



United Nations Scientific Committee
on the Effects of Atomic Radiation



UNSCEAR Fukushima Report and its follow-up activities

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Workshop on Nuclear Safety:

Vienna Center for Disarmament and Non-Proliferation (VCDNP) and
Permanent Mission of Japan to the International Organizations in Vienna

4 July 2016, Andromeda Tower, Vienna

EVALUATING RADIATION SCIENCE FOR INFORMED DECISION-MAKING

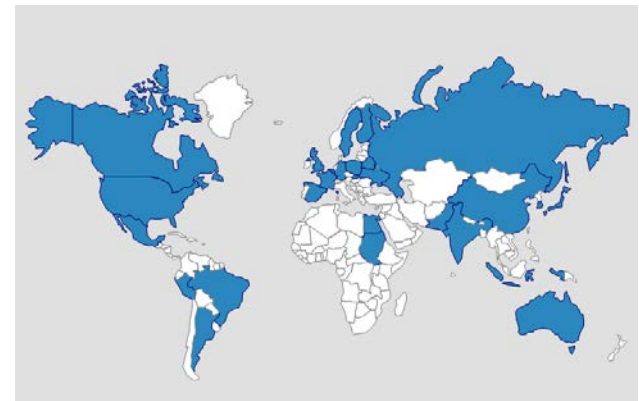
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Mandate



- **Scientific Committee of UN General Assembly**
- **27 UN Member States** appointed to UNSCEAR
- **Assess levels, effects & risks of ionizing radiation**
- Meets **annually** in Vienna
- Small secretariat in VIC (UNEP)
- Initiated 2-year study in 2011 with 80 experts



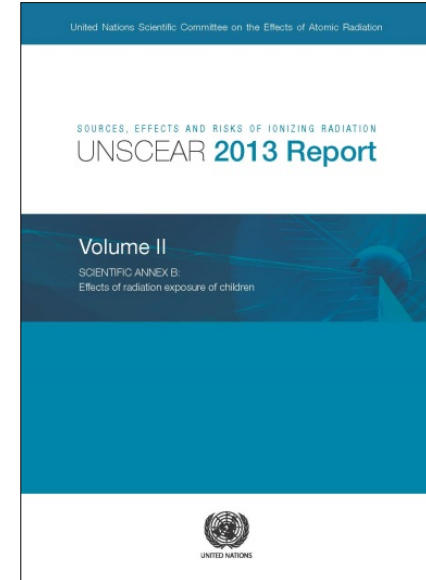
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2013 Report on Fukushima - findings

- Atmospheric releases about 10% of Chernobyl
- Exposure to radioiodine finished within first months;
Focus now on long-lived radiocaesium
- Exposures in first year highest
with ongoing low exposures in later years
- External doses dominate
- Highest doses to evacuees,
but protective measures reduced exposures significantly
- For most people doses comparable with natural background
- Overall, cancer rates to remain stable
- No discernible increase in cancer rates expected among workers
- No impact on birth and hereditary effects
- Theoretical increased risk of thyroid cancer for children most exposed
- Environment – localised and transient, highest exposures in marine environment

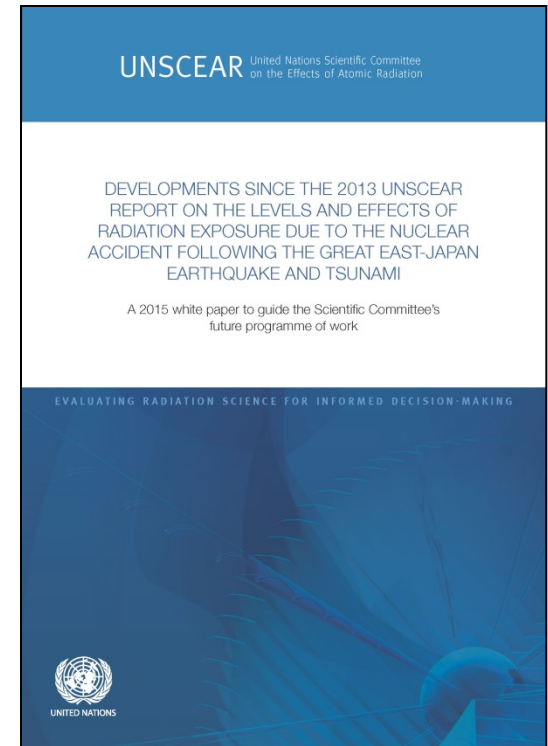




UNSCEAR Fukushima Follow-Up



- Keep radiological situation under review by collecting and appraising published information
 - Atmospheric dispersion and source term
 - Marine dispersion and source term
 - Terrestrial and freshwater dispersion
 - Public dose assessment, remediation and countermeasures
 - Worker dose assessment
 - Non-human biota impact assessment
 - Health risk assessment
- Identify any inconsistencies between scientific research published and UNSCEAR 2013 Report
- White paper on annual basis, covering literature published up to December of previous year
- Identify and justify appropriate time to update 2013 Fukushima report



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Final product: 2015 White Paper

- More than 80 publications reviewed – No significant challenges

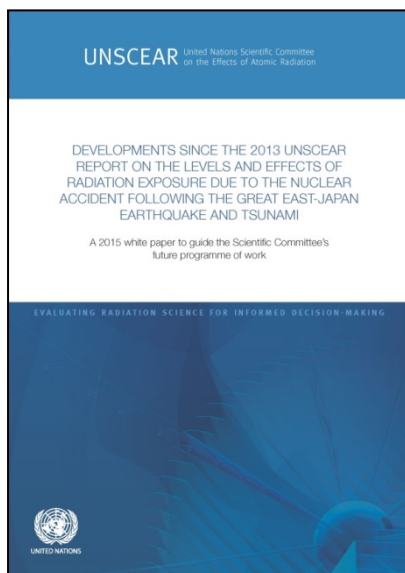


Table 1. Numbers of new sources of information screened and appraised by topical area

Topical area	Screened	Appraised
Releases to atmosphere, dispersion and deposition	126 ^a	12 ^b
Releases to water, ^c dispersion and deposition	43	18
Doses to members of the public	17	12
Doses to workers	26	7
Health effects for workers and the public	24	10
Doses and effects for non-human biota	61 ^d	20 ^e

^a The outcomes of screening of a further 16 sources of information are planned to be reported in the second digest.

^b These new sources of information were selected for appraisal based on their potential impact on the assumptions and findings of the 2013 Fukushima report; the outcome of appraising the remainder screened for appraisal is planned to be reported in the second digest.

^c Consideration was limited to information on releases to and subsequent dispersion in the marine environment. The transfer of radionuclides to, and their dispersion in, freshwater systems (e.g. from run off from catchments) was excluded from consideration in this review, other than the contribution such sources or pathways make to the continuing release of radionuclides to the marine environment.

^d The outcomes of screening of a further 29 sources of information are planned to be reported in the second digest.

^e These new sources of information were selected for appraisal based on their potential impact on the assumptions and findings of the 2013 Fukushima report; the outcome of appraising the remainder screened for appraisal is planned to be reported in the second digest.

- UNSCEAR (27 June to 1 July) approved 2016 White Paper for publication



External exposure



Year 1

Estimated annual adult effective dose from external exposure based on UNSCEAR 2013 Report Vol.1
Levels and Effects of Radiation Exposure due to Nuclear Accident after 2011 Great East Japan Earthquake and Tsunami

— 1 mSv/y exposure



ARPANSA analysis June 2014
based on UNSCEAR 2013 Report
Vol.1 Figure C-IX



Base Map: World Topographic
Map, provided by ESRI
and contributors

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Future scientific research needs

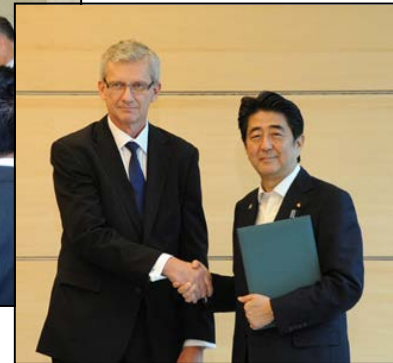


- In-depth studies of **wet deposition** and improved **source term** modelling
- Models of **external dose in various building types**, different seasons
Follow **remediation** impact
- Detailed evaluation of **doses to evacuees** based on latest source term estimates
- Study **migration of caesium** in urban, agricultural and forest environments and transfer to food (agricultural and wild) and parameters related to food distribution and consumption habits of cultivated and wild foods
- **Lens of the eye** for workers
- Thyroid screening data from **non-exposed young people** (if ethically appropriate)
- Thyroid data **broken down by age and sex**
- Address **anomalies** in data reported on effects on plants and animals



Outreach activities

- Several '**multiplier**' dialogues in Fukushima Prefecture
- Scientists trained in communicating conclusions
- Reports and white paper in Japanese, and supporting factsheet
- Further outreach planned for 2016/17
- UNEP booklet for public on radiation
- Supported by voluntary Trust Fund



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Summary



- Good understanding of exposures and associated health implications
- Many scientific research directions
- Process in place to stay aware of developments, conduct ad hoc analyses, and update 2013 report when deemed appropriate
- UNSCEAR reports well received
 - Science, not policy
 - UN brand
 - Independence and quality



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Thank you



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