THE CHERNOBYL DEATH TOLL

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Nuclear advocates sometimes claim that the death toll from the April 1986 Chernobyl nuclear disaster was 30-60 deaths. Such claims are ill-informed and/or misleading.

It is widely acknowledged that it is difficult for epidemiological studies to demonstrate statistically-significant increases in cancers or other pathologies caused by Chernobyl fallout for various reasons such as the relatively high incidence of the diseases, the latency period of cancers, and limited data on disease incidence. However, the difficulty of demonstrating the impacts is no reason to ignore them.

The Uranium Information Centre (2004) states that a "greater, though not statistically discernible" incidence of leukaemia and other cancers is expected as a result of Chernobyl fallout. There is little expectation, however, of statistically-significant results. Further, when statistically-significant results are obtained, explanations other than Chernobyl can easily be suggested. For example, it is widely accepted that Chernobyl fallout has caused about 1800 cases of thyroid cancer but it has also been suggested that the rapid increase in detected thyroid cancers may be in part an artefact of the screening process (Uranium Information Centre, 2004). Likewise, a study attributing over 800 cancers in Sweden to Chernobyl fallout has been disputed (Anon., 2004). Another example is a debate over increased rates of infant leukaemia in several countries (Low Level Radiation Campaign, n.d.).

Some of the difficulties were described by Elizabeth Cardis (1996) from the International Agency for Research on Cancer: "Although some increases in the frequency of cancer in exposed populations have been reported, these results are difficult to interpret, mainly because of differences in the intensity and method of follow-up between exposed populations and the general population with which they are compared. ... The total lifetime numbers of excess cancers will be greatest among the 'liquidators' (emergency and recovery workers) and among the residents of 'contaminated' territories, of the order of 2000 to 4600 among each group (the size of the exposed populations is 200,000 liquidators and 6,800,000 residents of 'contaminated' areas). These increases would be difficult to detect epidemiologically against an expected background number of 41,500 and 800,000 cases of cancer respectively among the two groups."

Given the limitations of epidemiological studies, the only way to arrive at an estimate of the total numbers of cancers caused by the radioactive fallout from Chernobyl is to estimate the total collective dose and to apply standard risk estimates. Thus the IAEA (1996) estimate of a collective dose of 600,000 person-Sieverts over 50 years from Chernobyl fallout can be multiplied by a standard risk estimate of 0.05 fatal cancers per person-Sievert to give a total estimate of 30,000 fatal cancers. (The study by the US National Research Council (2005) lends weight to the Linear No Threshold model upon which the risk estimate is based.)

UN reports in 2005-06 estimated up to 4000 eventual deaths among the higher-exposed Chernobyl populations (emergency workers from 1986-1987, evacuees and residents of the most contaminated areas) and an additional 5,000 deaths among populations exposed to lower

doses in Belarus, the Russian Federation and Ukraine (Chernobyl Forum, 2005; WHO, 2006.)

The estimated death toll rises further when populations beyond those three countries are included. For example, a study by Cardis et al (2006) reported in the International Journal of Cancer estimates 16,000 deaths. Dr Elisabeth Cardis (2006b), head of the IARC Radiation Group, said: "By 2065 (i.e. in the eighty years following the accident), predictions based on these models indicate that about 16,000 cases of thyroid cancer and 25,000 cases of other cancers may be expected due to radiation from the accident and that about 16,000 deaths from these cancers may occur."

Other studies estimate a still higher death toll. UK radiation scientists Dr Ian Fairlie and Dr David Sumner (2006) estimate 30,000 to 60,000 deaths.

A 2006 report commissioned by Greenpeace estimates a death toll of about 93,000. According to Greenpeace (2006): "Our report involved 52 respected scientists and includes information never before published in English. It challenges the UN International Atomic Energy Agency Chernobyl Forum report, which predicted 4,000 additional deaths attributable to the accident as a gross simplification of the real breadth of human suffering. The new data, based on Belarus national cancer statistics, predicts approximately 270,000 cancers and 93,000 fatal cancer cases caused by Chernobyl. The report also concludes that on the basis of demographic data, during the last 15 years, 60,000 people have additionally died in Russia because of the Chernobyl accident, and estimates of the total death toll for the Ukraine and Belarus could reach another 140,000."

While the Chernobyl death toll is subject to uncertainty, the broader social impacts are all too clear, including those resulting from the permanent relocation of about 220,000 people from Belarus, the Russian Federation, and the Ukraine.

As the OECD's Nuclear Energy Agency notes, Chernobyl "had serious radiological, health and socio-economic consequences for the populations of Belarus, Ukraine and Russia, which still suffer from these consequences."

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