

*Session 7*

**What Was Heard so Far: The View from Outside**

Chair: Phil Metcalf, Unit Head (IAEA)



## **A View From Outside – Some Observations**

**Michael Sailer**

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I want to thank the RWMC-RF for the invitation to present some observations, at the close of this workshop, from the viewpoint of an independent scientist.

The observations I will present are based on a twofold background:

- As a participant of this workshop.
- As chairman of the German “Entsorgungskommission (ESK)” (Waste management commission). ESK has the mandate to advise the German Regulator (BMU). ESK is actually involved in the discussion of the German safety guidelines for final disposal.

### **General Remarks**

This RWMC-RF workshop was a very good and fruitful workshop with very open discussion, broad exchange of opinions, a lot of exchange of experience regarding rulemaking, application of rules, and interaction with stakeholders.

The feature of table discussions strongly supports the exchange, because more people can speak on their experience and because it enables a denser pattern of questions and answers. I suggest continuing with this format in future workshops.

Also, the questions for the table discussions were well prepared and contributed to a discussion in a focused and very productive manner.

### **International Guidelines**

International guidelines have an important role for the national debate. They give strong support for implementing specific items or ideas in national regulations and national processes.

But taking into account the existing set of papers and guidelines from IAEA, NEA and ICRP causes in some sense problems. Comparing the papers one can identify differing views of things. No full coherency exists. Therefore my answer to the question “does a clear set of international guidelines exist?” is more “no” than “yes”.

Of course, there is a history behind the interrelation of those papers and guidelines. The insiders are familiar with it. Some lectures and contributions within this workshop gave additional insights on the “production process” of specific papers. But the interaction between amendments and new guidelines and between different organisations (IAEA, NEA, ICRP) remains not very clear for “non-insiders”.

Additionally, the knowledge of the history of those papers and guidelines does not help very much in the process of national adaption. That is because the authors of a national rule have to decide which ideas they have to implement in their national paper.

## **Interpretation of International Guidelines**

Some doubts exist, whether basic definitions are clear enough. Examples are: “safety case” and its roles; “multiple lines of reasoning”; “optimisation”. Therefore continuous discussion of their interpretation will be helpful.

Another problem is the transfer to other languages: An impressive lecture of this workshop dealt with the problems of the meaning of words within the same language – English.

But with the transfer to other languages the difficulties become bigger:

- Connotations may differ between languages.
- Connotations in the other language between its technical expert language, its law language and its general language additionally may differ.
- Differentiation between the meaning of words may be different (e.g. safety/security – German language has only one word “Sicherheit” for both terms; reversibility/retrievability – the German word “Rueckholbarkeit” has the connotation, that it must be possible within a very short time, days or months).

## **Transfer of International Guidelines**

The transfer of international guidelines to national regulations has to respect the compatibility with national law (e.g. licensing procedures, rights of stakeholders, separation between nuclear law and other fields of law). The problem was mentioned by a lecturer in this workshop. It might lead to different “translations” into national regulations regarding different countries.

Another field is the compatibility with the national culture of decision making, which cannot be reflected in international guidelines. Examples are: different roles of numerical values in the decision making and in court cases; hard vs. soft in the decision-making processes.

## **Qualitative Factors**

Regarding the qualitative factors in the guidelines I feel a need for more detailed discussion of some ideas.

Guidelines ask for different lines of argumentations (“multiple lines of reasoning”). I’m very much in favor of that because I have limited trust in model calculations. But the guidelines don’t give clear ideas, how that issue shall be handled in a safety case (additive to the long-term safety calculations? with the same weight as quantitative results? with which types of argumentation?).

A clear need exists for a more detailed description of specific qualitative argumentation (e.g. what is sound engineering/sound geological judgement?; what are possible indicators for isolation?).

Without that, we just rely on numerical results and do not take into account the principal limitations of the modeling of scenarios.

## **“Stakeholders”**

The term “stakeholder” has a very general meaning (and cannot be translated in a couple of languages, including German). The discussion on this workshop has shown that we have two classes of stakeholders:

- On one hand, the implementer (maybe including nuclear industry) and the regulator.
- On the other hand, all others – including the general public.

I fully agree that a distinction between those two groups is necessary.

But the guidelines and papers often do not distinguish between those two classes of stakeholders. They just speak of “stakeholders”. The problem posed by this lack of distinction can be shown with the question: “What kind of process does ‘stakeholder involvement’ in the ICRP papers really mean?”

A clearer view will be helpful for both, interaction in the licensing process and interaction in the general implementing process.

### **Processes and Roles**

Regarding the description of processes within the papers and guidelines, it is not always clear whether a specific part is addressed to the implementer or to the regulator or to both of them.

In my view some clarification would be helpful, e.g.:

- For specific obligations: has the implementer to do that or the regulator (e.g. optimisation, decisions on BAT, stakeholder involvement)?
- What has to be checked by the regulator and in what degree of detail? What has to be confirmed by the regulator? (e.g. safety case).
- The balance between independence of regulator and co-operation with the implementer (e.g. stepwise approach – when and how do the implementer and the regulator interact?).

International papers and guidelines cannot go too much in details, but:

- It would be very helpful to have common pictures of processes behind the text of regulations.
- Pictures of processes and the respective roles played by implementer, regulator and other stakeholders are helpful to come to clearer advice in the text of guidelines.

This would help to clarify whether a specific discussion tackles the specific needs of regulators (or implementers) or just the general picture.

### **Feedback from Practical Experience**

This workshop gave a broad range of feedback from practical experiences by both, the lectures and the table discussions. It seems to be very helpful to continue providing experiences regarding the implementation of rules and ideas from international guidelines and papers in the respective national context. Further feedback from practice is necessary (e.g. how to deal with the safety case; how to realise a stepwise approach; the implementation of optimisation/BAT).

Thank you.



## **On the Moral Standing of Future Persons and the Normative Basis of our Responsibility – Review of, and Reaction to, the Workshop’s Previous Deliberations<sup>1</sup>**

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### **Introduction**

Albeit I find it hard to conceive of myself as an “outsider” in the present context, I might temporarily accept the role and provide you with some philosophical and ethical perspectives on some of the considerations I heard during the workshop deliberations concerning our responsibilities towards future generations.

Ethical questions that were frequently voiced in different group reports are as follows: What is the normative basis of the responsibility we have towards future generations? And what is the scope of that responsibility when it comes to our management of nuclear waste?

These are questions on which I would like to elaborate in my review remarks about the workshop.

### **On the Moral Standing of Future Persons and the Normative Basis of our Responsibility**

What is the normative basis of our responsibility towards future generations? The most straightforward answer to this question comes from a proponent of *utilitarian* ethics. We live under the obligation to enhance human well-being and – at least – to minimise human suffering. Such a form of *negative utilitarianism* was once formulated by Karl Popper. “It adds to clarity in the fields of ethics, if we formulate our demands negatively, i.e. if we demand the elimination of suffering rather than the promotion of happiness.” (Karl R. Popper, *The Open Society and Its Enemies*, London 1945). More theoretically it could be formulated in the following way:

An action is right if it – in comparison to all alternative possible actions – realises the least amount of evil or harm for all those affected by the action.

Negative utilitarianism is often combined with a *principle of egalitarianism*. When it comes to minimising suffering, all humans (or generations) should be treated equally – unless there are morally relevant reasons to treat them differently. All humans must cover all *future* humans as well. Kenneth Arrow makes the following dry remark: “...the fact that an individual will be alive at some future time instead of today, does not seem to be a morally relevant reason...” (See Arrow (1995), “Inter-generational Equity and the Rate of Discount in Long-term Social Investment”, paper given at the IEA World Congress available at [www.econ.stanford.edu/faculty/workp/swp97005.htm](http://www.econ.stanford.edu/faculty/workp/swp97005.htm) )

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1. This paper is a further elaboration of the actual report provided at the workshop. The original workshop report focused on the moral standing of future human beings and less on the normative basis of our responsibilities. The “factual summary” of the workshop provided in these proceedings summarises only the original report.

So negative utilitarianism + egalitarianism gives us a fundamental justification for minimising human suffering now and in the future, and – among other things – to protect them from the threat of being exposed from the radiation of human waste. All human persons, and all human generations should be treated alike. If they live far away geographically or in time is not relevant. As long as they are affected by our actions today, we are morally responsible.

During this conference I have heard **three different arguments** against this kind of utilitarian justification for our responsibility for future persons.

The *first* argument against giving a moral standing to future persons has to do with one of the reports given during Session 3. Here it was argued that future generations may not be given equal weight in regulatory process “because they cannot sue us”. *On the contrary they have to be given more weight!* They are unable to speak for and protect themselves; therefore we are obliged to give them a stronger moral standing than living persons who can stand up for themselves. This can be taken as *an argument for inequity in favour for persons in the distant future.*

Is this a sound argument? I’m not convinced about this. Persons in the distant future – or for that matter in the present – who cannot speak for themselves may require a stronger protection because they are more vulnerable. But from this we are not justified to question the basic principle of *the equity* of all human persons now and in the future.

Often enough quite a different conclusion is drawn. We can affect persons in the future, even in the very far future, but they cannot do anything for us. For example, they cannot punish us for our passivity. Nor can they reward us for our efforts to act in their interest. There is no symmetrical relationship of obligations. From this it is sometimes concluded that future generations should have a *weaker* – and not a *stronger* – position. Some, in the workshop did suggest that in regulatory decision-making *less* weight may be given to potential exposures to persons in the distant future than to actual exposures to persons in the present or near future. This, however, can be taken as *an argument for inequity in favour of persons in the present generation.*

But that is not a very strong argument either. Small children and elderly persons without the ability to take care of themselves cannot do anything for us. But we still have obligations for their wellbeing. ***Moral obligations do not require symmetrical relationships.***

A *second* argument has been voiced several times during this workshop. It goes like this; we only have an obligation for the actions for which we can foresee the consequences. With some stretch of imagination we have an obligation for generations a couple of hundred years in the future. But after that our ability to foresee the consequences of our action gradually diminish to zero. Our actions do matter, but we cannot explain how. And therefore, we cannot be blamed for the harm which our actions may cause future generations far off into the future. Maybe this is the reason behind ICRPs warning that doses or risks in the long term should not be interpreted as a direct measure of health detriment.

I am not convinced by this line of reasoning. First of all, as a general rule, one should be sceptical about persons or generations who claim that they really have no power and that they therefore cannot be blamed or be considered responsible. When it comes to nuclear waste management we do have the influence to health of future generation. It is more plausible that generations far off in the future – presuming that such persons are still around – are negatively affected by ill-designed canister, then by well-designed canisters. And if we bury them in zones where groundwater travels faster to the surface than in other zones, we equally put persons far in the future at a greater risk than if we bury them in a geological formation with more favourable hydrological conditions. Our Japanese colleagues reminded us of the distinction between *predictability* or *probability* on the one hand and *plausibility*



on the other. Even if we cannot numerically and statistically calculate the risk beyond say a hundred years into the future, we can develop more informal arguments of plausibility. Such argument should – according to my opinion – be required by the regulators from the implementers.

*Thirdly*, a more devastating argument was levelled against the utilitarian position during the last session, session four, from Table 6. I heard the following argument: utilitarianism + egalitarianism puts intolerable burdens upon a given generation for the sake of futurity. *We would be obliged to sacrifice almost everything we have, and save it for future generations.* And our children, our grandchildren and so on, would similarly be obligated to save almost everything for the future. Let me once more quote Kenneth Arrow. He concludes that “the strong ethical requirement that all generations be treated alike, itself reasonable, contradicts a very strong intuition that is not morally acceptable to demand excessively high saving rates of any one generation, or even of every generation” (Arrow 1995, p. 16). Arrow arrives at an ethical position he calls *discounted utilitarianism*: each generation will maximise a weighted sum of its own utility and the sum of all future generations, with less weight on the latter. Really distant generations are treated all alike. In fact, discounted utilitarianism encompasses a non-utilitarian (deontological) element, namely a principle of self-regard: *living individuals and present generations are an end in itself and not merely a means to the welfare of other.* This could also be described as a principle of humanism. It goes against the principle of self-sacrifice. You should love your neighbour – even your future neighbour far off in the future, but not at the expense of loving yourself and your fellow human beings in the present living generation.

This argument in favour of the present generation is based on a *principle for the preference of the present generation* (PPP). One problem with this principle is that it might lead to a disregard of future generations. Excessive burdens might be put on future generations in name of PPP. This is as counterintuitive as is negative utilitarianism that obliges the present generations to save almost everything for the future. We need some restrictions on PPP to avoid such a partiality in favour of the present.

### **What Is an Excessive Burden on Future Generations?**

Let me suggest some answers to this question.

**Answer 1:** A burden is excessive if it prevents future generations from having the same quantities and types of natural resources as the present generation.

Such an answer is based on static principle of justice. In the State of the Art Report 2004 of the Swedish National Council for Nuclear Waste (KASAM) this was called *a static principle of justice* ([www.karnavfallsradet.se/Uploads/Files/215.pdf](http://www.karnavfallsradet.se/Uploads/Files/215.pdf), p. 428). The following example served to illustrate why the static principle of justice should not be accepted. When we exploit a watercourse, we might develop a pumping system in order to use the water more efficiently. However, the watercourse is still there for others to use. Let us instead assume that we exploit the water-course by draining it in order to use the land for cultivation. Are we not jeopardising the possibility of future generations to use the watercourse to satisfy their needs? Of course we are. They can no longer use the watercourse because it no longer exists. However, the Brundtland Commission did not consider that we would be contravening our intergenerational obligations by acting in such a way:

Every ecosystem everywhere cannot be preserved intact. A forest may be depleted in one part of a watershed and extended elsewhere, which is not a bad thing if the exploitation has been planned and the effects on soil erosion rates, water regimes, and genetic losses have been taken into account. In general, renewable resources like forests and fish stocks need not be depleted provided the rate of use is within the limits of regeneration and natural growth. (*Our Common Future*, 1987, p. 45).

Not only is the current generation considered to be entitled to consume natural products. They also have the right to change existing natural areas without neglecting their moral responsibility to future generations. Therefore, we do not need to live with a minimum impact on nature. Furthermore, we are entitled to consume non-renewable resources such as fossil fuels and minerals, even if we reduce the access of future generations to these products by doing so. However, the condition that must be met is that “the rate of depletion that the emphasis on recycling and economy of use should be calibrated to ensure that the [renewable resources do] not run out before acceptable substitutes are available ... [So] few future options [should be foreclosed] as possible” (p. 46). Thus, intergenerational justice does not mean that the same type or quantity of natural resources should be distributed equitably among generations. In other words: we do not put an excessive burden on future generations if we prevent them from having the same quantities and types of natural resources as the present generation.

**Answer 2:** A burden is excessive if it jeopardises future generations’ possibilities to life.

This answer could be based on *a minimal principle of justice* (see KASAM State-of-the-Art Report 2004, p. 429) – and it has clear consequences for the nuclear waste issue. It would imply that we are obliged to use nuclear power today in a manner that does not harm future generations – even if these generations are very distant. We cannot escape from our obligations just because they have to do with very long-term consequences of our actions. We can make a comparison with objects that are located at a great distance from each other in space. Let us assume that people on the other side of the globe are affected by environmental toxins that, via air or water, could spread to New Zealand or Tierra del Fuego in a short period of time. The spatial distance is not a morally relevant circumstance and cannot excuse indifference for the consequences of our actions. In the same way, we cannot make an exception to the principle of non-maleficence just because the people concerned are at a large temporal distance from our own generation.

**Answer 3:** A burden is excessive if we use or consume natural resources in such a way that subsequent generations are prevented from achieving a quality of life equivalent to ours.

This answer is based on a very demanding principle which in KASAM State-of-the-Art Report 2004 is called *the strong principle of justice*. We have an obligation to use or consume natural resources in such a way that subsequent generations can be expected to achieve a quality of life equivalent to ours.

This is a demanding principle which would probably entail far-reaching changes in the present generation’s consumption patterns and exploitation of nature. It should be distinguished from another principle involved in the following answer to the question about what constitutes an excessive burden to future generations:

**Answer 4:** A burden is excessive if we use or consume natural resources in such a way that subsequent generations are prevented from satisfying their basic needs.

This answer is dependent upon a *a weak principle of justice* which KASAM State-of-the-Art Report 2004 formulates as follows:

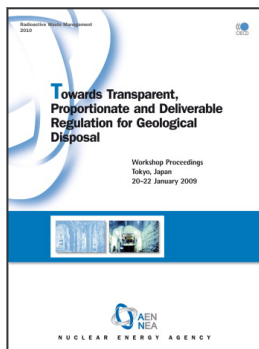
*We have a moral obligation to exploit natural resources in such a manner that not only the present generation but also future generations can satisfy their basic needs (i.e. needs for food and water, protection against weather and wind, and access to work, health care and education).*

Answer 3 puts future generations in a much stronger position than Answer 4, since Answer 3 not only assumes that future generations will have the same basic needs to be satisfied but will also be given the necessary conditions to achieve the same quality of life.

## Conclusions

Let me conclude with a more general remark. Answer 1 is clearly not a valid answer to the question what constitutes an excessive burden for future generations. On the contrary, Answer 2 seems clearly valid; it is indeed an excessive burden if – for example – nuclear waste is stored in such way that it jeopardises future generations’ possibilities to life. At the same time, Answer 2 while necessary in defining what constitutes an excessive burden to the future seems insufficient. It needs to be complemented with something more like Answer 3 or Answer 4. We could say that we are *at least* obliged not to prevent future generations from satisfying their basic needs (Answer 3). One such basic need could be freedom of action. According to Answer 3 and the weak principle of justice, we are obliged to respect and protect future generations’ rights to satisfy their basic needs. The need for freedom of action to decide for oneself whether one wants to use or not use the deposited spent nuclear fuel for some purpose is undeniably a basic need. Can we uphold the weak principle of justice and future generations’ possibility to retrieve the nuclear waste from the repository at the same time that we also meet the requirements of the minimal principle of justice, namely that we protect distant generations and do what we can to ensure that their lives and health are not jeopardised by the hazardous waste?

Perhaps there is no clear answer to this question. In that case, one possible approach is the following: If we cannot meet the requirement for future generations’ freedom of action at the same time that we also minimise the risk of human beings in the distant future being subjected to life-threatening harm from our spent nuclear fuel, the minimal principle of justice – namely our duty to not jeopardise future generations’ possibilities for life (answer 2) – should be given preference. In other words: The principle of not running the risk of subjecting future generations to harm carries more weight than our obligation to take into account the possibility that a not too distant generation would wish to gain access to the deposited nuclear waste and use it for some purpose. In this sense, we can also question the first stage of the “KASAM principle”, namely that the repository should be constructed so that the retrieval of the deposited waste is possible. If this means that we, in some respect have to lower long-term safety, it is our obligation to put “safety first”.



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