Keith Baverstock
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Introduction

I want to start this presentation by saying a few words about lessons learned from a previous nuclear power plant accident, namely the one in Chernobyl in 1986. I am a public health scientist and I have been interested in nuclear accidents since 1971. My program at the World Health Organisation in 1992 was instrumental in uncovering the outbreak of childhood thyroid cancer caused by exposure to radioactive iodine. Notwithstanding the seriousness of this health outcome I would still say that the most damaging feature of the Chernobyl accident was what became known as the psychosocial effect. At its root the psychosocial effect is about TRUST: trust in the authorities whose job it is to protect public health. At the time of the Chernobyl accident the authorities in the Soviet Union did not disclose the full facts concerning the extent of the accident at the outset and as a consequence they lost the trust of the public when this became clear.

The psychosocial effect is therefore preventable. After the Chernobyl accident United Nations Organisations, the World Health Organisation, the International Labour Organisation, the Food and Agricultural Organisation, the United Nations Children's Fund, the United Nations Development Programme and the International Atomic Energy Agency developed a legally binding framework specifically designed to protect public health in the event of future nuclear accidents both from the pathological effects of radioactivity, cancer for example, and the psychosocial effects. The international organizations therefore, with the consent of their Member States, undertook a role of protecting public health ALONGSIDE national governments. The protection framework was based on scientific principles and scientific evidence.

The role of the United Nations Scientific Committee on the Effects of Atomic Radiations (UNSCEAR), although not an active party in the public health protection framework of the United Nations I have just described, stands in a kind of supervisory role in terms of authenticating the scientific basis of the framework. It also provides an assessment of the levels of radioactivity and risks of exposure to that radioactivity following any major accident. Given the importance of the psychosocial effect UNSCEAR has a special obligation to be timely, transparent, comprehensive, independent and scientific in this important task. My criticism of UNSCEAR is that it has been none of these things and most importantly it has not been SCIENTIFIC in its approach.

I will briefly outline my criticisms of UNSCEAR under the headings I have just listed.

Timeliness:

UNSCEAR did not publish its report for more than three years after the accident and then only in a partially complete form; in fact, I believe there are still parts remaining to be published. It is my view that one of the reasons why it has taken UNSCEAR so long is that United Nations public health protection framework, under the leadership of the IAEA did not function initially, indeed it seems that there was an interval of 3 to 4 days before the framework started to function. Whatever the reason that the 2013 UNSCEAR report published in 2014 was too late to be effective in mitigating any potential psychosocial effect.

Transparency:

The UNSCEAR report fails on transparency, in my view, on the grounds that the failure of the IAEA led public health protection framework, which is at its most important in the earliest hours of the accident, is not referred to at all in the report. That emergency protection framework was developed and led by the now secretary of UNSCEAR. He has acknowledged to me how serious was the failure of the UN Organisations in this respect. UNSCEAR, who know my views, claim that their remit extends only to reporting on the levels of and risks from, the radioactivity. Other aspects they regard as political and not scientific. Others may regard that attitude as being protective of the interests of the UN organisations that they might otherwise have to criticise.

Comprehensiveness:

The difficult part of the radiation risk assessment of a nuclear accident is to determine the doses in the very early hours of the period in which releases to the atmosphere occur. The exposure route here, in addition to external irradiation from immersion in the radioactive cloud, is internal irradiation from inhalation and to some extent ingestion. It is necessarily an imprecise process relying on sporadic measurements and modelling based to some extent on knowledge of the source term. Had the emergency preparedness plan worked there would have been the possibility of international assistance to gather dosimetric data in the early days of the accident. It also appears that some monitoring data from in situ suspended particle monitors was available but not used by UNSCEAR. One has to conclude that UNSCEAR preferred not to estimate these doses and to this extent their report is not comprehensive and the reader is left in a state of ignorance about the early exposures and the risks they might entail.

Independence:

What is crucial to a risk assessment such as that prepared by UNSCEAR is that it is independent of those who might have a vested interest in the outcome. Here UNSCEAR fails on several counts. Firstly, its members are nominated

overwhelmingly by national governments with nuclear power programmes that have high economic importance and those same governments also provide funds to UNSCEAR. It is clear that UNSCEAR has at least a potential conflict of interest in that it may serve the needs of its benefactors (presently 27 nations) at the expense of non-nuclear nations (there are presently a total 193 member nations of the UN) many of whom are potentially subject to fallout in the event of nuclear accidents. UNSCEAR could publish the CVs of its members, including their publication records in the field of risk assessment, along with signed statements declaring any conflicts of interest, such as employment in the nuclear industry. This is a standard procedure for the US National Academy of Sciences in similar circumstances. What is notable to me, as someone with a long term experience in the field of radiation risk assessment, is that few researchers that have been critical of the nuclear industry lobby are involved in the preparation of the UNSCEAR report.

Crucial to the estimation of doses in the early period of the accident is the so called source term. As three cores melted and produced several plumes of radioactivity over more than a week these are important sources of risk. Of several estimates of the source term available UNSCEAR chose to use that published by the Japan Atomic Energy Agency (JAEA), raising the question of whether this organisation is independent of TEPCO or any other party with a vested interest in the consequences of the accident. The JAEA source term was among lowest estimates of releases. For example, JAEA's estimate of the radioactive ^{137}Cs release is 6 times lower than that of an international group.

To date UN agencies have produced three reports on the Fukushima Daiich accident, two by the World Health Organisation (WHO) and one by UNSCEAR. I am told a fourth is about to be published by the International Atomic Energy Agency (IAEA). However, it would be wrong to assume that these four reports have been prepared independently of one another. At a recent international symposium in Fukushima City a senior management staff member of the WHO claimed that the UN agencies collaborated closely in making health outcome risk estimates.

Scientific (validity):

The "S" in UNSCEAR stands for "scientific". A truly scientific report, such as might be produced by the US National Academy of Sciences, would be all the things I have listed above, timely, transparent, comprehensive and independent of all vested interests, and so my foremost criticism of the UNSCEAR report is that it does not qualify, as UNSCEAR claims, as a scientific document. In fact, the report shows many features that can be interpreted as down-playing the importance of the accident from the public health perspective. I showed UNSCEAR my criticisms before they were published and they have had the opportunity to publish the CVs and publication records of its members: it has so far failed to do that.

Finally I would like to draw your attention to the UNSCEAR's own Press Release with the headline: "Increase in Cancer Unlikely Following Fukushima Exposure – says UN report"

In the UNSCEAR report on page 74 the distribution of worker doses is provided for the one and a half years after the accident. A rough estimate of the total dose in some 10,000 workers with doses above 10 mSv indicates, on the basis of standard risk factors, some 50 excess cancers. UNSCEAR's estimate for the total Japanese public collective dose for the first year of the accident of 18,000 person-Sv is between 2,500 and 3,000 excess cancers.

On the basis of our best knowledge of the risks from exposure to radiation these are not "unlikely" cancers but "to be expected" cancers. They may never be identified in specific individuals but they will occur. It would be inexcusable for a scientific body to misrepresent its own finding in this way.

Conclusions:

I conclude that the UNSCEAR report has not satisfied the primary requirements of a scientifically sound risk assessment: it is not timely, not transparent, not comprehensive, not independent of vested interests and therefore not qualified to be called "scientific".

The UN nations that do not have nuclear power generation but may suffer the effects of fallout from those that do need an independent scientific assessment of the Fukushima accident and the UN should commission one.

The present UNSCEAR committee should be dissolved.