How to make better decisions at very low dose exposures?

WNA – ICRP Webinar

Enabling Sustainable Development through the System of Protection

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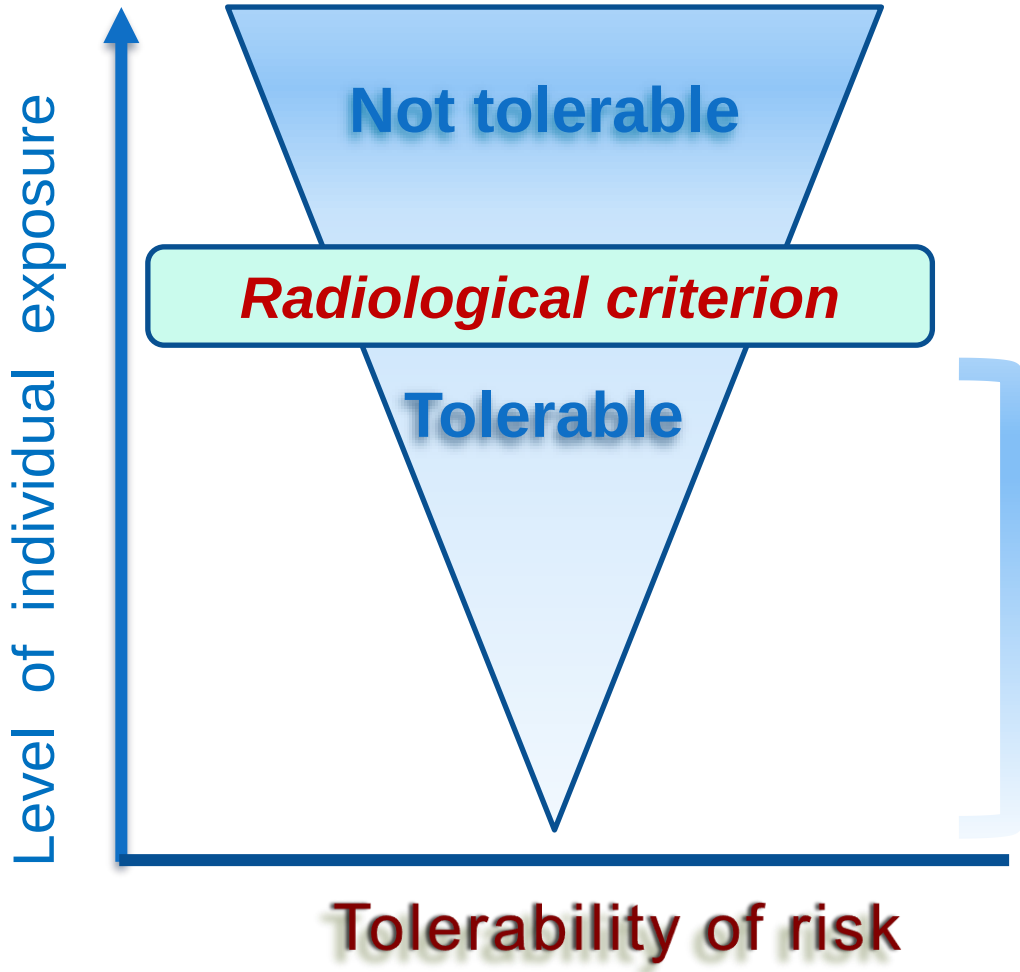
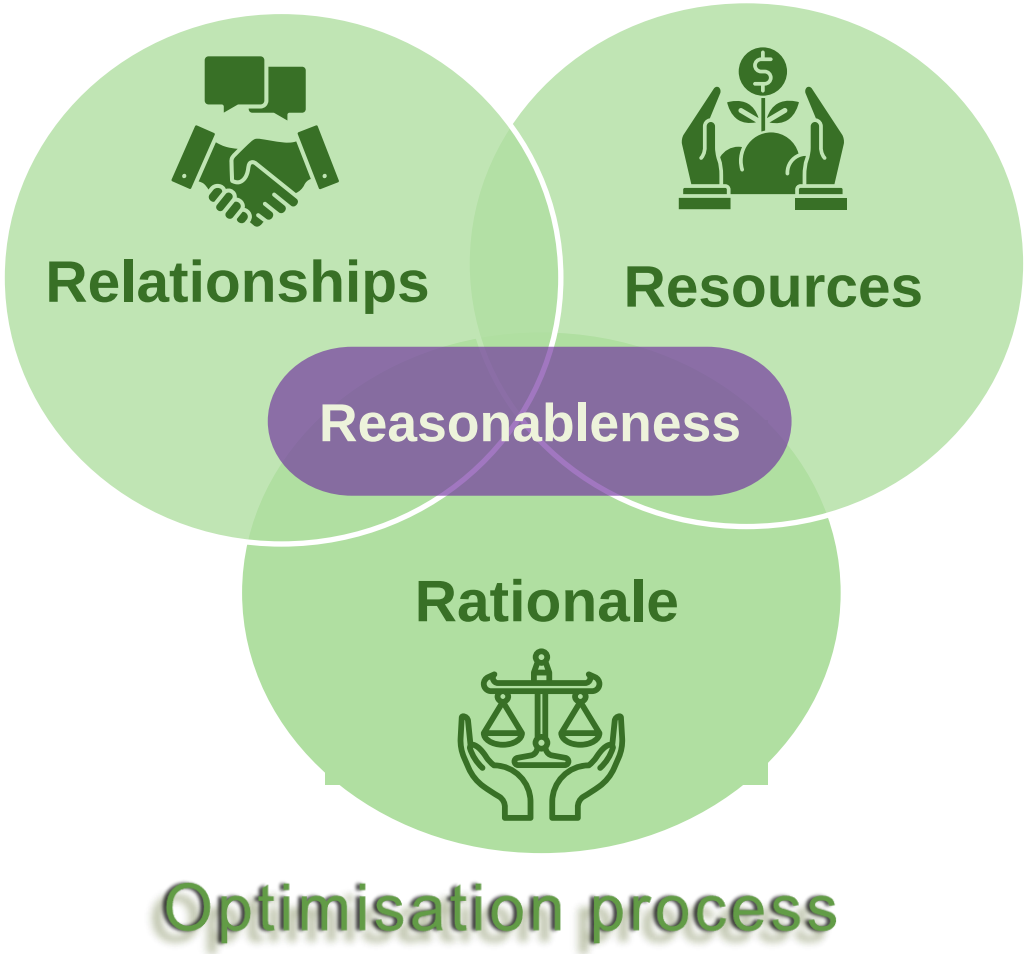
What is “reasonable”?

- **Central to applying the principle of optimisation is the evaluation of what level of radiation exposure should be considered as low as reasonably achievable (ALARA) in a given circumstance, taking socio-economic and environmental factors into account**

…to make rational, informed, and impartial decisions that respect other views, goals, and conflicting interests – ICRP Publication 138

The revised framework for tolerability of risk and reasonableness





The revised framework for tolerability of risk and reasonableness

- **Reasonableness refers to:**
  - Good judgement, fairness, practicability, moderateness, appropriateness
  - Optimisation as a deliberative process to achieve a reasonable “compromise” with all (informed) stakeholders
  - Embarking economic, societal, environmental and ethical considerations

Societal considerations and values in the optimisation process and the 3 Rs approach

ICRP Pub. 101, 2006:

- Equity
- Ability to control (measurement, health surveillance, etc.)
- Sustainability
- Intergenerational considerations
- Individual benefit
- Social benefit
- Level of information/knowledge held by those exposed
- Social trust

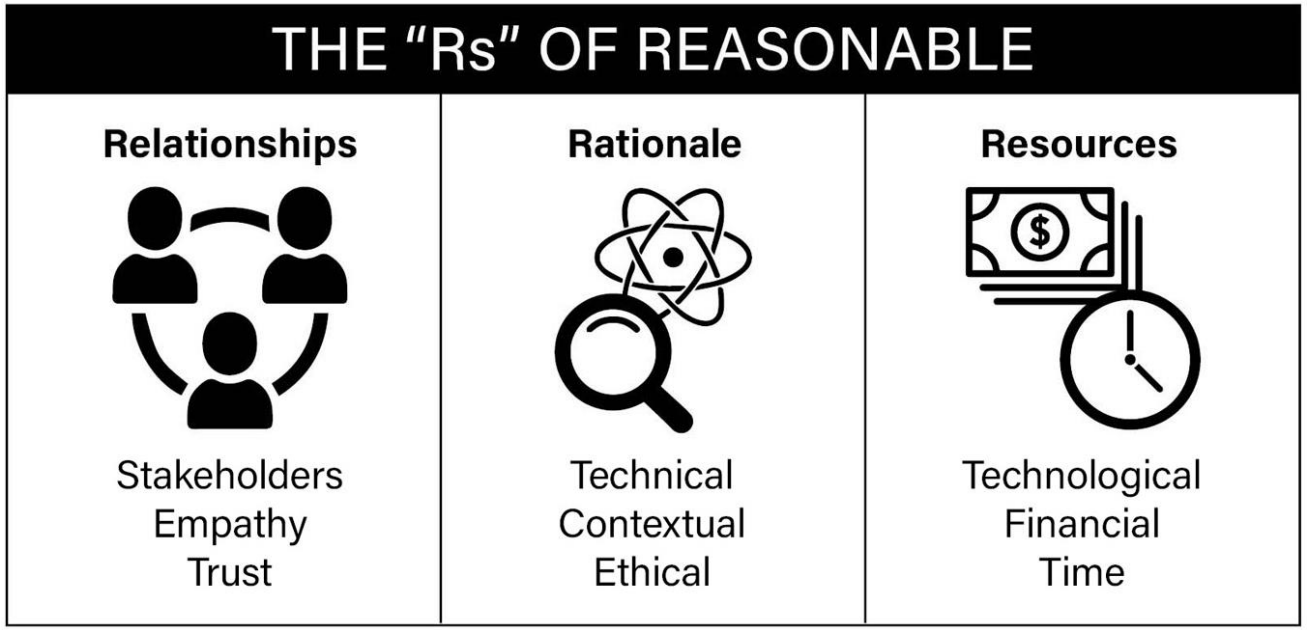


Figure 1. Summary of the 'Rs' of reasonable in radiation protection.

J. Wieder, T. Schneider, N. Martinez. (2022)

The Three R's of Reasonable in Radiological Protection: Relationships, Rationale, and Resources.

J. Radiol. Prot. 42 021513

General considerations

- **Emphasis to be put on the “level of protection” with due consideration given to the level of risk associated with ionising radiation under the specific circumstances but not only**
  - Include considerations on well-being, sustainable development, all hazard approach…
- **Importance of considering the “process” (reasonably achievable)**
- **Articulation between justification and optimisation principles**
- **Considering the prevailing circumstances and the specificities of the situation**
- **Ensuring the respect of ethical values**
- **Relying on stakeholder involvement**

Some challenges at very low doses

- **Very low dose exposures:**
  - Cope with uncertainty on radiation-induced risk
  - Value judgement (individual and collective) depending on the specific exposure situation
- **No universal value for defining “trivial risk”**
- **Rely on prudence and optimisation:**
  - Adoption of LNT model
  - Set up stakeholder participation and dialogue to identify the good level of protection
    - Proportionate to the issues at stake
    - Adopting a holistic approach

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