

DISCUSSION

Transnational Science-Based Standards on Radiation: A Japanese Experience

‘Dose limits’ after Fukushima

MACHIKO KANETAKE — 22 October, 2014



The readers of this blog might have heard of “millisieverts” or “becquerel”. These are the units of radiation dose and emission. While these notions are primarily the commodities of scientific experts in radiology and related fields, the German political debate might not be unfamiliar to such terms. Germany is currently experiencing a transition away from nuclear power, and nuclear energy has been publicly debated since the 1970s. Yet in Japan, these scientific vocabularies hardly appeared in the general news and ordinary people’s conversations—until the Fukushima nuclear disaster in March 2011.

The greater familiarity with radiological jargons in Japan is not only because of the Fukushima incident itself. In response to the release of radiation from the reactors, the Japanese government decided to raise the legally permissible level of radiation exposure for the general public from 1 to 20 millisieverts per year. As noted above, millisievert is a unit of radiation dose weighted to take into account its biological effect. In 2000, the Japanese government had set 1 millisievert per year as a statutory equivalent dose limit, on the basis that the risk factor of cancer from the radiation up to 1 millisievert per year would be 5 per 100,000 people. After the nuclear accident, the Japanese government, by way of administrative notices and instructions, employed the much higher dose limit for determining evacuation areas and restricting the use of school building and playgrounds in Fukushima. (A good summary on the adoption of the higher dose limits can be found in Oshima (2014) yet available only in Japanese.)

The adoption of 20 millisieverts was apparently for the purpose of limiting evacuation zones and associated compensation. If the government had strictly applied the 1 millisievert statutory limit, it would probably have had to evacuate a larger number of residents. Despite such pragmatic motives, the adoption of much higher dose limits has invited an outcry at home and abroad, including from Anand Grover, the UN’s special rapporteur, in his 2013 report on Japan. In response to the domestic and international criticisms, Japanese governmental officials repeatedly invoked the existence of international authority. One of the standard-setting institutions frequently referred to by the government is the International Commission on Radiological Protection (ICRP), a formally non-governmental and non-profit expert committee.

The ICRP's recommendations are widely utilized by the IAEA and the UN's specialized agencies such as the WHO, the International Labour Organization (ILO), and the Food and Agriculture Organization (FAO). The recommendations influence many other organizations as well, such as the European Commission and the Nuclear Energy Agency of the Organisation for Economic Co-operation and Development (OECD). The ICRP's science-based recommendations have been very widely adopted by states' domestic regulation. On several occasions, the Japanese government stressed that the yardstick of 20 millisieverts was based upon the ICRP's 2007 Recommendations, which allow for higher dose limits in case of emergency situations and their aftermath. For example, in Japan's comments on the aforementioned report of the UN special rapporteur, the Japanese government noted that it set the evacuation areas in Fukushima "based on the globally accepted recommendation of ICRP", which, according to the Japanese government, already took into account the effects of low-dose exposure on health.

The Japanese story tells us a much wider and often neglected issue I have been working on as part of the University of Amsterdam's "Architecture of Postnational Rulemaking" research project. The issue is, in short, the *scientific* and *political* fragility of what I call "transnational science-based standards" which are widely adopted at the national level. Radiation safety criteria, including dose limits mentioned above, are part of broader "science-based" standards formulated by the decentralised web of transnational expert committees, international organizations, and inter-governmental forums. Other examples include transnational standards on food safety, the safety of industrial products, and chemical safety.

While the terms "transnational" and "international" can be used interchangeably, I prefer to use the term "transnational" here, because not only governmental representatives but also scientific experts and industry representatives play a significant role in setting the cross-border standards based on scientific data. Transnational science-based standards are beset with the *scientific* fragility, precisely because they provide certain regulatory stability in the scientifically uncertain area. Their much-needed standard-setting role tends to destabilize the scientific trustworthiness of transnational standards. In the case of radiation standards I mentioned above, the ICRP recommends radiological protection criteria notwithstanding the scientific uncertainty about the health effects of radiation exposure. Despite this fragility, the Japanese government emphasized the scientific credibility of transnational bodies, which paradoxically invited more contestations at home and abroad.

This scientific fragility is accompanied by the *political* fragility. Transnational science-based standards can be very widely adopted at the domestic level with little input from domestic public organs, private entities, and individuals, on whom the standards have visible consequences. In the case of radiation safety standards, the limited domestic input in decision-making processes is problematic, since radiation standards very often involve not only scientific risk assessment, but also non-scientific (political, social, and legal) determination as to how the risk ought to be weighed against benefits. While input for the former (i.e., science) is provided by scientific experts, the input for the latter (i.e., risk-benefit balance) can be provided by legislators, regulatory officials, judges, NGOs, and the wider public, whose observations make a material difference to the standards. Despite the need for domestic political input, the Japanese government has yet to subject internationally-recommended standards to wider domestic political deliberation even a few years after the Fukushima incident.

The dilemma in this area is described very nicely by Oren Perez's article, entitled "The Hybrid Legal-Scientific Dynamic of Transnational Scientific Institutions", forthcoming

this year in European Journal of International Law. According to Perez, “transnational regulatory scientific institutions” provide a hierarchical process and institutional ordering to scientifically uncertain issues and a regulatory lacuna resulting from such uncertainty. Perez suggests that such institutions are in a unique position to retain both epistemic and legal authority, yet this duality also renders unstable the legitimacy of transnational regulatory scientific institutions, which straddle the divergent criteria of normative foundations.

The Japanese story, which I summarized above, provides a glimpse of the vulnerability of transnational science-based standards. Such standards have the virtue of achieving regulatory unity across states without the rigidity of concluding formal treaties. In the case of radiation standards, the recommendations of the ICRP and other expert committees facilitate domestic regulation and reduce divergence among states. At the same time, transnational science-based standards tend to be scientifically and politically unstable. As the Japanese experience demonstrates, their instability is revealed when such standards are adopted in the domestic legal order and the scientific jargons have become part of political and social debates.

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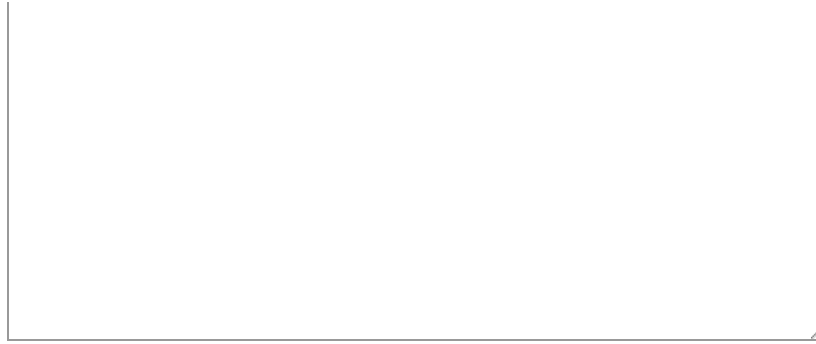


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