

ippnw bulletin

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international physicians for the prevention of nuclear war - physicians for social responsibility



On 26 April 1986 block 4 of the Chernobyl nuclear power station exploded. The world witnessed the biggest catastrophe ever to occur in a nuclear power station. Today; untold numbers of people suffer, and will continue to suffer, from the effects. Scientists are still trying to grasp the true extent of the suffering.

The catastrophe in Chernobyl affected and continues to affect approximately nine million people. An area of about 162,000 km² was contaminated and an estimated 400,000 people had to be relocated. According to UN organisations such as the IAEA and the governments of Russia, Belarus and Ukraine, the file on Chernobyl can be closed. Poverty, an unhealthy lifestyle and mental disorders allegedly constitute a far greater threat than radiation. Restricted areas are to be reintegrated into the economic income flow as soon as possible, and it has even been suggested that a tourist programme be developed for the prohibited area. Plans are afoot for a new nuclear power station in Belarus – so the government would rather not talk about the health risks of nuclear energy.



In fact, a comprehensive and objective estimate of effects on health is almost impossible, particularly as research during the first years following the accident was hindered by secrecy regulations. The actual amount of radioactive radiation that was released is also not known with any degree of certainty. According to the official Soviet version, this was 50 million Curie, but other experts estimate it to have been more like five billion Curie. The amount of radiation which people were exposed to is also unclear. The composition of the radioactive cloud as a result

of the catastrophe varied from day to day. Whereas some areas were exposed to a lot of radiation, others received little. Moreover, the radionuclides varied: iodine 31 is known to cause thyroid cancer and is only active for a few weeks; plutonium on the other hand lasts for tens of thousand of years. In the weeks immediately following the explosion, the “combined” radiation exposure was a thousand times higher than it was in subsequent months.

“Despite these elements of uncertainty, independent experts have put the figure

for the total number of deaths throughout the world at between 900,000 and 1.8 million. As the nuclides from Chernobyl remain in the biosphere, this figure also includes those who will die in the future,” explained Alexey Yablokov, member of the Russian Academy of Sciences. IAEA put the number of deaths due to the nuclear disaster at under 50. Even now, a quarter of a century after the Chernobyl catastrophe, its effects are still being suppressed, hushed up, played down and trivialised.

The health legacy of Chernobyl

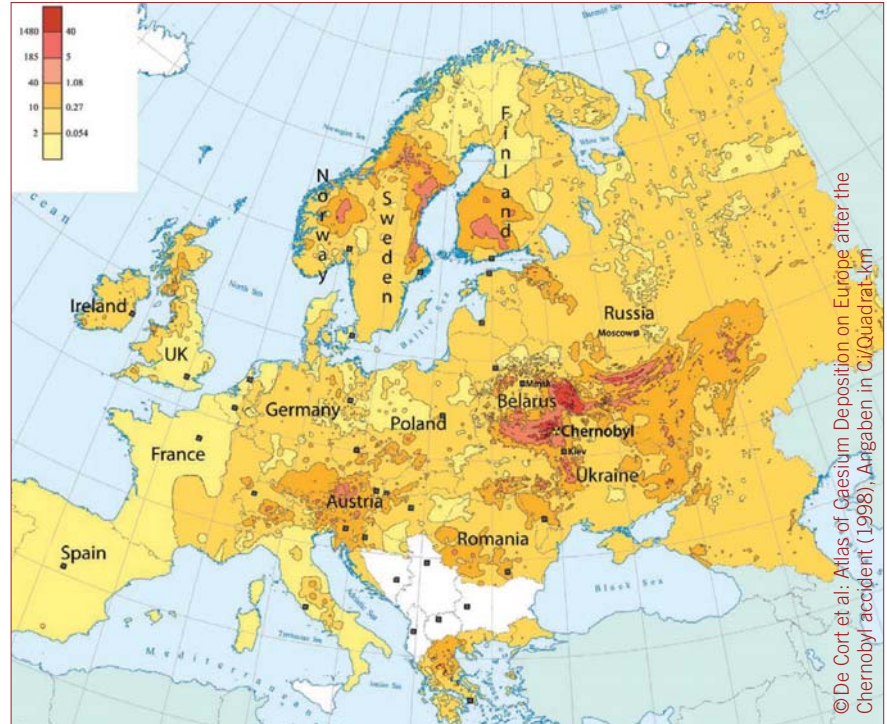
Health damage due to ionising radiation

In Belarus, Ukraine and Russia, the three countries most affected by the catastrophe in Chernobyl, a number of medical research centres were set up from 1986 onwards that still conduct regular examinations on large parts of the population that were exposed to radiation: the liquidators (clean-up workers); the population of the highly contaminated areas, as well as those evacuated from it; and the children of parents who were exposed to radiation. In a book published in 2009, Prof. Yablokov collated numerous facts and test results on the health and ecological effects of the Chernobyl catastrophe. A total of 49 international scientists were involved in revising his first book, which was published in 2006.

Scientists noticed a number of very disturbing trends, in particular with regard to the state of health of the liquidators and those who had been evacuated, as well as among the children of parents who had been exposed to radiation. Examinations conducted by the authorities show a snowballing of almost all types of illnesses in the first ten years following the catastrophe. Thus, they found a rapid rise in somatic disorders of almost all systems of the body and organs, such as a weakening of the immune system, severe cardiovascular diseases with patients dying at a relatively young age (heart attacks, cerebral haemorrhages), chronic intestinal diseases, chronic diseases of the thyroid gland and the pancreas, as well as neurological psychiatric disorders as a direct result of low-level radiation. In recent years similar effects have also emerged from research on Hiroshima.

Consequences for the whole of Europe

Between April 16 and May 5 1986, a 200,000-km² area of Europe was heavily contaminated with ionising radiation. Changing wind directions drove the clouds, which were loaded with fallout from Chernobyl, first into Scandinavia, then over Poland, the Czech Republic, Austria, southern Germany and northern Italy. The destination of a third cloud was the Balkans, Greece and Turkey. In Europe there were increases in perinatal mortality, stillbirths (5,000 excess infant



deaths), malformations (10,000 in Europe alone) and cancers; there were also gender effects and fewer births.

For Europe alone, Dr. Mikhail Malko, radiation physicist from Minsk, calculated that there have been 90,000 cases of cancer due to Chernobyl. Significant increases in respect not only of thyroid gland diseases have been found, which were particularly noticeable, but also of the many cases of leukaemia and breast cancer, as well as considerably more brain tumours among children. Initially, because a child's thyroid gland is particularly receptive, thyroid cancer only occurred among the children. But after 1990 there was also a noticeable increase of thyroid cancer among adults. This is because cancer is caused not only by radioactive iodine, but also by tellurium, caesium and other nuclides.

Although the International Atomic Energy Agency (IAEA) and the World Health Organisation (WHO) acknowledge the increased rate of thyroid cancer, they continue to ignore the fact that the disease also affects adults in Russia, Belarus and Ukraine, as well as those eastern and western European countries that were particularly hard hit by Chernobyl fallout. The IAEA absolutely refuses to acknowledge that there was any Chernobyl fallout in these countries.

The organisation also continues to deny

that there is a connection between ionising radiation and malformations. In accordance with an agreement made between the IAEA and the WHO in 1959, the World Health Organisation is bound to the nuclear agency with regard to the subject of radioactivity.

Whereas the IAEA sees no scientific evidence either for increased incidence or cancer mortalities, or for non-malignant health disorders, as a result of radiation exposure, Yablokov refers to drastically different data from the liquidators' organizations. From a group of 830,000 helpers, there were between 112,000 and 125,000 deaths among liquidators alone. The average life expectancy of those who died was 43 years. Today, 94% of the clean-up workers are sick, mainly with non-cancerous diseases.

Genetic defects

The public hears little about non-cancerous diseases, nor do they hear much about the genetic effects of Chernobyl radiation exposure. The number of people affected is high and politicians would like to avoid the possibility of these kinds of health disorders also having to be recognised as radiation-related occupational illnesses in entirely different contexts. It is known that a mere 10% of expected genetic defects occurs in the first generation.

This means that 90% of the genetic problems are still to occur. What is the reason for this?

It has been known since the 1970s that ionising radiation not only causes cancer, but that it also causes genetic defects. These defects can already be triggered by even the most minor doses. Recent years have seen a number of significant new research findings – non-target effects, genomic instability and the bystander-effect. These effects have fundamentally changed previous perceptions of the mechanisms involved in radiation damage, even though they have not been explained down to the last detail.

Not only is genomic instability passed on in the genes, it also increases exponentially with each generation. Scientists are already familiar with this phenomenon from the leukaemia cases in Sellafield, as well as from the research centres of the countries affected by the Chernobyl catastrophe where chromosome aberrations were found in the children of liquidators, as well as in mothers who had not been exposed to radiation.

In basing its assessment of the radiation risk almost exclusively on data from Hiroshima and Nagasaki, the International Commission on Radiation Protection (ICRP) applies a short-term external radiation model. However, the research into Chernobyl examines the effects of chronic exposure to radiation, as well as chronic internal radiation exposure after incorporating radionuclides.

Other recent findings

In a study published in 2006, Vladimir Bebeschko and Konstantin Loganovsky show that ionising radiation also speeds up the aging process. These are medical conditions such as accelerated aging of blood vessels – especially in the brain, arterial sclerosis of the blood vessels in the fundus oculi (concave back of the eye), cataracts, loss of higher intellectual cognitive abilities owing to central nervous system damage, or the loss of stability in the anti-oxidant system. “Not only liquidators, but

also other people who suffered severe radiation exposure look five to seven years older than their passports say they are,” explains Yablokov.

So far, official scientific discussions on the topic of Chernobyl have been less than productive. International committees such as IAEA and the WHO are minimising the effects of Chernobyl. They are ignoring or refusing to acknowledge important research work carried out in Russia, Belarus and Ukraine – the three countries that were mainly affected – by experienced experts, by doctors who are confronted every day with children and adults damaged by radiation. What is now urgently needed is a far more intensive degree of collaboration between scientists and doctors from both East and West. A simple but necessary aspect of this is the material and nonmaterial commitment to overcoming language barriers.

As long as no exact results are available, any resettlement and tourism plans for the area would be irresponsible. In the restricted area there is, for example, plutonium 241 which has a half-life of 14 years, and this decays to americium 241, with a half-life of 432 years, even more toxic than plutonium. Even if tourists were only to be allowed into the less affected areas, the degree of radiation exposure through wind or forest fires cannot be reliably estimated.

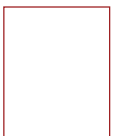
Chernobyl in Germany?

After Chernobyl there has been much reflection on the effects that a nuclear disaster in a German nuclear power station might have. This has taken such facts as the 7–10fold population density and, at worst, the considerably higher radioactive fallout in an area of several hundred kilometres. It has been estimated that a total of between 1.2 and 12 million people could die as a result. In the German risk assessment on nuclear power stations (Deutschen Risikostudie Kernkraftwerke), the analysis of scenarios for possible accidents maintained that it was possible that some areas would be exposed to higher levels of radiation than had been reported from Chernobyl. The only protection from the residual risk of a nuclear disaster is the immediate halt to all use of nuclear energy and a 100% changeover to renewable energies.

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www.iapnw.eu



Four horizontal lines for an address.

IPPNW Germany has updated its 2006 Report „Health Effects of Chernobyl“ with new information on the effects of the reactor catastrophe 25 years ago on people and the environment. You can order a copy here: <http://shop.ippnw.de>



DO SOMETHING!

Send the postcard below to a decision maker or a friend...

...and ask them to join you in opposing nuclear power.

Or invite them to join you at an action in your local town or city to protest against the continued use of nuclear power and calling for a changeover to renewables.

You can call on your government to learn the lessons from Chernobyl and Fukushima: nuclear power is too dangerous to be used to provide electricity and also provides the basis for making nuclear weapons.

Change your electricity supplier to one that only offers energy from renewable sources.

Change your bank to one that doesn't invest in nuclear energy.

Inform yourself ...

...IPPNW Germany is hosting a congress in Berlin, April 8-10 2011. Join us for this congress or read the proceedings online at: www.chernobylcongress.org

...Take a look at our IPPNW European webpage with news and views from all the IPPNW affiliates in Europe on the abolition of nuclear weapons, nuclear energy and security, the prevention of war and social responsibility, at www.ippnw.eu

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**25 years since Chernobyl, now Fukushima:
Time to abandon nuclear energy!**

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