Radiation Ethics in a Globalized World

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The moral philosophy underlying the recommendations of the International Commission of Radiological Protection (ICRP) is not always made explicit.

Elements of utilitarian and deontological ethics, sometimes of virtue ethics have been identified.

These moral theories are usually considered to be incompatible, because they are based on different priorities, e.g. usefulness or universalizability.

Is it at all appropriate in a more and more globalized world to base the recommendations of an international advisory body such as ICRP on particular theories of “Western” ethics?

World Region	Population (2006, estimated)	Population % of total
Africa	915 million	14.1 %
Asia	3,668 million	56.4 %
Europe	807 million	12.4 %
Middle East	190 million	2.9 %
North America	331 million	5.1 %
Latin America / Caribbean	554 million	8.5 %
Australia / Oceania	34 million	0.5 %
WORLD TOTAL	6,500 million	100.0 %

Religion	Followers (2006, estimated)	Followers % of total
Christianity	2,100 million	41.2 %
Islam	1,300 million	25.5 %
Hinduism	900 million	17.6 %
Chinese Traditional Religions	400 million	7.8 %
Buddhism	380 million	7.5 %
Judaism	14 million	0.28 %
Baha'i Faith	7 million	0.14 %
WORLD TOTAL	5,100 million	100.0 %

Nuclear power reactors in operation:
world-wide 434, Asia, Africa and the Middle East 115 Nuclear power reactors under construction:
world-wide 64, Asia, Africa and the Middle East 43
Nuclear power reactors planned:
world-wide 160, Asia, Africa and the Middle East 102

Computer tomography:
high income countries 10 - 30 units per million people low income countries 0 - 2 units per million people Asia, Africa and the Middle East catching up.

(1)

Ethics of radiation protection in the world today cannot be exclusively “Western” ethics

Do different cultures have fundamentally different approaches to moral questions, or is there something like a “common morality”?

One of the most widely used frameworks of biomedical ethics is the one developed by Beauchamp and Childress (1979). It is based on four principles

1) Autonomy
2) Non-Maleficence
3) Beneficence
4) Justice

These are assumed to be rooted in a "common morality", which is "not relative to cultures or individuals, because it transcends both".

Originally, Beauchamp and Childress were not speaking about different cultures. They were just trying to find middle-level principles that the former as a utilitarian and the latter as a deontologist would be able to agree on without referring to one single, more fundamental principle, such as usefulness or universalizability.

The four principles have *prima facie* validity, which means that they apply as long as there is no conflict between them. If there is, they need "balancing".

The principles also need "specification" in order to apply them in different contexts.

How to do all this is the matter of long discussions in Beauchamp and Childress' book.

(2)

The approach of Beauchamp and Childress could become a model for the ethics of radiation protection,
in that we try to identify relevant principles in the “common morality”

My own approach differs from the one proposed by Beauchamp and Childress in two aspects:

- how we find the underlying principles of the “common morality”, and
- how we “balance” the principles and “specify” them in different contexts.

Beauchamp and Childress are not really interested in the sources of the “common morality”. They just claim that “all persons committed to morality” would agree with their four principles.

In my view, fundamental orientation has been provided throughout the ages by the written and oral traditions of the different cultures, and these continue to be of great influence for people not versed in “Western” secular philosophy.

Fundamental documents for the construction of a “common morality” are therefore the Holy Writings of the world’s great religions, documents produced by way of intra- and interreligious dialogue, time honoured philosophical works such as those of Confucius or Aristotle, as well as the oral traditions of indigenous peoples.

(3)

The „common morality“ cannot be found by a universal „opinion poll“, but by study of the written and oral traditions which have guided people of different cultures over the ages.

Beauchamp and Childress suggest that the principles found in the “common morality” are the anchoring points of a process approaching a “reflective equilibrium”.

In my view, we cannot construct “cross-cultural ethics” without understanding what those principles actually mean in other cultures, how they are “balanced” and “specified” in everyday life. And this we will find out only if we talk to each other across cultural borders.

(4)

Discourse is needed to develop
„common morality“
into cross-cultural ethics.

Can the principles of radiation protection be related to those found in the “common morality”?

Assuming that the principles of biomedical ethics proposed by Beauchamp and Childress are indeed part of the “common morality”, can they be of use in the context of radiation protection?

Justification – Any decision that alters the radiation exposure situation should do more good than harm.

Optimization – The likelihood of exposure, the number of people exposed and the magnitude of their individual doses shall be kept as low as reasonably achievable, taking into account economic and societal factors.

seem to be related to Non-Maleficence and Beneficence

Application of dose limits: The total dose to any individual from regulated sources in planned exposure situations other than medical exposure of patients should not exceed the limits specified by the Commission

seems to be related to Autonomy and Justice

(5)

The three basic principles of radiation protection – justification, optimization, dose limitation – can be related to the four principles of biomedical ethics, which in turn can be traced back to the “common morality”

Could the “common morality” provide guidance on other questions, which are not covered by justification, optimization and dose limitation?

Example 1: How can we take into account the risks for future generations?

Different models have been proposed, some of them suggesting a discount rate approach in which future good and harm count less than prompt consequences, but the International Atomic Energy Authority has stated that, „Radioactive waste shall be managed in such a way that will not impose undue burdens on future generations.“

This is certainly in line with a very clear cross-cultural agreement about intergenerational equity.

Example 2: How shall we account for variations of individual radiosensitivity?

In this case, I think it would be useful to remember
that many if not all philosophical and religious traditions agree that special attention must be given
to the weak and deprived.

(Compare John Rawls' "Theory of Justice":
"Social and economic inequalities are to be arranged so that they are to be of the greatest benefit to the least-advantaged members of society".)

Example 3: How to deal with risks for which there is no direct evidence?

Although ICRP still supports the LNT model as the most appropriate way of risk extrapolation to small doses, it is suggested that "… the calculation of the number of cancer deaths based on collective effective doses from trivial individual doses should be avoided." This is justified by saying that such calculations would be "biologically and statistically very uncertain".

Such an argument seems incompatible with the Precautionary Principle, which can also be found in one or the other form in all written and oral traditions of mankind.

(6)

"Common morality" can provide us with additional criteria for certain problems not covered by the main principles of radiation protection

In closing,

I would like to stress that I am obviously not advocating a total revamp of the system of radiation protection, but I suggest a different approach to its ethical foundation.

This approach would seem to be less biased towards “Western” philosophical tradition, and therefore more acceptable for people from different cultural backgrounds.

It may also give fresh insight into some problems which are difficult to solve with the current mix of utilitarian and deontological approaches in radiation protection.