

# Fukushima: Thousands Have Died, Thousands More Will Die

By [Ian Fairlie](#)

Global Research, August 19, 2015

[The Ecologist](#) 17 August 2015

Region: [Asia](#)

Theme: [Environment](#)

*New evidence from Fukushima shows that as many as 2,000 people have died from necessary evacuations, writes Ian Fairlie, while another 5,000 will die from cancer. Future assessments of fatalities from nuclear disasters must include deaths from displacement-induced ill-health and suicide in addition to those from direct radiation impacts.*

"The Fukushima accident is still not over and its ill-effects will linger for a long time into the future ... 2,000 Japanese people have already died from the evacuations and another 5,000 are expected to die from future cancers."

[Official data from Fukushima](#) show that nearly 2,000 people died from the effects of evacuations necessary to avoid high radiation exposures from the disaster.



The valley of the shadow of death: near Fukushima Daichi, March 2015. Photo: Lucas Wirl via Flickr (CC BY-NC).

The uprooting to unfamiliar areas, cutting of family ties, loss of social support networks, disruption, exhaustion, poor physical conditions and disorientation can and do result in many people, in particular older people, dying.

[Increased suicide](#) has occurred among younger and older people following the Fukushima evacuations, but the trends are unclear.

A Japanese Cabinet Office report stated that, between March 2011 and July 2014, [56 suicides in Fukushima](#) Prefecture were linked to the nuclear accident. This should be taken as a minimum, rather than a maximum, figure.

Mental health consequences

It is necessary to include the mental health consequences of radiation exposures and evacuations. For example, [Becky Martin has stated](#) her PhD research at Southampton University in the UK shows that *"the most significant impacts of radiation emergencies are often in our minds."*

She adds:

Imagine that you've been informed that your land, your water, the air that you have breathed may have been polluted by a deadly and invisible contaminant. Something with the capacity to take away your fertility, or affect your unborn children.

Even the most resilient of us would be concerned ... many thousands of radiation emergency survivors have subsequently gone on to develop Post-Trauma Stress Disorder (PTSD), depression, and anxiety disorders as a result of their experiences and the uncertainty surrounding their health.

It is likely that these fears, anxieties, and stresses will act to magnify the effects of evacuations, resulting in even more old people dying or people committing suicide.

Such considerations should not be taken as arguments against evacuations, however. They are an important, life-saving strategy. But, as argued by Becky Martin,

We need to provide greatly improved social support following resettlement and extensive long-term psychological care to all radiation emergency survivors, to improve their health outcomes and preserve their futures.

#### Untoward pregnancy outcomes

Dr Alfred Körblein from Nuremburg in Germany recently noticed and reported on a 15% drop (statistically speaking, highly significant) in the numbers of live births in Fukushima Prefecture in December 2011, nine months after the accident.

This might point to higher rates of early spontaneous abortions. He also observed a (statistically significant) 20% [increase in the infant mortality rate in 2012](#), relative to the long-term trend in Fukushima Prefecture plus six surrounding prefectures, which he attributes to the consumption of radioactive food:

The fact that infant mortality peaks in May 2012, more than one year after the Fukushima accident, suggests that the increase is an effect of internal rather than external radiation exposure.

In Germany [after the Chernobyl nuclear disaster] perinatal mortality peaks followed peaks of cesium burden in pregnant women with a time-lag of seven months. May 2012 minus seven months is October 2011, the end of the harvesting season. Thus, consumption of contaminated foodstuff during autumn 2011 could be an explanation for the excess of infant mortality in the Fukushima region in 2012.

These are indicative rather than definitive findings and need to be verified by further studies. Unfortunately, such studies are notable by their absence.

#### Cancer and other late effects from radioactive fallout

Finally, we have to consider the longer term health effects of the radiation exposures from the radioactive fallouts after the four explosions and three meltdowns at Fukushima in March 2011. Large differences of view exist on this issue in Japan. These make it difficult for lay people and journalists to understand what the real situation is.

The Japanese Government, its advisors, and most radiation scientists in Japan (with some honourable exceptions) minimise the risks of radiation. The official widely-observed policy is that small amounts of radiation are harmless: scientifically speaking this is untenable.

For example, the Japanese Government is attempting to increase the public limit for radiation in Japan from 1 mSv to 20 mSv per year. Its scientists are trying to force the ICRP to accept this large increase. This is not only unscientific, it is also unconscionable.

Part of the reason for this policy is that radiation scientists in Japan (in the US, as well) appear unable or unwilling to accept the stochastic nature of low-level radiation effects. 'Stochastic' means an all-or-nothing response: you either get cancer etc or you don't.

As you decrease the dose, the effects become less likely: your chance of cancer declines all the way down to zero dose. The corollary is that tiny doses, even well below background, still carry a small chance of cancer: there is never a safe dose, except zero dose.

But, as [observed by Spycher et al](#) (2015), some scientists *"a priori exclude the possibility that low dose radiation could increase the risk of cancer. They will therefore not accept studies that challenge their foregone conclusion."*

One reason why such scientists refuse to accept radiation's stochastic effects (cancers, strokes, CVS diseases, hereditary effects, etc) is that they only appear after long latency periods – often decades for solid cancers. For the Japanese Government and its radiation advisors, it seems out-of-sight means out-of-mind.

This conveniently allows the Japanese Government to ignore radiogenic late effects. But the evidence for them is absolutely rock solid. Ironically, it comes primarily from the world's largest on-going epidemiology study, the [Life Span Study](#) of the Japanese atomic bomb survivors by the RERF Foundation which is based in Hiroshima and Nagasaki.

The lessons of Chernobyl

The mass of epidemiological evidence from the Chernobyl disaster in 1986 clearly indicates that cancer etc increases will very likely also occur at Fukushima, but many Japanese (and US) scientists deny this evidence.

For example, much debate currently exists over the existence and interpretation of increased thyroid cancers, cysts, and nodules in Fukushima Prefecture resulting from the disaster. From the findings after Chernobyl, thyroid cancers are expected to start increasing 4 to 5 years after 2011.

It's best to withhold comment until clearer results become available in 2016, but early indications are not reassuring for the Japanese Government. After then, other solid cancers are expected to increase as well, but it will take a while for these to become manifest.

The best way of forecasting the numbers of late effects (ie cancers etc) is by estimating the collective dose to Japan from the Fukushima fall out. We do this by envisaging that everyone in Japan exposed to the radioactive fallout from Fukushima has thereby received lottery tickets: but they are negative tickets. That is, if your lottery number comes up, you get cancer [1].

If you live far away from Fukushima Daiichi NPP, you get few tickets and the chance is low: if

you live close, you get more tickets and the chance is higher. You can't tell who will be unlucky, but you can estimate the total number by using collective doses.

The [2013 UNSCEAR Report](#) has estimated that the collective dose to the Japanese population from Fukushima is 48,000 person Sv: this is a very large dose: see below.

Unfortunately, pro-nuclear Japanese scientists also criticise the concept of collective dose as it relies on the stochastic nature of radiation's effects and on the Linear No Threshold (LNT) model of radiation's effects which they also refute. But almost all official regulatory bodies throughout the world recognise the stochastic nature of radiation's effects, the LNT, and collective doses.

### Summing up Fukushima

About 60 people died immediately during the actual evacuations in Fukushima Prefecture in March 2011. Between 2011 and 2015, [an additional 1,867 people](#)[2] in Fukushima Prefecture died as a result of the evacuations following the nuclear disaster [3]. These deaths were from ill health and suicides.

From the UNSCEAR estimate of 48,000 person Sv, it can be reliably estimated (using a fatal cancer risk factor of 10% per Sv) that about 5,000 fatal cancers will occur in Japan in future from Fukushima's fallout. This estimate from official data agrees with [my own personal estimate](#) using a different methodology.

In sum, the health toll from the Fukushima nuclear disaster is horrendous. At the minimum

- Over 160,000 people were evacuated most of them permanently.
- Many cases of post-trauma stress disorder (PTSD), depression, and anxiety disorders arising from the evacuations.
- About 12,000 workers exposed to high levels of radiation, some up to 250 mSv
- An estimated 5,000 fatal cancers from radiation exposures in future.
- Plus similar (unquantified) numbers of radiogenic strokes, CVS diseases and hereditary diseases.
- Between 2011 and 2015, about 2,000 deaths from radiation-related evacuations due to ill-health and suicides.
- An as yet unquantified number of thyroid cancers.
- An increased infant mortality rate in 2012 and a decreased number of live births in December 2011.

### Non-health effects include

- 8% of Japan (30,000 sq.km), including parts of Tokyo, contaminated by radioactivity.
- Economic losses estimated between \$300 and \$500 billion.

### Catastrophes that must never be repeated

The Fukushima accident is still not over and its ill-effects will linger for a long time into the future. However we can say now that the nuclear disaster at Fukushima delivered a huge blow to Japan and its people.

2,000 Japanese people have already died from the evacuations and another 5,000 are expected to die from future cancers.

It is impossible not to be moved by the scale of Fukushima's toll in terms of deaths, suicides, mental ill-health and human suffering. Fukushima's effect on Japan is similar to Chernobyl's massive blow against the former Soviet Union in 1986.

Indeed, several writers have expressed the view that the Chernobyl nuclear disaster was a major factor in the subsequent collapse of the USSR during 1989-1990.

It is notable that Mikhail Gorbachev, President of the USSR at the time of Chernobyl and Naoto Kan, Prime Minister of Japan at the time of Fukushima have [both expressed their opposition](#) to nuclear power. Indeed [Kan has called for all nuclear power to be abolished](#).

Has the Japanese Government, and indeed other governments (including the UK and US), learned from these nuclear disasters? The US philosopher George Santayana (1863-1962) once stated that those who cannot learn from history are doomed to repeat it.

*Dr Ian Fairlie is an independent consultant on radioactivity in the environment. He has a degree in radiation biology from Bart's Hospital in London and his doctoral studies at Imperial College in London and Princeton University in the US concerned the radiological hazards of nuclear fuel reprocessing.*

*Ian was formerly a DEFRA civil servant on radiation risks from nuclear power stations. From 2000 to 2004, he was head of the Secretariat to the UK Government's CERRIE Committee on internal radiation risks. Since retiring from Government service, he has acted as consultant to the European Parliament, local and regional governments, environmental NGOs, and private individuals.*

See also [Ian Fairlie's blog](#), where this article was originally published.

Thanks to Azby Brown, Yuri Hiranuma, Dr Tadahiro Katsuta, Dr Alfred Körblein, Becky Martin, and Mycle Schneider for comments on early drafts. Any errors are mine.

## Notes

1□ Credit to Jan Beyea in the US for the negative lottery idea.

2□ Correct as of March 2015.

3□ In addition, 1,603 people were killed directly by the earthquake and tsunami in Fukushima Prefecture, and approximately 1,350 tsunami evacuee deaths occurred in Miyagi and Iwate Prefectures: in the latter cases, the evacuations were not radiation-related.

The original source of this article is [The Ecologist](#)  
Copyright © [Ian Fairlie](#), [The Ecologist](#), 2015

---

[\*\*Comment on Global Research Articles on our Facebook page\*\*](#)

[\*\*Become a Member of Global Research\*\*](#)

Articles by: [Ian Fairlie](#)

**Disclaimer:** The contents of this article are of sole responsibility of the author(s). The Centre for Research on Globalization will not be responsible for any inaccurate or incorrect statement in this article. The Centre of Research on Globalization grants permission to cross-post Global Research articles on community internet sites as long the source and copyright are acknowledged together with a hyperlink to the original Global Research article. For publication of Global Research articles in print or other forms including commercial internet sites, contact: [publications@globalresearch.ca](mailto:publications@globalresearch.ca)

[www.globalresearch.ca](http://www.globalresearch.ca) contains copyrighted material the use of which has not always been specifically authorized by the copyright owner. We are making such material available to our readers under the provisions of "fair use" in an effort to advance a better understanding of political, economic and social issues. The material on this site is distributed without profit to those who have expressed a prior interest in receiving it for research and educational purposes. If you wish to use copyrighted material for purposes other than "fair use" you must request permission from the copyright owner.

For media inquiries: [publications@globalresearch.ca](mailto:publications@globalresearch.ca)