

Citizens' Nuclear Information Center (CNIC)

Public Comment (English)

Overall comments regarding the entire draft

(1) The ICRP recommends an annual exposure limit for the general population of 1 mSv, which should be maintained even in an existing exposure situation. Given that residents who suffer from the accident are not responsible for it, the ICRP should recommend to government and operators to guarantee the principle that residents should not continue to live in areas where exposure to radiation of 1 mSv/year or more is expected. In addition, it is permissible to moderate this principle to a certain degree for those who are aware of the risks of radiation exposure and choose to continue to live in their homes despite the higher dose. Contrary to this, the Japanese government is effectively forcing evacuees to return home by terminating their housing allowances after the evacuation order is lifted, even for those evacuees who want to continue living in the place where they evacuated. As a result, there have been cases of suicide. A recommendation which allows this to happen should never be accepted.

(2) Why do we need to draft revisions of 111 and 109 that specifically address major nuclear accidents while several key task groups (TG79: The Use of Effective Dose as a Risk Related Radiological Protection Quantity; TG91: Radiation Risk Inference at Low-dose and Low-dose Rate Exposure for Radiological Protection Purposes; TG102: Detriment Calculation Methodology; TG114: Reasonableness and Tolerability in the System of Radiological Protection) are in progress? Shouldn't we wait for the results of the ongoing task group discussions before updating?

(3) Based on the ICRP's recommendations, the Japanese government should examine how it dealt with the Fukushima nuclear accident and whether it protected residents from radiation exposure, and reflect the results of this examination in a new draft.

(4) The appropriateness of the 'radiation protection' which occurred immediately after the Fukushima Daiichi nuclear accident, including evacuation (in some cases, residents were evacuated to an area that had higher contamination because of a failure in sharing information) and distribution and administration of stable iodine tablets (which hardly took place at all), should be verified and reflected in the draft.

(5) Only the air dose rate can reflect the surface contamination. In the case of environmental pollution caused by the release of radioactive materials, some nuclides cannot be detected by gamma rays alone, so it is necessary to regulate the concentration of radioactive materials (Bq).

(6) There is bias in the citation of scientific papers on low dose exposure, health effects, economic effects and effects on animals and plants due to radiation. Recent studies have reported a significant increase in risk even at low doses below 100 mSv. The findings of the latest epidemiological studies should be taken into account. For example, the following papers should be considered.

- Klervi Leuraud et al. (2015) Ionising radiation and risk of death from leukaemia and lymphoma in radiation-monitored workers (INWORKS): an international cohort study. *Lancet Haematol*, vol.2, e276-281.
- David B. Richardson et al. (2015) Risk of cancer from occupational exposure to ionising radiation: retrospective cohort study of workers in France, the United Kingdom, and the United States (INWORKS). *British Medical Journal*, 351: h5359, 1-8.
- Gerald M. Kendall et al. (2013) 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*, 27, 3-9.

(7) The draft maintains that the long-term goal is to reduce exposure to around 1 mSv per year. However, if it takes a long time to achieve the target, the accumulated dose will exceed 100 mSv, which may affect health. Reference levels should be shown in combination with time periods.

(8) Paragraphs (224), (225) mention "the principles of justification and optimization." However, following these principles may mean that the more serious an accident is, the more relaxed the reference levels become. In addition, social and psychological factors should not be added to the justification and optimization considerations.

(9) ICRP TG 93 Chairman Kai Michiaki (Member of the Radiation Council) and Vice Chairman Honma Toshimitsu (staff of the Nuclear Regulation Authority) are experts and staff members of the authorities recommended by the ICRP. This can be seen as a conflict of interest because the person who makes the recommendation and the person who receives the recommendation are the same person, which would violate the independence of the ICRP.

Comments regarding the reference level

【Executive Summary, Paragraph (i); General Considerations, Paragraph (77); Figure 6.1】

(1) The rationale for changing the 20 ~ 100 mSv level to "Generally should not exceed 100 mSv" should be clearly stated.

(2) The grounds and reasons for deleting the number 20 mSv from 20 ~ 100 mSv should be clearly stated. After the accident at the Fukushima Nuclear Power Plant, Japan set the evacuation order standard at the lower 20 mSv, which is between 100 mSv and 20 mSv, but if the number 20 mSv is deleted, the higher 100 mSv may become the evacuation order standard.

【Main Points, point 4; Executive Summary, Paragraph (j); General Considerations, Paragraph (80); Table 6.1】

(1) The previous 1 ~ 20 mSv was changed to "There is generally no need for the reference level to exceed 10 mSv per year" but it should be recommended that 1 mSv or less be achieved as soon as possible. The ICRP sets an additional exposure dose based on the standard of a 20 year-old adult, but BEIRVII suggests that the annual additional exposure dose limit should be less than 0.013 mSv, taking into account the risk to the most sensitive 0 year-old girl. In addition, the ECRR

recommends that the annual additional exposure dose limit should be 0.1 mSv or less.

(2) The wording "There is generally no need for the reference level to exceed 10 mSv per year" can be interpreted to change the reference level to 10 mSv, so it should be specified whether it is a change in the reference level or not.

(3) "The order of 1 mSv per year" can be interpreted to mean between 1 ~ 9 mSv. Expressions that have multiple interpretations should be avoided. "Lower than 1mSv" should be used here.

Comments regarding the General Considerations

(1) Paragraph (22) should specify the LNT model, as Paragraph 36 of ICRP Publication 103 specifies. To avoid confusion, it should be clearly stated that the protection regime of the ICRP assumes the LNT model.

(2) In Paragraph (41), diseases such as diabetes, cardiovascular diseases, hyperlipidemia and hypertension are mentioned as secondary health issues, but it cannot be concluded that "Considering the level of exposure of the affected population, these disorders cannot be considered as direct radiation-induced health effects but are linked to a change in lifestyle resulting from the accident". This implies that these diseases could be avoided without lifestyle changes, but exposure can cause health effects and is also the cause of the lifestyle changes.

(3) Paragraph (124) states: "Evacuation can be inappropriate for certain populations, such as patients in hospitals and nursing homes, as well as elderly people, if it is not well planned" (Tanigawa, 2012) but it is unlikely that effective and appropriate evacuation would be possible in the event of a large-scale accident. It should be clearly stated that even if there is an appropriate evacuation plan, there are still cases of inappropriate evacuation.

(4) Paragraph (201) states: " a long-term thyroid health monitoring programme should only be conducted for those individuals exposed in utero or during childhood or adolescence with 100–500 mGy absorbed dose to the thyroid. " But can the absorbed dose of 100 ~ 500 mGy be measured in the first place? At the time of the accident at the Fukushima nuclear power plant, measurements of the absorbed dose were not possible.

A thyroid health survey suggested that an absorbed dose of 100 ~ 500 mGy alone was sufficient, but cancer effects were also seen at doses of 100 mGy or less (For example, the following papers). This section should therefore be deleted.

- Yamamoto et al. (2019) Association between the detection rate of thyroid cancer and the external radiation dose-rate after the nuclear power plant accidents in Fukushima, Japan. *Medicine (Baltimore)*, 98(37) e17165.

(5) Paragraph (205) should specify the need for support for those who choose not to live in a contaminated environment. Currently, the measures taken by the Japanese government treat autonomous evacuees severely, for example, discontinuing housing support, which has resulted in many cases of suicide.

Comments regarding Annex A: Chernobyl

(1) The content of the Chernobyl Act should be introduced specifically.

(2) Regarding the relocation: A.3.5.1

It should be clearly pointed out that the Chernobyl Act, which was enacted five years after the accident, states that areas where the radiation dose is more than 5 mSv/year are designated as areas for forced transfer, and the right to reside is recognized in areas where the radiation dose is more than 1 mSv/year. In Fukushima, no such response was taken based on the Chernobyl experience. This should be noted.

(3) This section should reflect the latest reports such as the "Chernobyl 25 Report ""Twenty-five Years after the Chernobyl Accident: Safety for the Future, 2011 National Report of Ukraine."

Comments on Annex B: Fukushima

(1) The responsibility of TEPCO should be clearly stated at the beginning. Tokyo Electric Power Co., which is responsible for discharging radioactive substances from the nuclear accident, has not fully acknowledged its responsibility for the accident. There should be a description of the government's insincere attitude, such as discontinuing compensation payments.

(2) Paragraph (B 29) states that, among the requirements for lifting the evacuation order is: "(iii) Confirmation that extensive talks had been held between local government and residents." However, despite opposition from almost all the residents who attended the explanatory meetings of the national and local governments, the lifting of the evacuation order was enforced (for example, Odaka Ward, Namie Town, Tomioka Town, Minamisoma City). It should be noted that the opinions of residents were not reflected in the report.

(3) Paragraph (B 37) In the ICRP dialogues held in Fukushima, the "Fukushima Dialogue" and the "Fukushima Ethos" carried out along with the "ICRP Dialogue," only the voices of people who are still living in Fukushima could be heard. The report should be written after hearing the opinions of various victims and evacuees.

(4) In paragraph (B 42), regarding thyroid cancer in Fukushima, it is wrong to say that the results of the first and second rounds of tests show that cases found "are unlikely to be the result of radiation exposure after the accident. " The paper this is based on gives only the first round of results but this judgment should be based on the latest test results.

(5) Regarding B.4.6, A paper in which the incidence of complex heart malformations in newborns has increased significantly nationwide since the Fukushima nuclear accident should be cited here.

- Kaori Murase et al. (2019) Nationwide increase in complex congenital heart diseases after the Fukushima nuclear accident. *Journal of the American Heart Association*, 19;8(6):e009486.