

Application of the principle of Justification

Planned exposure situations – non-medical

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ICRP Committee 4



International Commission on Radiological Protection

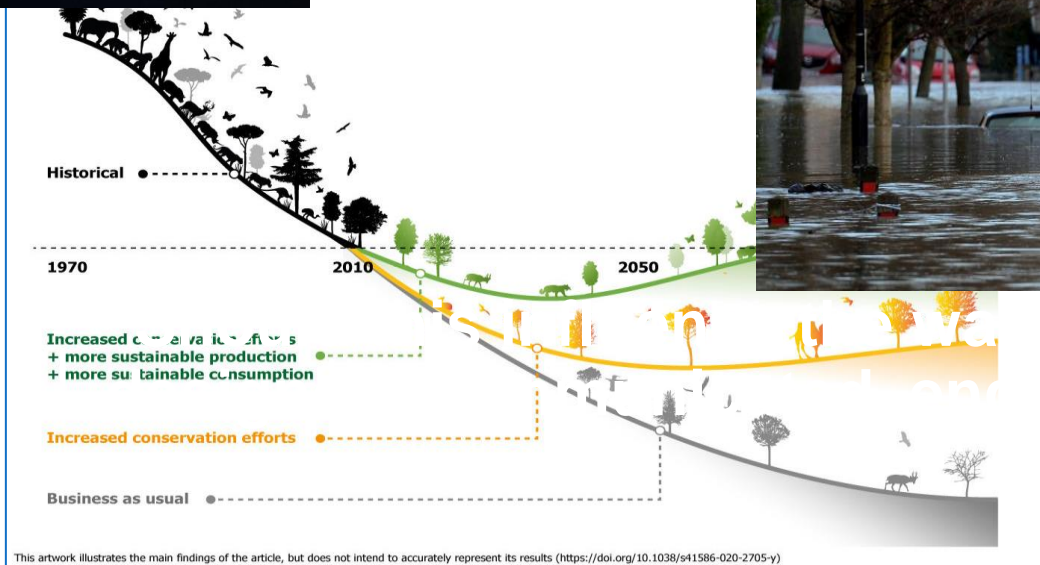
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Objectives



- **Setting the Scene**
 - Context
 - What are we talking about? Practices and scenarios
 - A complex challenge
- **Discussion on practical application – guiding questions:**
 - How is the principle of justification currently applied in your sector?
 - How does the justification process vary depending on the scale of the issue?
 - How can RP expertise play a role in big-picture decisions?
 - What guidance would be helpful to improve the application of the justification principle?

Context for justification is changing



Scenarios

examples

Energy lifecycle – fission and fusion

Space travel – including power systems

NORM industries

Defence

Radioisotope production

Non-medical imaging

Research and education

Consumer products

Civil nuclear energy generation

- low carbon- Globally avoids about 2 gigatonnes CO₂/y
- Sustainable management of nuclear lifecycle
- Scenarios where benefit is short-term and detriment mainly in future
- Waste management should be considered integral to the practice but what about cases where this was an afterthought?

Nuclear Power and the Paris Agreement

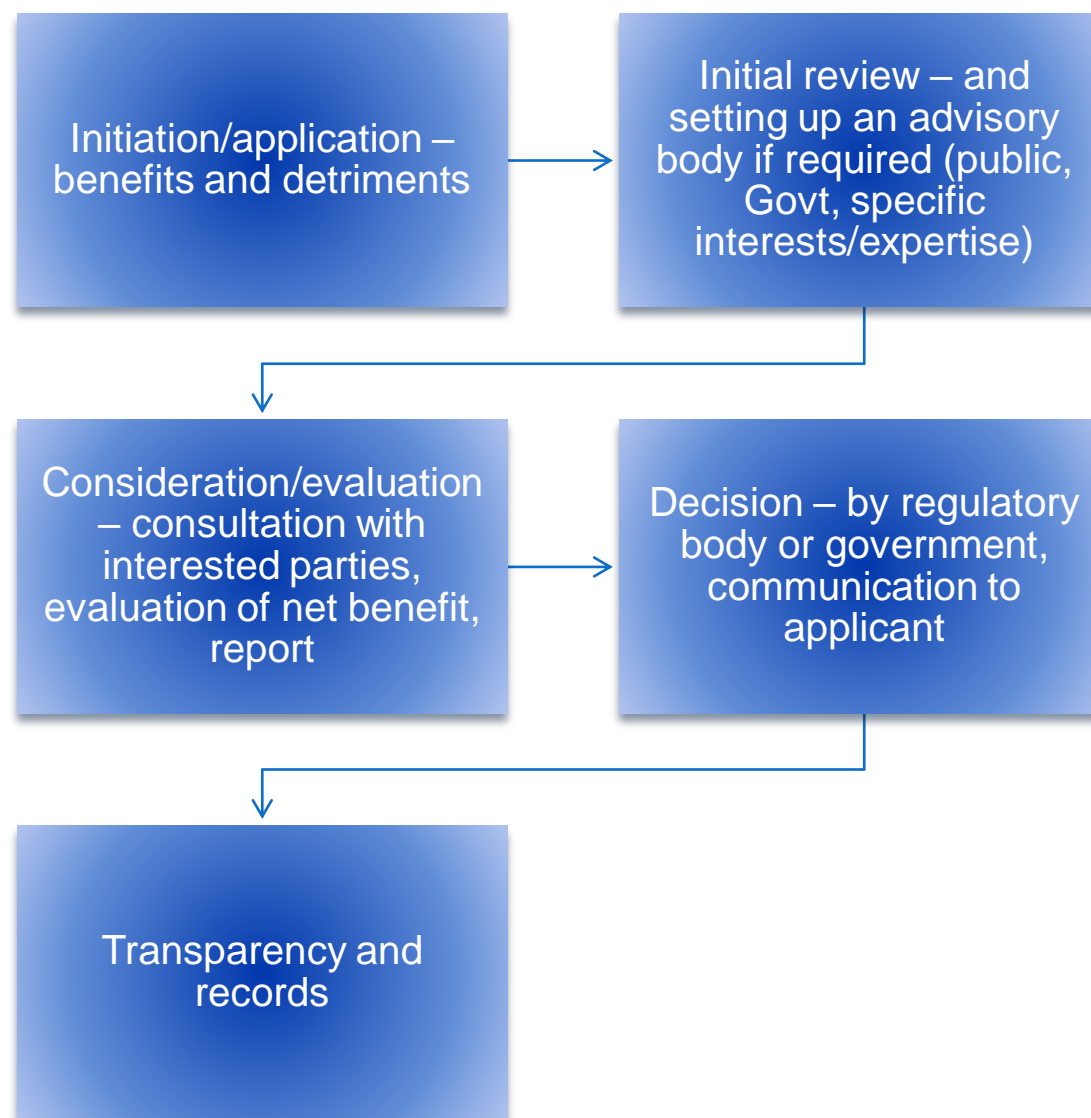


 **IAEA** *60 Years*
Atoms for Peace and Development

Justification Process

Summary of typical elements

(see also IAEA GSG-5)



Case study – UK framework

- Justification of Practices Involving Ionising Radiation Regulations 2004
- Government duty with functional separation – in consultation with stakeholders
- new practices and where existing practices reviewed in the light of new information about efficacy or consequences
- prohibit in certain cases the deliberate addition of radioactive substances to goods, the activation of materials in products and the import and export of goods
- specific requirements that apply to practices involving the deliberate exposure of humans to ionising radiation for non-medical imaging
- Public register of justified practices

The Justification of Practices Involving Ionising Radiation Regulations 2004

The Secretary of State's decision as Justifying Authority on the Regulatory Justification of the UK Advanced Boiling Water Reactor (UK ABWR)

December 2014

A complex challenge



Wide range of practices which can involve public, worker and environmental exposures



Differing scales – from ‘big picture’ national policy/programmes to more specific technologies or practices



Potentially wide spatial and temporal domains



Evaluation – wide range of detriments and benefits, qualitative and quantitative, economic/financial models, role of UNSDGs, natural capital/ecosystems services, uncertainties etc



Addressing new and significant knowledge post justification (and practices already established when the principle was extended to all planned exposures)



Ethical issues – e.g. what is a ‘just’ use, utilitarian vs egalitarian



Ensuring its value (e.g. relationship to optimization (source related) and limitation?)

Discussion

- How is the principle of justification currently applied in your sector?
- How does the justification process vary depending on the scale of the issue?
- How can RP expertise play a role in big-picture decisions?
- What guidance would be helpful to improve the application of the justification principle? e.g. how to evaluate net benefit
- Others? e.g. could 'doing more good' be translated into sustainability (or enhancing wellbeing overall)?



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