

Fukushima's Refugees Are Victims Of Irrational Fear, Not

Radiation

This is a guest editorial by Dr. James Conca, an international expert on the environmental effects of radioactive contamination.

Every time I eat a bag of potato chips I think of Fukushima. This 12-ounce bag of chips has 3500 picoCuries of gamma radiation in it, and the number of bags I eat a year gives me a dose as high as what I would receive living in much of the evacuated zones around Fukushima. But unlike the Fukushima refugees, I get to stay in my home. We live in a nuanced world of degree. Eating a scoop of ice cream is fine, eating a gallon at one time is bad. Jumping off a chair is no big deal; jumping off a cliff is really stupid. The numbers matter. It's the dose that makes the poison. There is a threshold to everything.

The radiation in those potato chips isn't going to kill me. Likewise, no one is going to die from Fukushima radiation. Cancer rates are not going to increase in Japan. The disaster wasn't hidden like the Soviets did, so that people unknowingly ate iodine-131 for two months before it decayed away to nothing. No one threw workers into the fire like lemmings because they didn't know what to do.

Where do I get off downplaying the effects of the Fukushima disaster? I've been studying the environmental effects of radioactive contamination for three decades, working at America's national labs and nuclear waste repositories. My enduring frustration: the extreme supposition that all radiation is deadly and that there is no dose below which harmful effects will not occur.

This idea, known as the Linear No-Threshold Dose hypothesis (LNT), was adopted in 1959 as the global regulating philosophy and remains entrenched against all scientific evidence. It is an ethical nightmare. And it will destroy Japan's economy.

It's keeping 100,000 Japanese citizens as refugees, as it did almost a million Ukrainians. It will waste \$100 billion that's needed to rebuild the devastation from the tsunami, not protect against a large intake of potato chips. It will cause more injury to Japan's already beleaguered population and damaged economy, for no benefit.

We set thresholds to protect people against harm, and we've done a good job. The Clean Water Act, the Clean Air Act, seat belts, coal flue scrubbers, all have saved millions of lives and made the quality of life better for everyone. But thresholds need to be set with reason. We don't stop driving just because 50,000 people still die on the roadways each year, or stop heating our homes because 1,000 people die every month from coal particle inhalation. We try to make it safer and we deal with things as they occur.

For radiation this philosophy has failed. The LNT theory has been long since disproven. We are bathed in radiation every day and we know that low levels of radiation or even ten times background levels have never hurt anyone. It doesn't cause cancer. Yet the global fear of nuclear energy and radiation has diverted billions of dollars from more serious health issues. The amount of funding the U.S. spent since 1990 protecting against what, in many parts of the world, are background

levels of radiation, could have immunized the entire continent of Africa against its three worst scourges. Instead we saved not one life. This is an ethical issue. The science is easy, the politics are not.

As a scientist, this is disturbing. Fukushima's a mess but it's an economic mess, not a fatal one. There are areas around Fukushima that need to be cleaned up and they will, with technologies we've developed just for this purpose. In this new global economy, Japan's response will not only affect Japan. Amid the Fukushima hysteria Germany has decided to shut down its nuclear reactors and import more natural gas from Putin and more nuclear energy from France and the Czechs. This does not make sense, either economically, politically or with respect to safety. If Germans or Japanese are that worried about radiation then a more sensible course of action would be to stop eating potato chips, beets, brazil nuts and bananas, all of which are relatively high but ultimately harmless sources of radiation.

Japan shouldn't sacrifice the lives of the 63,000 evacuees from Fukushima Province to this ideology. A recent survey by the Mainichi Daily News showed a little over a third feel they cannot return to their homes ever, and a little under half want to return now. We need to give them the right choice. Fear is more of a killer than radiation.

Dr. James Conca is an international expert on the environmental effects of radioactive contamination and other contaminants such as heavy metals and organics. He has a PhD in Geochemistry from CalTech (1985) and has been working on nuclear waste and nuclear energy for 27 years, in positions in Academia, the National Labs and industry.