Value issues, the precautionary principle, and equity in relation to radiological protection

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Separating values and facts - is it possible?

Values

Epistemic values

Uncontroversial

Practical values

Controversial
Trying to separate facts and values

Cannot be done perfectly

Is still worth doing as far as possible

Requires awareness of scientific uncertainty
Rationality

Theoretical rationality (what to believe)

Practical rationality (what to do)
The scientific knowledge production process
Using the “bypass route” from evidence to policy

1. The same type of evidence
2. The same assessment of actual strength of evidence
3. Differences in the required level of evidence
The precautionary principle

The vulcano example

The Iraq example

Not special to radiation protection or to the discourse on human health and the environment
Three basic thought patterns in ethics

Utilitarianism

Deontology

Virtue ethics
Three basic thought patterns in ethics

Utilitarianism  
Optimization

Deontology  
Dose limits

Virtue ethics  
Justification
Can a disadvantage for one person be outweighed by a (larger) advantage for another person?

Moral philosophy
- Yes! (utilitarianism)
- No! (deontology)
- Sometimes (“everyday” ethics)

Economics
- Yes! (old welfare economics)
- No! (new welfare economics)

Risk analysis
- Yes!

Medical ethics
- No!

Radiological protection
- Partly (?)
Combining equity with optimization

Egalitarianism (against “relative poverty”)

Prioritarianism (against “absolute poverty”)
A simple mathematical model

$<x_1, x_2, x_3, x_4, x_5>$

Collective dose: $x_1 + x_2 + x_3 + x_4 + x_5$

Dose limit: $\max(x_1, x_2, x_3, x_4, x_5)$

Egalitarianism: $x_1 + x_2 + x_3 + x_4 + x_5 + m(<x_1, x_2, x_3, x_4, x_5>)$

Prioritarianism: $f(x_1) + f(x_2) + f(x_3) + f(x_4) + f(x_5)$
Ethics and the future

Discounting spelt out:

Lives today

Money today

Future money

Future lives