

More than ever, comment on ‘Chernobyl and Fukushima—Where are we now?’

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The recent Editorial by Wakeford (*J. Radiol. Prot.* 2016 [36 E1–E5](#)) titled ‘Chernobyl and Fukushima—Where are we now?’ has highlighted the scientific achievements and the lessons learnt following two major events: the Chernobyl and Fukushima nuclear disasters. The author has undertaken a comprehensive review on the major findings of health impact especially ongoing psychological consequences, the challenge of estimating exposure doses and the importance of routine operational procedures to ensure nuclear safety. Indeed, as the author suggests, international efforts are yet to be made to prevent such rare but severe events. Apart from the above-mentioned subjects, we would also like to raise the importance of not only understanding health risks, but also public risk perception toward nuclear power plants or facilities and incurred risk communication issues in the future.

A number of studies were conducted to investigate public risk perception after the Fukushima accident in Japan and its neighboring countries such as Taiwan, South Korea and China [[1–7](#)]. It was revealed that the study respondents in Japan perceived a high risk of health effects on the victims due to exposure to radiation and psychological distress following the incidence [[1](#)]; while the general public in Taiwan and South Korea were concerned more about the safety of nuclear operation, potential large-scaled harm to the public, and other negative social consequences associated with nuclear accidents [[3–6](#)]. Most importantly, these studies showed a reverse association between risk perception and the public acceptance for nuclear facilities. A large proportion of the participants, 66% in Taiwan and 41% in South Korea, expressed distrust against their government’s nuclear safety management and thus strongly advocated the closure or phasing out the existing nuclear power plants in their countries [[3, 6](#)]. Another serial studies in Taiwan demonstrated that nuclear power operation was associated with the highest risk when compared with the perceived risks of five common technologies or human activities concerning mortality [[5](#)]. With regard to the opinions against nuclear energy, ‘potential catastrophic nuclear accident’ (82%), ‘disposal of radioactive nuclear waste’ (76.9%) and ‘potential health effects (73%)’ were the major concerns [[5](#)]. Other studies were conducted in

Japan, China and Switzerland [2, 7, 8]. A significant decline in public acceptance of nuclear power plants shortly in above countries after the Fukushima disaster were observed.

Apparently, the Fukushima disaster was a critical catalyst triggering the suspicion on global energy policies. Although many countries continuously taking nuclear energy as important energy options, others have decided to look for more sustainable and greener energy. Efficient and renewable energy while tackling global warming and climate change will continue to be on the political agenda in each country.

Two of Taiwan's nuclear power plants were mentioned on Nature as the top three most dangerous nuclear power plants in the world [9]. The construction of its 4th nuclear power plant in Taiwan had been shown an expensive and controversial project, neighboring the most populated metropolitan capital city Taipei of the island country. Shortly after the Fukushima disaster, a study conducted in Taiwan showed a significant decline in public acceptance of nuclear energy and a much higher perceived risk concerning high mortality associated with nuclear accidents [3]. As a consequence of fierce opposition, Taiwan's government announced closure of its yet completed 4th nuclear power plant and phasing out nuclear operation in 2025.

These consequences also extended to byproducts of the accidents, the uneasiness toward the radio-contaminated farm lands and the foods produced years later. Debates aroused on lifting total ban on food products produced by Fukushima and other neighboring prefectures with significant contamination 5 years after the disaster in Taiwan [10]. Regardless of the estimated risk of exposure from food products in Japan was minimal, risk perception towards these foods remained unexpectedly high. It be useful to further on the risk perception and communications years following a nuclear accident.

In reflection on the issues addressed in the article by Wakeford, it is recommended that government should take public risk perception into consideration in the process of decision making on future energy policy. Future research can explore broader topics such as disposal of nuclear waste, food safety regarding radioactive contamination, and alternative energy in the post-nuclear era.

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