



On the ethical imperative of self-reflection in radiation protection research

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observation 1 From the EURATOM Treaty

(preamble) [...] Recognising that nuclear energy represents an essential resource for the development and invigoration of industry and will permit the advancement of the cause of peace, [...]

[...] Resolved to create the conditions necessary for the development of a powerful nuclear industry which will provide extensive energy resources, lead to the modernisation of technical processes and contribute, through its many other applications, to the prosperity of their peoples, [...]

(article 1) [...] It shall be the task of the [EURATOM] Community to contribute to the raising of the standard of living in the Member States and to the development of relations with the other countries by creating the conditions necessary for the speedy establishment and growth of nuclear industries. [...]

source [EURATOM Treaty](#)

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from o1 → All research and outreach activities done in EURATOM funded context are aimed to serve the mission of EURATOM: *[...] to create the conditions necessary for the development of a powerful nuclear industry [...]*.



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observation 2 From the Report of the High Level and Expert Group on European Low Dose Risk Research (2009)

→ *[...] Both natural and man-made sources of ionising radiation contribute to human exposure and constitute a hazard for human health. Exposure of the population to natural radiation is to some extent unavoidable and medical use of radiation is now an indispensable part of modern healthcare. The exposure of workers, and to a smaller extent of the public, to low levels of radiation from nuclear energy production and other industrial uses of ionising radiation have become an integral part of industrialised society. [...]*

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o1 + o2 → The three pillars of radiation protection are justification, optimisation and individual dose limitation, but the EURATOM vision on radiation protection research is not concerned with justification, as it assumes nuclear to be an a-priori acceptable technology in all three application contexts (energy, medical, industrial).



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observation 3 From the Report of the High Level and Expert Group on European Low Dose Risk Research (2009)

→ *[...] Although current radiation protection standards are generally judged to be acceptably robust there remains considerable scientific uncertainty particularly with regard to health risks at low doses and/or low dose rates. Consequent upon these uncertainties, the issue of low dose risk is controversial in both scientific and political circles. [...]*

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o3 → The ambition of future radiation protection research as envisioned by EURATOM is to reduce the scientific uncertainty with regard to health risks at low doses and low dose rates and thus, consequently, to resolve the 'controversies' around those risks.

The impression is given that controversies only originate from scientific uncertainty and that critical risk assessments based on values are unjustified.



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The framing of future radiation protection research in Europe On the way to a new technocracy?

Conclusion Observations 1, 2 and 3 together give at least the impression that the ambition of EURATOM is to **scientifically prove** that **nuclear technology** (and especially nuclear energy technology) **is a societally acceptable technology**.

Problems with this ambition

- it is perceived as unrealistic (also by involved scientists);
- it can be used to relativise the importance of the precautionary principle (and consequently the Linear Non-Threshold hypothesis) to guide decision making;

(the precautionary principle is an ethical principle, which means that the Linear Non-Threshold hypothesis is based on ethics and not on science);
- it can be used to relativise the importance of public participation and even of democracy in decision making itself.



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However, due to the inherent uncertainty that marks the relation between low doses and health effects, the science of radiological risk assessment will always have to deal with incomplete and speculative knowledge.

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- **The challenge of science** in radiological risk governance is not the production of credible proofs, it **is the construction of credible hypotheses**.
- In the general interest of rendering hypotheses with credibility, science has no choice but **to involve civil society in general and the (potentially) affected in particular** in constructing its hypotheses.

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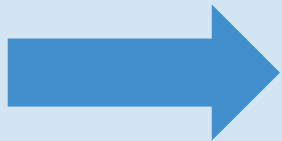
There is a need to organise critical ethical (self-)reflection as part of radiation protection research

- The motivation for the integration of ethical considerations in radiation protection research:
 - to remain vigilant to and critically assess the motivation for radiation protection research and the practical feasibility of its scientific ambition:
 - to reflect on the possible (mis)use of old and new scientific hypotheses in opinion making on risk in politics, lobbying and the media:
 - to motivate the importance of the precautionary principle and of public participation in research and decision making, particularly based on insights in what can and cannot be done by science.

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Natural science and technology researchers cannot and should not do that critical ethical reflection alone.

It should be done together with

- researchers from the social sciences and humanities;
- stakeholders from informed civil society and the general public.