

The ethical foundations of the radiological protection system

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This presentation has neither been approved nor endorsed by the Main Commission of ICRP



Terms of Reference

- The MC approved the creation of **Task Group 94** on the ethics of radiological protection in Abu Dhabi in October 2013
- 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 to:
 - **Consolidate** the Recommendations
 - **Improve** the understanding of the system
 - **Provide a basis for communication** on radiation risk and its perception

Terms of Reference

- **Identify the key components** of the ethical theories and principles prevailing in the fields of safety, health, labour, the environment and sustainable development relevant to the system of radiological protection.
- **Review the Publications** of the Commission to identify the ethical and social values associated with the system of radiological protection for occupational, public and medical exposures and for the protection of environment.
- **Prepare a report** presenting the ethical and social values structuring the system of radiological protection and its implementation for the different types of exposure situations and categories of exposure.

TG94 Members

- **Kun-Woo Cho, Korea, Chair (C4)**
- **Friedo Zölzer, Czech Republic**
- **Deborah Oughton, Norway (C4)**
- **Marie-Claire Cantone, Italy**
- **Sidika Wambani, Kenya**
- **Sven Ove Hansson, Sweden**
- **Chieko Kurihara-Saio, Japan**
- **Thierry Schneider, France**
- **Nicole E. Martinez, USA (new member added Sept 2015)**
- **Richard Toohey, USA**
- **Corresponding Members:**
 - **Renate Czarwinski (IRPA)**
 - **Bernard Le Guen (IRPA)**
 - **Emilie Van Deventer (WHO)**

Meetings

- **Deajeon, Korea, 27-28 August 2013**
- **Milan, Italy, 16-18 December 2013**
- **London, UK, 11 June 2014**
- **Budweis, Czech Republic, 15-19 June 2014**
- **Baltimore, USA, 17-18 July 2014**
- **Madrid, Spain, 4-6 February 2015**
- **Cambridge, USA, 10-12 March 2015**
- **Fukushima, Japan, 2-3 June 2015**
- **Paris, France, 20-24 July 2015**

TG 94 Report - Outline

Version 8 Oct. 2015

- **Introduction**
- **Evolution of the system of radiological protection: science, ethical values and experience**
- **Core ethical values underpinning the system**
- **Ethics in the implementation of the system**
- **Conclusions**
- **Annexes**
 - Annex A. Ethical theories
 - Annex B. Biomedical ethical principles
 - Annex C. Cross cultural values

Background: Historical Context

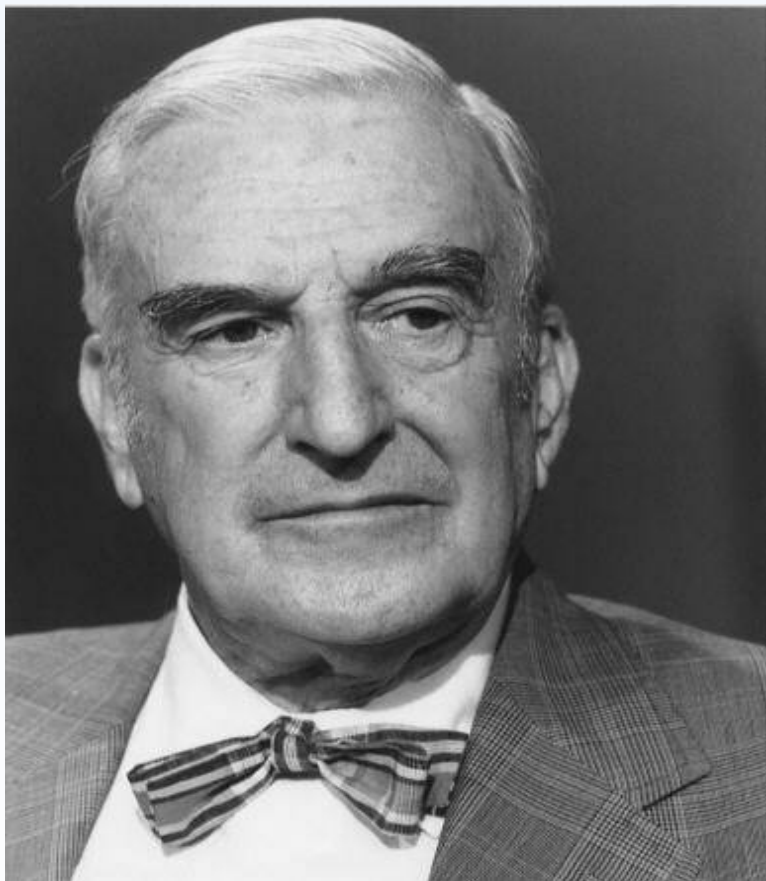
Evolution of the System of Radiological Protection: Science, Ethical Values, and Experience

- Influence of scientific developments
- Influence of different applications – medical, energy, accidents, ...
- Influence of changes in societal and cultural attitudes



Science and ethics in radiological protection

- A long 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. Roentgen, Vol. 77, N° 5,
914-919, 1957
From address on 7 Nov. 1956**

slide from Jacques Lochard

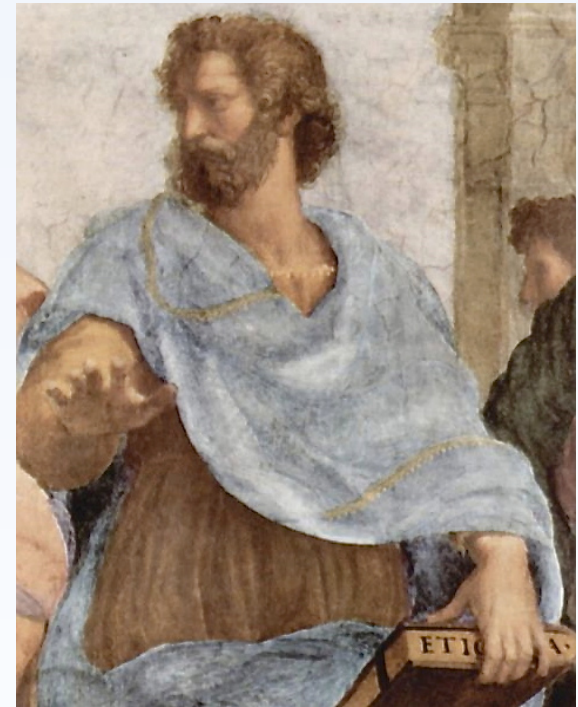
Implicit Values

- "the dangers of over-exposure ... can be avoided by the provision of adequate protection." ICRP 1928
- "every effort be made to reduce exposures to all types of ionizing radiation to the lowest possible level." ICRP 1951
- "... to contribute to an **appropriate level of protection** against the detrimental effects of ionising radiation exposure without unduly limiting the **benefits associated** with the use of radiation." ICRP 103, § 26
- "... to manage and control exposures to ionizing radiation so that **deterministic effects are prevented**, and the risks of stochastic effects are reduced to the extent **reasonably achievable**." ICRP 103, § 29

... Implicit Values

- The principle of justification. Any decision that alters the radiation exposure situation should **do more good than harm**
- The principle of optimisation of protection. All exposures should be kept **as low as reasonably achievable**, taking into account economic and **societal factors** with restrictions on individual exposure to **avoid inequities** between individuals
- The principle of limitation of individual exposure: All individual exposures should **not exceed the dose criteria** recommended by the Commission

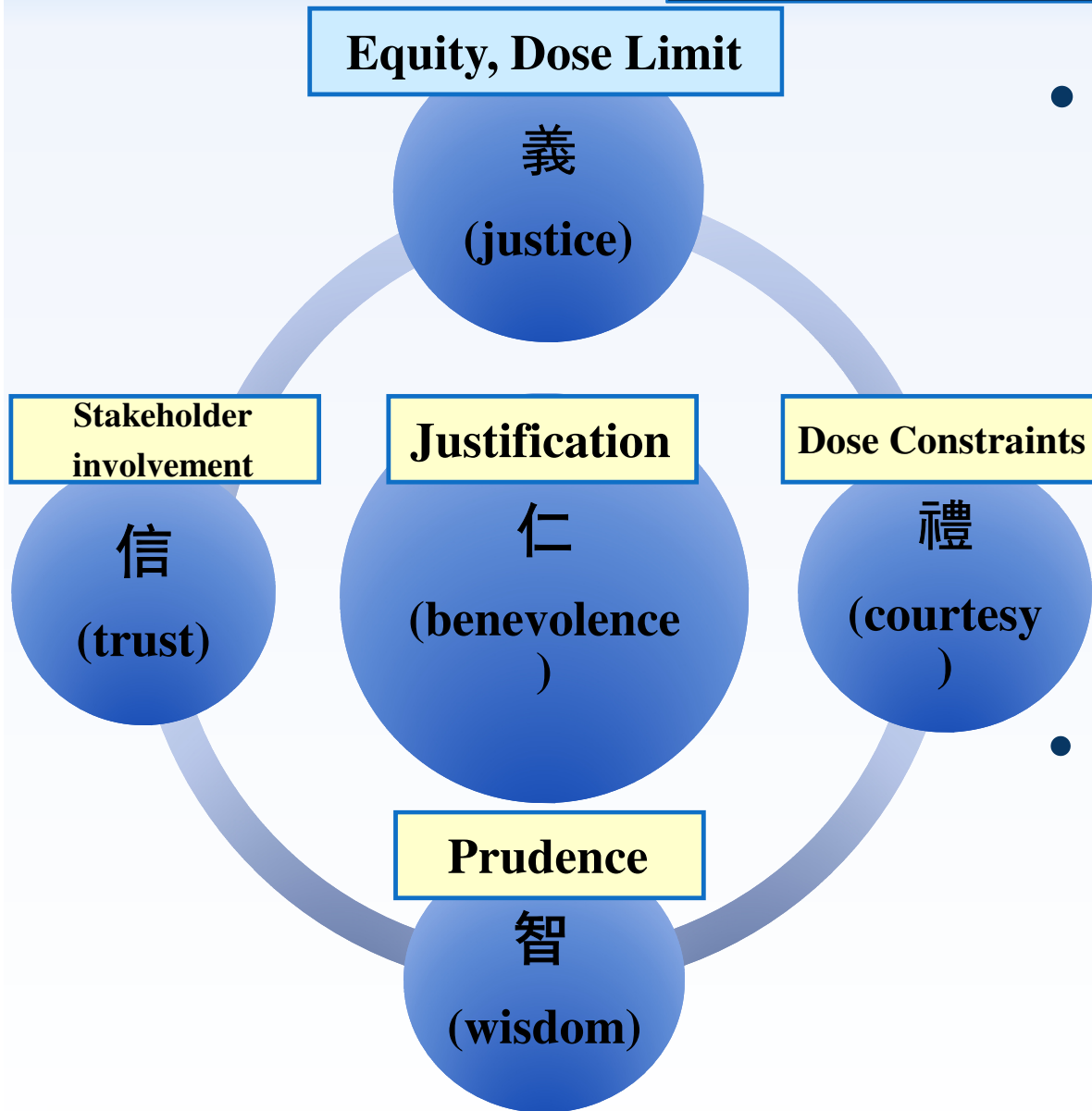
Common Values Approach



Not only grounded in Western Ethical Theories but on a **study of the oral and written traditions** which have guided people in different cultures over the ages (Friedo Zoelzer, 2011)

slide from Jacques Lochard

The value system of Classic Confucianism



- **The five virtues:**
 - Benevolence
 - Righteousness/justice
 - Courtesy (Propriety, Manners)
 - Wisdom
 - Sincerity/trust
- **The traditional ethics in China is mainly derived from Classic Confucian thought.**

Biomedical Ethics

Beauchamp and Childress, 1979 (1st edition)

- **Respect for autonomy** (a norm of respecting the free-will and decision-making capacities of self-governing persons)
- **Nonmaleficence** (a norm of avoiding the causation of harm)
- **Beneficence** (a group of norms for providing benefits)
- **Justice** (a group of norms for distributing benefits, risks and costs fairly)

UTILITARIANISM

DEONTOLOGY

*Ethical
Theories*

Broadly compatible with the principles of:

Autonomy

Beneficence

Non-Maleficence

Justice

*Biomedical
Principles*

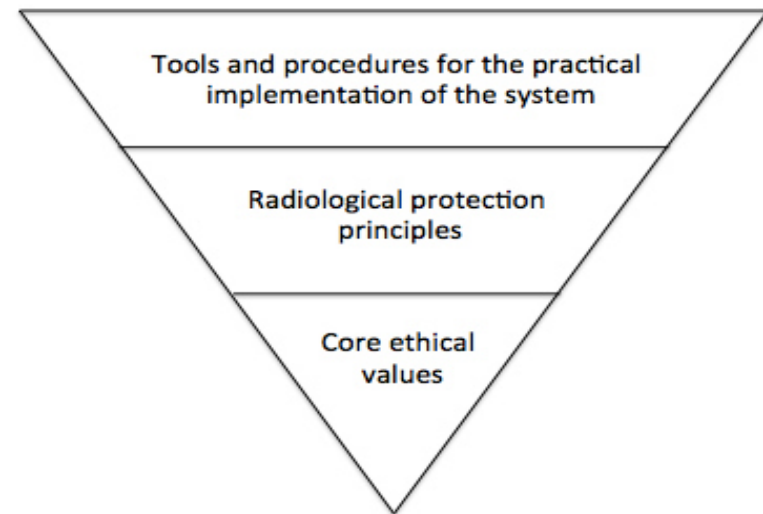
Widely adapted in other areas: public health
and environmental ethics, technology assessment, etc

Core Ethical Values Underpinning the System

- **Beneficence/Non-maleficence**
- **Prudence**
- **Justice**
- **Dignity**

*In no particular order
or hierarchy.*

*Balance will depend
on case and context.*



Beneficence/Non-Maleficence

Definition in ethics

Beneficence (and non maleficence) – promoting or doing good as well as preventing, removing or avoiding evil or harm (Frankena, 1963);

Non-Maleficence – first, do no harm (The Hippocratic Oath)

Relevance in RP

Beneficence – benefits of reducing exposure; indirect benefits of applications involving radiation exposure (e.g. radiotherapy);

Non-Maleficence – preventing risk to occur

Challenges – distribution of risks, harms and benefits;
measurement of benefits and harms
WHO definition of health – well being

Prudence/Acting Prudently

Definition in ethics

Long ethical tradition: Aristotle, Buddhism, Confucianism, ancient peoples of Eurasia, Oceania and America

Aristotle: “*phronesis*” (practical wisdom, rational choice)

OED: “to recognize and follow the most suitable or sensible course of action ... caution”

Rio 1992: “the precautionary approach ... where there are threats of serious or irreversible damage, lack of full scientific certainty shall be not used as a reason for postponing cost-effective measures to prevent environmental degradation” (UNCED)

Relevance in RP

Cornerstone of radiation protection

Uncertainties, margin of safety, LNT, ALARA,...

Justice

Definition in ethics

Equity – fair and reasonable treatment; fair distribution of burdens and benefits, goods, service, job and salaries, but also risks within the society; Fairness

Distributive Justice, Restorative/Corrective Justice, and Procedural Justice

Focus on the vulnerable/worst-off (Rawls, Sandel)

Relevance in RP

ALARA and dose constraints/reference levels

Reduction of inequity in the distribution of exposures

Dose criteria set to avoid unacceptable exposures

Intergenerational justice on protection related to radwaste

Dignity/Autonomy

Definition in ethics

Every individual deserves unconditional respect, whatever her/his age, sex, health, social condition, ethnic origin and religion

Respecting Autonomy – the capacity to act freely and morally and be able to direct one's own life; Kant's notion(18C) to treat individuals as subjects, not objects; enshrined in the UN Universal Declaration of Human Rights (1948)

Relevance in RP

Informed consent (patients); right to know (public); information and training (workers)

Fair process of consensus development for future generations

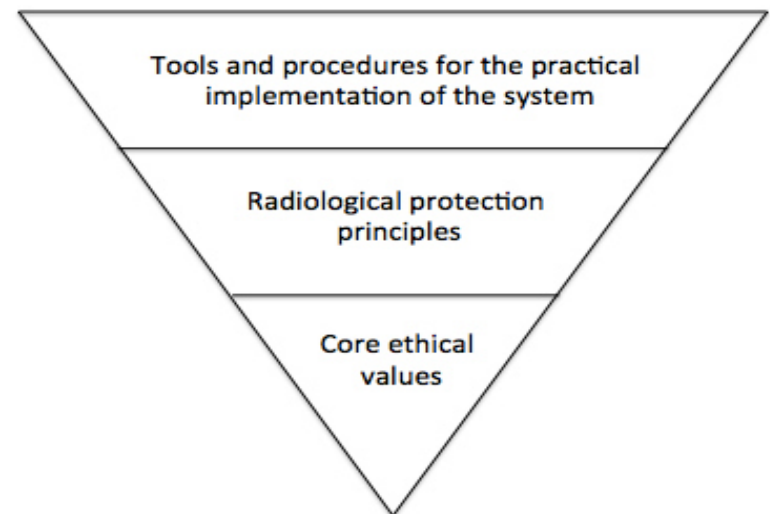
Empathy for the people living in post-accident areas

Ethics in the Implementation of the System

- **Accountability and Transparency**
- **Stakeholder Involvement**
- **Reasonableness and Tolerableness**

*In no particular order
or hierachy.*

*Balance will depend on
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Accountability/Responsibility

- **Accountability**: procedural ethical value that people who are in charge to make decisions must answer for their actions to all those who are likely to be affected positively as negatively by these actions.
- Ethics of **responsibility**, which states that everybody has to account for the foreseeable consequences of his actions.
- “Those bearing responsibility should then have the authority to commit the resources needed to meet their responsibilities. There is also a retrospective component of responsibility, sometimes called **accountability**, that requires a continuing review of performance to be made so that failures can be identified and steps taken to prevent recurrence.” *ICRP Publication 60*
- **Accountability** of the present generation toward the future: ICRP Publications 77, 81, 91 and 122 – waste management and the protection of the environment

Transparency

- **Transparency**: procedural justice; fairness of the process through which information is intentionally shared between individuals and/or organizations.
- In the 2000s **transparency** became a general principle applicable not only to information about exposures and protection actions but also on the decision-making processes concerning the choices of protective actions by policy makers.
- “Workers should be suitably informed of the radiation hazard entailed by their work and of the precautions to be taken.” *ICRP Publication 9*
- “... scientific estimations and value judgements should be made clear whenever possible, so as to increase the **transparency**, and thus the understanding, of how decisions have been reached” *ICRP Publication 103*

Stakeholder Involvement

- Inclusiveness -

- **Inclusiveness**: one of the essential procedural values, along with transparency and accountability, needed to make ethical decisions in organizations.
- More commonly referred to as **stakeholder involvement**
- **Involving stakeholder** is a way to respect, and as in the case of post-accident situations, to help restore their dignity.
- **Empowerment** of affected people helps them to regain confidence, to understand the situation they are confronted with and finally to make informed decision to act accordingly
- “...that the decision-making process will include the **participation of relevant stakeholders** rather than radiological protection specialists alone” *ICRP Publication 82*
- “It should also be noted that the Commission mentions, for the first time, the need to account for the **views and concerns of stakeholders** when optimising protection.” *ICRP Publication 103 Editorial*

Reasonableness/Tolerableness

- **Reasonableness**: optimisation principle; which actions are required to ensure that exposures are kept as low as reasonably achievable
- **Tolerableness**: limitation principle; which level of risk can be considered as tolerable for the exposed individuals
- In practice, searching for **reasonableness** and **tolerableness** is a permanent questioning which depends on the prevailing circumstances in order to act wisely based on accumulated knowledge and experience i.e. with the desire to do more good than harm (beneficence/non maleficence), to avoid unnecessary risk (prudence), to seek for fair distribution of exposures (justice) and to treat people with respect (dignity).

Conclusion

- The ICRP system is founded on the core ethical values of **beneficence/non-maleficence, prudence, justice, and dignity**
- The primary goal and responsibility of the Commission should rest to develop the science of radiological protection for the public benefit. Nevertheless the Commission thinks that by eliciting and diffusing the ethical values and related principles that underpin the radiological protection system both experts and the public will undoubtedly gain a clearer view of the societal implications of its recommendations.
- Just as science, ethics alone is unable to provide a definitive solution to the questions and dilemmas generated by the use or presence of radiation. However, ethics certainly can provide useful insights on the principles and philosophy of radiological protection and thus help the dialogue between experts and citizens.

Next steps

- **Draft report ready in January/February 2016**
- **Preliminary consultation at the IRPA 14 Congress in May 2016**
- **Finalization of the report in Summer 2016**
- **Public consultation in Autumn 2016**
- **Approval for publication expected in Spring 2017**

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