



An Introduction to the Ethical Foundations of the Radiological Protection System

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First European Workshop on the Ethical Dimensions
of the Radiological Protection System

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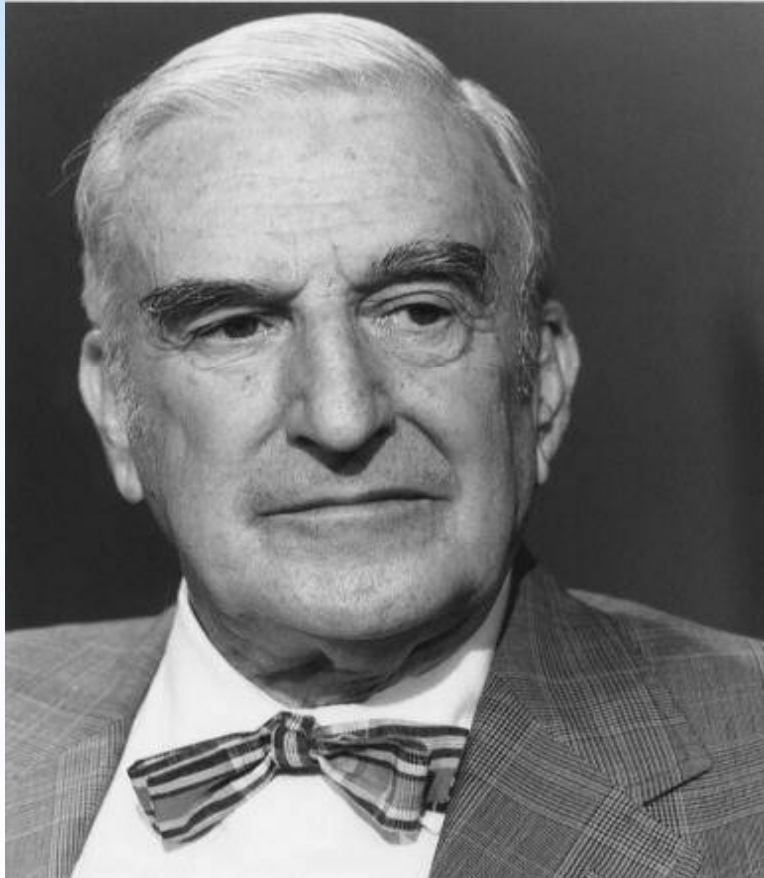
16-18 December 2013

This presentation has neither been approved nor endorsed by ICRP



INTERNATIONAL COMMISSION ON RADIOLOGICAL PROTECTION

Science and values in radiological protection - A tradition -



"Radiation protection is not only a matter for science. It is a problem of philosophy, and morality, and the utmost wisdom."

Lauriston S. Taylor (1902 – 2004)

The Philosophy Underlying
Radiation Protection
Am. J. Roent. Vol. 77, N° 5,
914-919, 1957
From address on 7 Nov. 1956

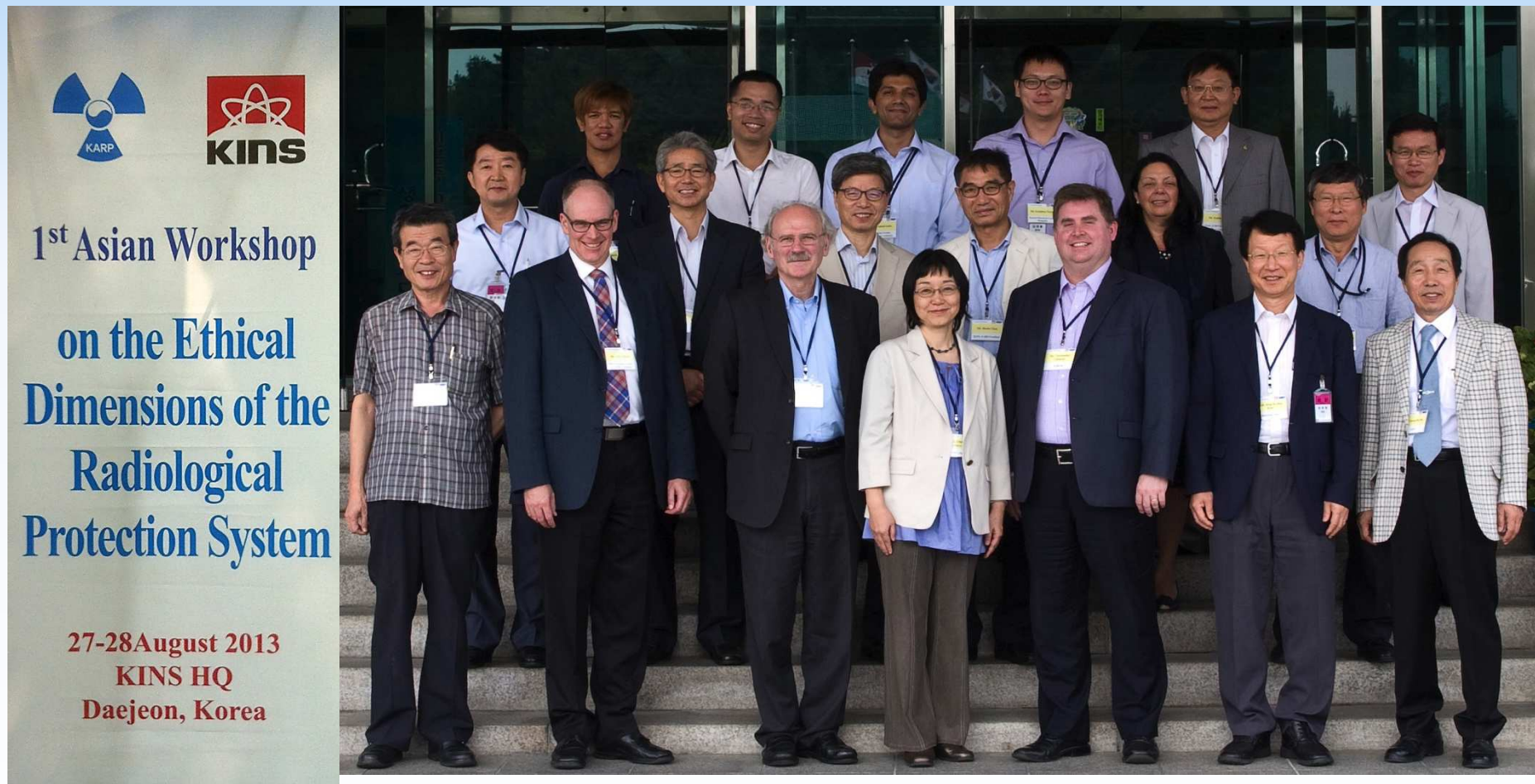
Background

- ICRP C4 established a Working Party in 2009 to reflect on the ethics of radiological protection
- The WP reviewed the ethical theories and concluded that the system of radiological protection is rooted in the 3 major theories of ethics: **deontological, consequentialism/utilitarian and virtue ethics**
- The Main Commission endorsed in autumn 2012 the C4 proposal to prepare the **Terms of Reference** for a Task Group and to establish a **cooperation with IRPA** to develop the work
- A first regional ICRP-IRPA workshop took place in Daejeon, Korea in August 2013
- The MC approved the creation of **Task Group 94** on the ethics of radiological protection last October in Abu Dhabi

Terms of Reference of Task Group 94 on the ethics of radiological protection

- The Task Group will develop an ICRP Publication presenting the ethical foundations of the system of radiological protection recommended by the Commission.
- The purpose of this Publication is :
 - **Consolidate** the Recommendations
 - **Improve** the understanding of the System
 - **Provide a basis for communication** on radiation risk and its perception

First Asian workshop on the ethics of radiological protection – Daejeon, Korea, August 2013



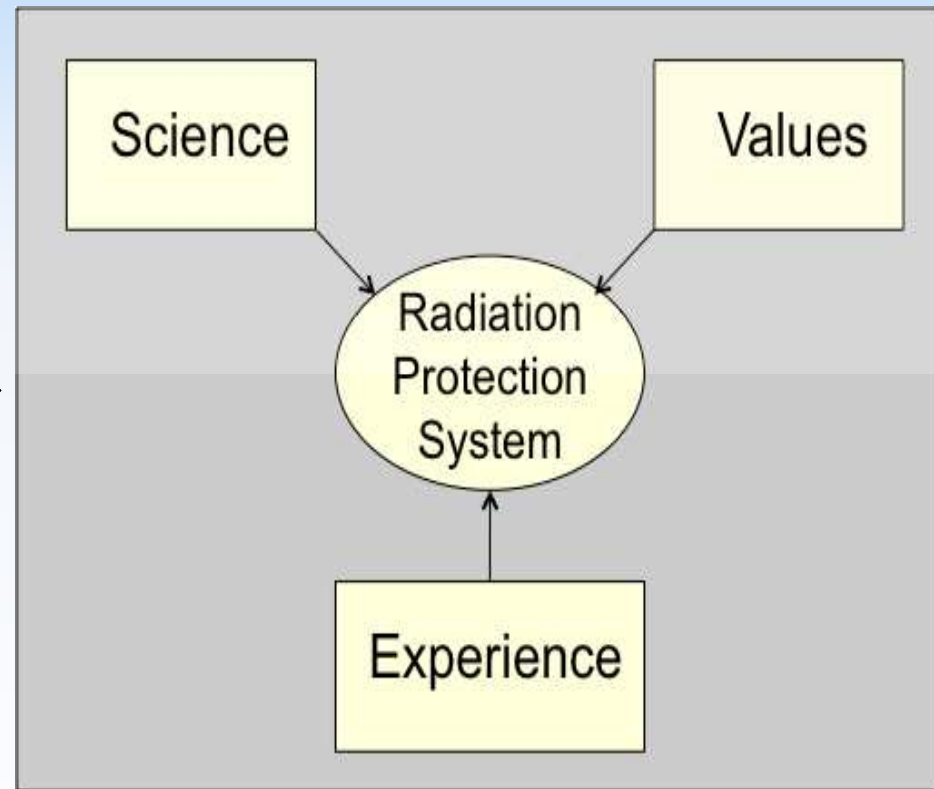
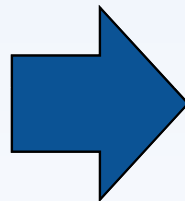
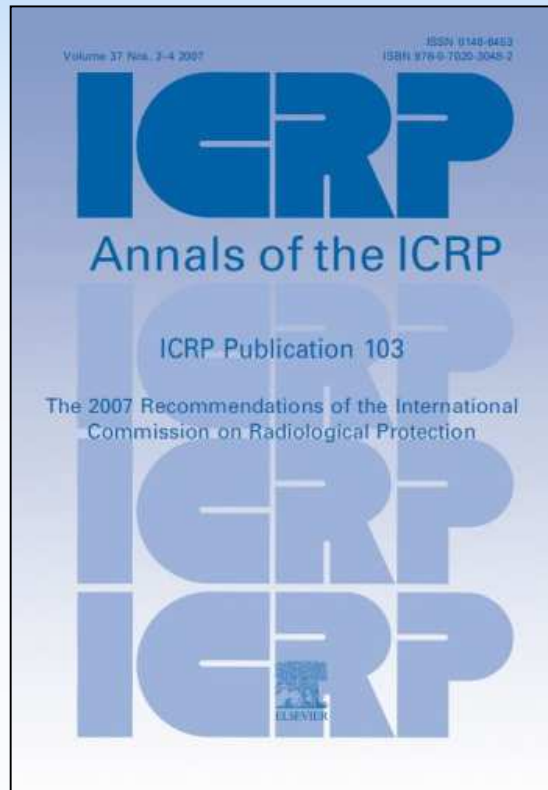
Ethical and societal values underlying the system - Where are we after the Daejeon seminar? -

- **Benevolence** : to do more good than harm
- **Prudence** : to keep exposure ALARA
- **Justice**: to reduce inequities in the dose distribution
- **Dignity**: to involve stakeholders
- Two 'values' to be carefully considered: **reasonableness** and **tolerability**
- A prospective question: should we broaden the objective of protection and consider moving to the promotion of the **well-being** of persons?

Objective of the presentation

- Continue to explore the ethical and societal values underlying the system of protection
- Prolong my Deajeon presentation
- Clarify the **distinction between value judgments and ethical and societal values**
- Further investigate the value of **dignity**

The three pillars of the system of radiological protection



Publication 103

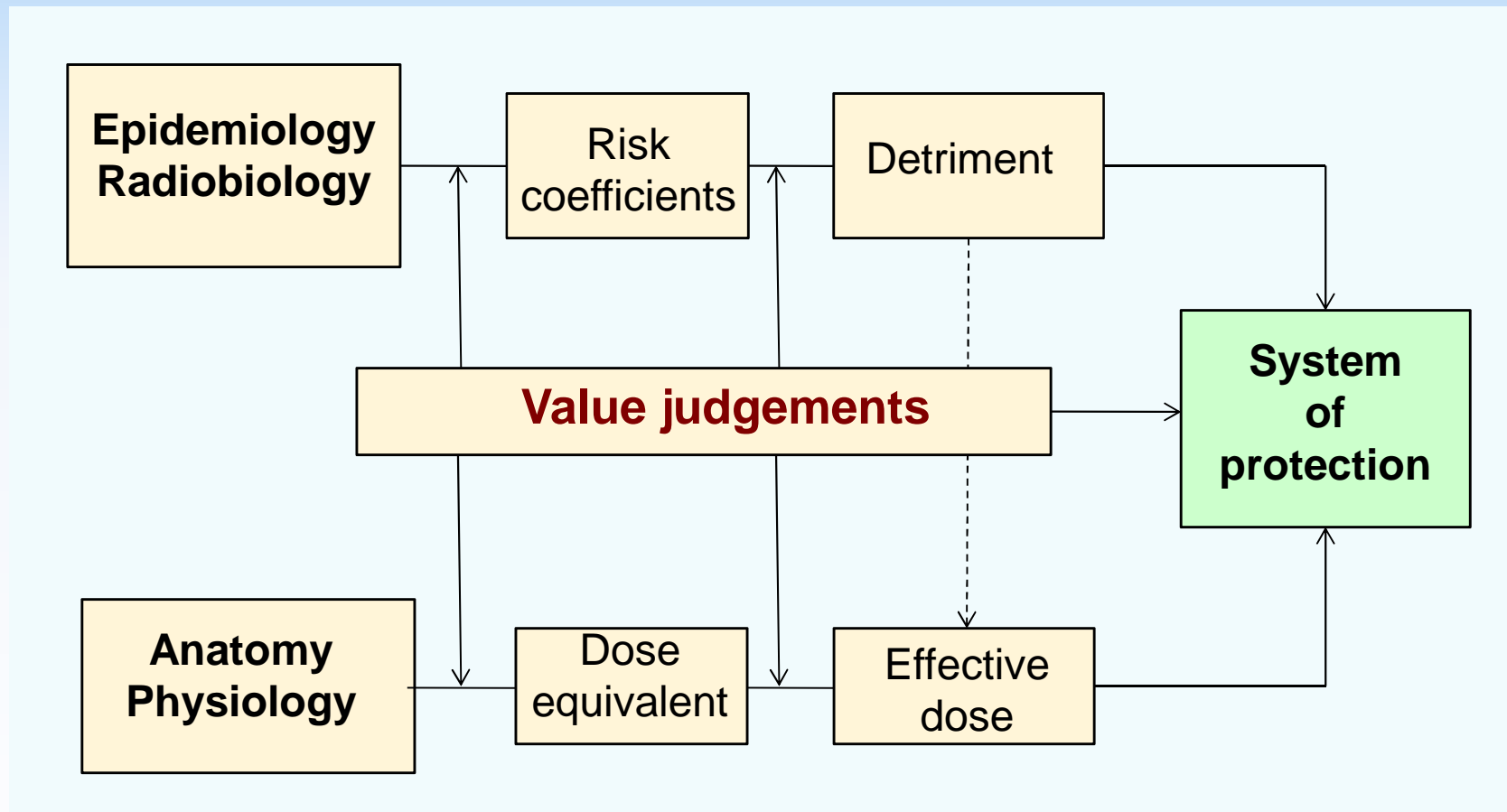
Science and judgements

« The Recommendations are based on **scientific knowledge and on expert judgement**. Scientific data, such as those concerning health risks attributable to radiation exposure, are a necessary prerequisite, but societal and economic aspects of protection have also to be considered. All of those concerned with radiological protection have to make **value judgements about the relative importance of different kinds of risk and about the balancing of risks and benefits**. » (Pub. 103, § 27)

The use of the word judgement in ICRP 103

- Executive summary : 2x
- 1. Introduction: 2x
- 2. The aim and scope: 3x
- **3. Biological aspects: 17x**
- **4. Quantities: 6x**
- 5. The system: 4x
- 6. Implementation: 1x
- 7. Medical exposure: 0
- 8: Protection of the environment: 1x

The scientific basis of the radiological protection system



Value judgements and risk assessment

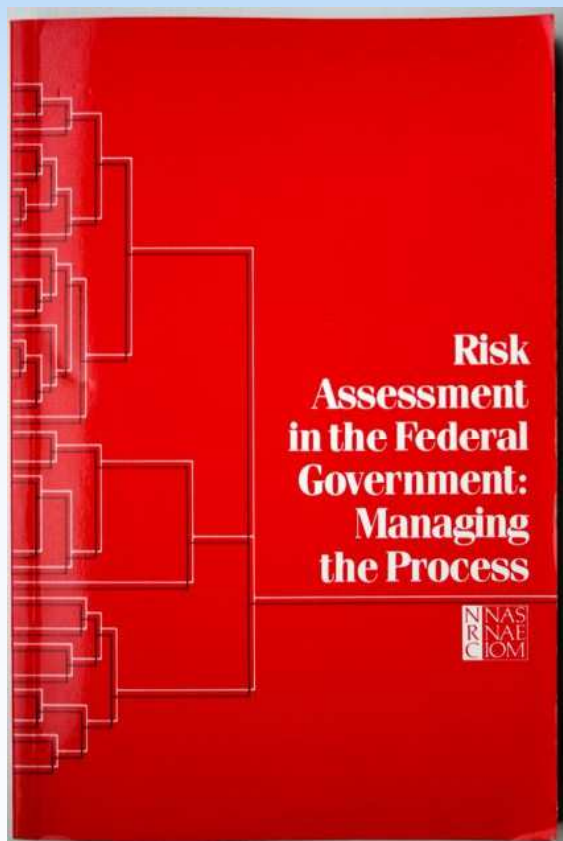
- **Models** (empirical, deterministic, stochastic)
- Use of **default options**: a way to cope with uncertainty about the choice of appropriate models or theory
 - **Inference**: process of deriving logical conclusions from premises known or assumed to be true
 - **Extrapolation**: estimate by extending or projecting known information
- **Quantitative uncertainty analysis**
- **Expert judgments**: elicitation

What are the links between value judgements and ethical and societal values?

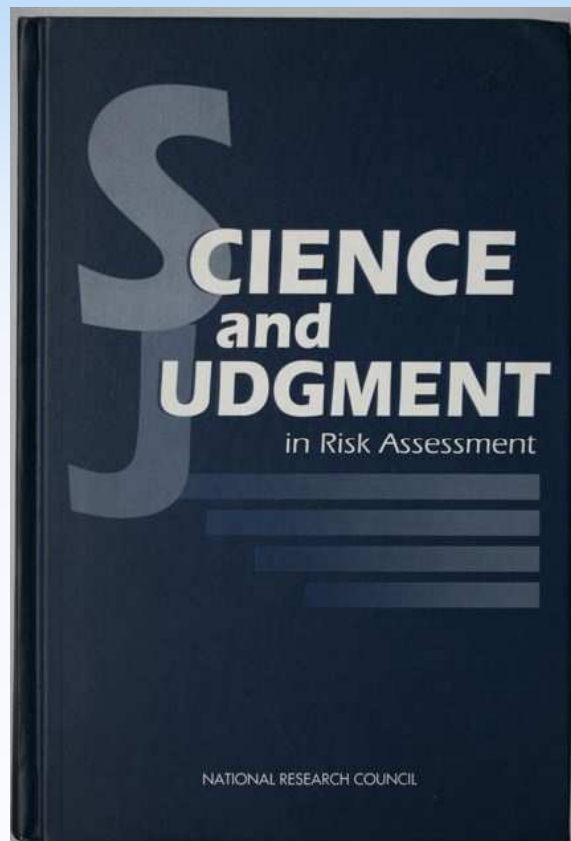
Prudence: a key value judgement and/or an ethical value?

- « It is **prudent** to take uncertainties in the current estimates of thresholds for deterministic effects into account, particularly in situations involving prolonged exposures. Consequently, annual doses rising towards 100 mSv will almost always justify the introduction of protective actions ».
ICRP 103, § 35
- « At radiation doses below around 100 mSv in a year, the increase in the incidence of stochastic effects is assumed by the Commission to occur with a small probability and in proportion to the increase in radiation dose over the background dose. ...The Commission considers that the LNT model remains a **prudent** basis for radiological protection at low doses and low dose rates. » ICRP 103, § 36
- « There continues to be no direct evidence that exposure of parents to radiation leads to excess heritable disease in offspring. However, the Commission judges that there is compelling evidence that radiation causes heritable effects in experimental animals. Therefore, the Commission **prudently** continues to include the risk of heritable effects in its system of radiological protection.» ICRP 103, § 74

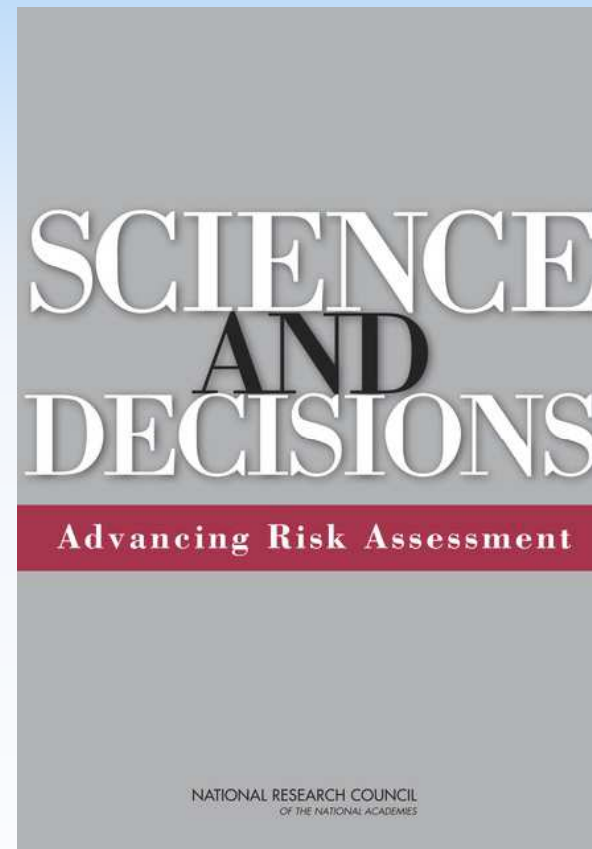
References on science and judgement in risk assessment: US National Research Council, 1983, 1994, 2009



Edited in 1983



Edited in 1994



Edited in 2009

Dignity

- **Dignity is an attribute of the human condition** : idea that something is due to the human being because she/he is human. This means that every individual deserves unconditional respect, whatever her/his age, sex, health, social condition, ethnic origin and religion
- **Autonomy of individuals is the corollary of dignity**: idea that individuals have the capacity to act freely and morally. Autonomy implies:
 - **Freedom**: the absence of constraint
 - **The capacity to deliberate, decide and act**
- Dignity means to treat individuals as **subjects** (persons) and not as **objects**

How the system is promoting dignity ?

- **Information/right to know/informed consent**
- **Stakeholder engagement**
- **Self-help protection**

The system of radiological protection

Exposure situations

- Existing
- Planned
- Emergency

Categories of exposure

- Medical
- Occupational
- Public

Principles of protection

- **Justification**
- **Optimisation**
- Limitation

Dose criteria

- **Reference levels**
- **Dose constraints**
- **Dose limits**

Requirements

- Information
- Training
- Monitoring

Requirements

Patients

- **Informed consent** about the benefit and risk of medical procedures (§ 327)
- **Right to know** about the potential effects of in-utero exposure for pregnant patient (§ 344)

Occupationally exposed workers

- **Information**
- Formation
- Radiation monitoring
- Medical surveillance (§ 185)

Members of the public

- **Information** (Tab. 5)
- Radiation monitoring
- Health surveillance (Pub. 111)

Information of the public

- **Planned exposure situations**

“Individuals may receive information” in planned exposure situations (§ 239)

- **Existing exposure situations**

“Where possible individuals should receive information” (Tab. 5)

“Individuals should receive general information” (§ 287)

- **Emergency exposure situations**

“Individuals should receive information” (Tab. 5)

The right to know principle

- **Right to know** is related to the hazards an individual is exposed to, the harm they might cause, and the precautions that could prevent these harmful effects in order to allow her/him to act based upon a clear appreciation and understanding of the facts, implications, and future consequences of her/his action
- In other words, right to know refers to the type of information that affected persons should receive to make **informed and effective decisions**
- Right to know corresponds to **practical knowledge** allowing the person to make an accurate representation of reality and to **act wisely**
- The right to know principle in the field of radiation protection is closely related to the access to **radiation protection culture**

Radiation protection culture

- One possible definition:

The knowledge and skills enabling citizens to make choices and behave wisely in situations involving potential or actual exposure to ionizing radiation

- Practical radiation protection culture should allow people:
 - To interpret results of measurements
 - To orient themselves in relation to radioactivity in everyday life
 - To bring elements to make decisions and take actions
 - To assess the effectiveness of the protective actions they implement themselves

Stakeholder engagement

- In Publication 103 « the Commission mentions, for the first time, **the need to account for the views and concerns of stakeholders** when optimising protection » (Editorial)
- « ... while this report should be seen as providing decision-aiding recommendations mainly based on scientific considerations on radiological protection, the Commission's advice will be expected to serve as an input to a final (usually wider) decision-making process, which may include other societal concerns and ethical aspects, as well as considerations of transparency (ICRP, 2006a). This decision making process may often include **the participation of relevant stakeholders** rather than radiological protection specialists alone »

Stakeholder engagement: a long maturation

“Aside from our experienced scientists, trained in radiation protection, where do we look further for our supply of wisdom? Personally, I feel strongly that we must turn to the much larger group of citizens generally, most of whom have to be regarded as **well-meaning and sincere, but rarely well-informed** about the radiation problems that they have to deal with. Nevertheless, collectively or as individuals, they can be of great value in our radiation protection domain if they can be properly guided in the technical matters without implantation of illogical and unacceptable biases and emotions and self-promotion. **I will insist that we will have to utilize these people in developing our total radiation protection philosophy.**”

Lauriston Taylor, Sievert Lecture, IRPA 5 Congress, Jerusalem, 1980

Why to engage stakeholders?

- To take into account more effectively their **concerns and expectations** and the specificity of the context at stake
- To promote their **empowerment** and **autonomy**
- To maintain their **vigilance**
- To improve the quality of processes which structure **social trust and public confidence**
- To address **controversies** and seek for the emergence of compromise
- To adopt more **effective** and **fairer** protection actions

Self-help

- The act of improving or helping yourself without relying on anyone else
- Include activities that improve **awareness**, develop **competence** and **interpersonal relationships**, and enhance **quality of life**
- Right to know and stakeholder engagement promotes **autonomy and accountability** of individuals
- Voluntary actions carried out by exposed individuals themselves are deemed positive as they respect the fundamental values of **autonomy** and **dignity**

Self-help protection

- To gain control on the situation and to become actors of their own protection, exposed people must understand:
 - **Where, when and how** they are exposed?
 - **What can they do** to protect themselves ?
- It is the **responsibility of public authorities** to provide:
 - General information on the exposure situation
 - Information on ways to reduce doses
 - Conditions and means for direct access to monitoring
- Self-help protection actions are **complementing the protective actions implemented by authorities**

In summary

- **Value judgements** in relation to radiation risk assessment should be explicitly described
- **Dignity** is part of the system but should gain in visibility and be better characterised in relation with the different types of exposure situations.
- The **right to know principle** and **stakeholder engagement** should be generalized to foster **autonomy** of persons and promote **vigilance** and **fairness** in controlling radiation risk

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