The Ethics of Radiological Protection in the Context of Nuclear Accidents

Jacques Lochard
Professor Nagasaki University
Visiting Professor Hiroshima University
ICRP Vice Chair

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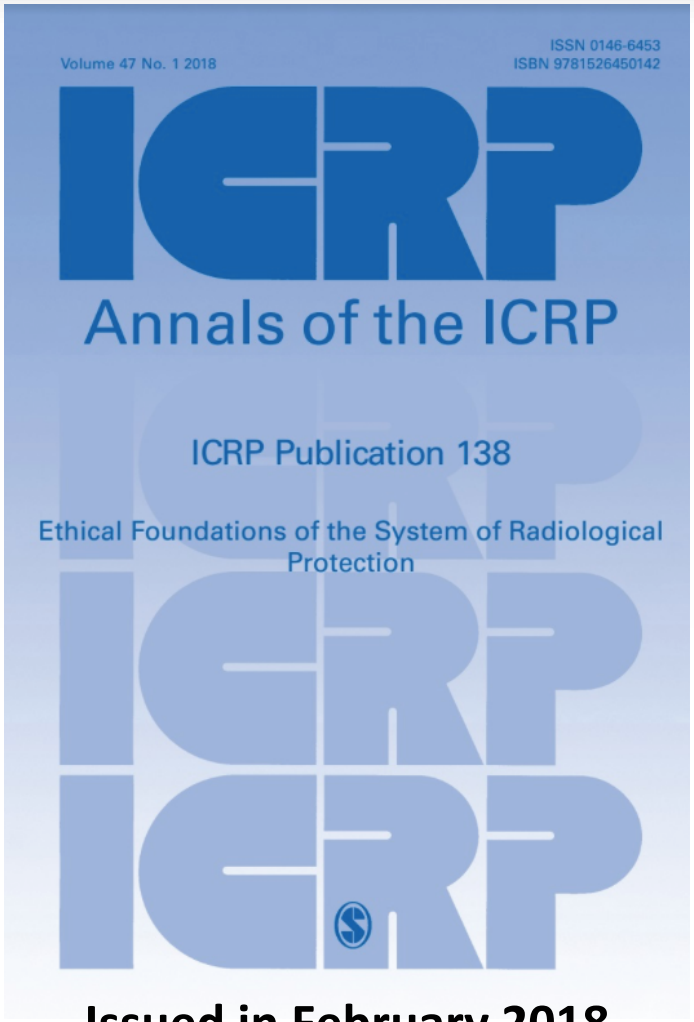
ATOMIC BOMB DISEASE INSTITUTE, NAGASAKI UNIVERSITY

Introduction



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Content of the presentation

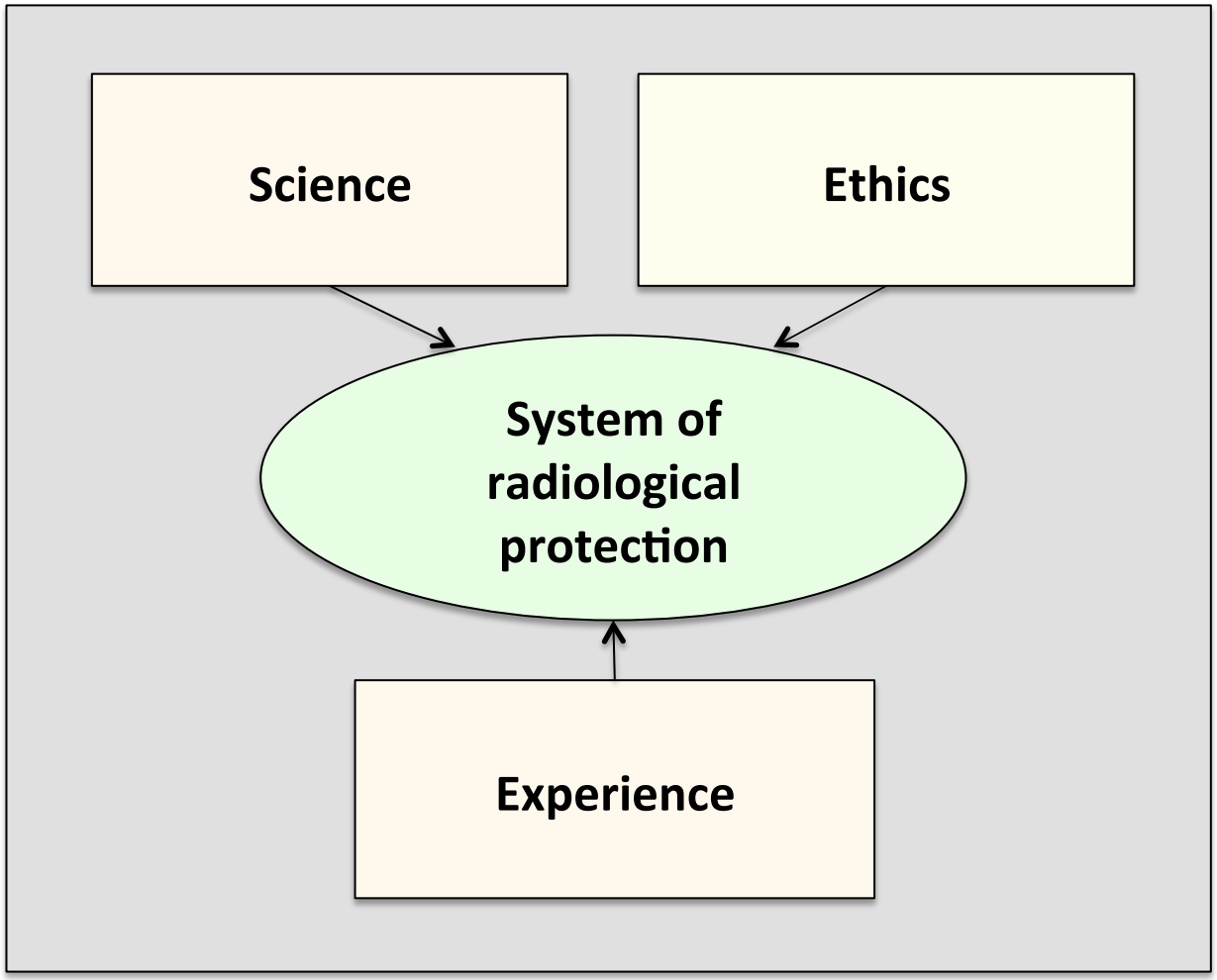
- Brief reminder of Publication 138
- Overview of the basic principles for managing nuclear accidents
- Key lessons from Chernobyl and Fukushima

The development of ICRP Publication 138

- Task Group of ICRP Committee 4 established in 2013
- An exemplary process of stakeholder involvement organized in collaboration with **IRPA**
  - A series of **8 workshops** held around the world and discussions at IRPA regional and international congresses
  - Presentation and discussion of the work under development at the **2nd ISEEH** in 2014
  - An active contribution of more than **150 specialists** of ethics and radiological protection professionals

The 2nd International Symposium on the Ethics of Environment Health – June 2014

ICRP 138: The three pillars of the system of radiological protection



ICRP 18: The ethical values underpinning the radiological protection system

- **Core values**
  - **Beneficence/non-maleficence** : doing good and avoiding harm
  - **Prudence** : in the face of uncertainty, avoid unwarranted risks
  - **Justice** : fair sharing of benefits and risks
  - **Dignity** : respect of individual autonomy
- **Procedural values**
  - **Accountability** : to be responsible for one's own action
  - **Transparency** : to share available information
  - **Inclusiveness** : stakeholder participation

ICRP 138: the core values and the basic principles of radiological protection

- **Justification:** any decision that alters a radiation exposure situation should do **more good than harm**
- **Optimisation:** all exposures should be kept **as low as reasonably achievable (ALARA) taking into account economic and societal factors**
- **Limitation:** individual exposures **should not exceed the dose limits recommended by the Commission**
- Applying these principles is a **permanent quest** for decisions that rely on the core ethical values underlying the system of radiological protection i.e,: **to do more good than harm - (Beneficence/non maleficence), avoid unnecessary risk – (Prudence), establish a fair distribution of exposures (Justice) and treat people with respect (Dignity)**

About the optimisation principle

- The optimisation principle is said to be the **cornerstone** of the radiological protection system because it governs the **decisions concerning protective actions** taking account of:
  - the **particularities** of the exposure situation under consideration (economic and societal factors)
  - the **views and concerns** of the stakeholders
  - the most appropriate human, technical and financial **means**
  - and also the **core and procedural ethical values** that govern radiological protection
- It is the process in which **science, ethics and experience** converge in order to choose **wisely** the best protective actions given the particular circumstances

What is at stake in the management of nuclear accidents?

- To protect the population against **radiation risk**
- But also to preserve as much as possible **decent working conditions** on site and **living conditions** for the affected people
- These objectives are part of the overall ethical goal (whether it falls under the teleological or deontological ethics) to ensure both:
  - The **well-being of individuals**
  - The **quality of the living together**
- It is interesting to note that 'living together' can only be experienced in **times of distress**: war, disasters, ... and that in order to rebuild life together you need a project (Cf Paul Ricoeur- 1988)

Protective actions for the public

- **Emergency response** *(Emergency exposure situation)*
  - Sheltering
  - Evacuation and relocation
  - Iodine thyroid blocking
  - Banning or restricting consumption of food and the use of commodities
  - Environmental and individual monitoring
  - Decontamination of the environment
- **Recovery process** *(Existing exposure situation)*
  - Continued decontamination and waste management
  - Continued radiation monitoring
  - Foodstuff management
  - Management of business
  - Health surveillance

Protective actions for the public (2)

- Beyond their technical aspects, all protective actions for managing nuclear accidents raise **fundamental ethical questions because of the complexity of the situations**
- Decisions about the implementation of the basic principles are difficult because numerous **conflicting values at involved** and there is a priori **no obvious order** in the choice of priorities
- What is better? According to which **principles/values** to choose? In this perspective the **ethical core values** underlying the radiologic protection system can be a precious help …
- **'The difficult choices are between grey and grey, and even more between 'black and black'** (Paul Ricœur-1994)

Principles for the protection of people in the event of nuclear accidents

- For emergency and existing exposure situations the fundamental protection principles to guide action are the **justification** of implementing protection strategies and the **optimisation** of the protection achieved by these strategies

- For the implementation of the optimisation principle the Commission recommends using **reference levels** to maintain or reduce exposures of all affected people as low as reasonably achievable – **Tolerability**

- The principle of limitation does not apply because in the case of an accident, the **sources of exposures on-site and off-site are no longer under control.** Under these conditions, it is difficult to predict in advance with sufficient precision the doses that will be received by the exposed persons and to guarantee the compliance with dose limits established for planned exposure situations

Lessons from Chernobyl and Fukushima (1)

- **The irruption of radioactivity** into people's everyday lives and its long term persistence create an unprecedented **complex situation** which profoundly upsets daily life, raises many **questions and concerns,** generates **numerous views**, and exacerbates c**onflicts**
- **Beyond the general concern about the potential health effects of radiation, all dimensions of daily life are affected** environment, social life, production and distribution of foodstuffs and commodities… but also psychological, cultural, ethical and political dimensions
- This results in a serious degradation of the **well being of individuals** and the **quality of the 'living together**'

Lessons from Chernobyl and Fukushima (2)

The testimonies of those affected have confirmed the human consequences already observed after the Chernobyl accident:

- the **collapse of trust** in authorities and experts
- the **loss of control** over everyday life
- the **disintegration** of family and social ties and the **breakdown** of the economic fabric
- the **apprehension about the future**, particularly that of children
- the **threat** on the autonomy and **dignity** of affected people
- the **fear to be abandoned**

Lessons from Chernobyl and Fukushima (3)

The involvement of the affected people in **measurements to characterize the radiological situation to which they are directly confronted** (ambient dose rates in the places of life, individual external and internal doses, contamination food products of private origin) is crucial to:

- to engage stakeholders in the **co-expertise process** (cooperation in expertise) between experts and affected residents
- to develop the **practical radiological protection culture** within affected communities
- to allow people make **informed decisions concerning their own protection – Self help protection**

The co-expertise process to develop the practical radiological protection culture

- The notion "**co-expertise process**" emerged in the late 1990s in Belarus in the context of the rehabilitation of living conditions in the territories affected by the Chernobyl accident. It has been enriched and refined in recent years through the experience gained in communities of Japan following the Fukushima accident
- In addition to the protective actions implemented by public authorities, this process is the way **to implement the optimization principle** for the protection actions implemented by the affected people themselves - **Self-help protective actions**
- It is based on the recognition that to make sense for people confronted with radiation, knowledge about radiological protection must be **anchored to their daily reality to allow them to act to improve their future living conditions**. This is only possible if they are directly involved in the process

The co-expertise process

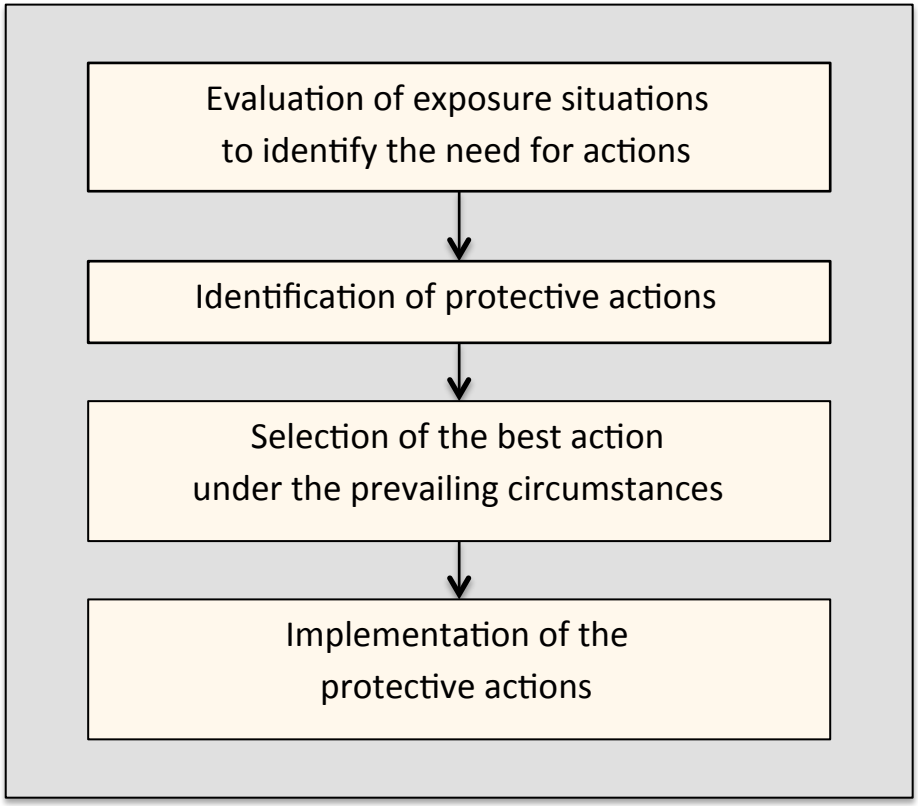
Radiological protection culture

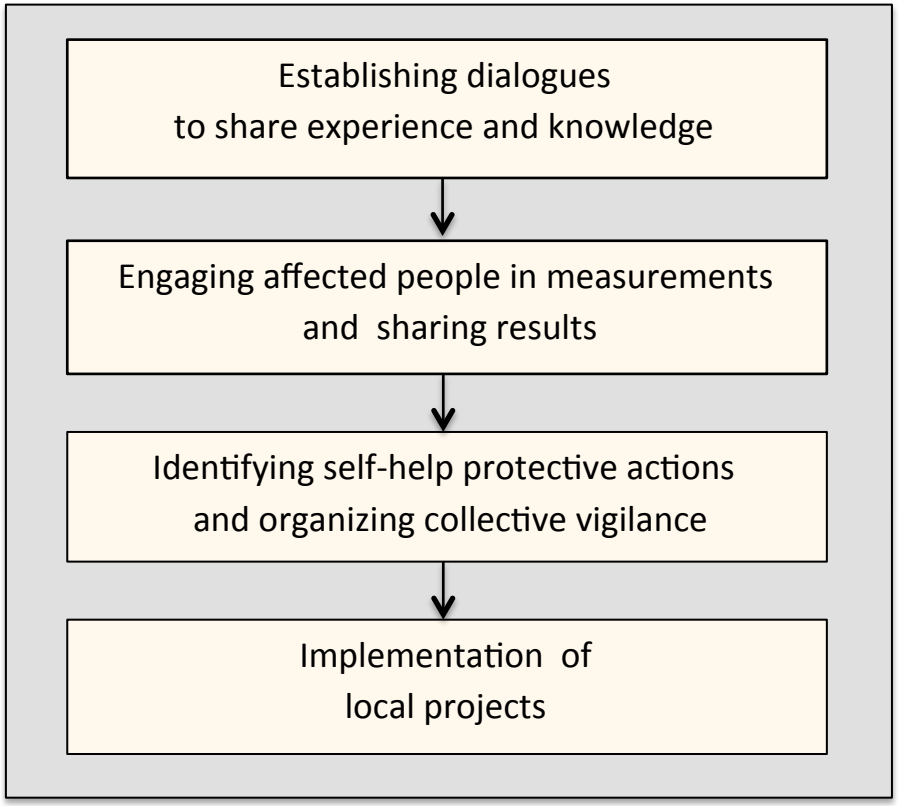
- ‘The **knowledge** and **skills** enabling citizens **to make well-informed choices and behave wisely** in situations involving potential or actual exposures to ionising radiation.’ *ICRP Glossary under developement*

- It allows individuals in a given exposure situation:
  - To **interpret** the results of the measurements of radiation
  - To **build** their own benchmarks in relation to the radioactivity present in their daily life
  - To **make their own decisions** to protect themselves and their loved ones (self help-protection)
  - To **assess the effectiveness** of the protective actions implemented by authorities, organisations or by themselves

- This culture presents features that are **common to all exposures situations**, but it is implemented with **different means** at work, in everyday life and in the medical domain

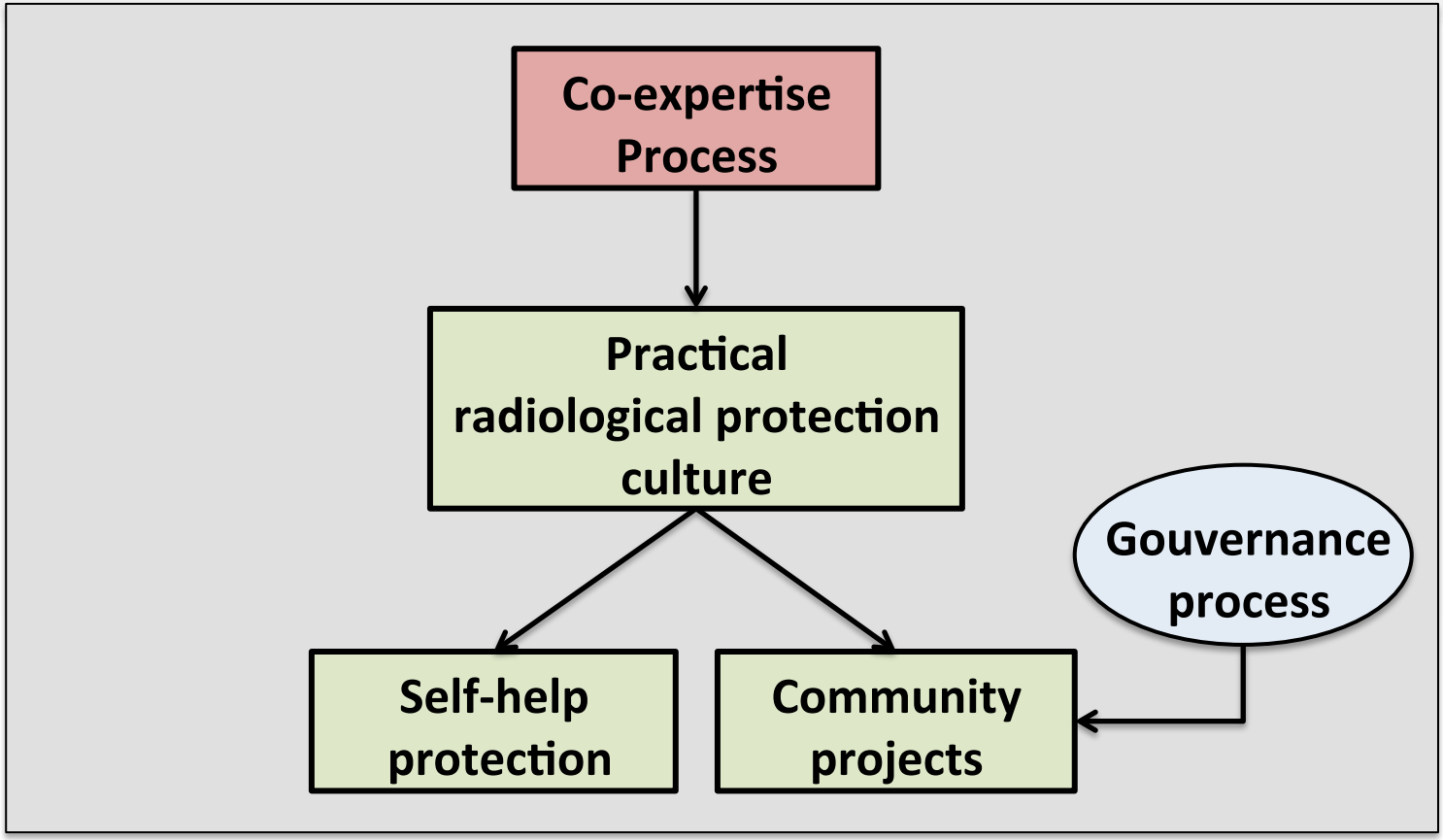
ALARA and the co-expertise processes





The optimisation process
ICRP 101b - 2006

The co-expertise process : a social innovation



'Social innovations are new ideas that meet social needs, create social relationships and form new collaborations'

http://ec.europa.eu/growth/industry/innovation/policy/social_en

Lessons from Chernobyl and Fukushima (4)

- In the absence of practical radiological protection culture, radiological standards and criteria (reference levels) operate **as blocking and separating factors** contributing to the disintegration of the social fabric
- Finally, the involvement of affected people in the rehabilitation process raises **ethical questions** about the role of authorities and experts. It is essential to ensure **respect for people's freedom of choice** without manipulating them in any way, but also **not to abandon them** on their own
- It also raises ethical aspects in the **implementation of expertise** (Behaviour of experts)

The implementation of expertise

Experience from Chernobyl and Fukushima has shown that to be credible experts must:

- Master the scientific basis of radiological protection
- **Adhere to the general purposes of ethics and the particular values of that of radiological protection**
- Share information **(Transparency)**
- Listen carefully to the stakeholders **(Inclusiveness)**
- Perceive what is required in a particular situation
- Deliberate and decide together with stakeholders **(Inclusiveness)**
- Act equitably and prudently
- Be responsible for their own actions **(Accountability)**

The above skills are those that characterize what philosophy calls practical wisdom

Concluding remarks (1)

- The confrontation of the fundamental principles of radiological protection with the reality of nuclear post-accident situations has confirmed the **pertinence of the core ethical values** underlying the radiological protection system

- In fact, this confrontation initiated in the late 90's in the context of the post-Chernobyl period contributed greatly to highlight the importance of engaging affected people in the optimisation process as a **necessary condition for preserving their dignity**

Concluding remarks (2)

- Ethical considerations regarding the implementation of the principles of radiation protection in the event of a nuclear accident will be included in the forthcoming ICRP publication entitled :

  ”**Application of the Commission’s Recommendations for the protection of people and the environment in the event of a large nuclear accident - Update of Publications 109 and 111**”

  (ICRP Task Group 93)

  hopefully to be published late 2019 - early 2020

The ethics of radiological protection in summary