

Scientific Uncertainty And The Popular Will
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By Chan Chee Khoon

Prime Minister Najib Abdul Razak has declared that "the government will not allow the Lynas rare earth plant in Gebeng, Kuantan, to operate if scientific evidence proves that the plant is harmful to people's health and the environment" (Malaysian Mirror, 22 March 2012).

Central to these discussions are the 'safe thresholds' of 1 mSv/year (public) and 20 mSv/year (occupational) that Dr Che Rosli Che Mat (MP, Hulu Langat), Dr Looi Hoong Wah (Kuantan physician), Lynas, AELB, and IAEA have repeatedly invoked. These 'safe thresholds' are derived from ICRP (International Commission on Radiological Protection) risk models which are currently under critical scrutiny and challenge, in the wake of excess childhood leukemias near nuclear power plants that can't be explained by radiation exposures which are much below the 'safe thresholds'.

Most recently, two large epidemiological studies in Germany (KiKK, 2008) and France (Geocap, 2012) have reported statistically robust findings of a doubling of leukemia risk for children living less than 5 km from a nuclear power plant, where radiation exposures were much below the 1 mSv/year 'safe threshold'.

Could the excess leukemias be due to inhaled or ingested radioactive particulates (internal emitters) not satisfactorily accounted for in ICRP's risk models? (ICRP's quantitative risk models were calibrated against external sources of irradiation, most importantly, the Hiroshima/Nagasaki atomic bomb blasts along with their long-term effects on survivors). A UK expert panel (2004, www.cerrie.org) could not arrive at a consensus regarding the health risks of low level exposure to these internal emitters. Opinions among the UK panel members ranged from negligible adverse effects to an underestimation of risk by at least a 100 fold.

Could the excess leukemias be due to electromagnetic radiation from high voltage power cables linked to the nuclear power stations? Or to population mixing and vulnerability to infectious agents suspected of causing leukemia? (Kinlen hypothesis). Nobody can be sure at this point. While most sides agree that there is excess occurrence of childhood leukemias in the vicinity of nuclear power plants and nuclear reprocessing facilities, there is much less consensus on the likely cause(s) of these excess leukemias.

Even as the scientific and research community continues their debates over this, Angela Merkel has bowed to the popular will (and to the precautionary principle) to phase out nuclear power plants in Germany.

Will Prime Minister Najib and the Malaysian government likewise allow the popular will to prevail in Kuantan, where the safety of Lynas' operations is similarly contestable?

Beyond the scientific evidence (and its currently ambiguous status), the Prime Minister is also aware that the collateral damage on the local economy and on livelihoods, driven by the community's risk perception and its risk aversion, cannot be simply wished away.

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