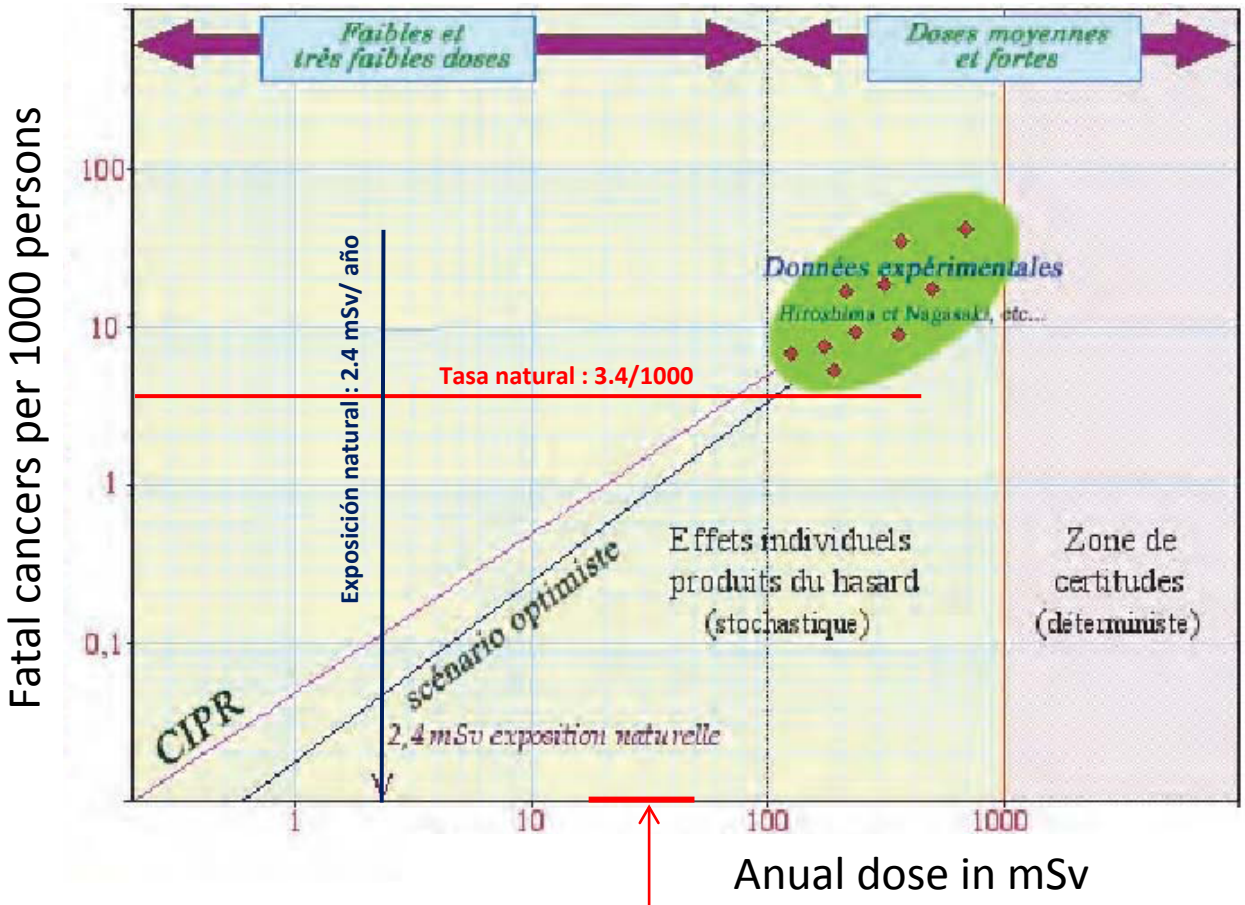
Cancer and mSv



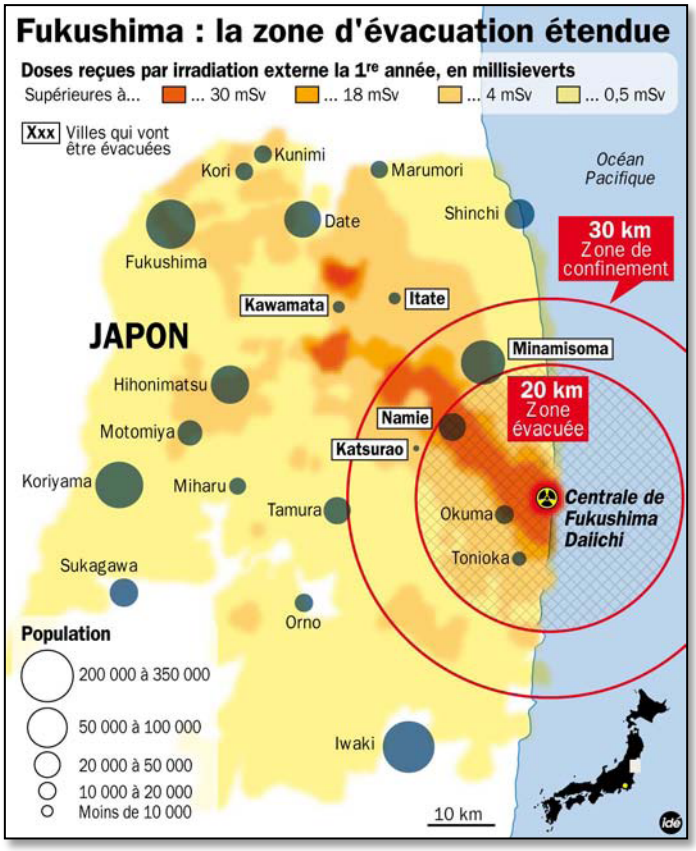
Kerala (India)
Natural radioactivity ~ 20-70 mSv/year (OMS)
No deleterious effects found [1,2]

* EU 1997 - Spain : 3.22 (Source: Eurostat)

[1] *Population Study in the High Natural Background Radiation Area in Kerala, India*. Radiation Research, Vol. 152, p. S145-S148 (1999) - http://www.jstor.org/pss/3580134.

[2] *Background Radiation and Cancer Incidence in Kerala, India-Karanagappally Cohort Study* Health Physics, Vol. 96, p. 55-66 (2009)

Example of WRONG calculation



Institut de Radioprotection et de Sûreté Nucléaire, Libération.fr

City	Pop.	mSv	%	Cancers
Namie	20 000	30	2/1000	**40**
Minamisoma	70 000	18	1/1000	**70**
Fukushima	300 000	5	.2/1000	**60**
Koriyama	330 000	1	.1/1000	**33**
…	…	…	…	**…**
			TOTAL	**> 200**

It doesn't make sense
All the doses are way under the threshold

United Nations Scientific Committee on the Effects of Atomic Radiation

SOURCES, EFFECTS AND RISKS OF IONIZING RADIATION

UNSCEAR 2013 Report

Volume I

REPORT TO THE GENERAL ASSEMBLY

SCIENTIFIC ANNEX A:

Levels and effects of radiation exposure due to the nuclear accident after the 2011 great east-Japan earthquake and tsunami

UNITED NATIONS

(b) Fukushima Daiichi nuclear power station workers, emergency personnel, municipal workers and volunteers

35. By the end of October 2012, about 25,000 workers had been involved in mitigation and other activities at the Fukushima Daiichi nuclear power station site; about 15 per cent of them were employed directly by the plant operator (Tokyo Electric Power Company (TEPCO)), while the rest were employed by contractors or subcontractors. According to their records, the average effective dose of the 25,000 workers over the first 19 months after the accident was about 12 mSv. About 35 per cent of the workforce received total doses of more than 10 mSv over that period, while 0.7 per cent of the workforce received doses of more than 100 mSv.

36. The Committee examined the data on internal exposure for 12 of the most exposed workers and confirmed that they had received absorbed doses to the thyroid in the range of 2 to 12 Gy, mostly from inhalation of iodine-131. The Committee also found reasonable agreement between its independent assessments of effective dose from internal exposure and those reported by TEPCO for those workers for whom there were measurable levels of iodine-131 in the body. No account was taken of the potential contribution from intakes of shorter-lived isotopes of iodine, in particular iodine-133; as a result, the assessed doses from internal exposure could have been underestimated by about 20 per cent. For many workers, because of the long delay before monitoring, iodine-131 was not detected in their thyroids; for those workers the internal doses estimated by TEPCO and its contractors are uncertain.

37. Apart from those groups, in vivo monitoring of 8,380 personnel affiliated with the United States Department of Defense was carried out between 11 March 2011 and 31 August 2011. About 3 per cent of those monitored had measurable activity levels with a maximum effective dose of 0.4 mSv and a maximum absorbed dose to the thyroid of 6.5 mGy.

3. Health implications

38. No radiation-related deaths or acute diseases have been observed among the workers and general public exposed to radiation from the accident.

39. The doses to the general public, both those incurred during the first year and estimated for their lifetimes, are generally low or very low. No discernible increased incidence of radiation-related health effects are expected among exposed members of the public or their descendants. The most important health effect is on mental and social well-being, related to the enormous impact of the earthquake, tsunami and nuclear accident, and the fear and stigma related to the perceived risk of exposure to ionizing radiation. Effects such as depression and post-traumatic stress symptoms have already been reported. Estimation of the occurrence and severity of such health effects are outside the Committee's remit.

40. For adults in Fukushima Prefecture, the Committee estimates average lifetime effective doses to be of the order of 10 mSv or less, and first-year doses to be one third to one half of that. While risk models by inference suggest increased cancer risk, cancers induced by radiation are indistinguishable at present from other cancers. Thus, a discernible increase in cancer incidence in this population that could be attributed to radiation exposure from the accident is not expected. An increased risk of thyroid