

Clinging to the nuclear energy option is a reckless denial of reality

Besides its unacceptable lasting effects on public health, even if operating normally (see section 3 below), nuclear energy technology cannot be financed by private capital. The nuclearpower industry holds citizens hostage to protect its profits. The industry's safety claims and newlabel of "safer design" is largely a cynical hoax. PSR's commitment [wherever PSR is first mentioned, it should be spelled out as Physicians for Social Responsibility, since this text is no longer meant to be a PSR publication] to protect public health translates into demanding the de-commissioning of all currently operating nuclear plants and for the taxpayers to refuse to subsidize the construction of new ones with guaranteed loans and liability insurance premiums. Why? Here is the scientific/common sense justification for such an uncompromising position:

1. After the accident at the TMI plant, the official Columbia U. study found no increased health effects among the surrounding population, consistent with the officially accepted exposure levels as estimated by the TMI plant operators and applying the internationally accepted radiation risk factors, derived from the long-term follow-up of the *externally* exposed A-bomb survivors. Contradicting these findings, a subsequent study by Wing et al [<http://ehp03.niehs.nih.gov/article/fetchArticle.action?articleURI=info%3Adoi%2F10.1289%2Fehp.9710552#Full%20Text>] found statistically significant excess cancers. These cancers affected the lives of real and documented persons. Yet, Wing's results were angrily dismissed by the radiation establishment because "current radiological science" presumably precluded that the officially adopted low levels of population doses released from the TMI reactor, as provided by the power plant operators, could induce the observed excess cancers. The possibility that combining flawed dose estimates with flawed risk models could predict numbers, off by several orders of magnitude (factors of ten), was never considered.

Following a tradition illustrated nearly 400 years ago by Galileo's fate, accepted beliefs and supporting theoretical models , combined with vested interests, trumped observation. Questioning assumptions in adopted radiobiological models and radiation risk assessments would be equivalent to heresy.

2. All over the former Soviet Union increased incidence of cancers and a multiplicity of other

serious health detriment, associated with varying levels of environmental radioactivity from the Chernobyl disaster, have been documented by clinical reports and public health statistics. Until recently, the majority of these studies, however, could only be published in Russian scientific/medical journals and those were deliberately ignored by the Western radiation health establishment. Instead, the nuclear technology promoting UN agency IAEA (the WHO is not permitted to conduct independent studies on radiation health) published report after report with estimated numbers of Chernobyl radiation victims that are orders of magnitude smaller than those observed and documented in the recently published compendium of many of these data in English (Yablokov et al., Annals of the NY Academy of Sciences, 2009 [if it is now available either in print cheaply or as a pdf file, include the info here], summarized by IPPNW, the German equivalent of PSR in [http://www.chernobylcongress.org/fileadmin/user_upload/pdfs/chernob_report_2011_en_web.pdf]). The official UN scientific committee UNSCEAR accepted IAEA assertions of very low numbers of radiation victims, purportedly based on the world's most reliable current radiobiological and radiation risk models. Thus, mainstream radiation health scientists proclaim that the large numbers of radiation-associated health effects after the Chernobyl catastrophe “cannot” be caused by radiation, rather they must be the result of psychosomatic traumas.

In far away Western European countries for which UNSCEAR estimated very low fallout doses, a multitude of excess health effects, such as neo-natal mortality, Down's syndrome, lowering of child IQ were found following the Chernobyl explosion. There is an extensive literature of these studies. However, UNSCEAR dose estimates and accepted notions of radiobiological science deny any causal relationship between Chernobyl fallout and documented observations. Vested interests, cherished theoretical models, mixed with intolerable arrogance again trump reality.

3. Several years ago, the German government commissioned a team of prestigious government-employed health scientists to design a state-of-the-art study of children <5 years who lived in the proximity of any of the 16 German normally operating nuclear power reactors. Presumably, the study was meant to assuage continued citizens' concerns about observed childhood leukemia clusters around some of these reactors with maximum credibility. Therefore, to my knowledge, it is the only government-sponsored radiation study ever that was designed

with full input from and oversight by an independent scientific commission, including several members who had publicly supported the citizens' concerns. Contrary to their expectations, the government scientists found irrefutable evidence that for <5 year old children there exists an association between residence within 10 km of any of these reactors and a more than doubling of risk for contracting leukemia or other cancers. This amazing finding caused quite a stir in the German media (and remains underreported and unacknowledged in the US), but it has never been credibly refuted. Some defensive studies with negative outcomes around power reactors in France and England claim to have cast doubt on the German results, but critical analysis shows them to lack the necessary statistical power (i.e. sensitivity) to invalidate the German findings. Desperate for an "out," the government researchers, the health agencies involved and the German government then declared these excess cases of early childhood leukemia and cancers in the proximity of nuclear plants to be "inexplicable." To initiate such malignancies mainstream radiobiological models would require levels of radioactive emissions to be three orders of magnitude larger (1,000 times) than what the reactor operators claimed to have been released. In fact, the officially admitted emissions ignored, e.g., large releases of radioactive Noble Gases (e.g. Krypton) and of Tritium (radioactive hydrogen). The latter easily enters the liquid and solid food chain. Most importantly, the traditional measure of radiation exposure, the concept of *dose* (absorbed energy averaged over a unit mass of human tissue), is a macroscopic concept, clearly inadequate to describe a variety injurious microscopic cellular/molecular mechanisms that can be triggered by internally lodged radioactivity. In addition, officially accepted radiation risk factors do not take into account the extreme radio-sensitivity of the developing fetus and of very young children (R.H. Nussbaum [<http://www.ijoe.com/index.php/ijoe/article/view/1151>] and I. Fairlie, [<http://dx.doi.org/10.1080/10590500903585366>]).

Those who deny or deceptively play down the catastrophic threats to public health from all phases of the nuclear power cycle, from mining to permanent disposal of deadly toxic nuclear waste, recklessly ignore the medical/scientific lessons we have learned from current and previous nuclear accidents. The international radiation health science establishments, such as IAEA or ICRP, many of whose members are solidly enmeshed with nuclear arms and nuclear energy production, have for decades deliberately ignored observed detriment from radioactive emissions. Their estimates of the public health impact from environmental radioactivity are

based on partially outdated and inappropriate theoretical models that had been developed decades ago to quantify exposures to external radiation, such as those suffered by the Japanese A-bomb survivors. In agencies that are mandated to protect public health a mindset that denies reality is intolerable.

It is particularly tragic that the current Japanese population is again a study cohort for the devastating effects of a very different mix of environmental radioactive contamination.

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