"Good science for better policy making"

A reflection on the idea of integrating social sciences and humanities into (energy) research.

Gaston Meskens

Science & Technology Studies Unit, SCK•CEN (Belgium)

Centre for Ethics and Value Inquiry, University of Ghent (Belgium)

gaston.meskens@sckcen.be

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“Good science for better policy making”
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1 Three ethical challenges to the governance of technological risk

2 Seeking societal trust: the challenge for science

3 Good science for better policy making

1 Three ethical challenges to the governance of technological risk

1 To care for fairness in the way science advices policy

The fact that the science of technological risk assessment needs to deal with knowledge-related uncertainties and value pluralism implies that science as policy advice cannot deliver factual evidence to the full extent. Fairness starts with both science and politics to become 'reflexive' about this and about the consequences thereof.

2 To care for social justice in risk justification

The involvement of people (citizens, patients, …) in decision making on issues that may potentially affect them in an adverse way is now seen as an essential criterion of fair decision making itself.

The way this involvement should be organised is still a topic of debate.

3 To make deliberate and accountable but resigned policy choices

Even decision making that is judged as 'fair' by all concerned needs to accept that one cannot predict if and how the use of a risk-inherent technology will eventually affect us in the future. An attitude of deliberate resignation is that attitude with which one leaves the possibility to take control over the issue in the future while explaining why we thought what we did was the best we could do.

- These three ethical challenges to the governance of technological risk
  - ↘ are applicable to all risk-inherent technology application contexts (energy, health, food, agriculture, transport, industry,…);
  - ↘ and the criteria for fairness with regard to their governance are essentially technology independent.
- Given the need to deal with knowledge-related uncertainties and value pluralism in making choices with regard to the use of risk-inherent technologies, **societal trust** related to **knowledge** and **decisions** cannot be based on proclaimed scientific truths or political promises, but will need to be found in the **methods** of knowledge generation and decision making themselves.

2 Seeking societal trust: the challenge for science

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To what extent should scientists be concerned with fairness?

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- We know that the practice of scientific research is influenced by

→ the market
→ political programmes (research funding opportunities, custom-made research)
→ competition

but also by

↘ the ideology of finding and presenting the truth
↗ 'self-organised' quality control (through peer review)

- All this tends to stimulate

→ knowledge brokerage, (delivering knowledge in the 'right form' to the user)
→ tailor-made scientific consultancy
→ political 'science shopping'

2 Seeking societal trust: the challenge for science

The challenge for science is to go beyond its traditional quality criteria of objectivity and independence

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Recall the first 'ethical challenge to the governance of technological risk'

1 To care for fairness in the way science advices policy

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1 To care for fairness in the way science advices policy

In other words:

Fairness relates to **technology assessment**, or thus to the way

- we make sense of **the promises of capacities** of technologies:

- we make sense of **the acceptability of risks** of technologies:

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1 To care for fairness in the way science advices policy

In other words:

Fairness relates to **technology assessment**, or thus to the way

- we make sense of **the promises of capacities** of technologies:

→ Science should have the 'freedom' to explore possibilities

energy gen III/IV, plant life extension, decomissioning, transmutation, waste, …
medical mammography techniques and campaigns

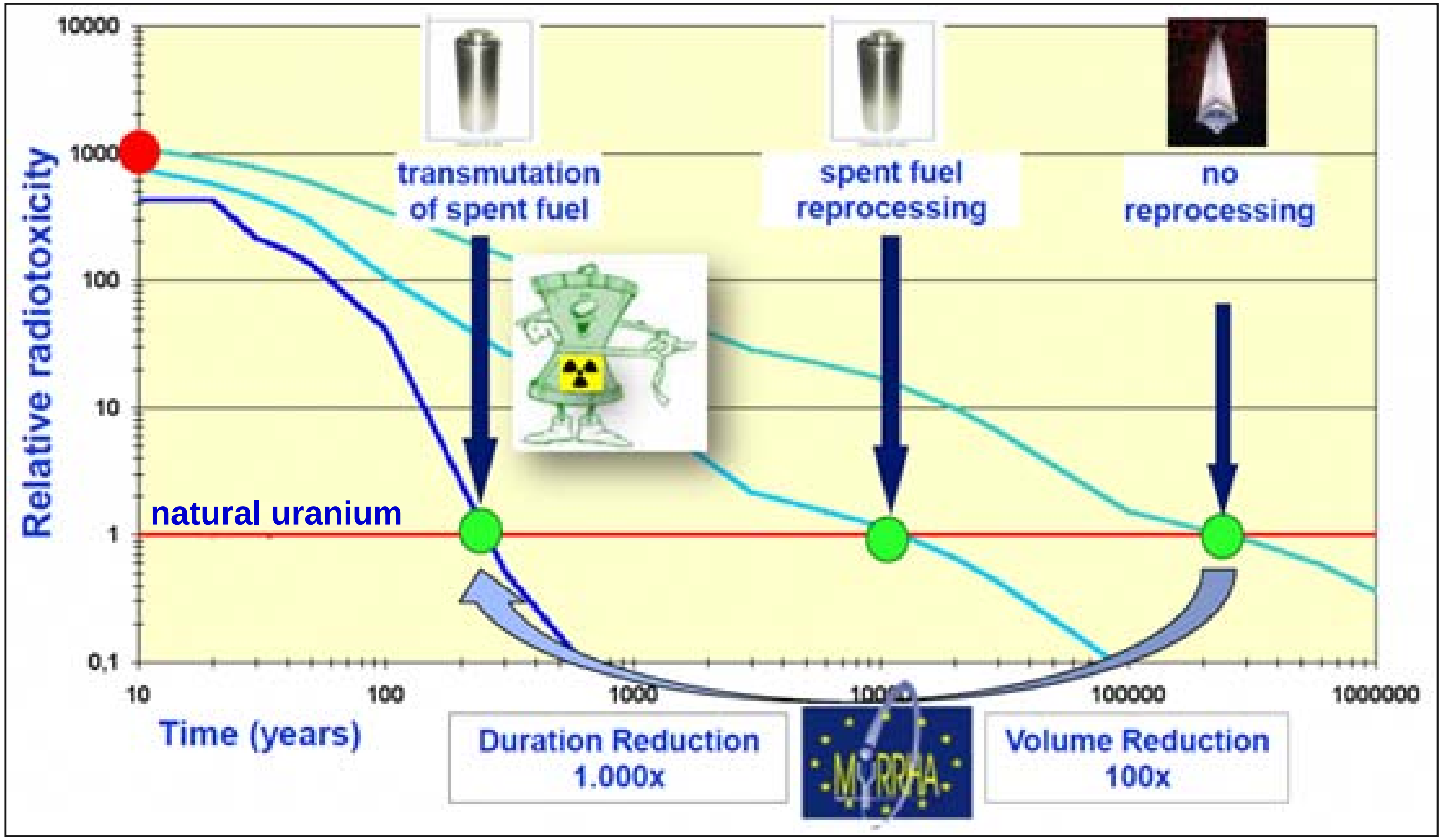
but should do it in close interaction with society, transparent with regard to its intentions and prepared for confrontation with regard to its rationales;

- we make sense of **the acceptability of risks** of technologies:

→ No scientific or political authority can determine alone what would be an acceptable health risk for society.

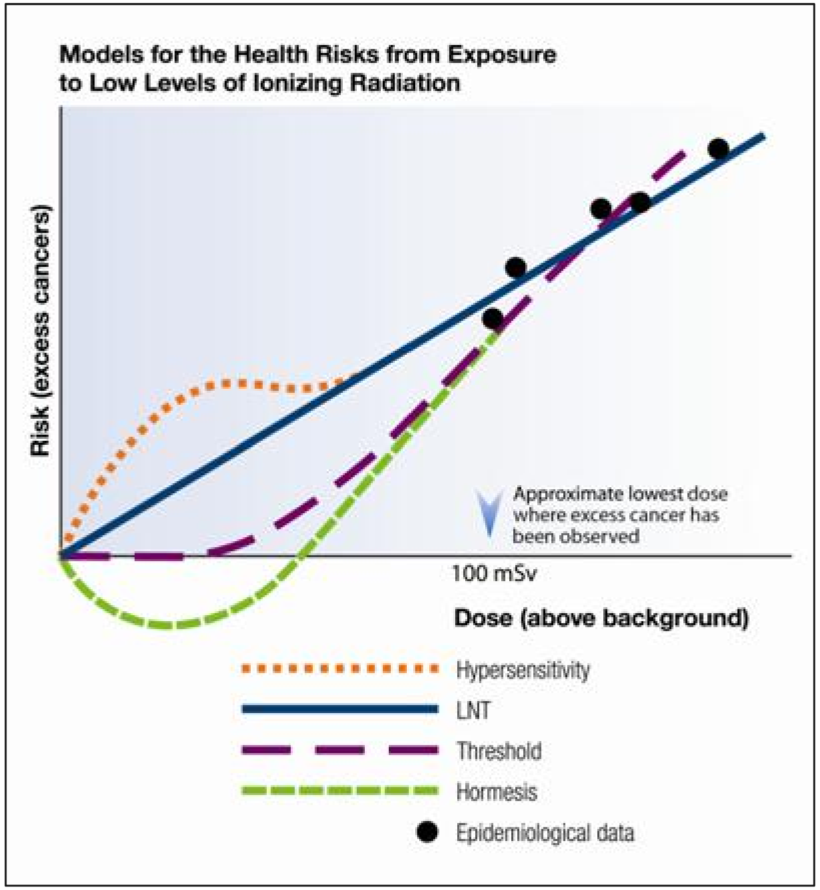
Seeking societal trust: the challenge for science

The promises of transmutation



Seeking societal trust: the challenge for science
Policy advice in post-accident conditions

In Fukushima, the issue of the so-called '100 mSv threshold' is an issue in urgent need of formal public intellectual confrontation between all responsible and concerned parties.



There is major support for the vision that no such threshold exists and that one needs to maintain the linear relation between radiation dose and risk (LNT) based on the precautionary principle.

Who shall take the initiative to launch and organise this confrontation?

source:
Canadian Nuclear Safety Commission
http://nuclearsafety.gc.ca/eng/resources/health/linear-non-threshold-model/index.cfm

Seeking societal trust: the challenge for science

Policy advice in post-accident conditions

The argument in favour of a “100 mSv treshold” relies on a wrong interpretation of a quote from the ICRP 2007 recommendations

In the section on fundamental data on radiation response, it is said that

[...] *There is, however, general agreement that epidemiological methods used for the estimation of cancer risk do not have the power to directly reveal cancer risks in the dose range up to around 100mSv* [...]

ICRP 2007, page 173 (A.4.1. Fundamental data on radiation response)

↘ insufficient statistical power to observe elevated risk ≠ no elevated risk

Policy advice in post-accident conditions

In Fukushima, the ongoing scientific discussion on possible thyroid cancer with children would benefit from a serene and accommodating atmosphere, but is now hindered by power politics and distrust.

Epidemiology
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Accession: 00001648-201605000-00003

Thyroid Cancer Detection by Ultrasound Among Residents Ages 18 Years and Younger in Fukushima, Japan: 2011 to 2014

Tsuda, Toshihide; Tokinobu, Akiko; Yamamoto, Eiji; Suzuki, Etsuji

2 Seeking societal trust: the challenge for science

Beyond the criteria of objectivity and independence, the challenge for science is the construction of credible hypotheses

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- Confronted with the need to deal with incomplete and speculative knowledge and value pluralism in making sense of the promises of capacities and the acceptability of risks of technologies, **the challenge of science** is not the production of credible proofs, it **is the construction of credible hypotheses**.

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- In the general interest of rendering hypotheses with credibility, **science has no choice but to 'open up its method'** for

1. the integration of social sciences and humanities;
2. involvement of 'informed civil society';
3. involvement of the potentially affected.

3 Good science for better policy making

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- Scientific research to inform policy in a responsible way about risk-inherent technologies not only needs to take into account knowledge-related uncertainties but also the various value judgements related to their (eventual) use. It is now generally accepted that this kind of scientific research cannot solely rely on the natural, engineering and technical sciences alone.

- 'Good science for better policy making' is science that

→ generates policy-supportive knowledge in a **holistic**, **transdisciplinary** and **participatory** way, or thus **knowledge as a synergy of insights** from

- the natural, engineering and technical sciences;
- the social sciences and humanities;
- informed civil society and citizens;

→ **is able to generate trust by its method** instead of by anticipated outcome.

- The **motivation** for this vision on science is **ethical**, as it responds to the need

1 to care for fairness in the way science advices policy;
2 to care for social justice in risk justification;
3 to make deliberate and accountable but resigned policy choices.

3 Good science for better policy making

There is a need for a new vision on science, informed by ethics, able to grasp the complexity of risk-inherent technology assessment

key words holism – transdisciplinarity – participation

- Three questions to answer

↘ How can it inform policy in a better way?

↘ How does it work, in theory, in practice?

↘ How to get there? How to transform science for the better of policy making?

3

Good science for better policy making

How can it inform policy in a better way?

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- The 'integration' of social sciences and humanities into research that traditionally relies on natural, engineering and technical sciences

→ **helps to improve the understanding of concrete challenges** within specific research fields that have implications for the wider society outside of the reseach office or laboratory (f.i. low dose health effects, the choice for retrievable or non-retrievable waste disposal, …);

→ **facilitates stakeholder participation** in research and decision making processes that rely on science and engineering;

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→ **facilitates stakeholder participation** in research and decision making processes that rely on science and engineering;

→ **enables the research to become self-reflexive** and thus

(1) – as an ethical accountability towards society – **to become critical with regard to its own working**, in the sense that the research can become better aware of

→ the social, political, cultural and historical context wherein it operates;
→ the rationales, possibilities and limitations of its own research methods and the relevance and possible interpretations of its own hypotheses.

(2) **to become more resistant** to pressure from politics and the market to deliver evidence it cannot deliver.

3

Good science for better policy making

How does it work in theory?

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key words

↘	**holism**	instead of **reductionism**
	the idea that	we need to see ‘sociotechnical systems’ as wholes (‘bigger than the sum of their parts’) and that their functioning cannot be fully understood solely in terms of their parts
↘	**transdisciplinarity**	instead of **disciplinary truth-thinking**
	the idea of	knowledge as a synergy of insights from various ‘disciplines’ to inform research and education
↘	**participation**	instead of **top-down paternalist technocracy**
	the idea that	participation is not only motivated from the perspective of social justice, but also based on the insight that, if nobody has the truth, we can only ‘know together’.

3

Good science for better policy making

How does it work in practice?

Good science for better policy making

How does it work in practice?

1 Through the organisation of dialogues

↘ between people who normally would not meet

↗ about topics that would normally not be treated

within a research domain that traditionally relies on natural sciences and technology development alone.

2 with a focus on **analysis** – **critique** – **possibilities** with regard to

reference	meaning and use of values (objectivity, sustainability, justice, precaution, ...)
methods	scientific methods, methods of political decision making
tools	(of policy formulation): foresight research models, multi-criteria analysis
languages	deconstruction of specific languages (political, scientific, commercial, ...) development and use of a 'deliberate reflexive language' to inform policy

3 supported by research and decision making policies that stimulate this advanced approach and that provide guidance and financial means for its organisation.

3 Good science for better policy making

How to get there? How to transform science for the better of policy making?

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vision *A world wherein science as policy support, as a responsibility towards society, has become holistic, transdisciplinary and participatory 'in routine'. In that world, this advanced form of science would also be educated at our high schools and universities, and supported by national and international politics.*

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nuclear European Research policy should now focus on a **transition agenda**, taking into account that

→ 'SSH integration' initiatives are meaningless without the participation and support of the natural scientists, engineers and technology developers;

→ we are now in a learning phase, with multiple overlapping initiatives taken;

→ the focus should be the general societal interest, not own image or profit;

→ it would benefit from **a separate SSH Strategic Research Agenda** that would connect with the existing 'technical platforms';

→ **SSH platforms should be application oriented** so as to allow maximum interaction with other relevant actors within a specific application context relevant to nuclear technology (energy, medical, industrial);

→ this transition cannot succeed without a similar spiritual reform of traditional secondary and higher education.