



A short article on Public Safety policy, in particular for ionising radiation.

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Safety and Panic at Grenfell and Fukushima
Lessons for Radiation Safety Regulation in the UK post *Euratom*

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The UK has a unique opportunity to re-examine the safety of radiation upon withdrawing from *Euratom* as it leaves the EU. General lessons can be drawn from the dramatic failures in public safety evident at Grenfell Tower and Fukushima Daiichi. Following the accidents public confidence in the authorities imploded, but questions should have been asked before the accidents by more people - and not just by hired experts. It was the great Richard Feynman who suggested that the business of science is to doubt experts. And everybody should strive to be a scientist in matters of their own safety. The very opposite of the chilling injunction penned by George Orwell in his dystopian novel, *1984: The party told you to reject the evidence of your eyes and ears. It was their final, most essential command.*

Genuine safety comes from experience and trust, not from uninformed response to regulation and fear. For example, every child in Japan is taught in school what to do in the event of an earthquake, including moving to safety before any tsunami arrives. And so, when they felt the earthquake on 3 March 2011, everybody knew what to do. By acting quickly, 96% of people who were in the flooded region at the time reached safety and survived. This was a remarkable public safety achievement for which preparation and social confidence was crucial.

But life is not always so simple. When observation does not match prevailing opinion, individuals tend to suppress any inclination to speak out, especially if personal jobs and career prospects would be affected. When a matter is described as *complex* it usually means *keep out*. But instead of accepting ignorance, not everyone, but a sufficient number should investigate and find out more. Otherwise a mismatch between public policy and reality may persist for a long time - perhaps until this inertia, an unwillingness to change or reconsider, is shaken by an accident, unforeseen but foreseeable. So it was at Grenfell Tower. Nobody had engaged with the danger, although any

secondary school chemistry student would realise what could happen and how many effects might conspire to amplify the fire once it began. Afterwards many rushed to apportion blame although in fact society as a whole was at fault. Blaming is always easier than studying. Safety should not be delegated to others, without checking where the delegation stops. Committees tend to divide responsibilities, tick boxes and avoid evidence in the real world. At Grenfell Tower it seems that they did.

Six years earlier at Fukushima Daiichi following the tsunami the fuel in three nuclear reactors melted and radioactivity was released. The authorities were faced with a situation for which they were as unprepared as those at Grenfell Tower. The population had been reassured that an accident was impossible. When it happened everybody panicked - the authorities, the Prime Minister and the world media. If they had studied what happened at Chernobyl, they would have known that the far smaller release of radioactivity was most unlikely to have any health consequences - as is now confirmed. It was the information vacuum with the resulting panic and evacuation, not the radiation, that caused great personal suffering and loss of life, with economic and environmental consequences on a global scale that continue to this day - notably in the EU.

The two accidents were similar but opposite: the Grenfell Tower disaster was a matter of the ignorance and neglect of a serious danger, followed by panic and a blame game; the Fukushima Daiichi accident was a matter of ignorance and neglect of an event that carried no risk, followed by panic and a blame game. Generally, questions should be asked and risks distinguished, whatever the experts say.

The implosion of confidence after Fukushima added to existing fears of nuclear power, leading to the authorities increasing its regulation and cost - purely to appease public concern and for no other reason. In fact many members of the public experience radiation doses, often far higher than any received at Fukushima, even by workers at the plant. This happens intentionally when they accept life-saving radiotherapy treatment in a clinic. If she were alive today, Marie Curie, pioneer in the science of radiation and its beneficial use in medicine, would be shocked by the illogical basis of current public radiation policy. The public needs to be told more by confident authorities. Nuclear radiation is part of nature and always has been - the same in a clinic as in an accident. The difference survives only in horror movies and political propaganda. For historical reasons nuclear phobia is particularly stronger in some countries, notably Germany.

Radiation phobia dates from the dark days of the Cold War when secrecy trumped truth. In the EU, and other regimes too, the inertia of public opinion still ensures that radiation and nuclear power are thought undesirable and to be avoided wherever possible, as a matter of self-evident faith. *Euratom* is the EU body concerned with the regulation of nuclear energy and ionising radiation, and it upholds a policy of extreme caution. The official actions on evacuation and food at Fukushima were based on a similar policy, causing great suffering without benefit of any kind. Many European countries have decided for economic or political reasons to follow Germany in reducing the use of nuclear power, regrettably including France. Other countries in the world, notably Japan, South Korea and the United States, are caught between the need of society for energy 24/7 and popular opinion that is still in the thrall of over-cautious safety regulations. Since the latter can be safely relaxed by a large factor, the solution is at hand - if people will accept it.

Outside both the EU and *Euratom* the UK could lead by establishing fresh science-based radiation safety standards. These would open the door to advances and lower costs in nuclear power and medicine. An increased use of nuclear power would avoid amplifying the effects of environmental change. But this increase should be far faster than previously envisaged sufficiently to reduce carbon emissions (including those from waste and biofuels). With new safe regulations the global challenge identified at the COP21 Paris Agreement could be addressed realistically at last.

Much fuller discussion including references to worldwide work is given in the books, articles, lectures and videos to be found at www.radiationandreason.com