

Statement on the proposed update of ICRP Publications 109 and 111

Citizens' Commission on Nuclear Energy (CCNE)

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This statement, together with our previous open letters (dated 9 Aug and 9 Sep 2019; <http://eng.ccnejapan.com/?p=120>) already presented to the secretariat of ICRP, constitutes a public comment from CCNE on ICRP's draft report: *Radiological Protection of People and the Environment in the Event of a Large Nuclear Accident - Update of ICRP Publications 109 and 111* (hereafter 'the ICRP draft'). More specific comments on the ICRP draft, including alternative wording, have already been submitted individually by members of CCNE and thus will not be repeated in this document.

CCNE appreciates ICRP's recent decisions, partly upon our request in the open letters, to invite Japanese stakeholders to submit their comments to ICRP in Japanese, and to assure that all the public comments submitted in Japanese will be treated fairly in the consultation procedures onward.

CCNE must request, however, that ICRP should suspend the revising procedures of Publications 109 and 111 and should instead start a fresh discussion and consultation process to update its fundamental recommendations of 2007 (Pub.103) in order to keep consistency and improve adequacy in the radiation protections.

When restarting to revise Pub.109 and 111 duly after reviewing their mother document (Pub.103), it would be imperative for ICRP/TG93 to invite the victims of the Fukushima nuclear accident, who should be regarded as the most significant stakeholders to collaborate with, to participate from the very early stage of the consultation process. ICRP should also be fully aware of the diversity of the circumstances in which different victim groups stand.

Key reasons for making such a call as above are illustrated in 6 sections below:

1 New reference levels - a deviation from the 2007 framework?

The ICRP draft contains substantial changes in the handling of the referential dose levels. The proposed changes appear to be deviant from what is prescribed in the 2007 recommendations of ICRP, which is supposed to be the mother framework for Pub.109 and 111. Suggestion to introduce 10mSv per year as a new reference level in the existing exposure situations, along with the previous 1-20mSv range, will just bring about a confusion and mismanagement. The conventional annual standard of 1mSv as the target of exposure reduction seems to become less hard-and-fast accordingly. This would make the notion of ALARA less ambitious, against the welfare of the residents in

the areas affected by a nuclear accident.

In dealing with the Fukushima nuclear accident, a number of radiological professionals and Government officials publicly and repeatedly stated that radiation exposure below the effective dose of 100mSv would pose no health risk, quite against the LNT model adopted in the ICRP 2007 recommendations [Para (36)]. The Japanese Government failed to make adequate use of the reference levels as ICRP recommended. This caused serious confusions and doubt, not only among the residents in the affected regions but also more widely among the general public, over the dose thresholds set out by the Government without reasonable explanations.

What ICRP should do is to reconfirm the LNT model as the basis of radiation protection and to give firm advice to the Japanese authorities to take progressive measures to reduce exposures below the reference level. Should individual dose levels to refer to for optimization purposes be modified, then the fundamental recommendations of 2007 as the mother directives of Pub.109 and 111 would need to be revised on the basis of new research findings and verifications.

(CCNE tends to be unconvinced of the ICRP notion of the reference levels as set down in its current Pub.103, but we do not go into debate on it here.)

2 Poor recognition and bias about the serious damage caused by the Fukushima accident

The ICRP draft is about the radiological protection of all affected individuals and the environment [Para (5)], and the experiences of the Fukushima in addition to those of the Chernobyl have obviously been a strong reason to update the ICRP guidelines. Notwithstanding, the draft, particularly in Annex B, reveals limited understanding of what the deep and long-term impacts of a large nuclear accident on people and the environment is like.

After more than 8 years now, on-site treatment works with the melted-down reactors still bear poor prospect due to the extremely high radiation in and around the reactor buildings; extensive areas off-site remain exclusion zones where the population is not allowed to enter or stay; and tens of thousand of people continue to be taking refuge. As a matter of fact, no ministry or authority can tell exactly how many the refugees are, since a considerable number of people have been obliged to leave their homes with or without an official evacuation directive.

Radioactive plumes and the fallout flowed across regional boundaries, thus seriously contaminating quite a few towns and environment outside Fukushima Prefecture. Notably a large population suffered from radiation exposure externally and/or internally during the early phases of the accident. The ICRP draft has only scarce references to such early exposures of the general public (largely due to the

undervaluation made by UNSCEAR - see 6.2 below) in and outside Fukushima Prefecture, and to the necessity of long-term protective measures for those exposed.

On the other hand, the ICRP draft praises the value of the Fukushima Dialogue workshops as a successful “co-expertise process” (B.4.5). The draft especially focuses on the “self-help protective actions” taken by residents of the affected areas and emphasizes the role of such actions in developing what is called “radiological protection culture”. The Fukushima Dialogue is, however, a framework of a restricted nature mainly aimed for those who bear continued residence in the lastingly contaminated areas and those who have returned from temporary refuge. Its emphasis on the self-help of the residents is too narrow a perspective and is hardly regarded as a major lesson of the large nuclear accident that had at one time over 200,000 people exiled from their home.

Proper compensations are essential for the victims to reconstruct their livelihood. Scores of litigations and outside-court mediations (ADR) have been proceeding, during which dreadful experiences are testified by those who had to evacuate and also by those who were, due to circumstances, obliged to stay in the contaminated areas. The ICRP draft seems indifferent to those valuable testimonies. It would be a shame if a new international guidance for radiological protection were ever compiled only based on such a scanty recognition of the actual lessons of the severe nuclear accident of Fukushima.

Since the extensive radioactive fallout of the Fukushima accident became evident, while official aids and support being quite limited, grassroots groups and individual citizens in Japan have managed to set up more than 80 independent radiation monitoring facilities nationwide, with the support of concerned experts, civil-society organizations and understanding business entities. Many of these monitoring groups are now linked as a network, which co-operates in calibration and data quality management, successfully integrating and publishing the monitoring results and analysis. There are a number of non-governmental programs of ultrasound examination of thyroid, mainly for children, in and outside Fukushima. There are also a numerous variety of recess and recreation programs regularly inviting children from the affected regions. ICRP should pay much more attention to these wider contexts of civil actions for radiological protection.

3 Arbitrary use of the ICRP standards by Japanese authorities

Looking at the official policies and practices of the Japanese Government as to the off-site radiological protection of the general public in the Fukushima accident, the most serious breach in the light of the current ICRP guidelines was the complete failure of stakeholder participation as required and stressed by ICRP in making decisions that directly affect the local population. The authorities only “briefed” to the residents about

the unilateral Government decisions of whether or not to issue evacuation directives to particular areas. Unilateral decisions were also made when lifting the evacuation directives, sometimes even without local briefings. The ICRP references to the annual dose of 1mSv and 20mSv were handled quite arbitrarily and inconsistently.

The lack of good consultation and communication has caused an awful lot of frictions and end up in the public distrust of the authorities. ICRP is urged to investigate, feasibly with the Japanese authorities and third-party expert bodies, how such a distrust have emerged in the aftermath of the nuclear emergency; provide the Japanese Government what measures and considerations to take in order to avoid the problems; and reflect those findings in the next revision of the ICRP recommendations.

(Another grave breach in the Fukushima which would need a serious attention of ICRP was the poor off-site monitoring and the very patchy thyroid dose measurement, in comparison with the Chernobyl, at the early stage of the accident.)

4 Conflict of interests

The Code of Ethics of ICRP defines that it operates independently from any Government or other organizations. In the current procedures of updating Pub.109 and 111, TG93 of ICRP is responsible for compiling the draft recommendations, which will be advised upon ICRP Main Commission's approval to the Governments worldwide. It turned out, however, that the Chair of TG 93 is a Japanese-Government-appointed member of the country's official Radiation Council. Additionally, the Deputy Chair of TG93 is a full-time employee of the Nuclear Regulation Authority (NRA), Japan's national nuclear regulator. The Radiation Council is the official body that advises the Japanese Government specifically on radiological protection matters. And the Council is administered by NRA. These obvious conflicts of interest cast doubt about independence, objectivity and impartiality of ICRP's advice to the Japanese Government. The ICRP draft itself points out the fact that Japanese authorities and radiation experts almost lost credibility in the aftermath of the explosions at the nuclear power station. ICRP should observe its own Code of Ethics and strictly review its membership of the TGs, the Main Commission and Committees.

5 Accident victims should be consulted from the beginning

Before setting out new recommendations, ICRP should study carefully why and how Japanese authorities failed to protect the people and the environment from the harsh radiation caused by the Fukushima nuclear accident, especially why the existing ICRP principles did not work in Japan as designed and supposed by ICRP experts. We therefore request that the current process of revising the protection guidelines be suspended. We have proposed earlier, in our August and September letters to ICRP, several ways to improve the ICRP consultation process with more involvement of

diverse stakeholders actually affected by the Fukushima disaster. We see a good will of ICRP as it started to accept public comment in Japanese at ICRP's official website. But other proposals, such as holding further public hearings in the affected regions, and provision of an official Japanese edition of the ICRP draft, have been turned down to our disappointment.

Substantial participation of the residents of the affected areas and other general-public stakeholders from the very initial stage of consultation is essential in order to improve the radiation protective policies, incorporating hard lessons of the large nuclear accidents.

6 Biased or partial references

References cited in the ICRP draft are rather biased, or at least partial, allegedly excluding a number of important scientific works and key first-hand reports which reflect more serious outcomes of large nuclear accidents. Given below is a tentative list of the titles ICRP would have to take a serious look at. Most of these appeared after the 2007 release of ICRP Pub.103. Note that the list is not exhaustive.

6.1 Health risk of low-level (under 100mGy) ionizing radiation

Cardis E et al (2007), The 15-Country Collaborative Study of Cancer Risk among Radiation Workers in the Nuclear Industry: Estimates of Radiation-Related Cancer Risks. *Radiation Research* 167(4): 396-416.

Grant EJ et al. (2017), Solid Cancer Incidence among the Life Span Study of Atomic Bomb Survivors: 1958-2009. *Radiation Research* 187(5): 513-537. doi: 10.1667/RR14492.1. Epub 2017 Mar 20.

Kendall GM et al (2012), A record-based case-control study of natural background radiation and the incidence of childhood leukaemia and other cancers in Great Britain during 1980-2006. *Leukemia* (2013) 27: 3-9.

Krestinina LY et al (2007), Solid cancer incidence and low-dose-rate radiation exposures in the Techa River cohort: 1956-2002. *Int. J. Epidemiol.* 36 (5): pp.1038-1046.

Leuraud K et al. (2015), Ionising radiation and risk of death from leukaemia and lymphoma in radiation-monitored workers (INWORKS): an international cohort study. *Lancet Haematol.* June 22, 2015.

Lubin JH et al. (2017), Thyroid Cancer Following Childhood Low-Dose Radiation Exposure: A Pooled Analysis of Nine Cohorts. *J Clin Endocrinol Metab.* 102(7): 2575-2583. doi: 10.1210/jc.2016-3529.

Mathews JD et al (2013), Cancer risk in 680 000 people exposed to computed tomography scans in childhood or adolescence: data linkage study of 11 million Australians. *BMJ* 346 f2360.

National Council on Radiation Protection (2018), *Implications of Recent Epidemiologic Studies for the Linear Nonthreshold Model and Radiation Protection.* NCRP Commentary No.27

- Nikkila A et al. (2016), Background radiation and childhood leukemia: A nationwide register-based case-control study. *Int J Cancer*. 2016 Nov 1;139(9):1975-82. doi: 10.1002/ijc.30264. Epub 2016 Jul 22.
- Nikkila A et al. (2018), Effects of incomplete residential histories on studies of environmental exposure with application to childhood leukemia and background radiation. *Environ Res* 166: 466-472.
- Ozasa K. et al (2012), Studies of the Mortality of Atomic Bomb Survivors, Report 14, 1950–2003: An Overview of Cancer and Noncancer Diseases. *Radiation Research* 177(3): 229-243.
- Pearce MS et al (2012). Radiation exposure from CT scans in childhood and subsequent risk of leukaemia and brain tumours: a retrospective cohort study. *The Lancet*, Vol.380, Issue 9840: 499–505.
- Richardson DB et al. (2015), Risk of cancer from occupant exposure to ionizing radiation: retrospective cohort study of workers in France, the United Kingdom, and the United States (INWORKS). *BMJ* 351: h5389.
- Spycher BD et al. (2015), Background ionizing radiation and the risk of childhood cancer: a census-based nationwide cohort study. *Environ. Health Perspectives*,123: pp.622-628.

6.2 Criticism of the UNSCEAR Report on Fukushima

Annex B of the ICRP draft seems to heavily depend on the findings of UNSCEAR mission to Japan. It should be noted, however, that the UNSCEAR's Fukushima report does not stand without objections, particularly its underestimation of the radiation exposure. Just to give one example here:

Baverstock K (2014), 2013 UNSCEAR Report on Fukushima: a critical appraisal. *Kagaku* 84(10) electric edition: e0001-e0008. Tokyo: Iwanami Publishers. www.iwanami.co.jp/kagaku

6.3 Diverse aspects of the damage caused by the Fukushima nuclear accident

CCNE has found that Annex B of the ICRP draft fails to recognize the seriousness of the social and communal consequences of the large nuclear accident. The following articles and reports depict what sorts of damage have socially taken place and are ongoing and even worsening partly due to the Government's mismanagement so far.

Funabashi H (2012), Why the Fukushima nuclear disaster is a man-made calamity. *International Journal of Japanese Sociology* 21: 65-75.
<https://onlinelibrary.wiley.com/doi/pdf/10.1111/j.1475-6781.2012.01161.x>

Kimura AH (2018), Fukushima ETHOS: post-disaster risk communication, affect, and shifting risks. *Science as Culture* 27(1): 98-117.
www.tandfonline.com/doi/full/10.1080/09505431.2017.1325458

- Kimura AH (2016), *Radiation brain moms and citizen scientists: the gender politics of food contamination after Fukushima*. Duke Univ Press.
- Hasegawa R (2015), Returning home after Fukushima: displacement from a nuclear disaster and international guidelines for internally displaced persons. *Migration, Environment and Climate Change: Policy Brief Series* 1(4): pp.1-8.
<http://reliefweb.int/report/japan/returning-home-after-fukushima-displacement-nuclear-disaster-and-international>
- Shirabe M, Fassert C and Hasegawa R (2015), From risk communication to participatory radiation risk assessment. Fukushima Global Communication Programme Working Paper Series 21. <http://i.unu.edu/media/ias.unu.edu-en/news/12850/FGC-WP-21-FINAL.pdf>
- CCNE (2015), *The state of affairs and ongoing challenges of the Fukushima nuclear disaster: a civil society response toward recovery* (WCDRR 2015 Edition) - chapter 1: An overview of the damage caused by the Fukushima nuclear power plant accident and the "Restoration of Humanity". www.ccnejapan.com/eng/policy_outline_0-2.pdf
- Fujigaki Y (ed.) (2015), *Lessons from Fukushima: Japanese case studies on science, technology and society*. Springer.
- Gill T, Steger B and Slater DH (eds.) (2015), *Japan copes with calamity: ethnographies of the earthquake, tsunami and nuclear disasters of March 2011*. [2nd Ed.] Oxford: Peter Lang.
- Dawe A et al (2016), *Nuclear Scars: the lasting legacies of Chernobyl and Fukushima*. Greenpeace International
www.greenpeace.org/archive-international/en/publications/Campaign-reports/Nuclear-reports/Nuclear-Scars/
- Report of the Special Rapporteur on the right of everyone to the enjoyment of the highest attainable standard of physical and mental health, Anand Grover: Mission to Japan (15-26 November 2012). United Nations Human Rights Council. A/HRC/23/41/Add.3
- United Nations Human Rights Council (2018), Report of the Working Group on the Universal Periodic Review - Japan. A/HRC/37/15
www.ohchr.org/EN/HRBodies/UPR/Pages/JPIIndex.aspx
- Tuncak B (Special Rapporteur on the implications for human rights of the environmentally sound management and disposal of hazardous substances and waste) and Jimenez-Damary C (Special Rapporteur on the human rights of internally displaced persons), Joint communication from Special Procedures, 5 September 2018. United Nations Human Rights Council. (Ref. AL JPN 6/2018)
www.mofa.go.jp/files/000416301.pdf

6.4 Health consequences of Chernobyl

Annex A of the ICRP draft should have listed Yablokov-Nesterenko-Nesterenko (2009) below, as a comprehensive and critical review of the medical and statistical records of the Chernobyl disaster. It is reminded that this monumental title has a Japanese edition (2013), which is in fact an amply revised, corrected and expanded version of the 2009 English edition (New York) and a later revised Russian edition (Kiev).

Yablokov AV, Nesterenko VB & Nesterenko AV (2009), *Chernobyl: Consequences of the Catastrophe for People and the Environment*. Annals of the New York Academy of Sciences, vol. 1181.

Yablokov, AV, Nesterenko VB, Nesterenko AV and Preobrazhenskaya NE (2013), *Chernobyl: Consequences of the Catastrophe for People and the Environment* (Original text for the Japanese edition published on April 26, 2013, from the Iwanamii Publishers, Tokyo)

[End of CCNE Statement]

- **Citizens' Commission on Nuclear Energy** (CCNE, eng.ccnejapan.com) is an independent research and advocacy body, established after the Fukushima disaster in order to devise a new, comprehensive, ethical and viable policy concerning nuclear power phaseout and related issues in Japan. The commission is administered by the Takagi Fund for Citizens' Science, Tokyo (an authorized charity corporation). CCNE currently consists of a board of 13 commissioners, four Working Groups (commissioners plus additional members), an advisory panel of experts and a secretariat. It has more than 80 members with a wide range of expertise such as social sciences, ethics, law, technologies (including nuclear engineering), biological and medical sciences; the members also include a number of the residents directly affected by the Fukushima nuclear accident 2011 and on.

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