

Comparison of Assessments (1/2): Overview

	WHO	UNSCEAR
Purpose	To estimate health risks of residents due to radiation exposure for the first one year after the accident (conservative assessment)	<ul style="list-style-type: none"> • To compile obtained information and make an assessment • To provide scientific knowledge (realistic assessment)
Content	<ul style="list-style-type: none"> • Preliminary dose estimation • Health risk assessment 	<ul style="list-style-type: none"> • Time chart and analyses of the nuclear accident of the nuclear accident • Release and diffusion of radioactive materials • Public exposure doses • Occupational exposure doses • Health effects • Exposure doses and risk assessment for non-human biota
Time of assessment	Immediately after the accident (data up to September 2011) Data immediately after the accident contains inaccurate information.	After the elapse of a certain period of time from the accident (data up to September 2012) More recent data, if appropriate, is also taken into consideration.
Time of release	Dose assessment: May 2012 Health risk assessment: February 2013	April 2014
Conclusion	The possibility of increases in diseases due to radiation released as a result of the latest nuclear accident is small, and risk increases are ignorable in Japan except for some areas in Fukushima Prefecture, as well as in neighboring countries.	Lifetime doses that the Japanese people will receive due to the nuclear accident are small and it is hardly likely that any health effects of radiation will be observed among Japanese people in the future.

Comparison of Assessments (2/2): Assessment of Public Exposure Doses and Major Uncertainties

	WHO	UNSCEAR
Estimation of effective doses for the first one year after the accident (in millisieverts)	<p>20 years old (adults); 1 year old (infants)</p> <p>(i) Fukushima Prefecture: 1-50 1-50</p> <p>(ii) Neighboring prefectures: 0.1-10 0.1-10</p> <p>(iii) Rest of Japan: 0.1-1 0.1-1</p>	<p>20 years old (adults); 1 year old (infants)</p> <p>(i) Precautionary Evacuation Areas: 1.1-5.7 1.6-9.3</p> <p>(ii) Deliberate Evacuation Areas: 4.8-9.3 7.1-13</p> <p>(iii) Non-evacuated districts of Fukushima Prefecture: 1.0-4.3 2.0-7.5</p> <p>(iv) Neighboring prefectures: 0.2-1.4 0.3-2.5</p> <p>(v) Rest of Japan: 0.1-0.3 0.2-0.5</p>
Uncertainties	Large (prioritized the promptness in assessment)	Uncertainties remain although the report intends to achieve more realistic assessment than that in the WHO Reports.
Major causes of uncertainties in dose assessments	<ul style="list-style-type: none"> • Estimation of radioactivity concentrations in the air based on measured values of radiation deposited on the ground surface • Information on release of radioactive materials (source terms) and ATDM simulation • Compositions and chemical forms of radionuclides • Shielding effects of buildings • Assumptions for estimation of exposure doses through ingestion of foods • Variation in dose coefficients depending on dietary habits 	<ul style="list-style-type: none"> • Measured values for radionuclides with short half-lives deposited on the ground surface • Changes over time in release rates of radionuclides and knowledge on weather information at the time of their release • Composition of particulate and gaseous I-131 in the air • Biased selection of samples in food monitoring (highly contaminated items are prioritized) • Japanese people's metabolism of iodine (thyroid iodine uptake rate)

Note: The WHO's dose estimation is more conservative (overestimated) than that by the UNSCEAR.

Explanation of terms:

- Source terms collectively refer to data necessary for dose assessment, i.e., types, chemical forms and release amounts of radioactive materials.
- Diffusion simulation means to calculate the tendency of diffusion of radioactive materials by combining the source term data and other data such as weather conditions and wind directions, etc.

Conservative assessment

- Based on assumptions that would not lead to underestimation of exposure doses based on uncertain information (conservative assumptions), exposure doses and health risks are assessed on the safe side for emergency measures immediately after a nuclear disaster.
- As a result of conservative assessment, calculated values will be larger than the actual exposure doses.
- Risk assessment based on the calculated values will result in overestimation of health effects.

Realistic assessment

In the recovery period after a nuclear hazard, current exposure doses and possible future health effects are to be assessed based on assumptions as close as possible to the reality, using all information and measurement data available at that point in time.