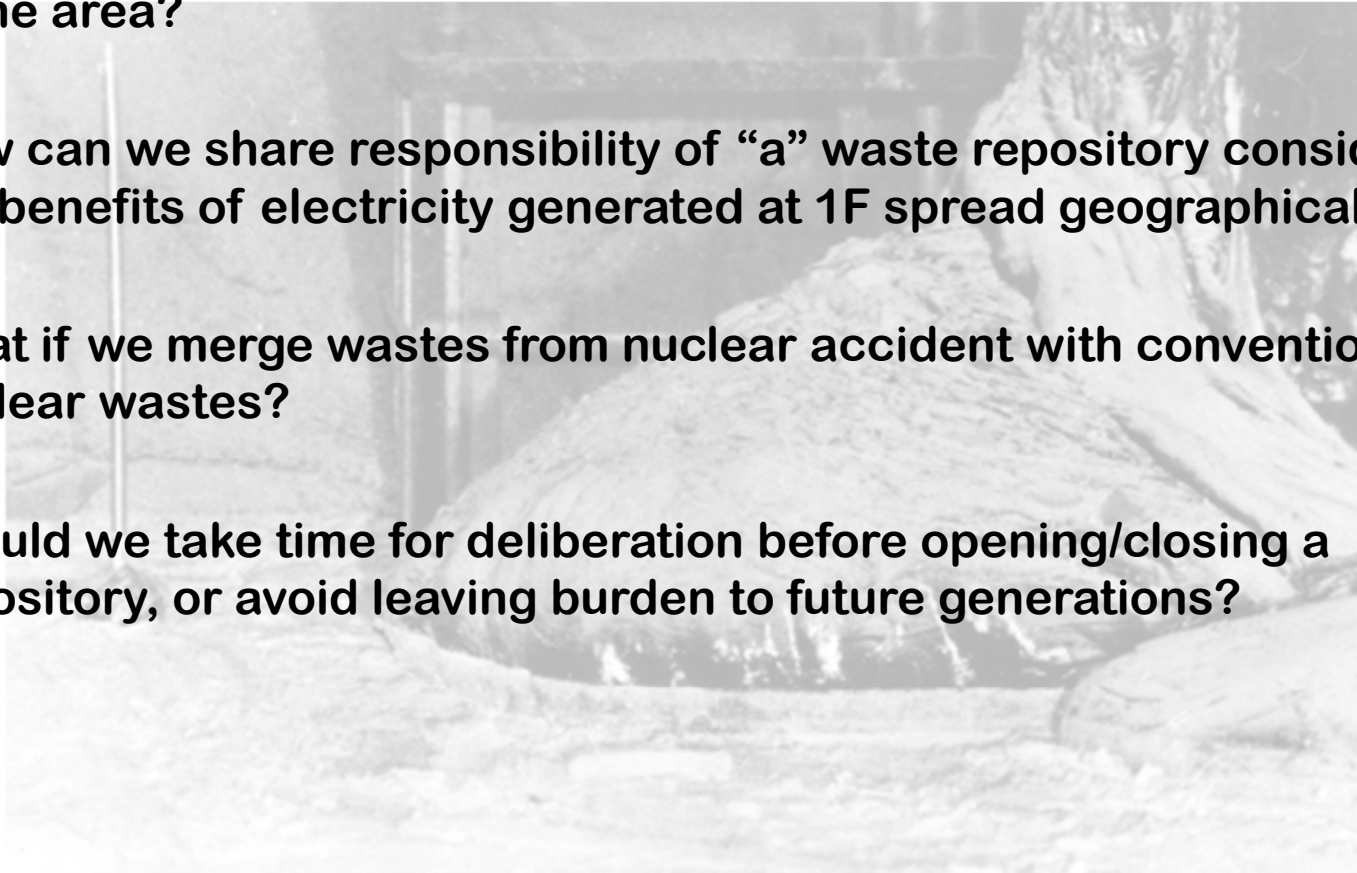
■ Information technologies

- Piracy of copyrighted materials, software, data, music, video etc. at large scales?
- e-commerce and on-line transactions encourage cyber crimes, forgery, sabotage, hacking and loss?



Questions concerning ELSI of 1F waste disposal

- How can and should we decide where to locate a waste repository?
- How can a decision of hosting a repository impact life and business in the area?
- How can we share responsibility of “a” waste repository considering the benefits of electricity generated at 1F spread geographically?
- What if we merge wastes from nuclear accident with conventional nuclear wastes?
- Should we take time for deliberation before opening/closing a repository, or avoid leaving burden to future generations?



Suggested readings

- National Research Council and National Academy of Engineering, [Emerging and Readily Available Technologies and National Security](#), A Framework for Addressing Ethical, Legal, and Societal Issues, 2014
- HORIZON 2020, Responsible research and innovation
<https://ec.europa.eu/programmes/horizon2020/en/h2020-section/responsible-research-innovation>