

20 YEARS LATER



P. Pellerin

*The damaged
Chernobyl plant
in 1992.*

about 50 percent lower than in the average male population of England and Wales (Berrington et al. 2001).

Also, in many other population groups which were exposed to low doses of ionizing radiation, a deficit of neoplastic malignancies was observed.

Worst Harm Was to Minds

Thus, perhaps surprisingly, one can say that the worst harm to the people exposed to the Chernobyl fallout was caused not by radiation, and not to flesh, but to *minds*.

In terms of human losses (31 early deaths), the accident in the Chernobyl nuclear power plant was a minor event, when compared with many other industrial catastrophes. There were more than 10 such catastrophes in the 20th Century, where several hundreds to many thousands died. For example: In 1984, about 20,000 people perished after an explosion at a pesticide factory in Bhopal, India. In 1975, a collapse of the Banqiao dam on the Ru River in China caused 230,000 fatalities. The world does not celebrate the anniversaries of these terrible man-made disasters, but year after year we do so for the Chernobyl accident, which was thousands of times less deadly.

And if we look at accidents related to the electricity-production sector alone, the early fatalities in Chernobyl were lower than those from a majority of other energy sources. They were 3 times lower than fatalities from oil-fired power stations, 13 times lower than those from liquefied gas, and 15 times lower than from hydroelectric stations (not including the Banqiao disaster).

But the political, economic, social, and psychological impact of Chernobyl was enormous. Let's look at what happened, starting with my personal experience.

The Real Chernobyl Folly

by Zbigniew Jaworowski

A preeminent scientist from Poland tells the real story of Chernobyl today, in contrast to the wild lies in most of the media.

Ten days after steam and hydrogen explosions blew up the Chernobyl nuclear reactor, the fire that melted its core died out spontaneously. But the drama of this catastrophe still flourishes, nourished by the politics, authorities, media, and interest groups of ecologists, charity organizations, and scientists. It lives in the collective memory of the world, and induces real health, social, and economic harm to millions of people in Belarus, Russia, and Ukraine. It is intensively exploited by the Greens, and strangles development of the cleanest, safest, and practically inexhaustible energy source—nuclear energy.

Enormous amounts of radioactive dust entered the air from the burning reactor. Nevertheless, this amount of radioactivity was only 0.5 percent of that from all the 543 test nuclear warheads exploded in the atmosphere in past decades. From these test explosions, the highest radiation dose received by the world population was in 1963, 0.113 millisievert (UNSCEAR 2000). In comparison, the radiation dose from the Chernobyl dust received by the inhabitants of the Northern Hemisphere during the first year after the 1986 accident, was 0.045

mSv; that is, less than 2 percent of the average annual natural dose (2.4 mSv per year) (UNSCEAR 1988).

During the next 70 years, this population will be exposed to a total radiation dose from Chernobyl of about 0.14 mSv, or 0.08 percent of the natural lifetime dose of 170 mSv. People living in the most contaminated areas of the former Soviet Union are now exposed to an average Chernobyl dose of about 1 mSv per year.

But all these doses are dwarfed in comparison with natural radiation doses in some parts of the world. For example, in Brazil and southwestern France, natural radiation reaches up to more than 700 mSv per year (UNSCEAR 2000). No harmful health effects have ever been detected in areas with such high natural background radiation. Rather the opposite: In the United States and in China, the incidence of cancers is lower in regions with higher natural radiation than in areas of low natural radiation. (Frigerio et al. 1973; Frigerio and Stowe 1976; Wei 1990).

Among British radiologists who are exposed mainly to X-rays, mortality from all causes and from cancer is

My Chernobyl Experience

About 9 A.M. on Monday, April 28, 1986, at the entrance of my Institute in Warsaw, I was greeted by a colleague who said: "Look, at 7:00 we received a telex from a monitoring station in northern Poland saying that the beta radioactivity of air is 550,000 times higher there than the day before. I found a similar increase in the air filter from the station in our backyard, and the pavement here is highly radioactive."

This was a terrible shock. My first thought was: "A NUCLEAR WAR!" It is curious that all my attention was concentrated on this enormous rise of air radioactivity, although I knew that the dose rate of external gamma radiation penetrating our bodies, on this first day after the Chernobyl accident, was higher only by a factor of 3 than the day before, and was similar to the average natural radiation dose, which for time immemorial human beings have all received from the ground and cosmic radiation.

But in 1986, the impact of a dramatic increase in atmospheric radioactivity dominated my thinking, and that of everybody else. This state of mind led to immediate consequences. First there were various hectic actions, such as the ad hoc coining of different limits for radionuclides in food, water, and so on. These limits varied by a factor of many thousands in different countries, reflecting the emotional state of decision-makers, and political and mercenary factors. For example:

Sweden allowed 30 times more radioactivity in imported vegetables than in domestic ones, and Israel allowed less radioactivity in food from Eastern Europe than food from Western Europe. The Philippines imposed a limit of concentration for cesium-137 in vegetables of 22 becquerels per kilogram, which was 8,600 times lower than in the more pragmatic United Kingdom. In Poland, a group of nuclear physicists and engineers proposed a cesium-137 limit of 27 Bq in 1 kilogram of any food, but, fortunately, the authorities decided more soberly.

Most of these restrictions were meaningless from the point of view of human health, but their costs were enormous. As an example, Norwegian authorities introduced a limit for cesium-137 concentration in reindeer meat and game of

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600 and then 6,000 Bq per kg (Henriksen and Saxebol 1988). An average Norwegian eats 0.6 kg of reindeer meat per year. With the higher limit, the radiation dose from this meat would be 0.047 mSv per year. Thus this measure was aimed to protect Norwegians against a radiation dose that is about 200 times *lower* than the natural dose in some regions of Norway (11 mSv per year). The costs of this protection climbed to more than \$51 million.

Other countries were no better. Professor Klaus Becker, from the German Institute for Standards, estimated recently that this kind of practice, together with its consequences for the nuclear industry, meant that the costs of the Chernobyl accident in Western Europe probably exceed \$100 billion.

Unnecessary Evacuation

The most nonsensical action, however, was the evacuation of 336,000 peo-

ple from the contaminated regions of the former Soviet Union, where the radiation dose from Chernobyl fallout was about twice the natural dose. Later, the radiation dose limit at which people were evacuated was decreased even to below the natural radiation level, to some five times lower than the natural radiation at Grand Central Station in New York City. (Grand Central's radiation comes from the natural radiation in its granite building blocks.)

Contaminated regions in the former Soviet Union were delimited, starting with a level of radioactive cesium-137 in the ground of 37 kBq per square meter. The radiation dose received from this source was about 1.6 mSv during the first year after the Chernobyl accident; the lifetime dose (after 70 years) from this source will reach 6 mSv. Note that this radioactivity level is 10 times *lower* than the average content of about 37 natural radionuclides present in a 10-cm thick layer of soil (400 kBq per square meter), and the corresponding Chernobyl lifetime radiation dose is 28 times *lower* than the average natural lifetime dose.

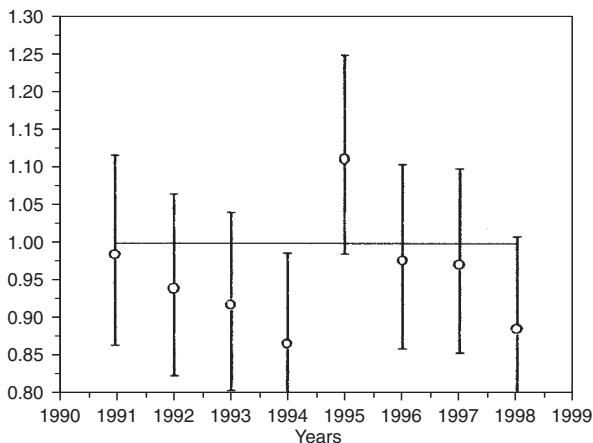
The evacuation caused a great harm to the populations of Belarus, Russia, and Ukraine. It led to mass psychosomatic disturbances, great economic



IAEA

Ukrainian children involved in an epidemiological study by the International Atomic Energy Agency in 1990-1991.

Standard incidence ratios

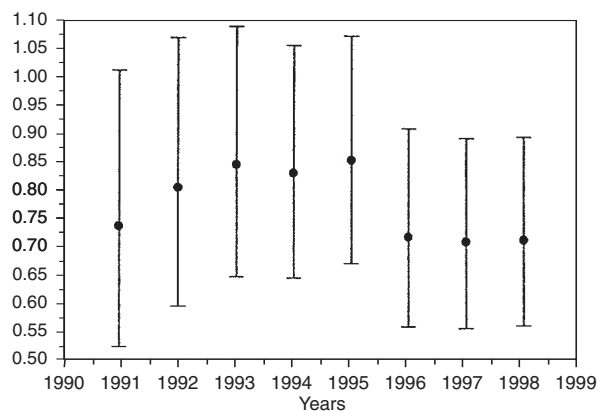


STANDARD INCIDENCE RATIOS FOR ALL SOLID CANCERS IN BRYANSK REGION

The average standard incidence ratios for solid cancers in the Bryansk region (open dots) was 5 percent lower than that of the general population in Russia, which was used as a control group (1.0—horizontal line). In the most exposed group in the Bryansk region (with a mean radiation dose of 40 mGy), the average was 17 percent below the control group.

Source: Ivanov et al., 2004

Standard mortality rate



STANDARD MORTALITY RATE FOR SOLID CANCERS AMONG CHERNOBYL EMERGENCY WORKERS

The standard mortality rate among Russian emergency workers at Chernobyl (black dots) shows a deficit in solid cancers compared with the general population of Russia, which was used as a control group (1.0). Between 1990 and 1999, cancer mortality for the emergency workers was 15 to 30 percent less than that of the general population as a whole.

Source: Ivanov et al., 2004

losses, and traumatic social consequences. According to Academician Leonid A. Ilyin, the leading Russian authority on radiation protection, the mass relocation was implemented by the Soviet government under the pressure of populists, ecologists, and self-appointed specialists, against the advice of the best Soviet scientists.

In addition to the 28 fatalities among rescue workers and the employees of the power station, caused by very high doses of radiation, and 3 deaths that were due to other reasons, the only real adverse health consequence of the Chernobyl catastrophe among about 5 million people living in the contaminated regions is epidemics of psychosomatic diseases: diseases of the digestive and circulatory systems, and other post-traumatic stress disorders, such as sleep disturbance, headache, depression, anxiety, escapism, learned helplessness, unwillingness to cooperate, overdependence, alcohol and drug abuse, and suicides.

The Radiophobia Disaster

These diseases and disturbances were not caused by irradiation from

Chernobyl fallout, but by *radiophobia* (an irrational fear of radiation), aggravated by wrong administrative decisions, and even by increased medical attention. Paradoxically, such attention leads to diagnosis of subclinical changes that persistently attract the attention of the patient.

The administrative decisions made caused several million people to believe that they are the victims of Chernobyl, although the average annual radiation dose they received from Chernobyl radiation is only about one-third of the average natural dose. This victimization was the main factor behind the economic losses caused by the Chernobyl catastrophe, which are estimated to have reached \$148 billion by 2000 for the Ukraine, and to reach \$235 billion by 2016 for Belarus.

In Western Europe, psychological factors, and the neglect of radiological protection in the curriculum of medical studies, probably led to the abortion of some 100,000 to 200,000 wanted pregnancies, soon after the accident, where physicians wrongly advised patients that Chernobyl radiation posed a health risk

to unborn children (Ketchum 1987).

In 2000, the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR), the most authoritative body in these matters, and in 2006, the United Nations Chernobyl Forum (a group composed of representatives of eight U.N. organizations, the World Bank, and the governments of Belarus, Russia, and Ukraine), stated in their documents that except for thyroid cancers, there was no increase in the incidence of solid cancers and leukemia, and no increase in genetic diseases observed in the highly contaminated areas.

The Screening Effect

I believe that the increased incidence of thyroid cancers is the result of a screening effect. The reported increase in observed thyroid cancers in children was first observed in the Bryansk region (Russia) already in 1987, only one year after the accident, which is too early to be in agreement with what we know about radiation-induced cancers. The maximum incidence of these cancers (0.027 percent) was observed also in the Bryansk region, in 1994.

In normal populations, there is a very high incidence of occult thyroid cancers (those with no clinical symptoms, which are discovered at the post mortem, or by the use of USG diagnostic tests). In the United States, 13 percent of the population have occult thyroid cancers; the figures are 28 percent in Japan, and 35 percent in Finland. In Finland, occult thyroid cancers are observed in 2.4 percent of children (Harach et al. 1985); that is, some 90 times more than the maximum found in the Bryansk region in 1994.

According to regulations of the Belarusian Ministry of Health, the thyroids of all persons who were less than 18 years old in 1986, and also of each inhabitant of contaminated areas, must be screened every year (Parshkov et al. 2004). More than 90 percent of the children in contaminated areas are now screened for thyroid cancers every year. It is obvious that such a vast-scale screening program resulted in finding the occult cancers.

Lower Mortality

Data published by Ivanov et al. (2004) and cited in the Chernobyl Forum documents (Forum 2005; Forum 2006) show a 15 to 30 percent *lower* mortality among the Chernobyl emergency workers, and a 5 percent lower average solid cancer incidence among the people in the Bryansk district (the most contaminated area in Russia) in comparison with the general Russian population (see figures).

In the most exposed group of this population (those receiving a dose of 5 mSv per year), there was a 17 percent lower incidence of all solid cancers. Nor did the incidence of hereditary disorders increase. These data, rather than a linear no-threshold, or LNT, assumption (see below) provide a good basis for a realistic projection of the future health of millions of people officially labelled as Chernobyl victims. The final conclusion of the UNSCEAR 2000 report is that these people need not live in fear of serious health consequences, and the report forecasts that generally positive prospects for the future health of most individuals should prevail.

The Chernobyl Forum Assessment

The publications of the United Nations Chernobyl Forum present a mostly balanced overview of the



IAEA

A Russian woman takes her food to be checked for radiation during the epidemiological study of the International Chernobyl Project in 1990-1991.

Chernobyl health problems, with three important exceptions. First, the documents ignore the problem of occult thyroid cancers, downplaying the screening effect, and attributing most of the thyroid cancers to radiation.

The second exception is the problem of patients with acute radiation disease. From among 134 persons with this disease, who were exposed to extremely high radiation doses, 31 died soon after the accident. Among the 103 survivors, 19 have died up to the year 2004, mostly from such disorders as lung gangrene, coronary heart disease, tuberculosis, liver cirrhosis, fat embolism, and so on, which can hardly be defined as caused by ionizing radiation.

Nevertheless, the Chernobyl Forum presents these deaths as a result of high irradiation, thus bringing the total to about 50 victims of acute irradiation. After many a summer, all the 103 survivors will eventually die. The Chernobyl Forum's philosophy would then count them all, bringing the death toll from high irradiation to a round total of 134 victims.

In fact, however, the mortality rate among these 103 survivors was 1.08 percent per year, that is, less than the average mortality rate in the three affect-

ed countries, which was 1.5 percent in 2000 (GUS 2001).

And finally, the third exception to the Chernobyl Forum documents: The Forum projects future cancer fatalities, caused by low-level Chernobyl radiation, of from 4,000 to exactly 9,935 deaths. This projection is not based on trends in cancer mortality or cancer incidence observed during the past 20 years. As discussed above, according to the epidemiological studies cited by the Chernobyl Forum, there was no increase but rather a *decrease* in both these epidemiological parameters found among exposed people. It is obvious that these are the trends that should be used for realistic projections of future health.

Instead, the Chernobyl Forum performed an arithmetical exercise, spanning 95 years, of multiplying small short- and long-term doses of 7mSv, by a great number of people, and a radiation risk factor deduced from Hiroshima and Nagasaki studies. In these two cities, people were irradiated with doses more than 100 times higher than most of the victims of Chernobyl doses in a hundred-millionth fraction of a second, and not during a few days, or many years, as during or after the Chernobyl disaster.

Long-term irradiation is much less harmful than short-term (acute) radiation. Radiogenic cancers were never observed below an acute dose of 100 mSv. The exercise was based on an outdated concept of collective dose and the linear no-threshold assumption which states that even a near-zero dose of radiation can induce harm.

Immoral Extrapolations

This assumption was never proven by scientific evidence, and in fact it is a fraudulent academic exercise. Inhabitants of the two Japanese cities were irradiated in a hundred-millionth fraction of a second with doses that were orders of magnitude higher than those received by people living in regions covered by the dust from Chernobyl, in a time period longer by a factor of 2 billion. The result is nothing more than a lying fantasy.

Several scientific and radiation-protection bodies, including the former chairman of the International Commission on Radiological Protection, advised against making such calculations. Just the act of publishing these numbers is harmful and serves to solidify Chernobyl fears. Now, no efforts to explain to the public the intricacies of radiation-risk assessments, and to compare these numbers with the much higher level of spontaneous cancer deaths and so on, will help.

The past 20 years have proved that such hypothetical efforts are worthless, a kind of day-dreaming. Making such calculations keeps a lot of people well and busy, but such work was rightly defined by one of the founders of radiological protection, Dr. Lauriston S. Taylor, as the "deeply immoral uses of our scientific heritage" (Taylor 1980). Unfortunately, this phrase fits some parts of the Chernobyl Forum documents.

It is, reassuring, however, that 16 years after the Chernobyl catastrophe, another group formed by four United Nations organizations (UNDP, WHO, UNICEF and UN-OCHA) in its 2002 report, based on UNSCEAR studies, dared to state clearly, that a great part of billions of dollars used on mitigation of



A six-foot chicken and other monstrosities continue to be attributed to "radiation" by the media and environmentalist groups.

the consequences of the Chernobyl accident was spent incorrectly, not improving but actually deteriorating the situation of 7 millions of so-called victims of Chernobyl, making permanent the psychological effects of the catastrophe; and that authorities made wrong decisions.

The report (UNDP 2002) recommended that the three post-Soviet countries, and the international organizations break from the current policy. The basis of such a policy, that is, the expectation of mass radiation health effects, was not only futile, the report stated, but the enormous resources sacrificed for remediation of the assumed effects were uselessly lost.

The report presented 35 practical recommendations, needed to stop the vicious cycle of Chernobyl frustration, social degradation, pauperization, and epidemic psychosomatic disorders. They suggest a reversal of the present concentration of attention on nonexistent radiation hazards, permitting the relocated persons to come back to their old settlements, and removing almost all restrictions.

A Political Minefield

But here we enter a political minefield. How will people accept the taking-away of 50 to 70 various benefits, including a cash subsidy of up to about \$40 per

month, which they poetically call a "coffin bonus"? How do you explain to such people that they were made to believe that they were victims of what is actually a nonexistent hazard, that mass evacuations were an irresponsible error, that for 20 years people were unnecessarily exposed to suffering and need, that vast areas were unnecessarily barred from use, and that the resources of their countries were incredibly squandered?

In many publications, one can read that the Chernobyl catastrophe had serious political implications, and became a factor in the dismantling of the Soviet Union. Would fulfilling the recommendations of the UNDP 2000 report result in a political catharsis, and perhaps induce violent reactions?

This is probably not valid for Russia, where a more rational approach to Chernobyl prevails. But the political class of Belarus and Ukraine for years has demonstrated a much more emotional and less honest approach. When the 2000 UNSCEAR report (which documented that there were no serious health hazards to the public as a result of the Chernobyl accident) was presented to the United Nations General Assembly, the delegations of Belarus and Ukraine forcefully protested. This resulted in 2002 in the organization of the Chernobyl Forum, and influenced its work.

Today, the Chernobyl rumble, and its emotions, are beginning to settle down. In centuries to come, the catastrophe will be remembered as a proof that nuclear power is a safe means of energy production.

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in such a highly technical style that it was unintelligible!

What is the Nuclear Control Institute? Run by Paul Leventhal, it is committed to stopping all nuclear power because it will allegedly lead to nuclear proliferation. This is the line now promoted by the neo-conservatives in and around the Bush Administration. It was pioneered by the late Albert Wohlstetter, one of the demigods of the neo-cons, who equated civilian nuclear reactors with atomic bombs. Wohlstetter's chief disciple was Paul Wolfowitz, former Deputy Secretary of Defense and now head of the World Bank. Wolfowitz, who wrote his doctoral thesis under Wohlstetter as an attack on nuclear desalination in the Mideast, is deeply committed to preventing any development of nuclear energy in the Third World.

Unlike the Danes, Leventhal doesn't push wind turbines, but preemptive strikes. He is a member of the Iran Policy Committee, which calls for "regime change" in Iran. This committee is the extreme of the extreme. One board member, for example, is Gen. Paul Vallely (ret.), who was featured in *EIR's* special report on the "spoon-benders" in the U.S. military (see "Cheney's 'Spoon-Bender' Pushing Nuclear Armageddon," *EIR*, Aug. 26, 2005). Vallely is not only for air strikes, but also for ground assaults against Iran.

It is curious that EarthLife Africa and the Legal Resources Centre, both of which claim to support the "little people," would team up with such an extreme group as the Nuclear Control Institute.

The second U.S. attempt to derail the PBMR was through the withdrawal of the U.S. energy company Exelon. The move came after the project's chief sponsor in Exelon, Corbin A. McNeill, retired as chief executive officer and chairman in 2002. McNeill's support for PBMR dates back to when he was chairman of PECO energy company, which later merged with Unicom Corporation to form Exelon in 2000. A retired captain of the U.S. fleet of nuclear submarines, McNeill was an enthusiastic supporter of the PBMR project. He especially saw the project as ideal for the countries of the devel-

oping sector.

McNeill's successor, John W. Rowe, immediately cancelled Exelon's support of the project on the grounds that it did not fit into his strategic plan for the company. A lawyer by training, Rowe is a very different type of CEO than McNeill, and did not share the latter's passionate commitment to nuclear energy, despite the fact that Exelon is the largest operator of nuclear power stations in the United States. According to industry sources, Rowe is a fanatical believer in the "shareholder value" ideology which underpins globalization and radical free-market policies.

Unlike the retired military officer McNeill, Rowe is a man of the business establishment, fancies himself a philanthropist, and belongs to all the right clubs. But politically he is close to the neo-cons, just like Leventhal. Until recently, he was a trustee of the American Enterprise Institute, better known as the Temple of Doom, a center of the neo-conservative movement in Washington, where both Dick Cheney and Donald Rumsfeld worked. Rowe participated in many of the seminars, conferences, and other affairs held in the Institute's "Wohlstetter Hall," and perhaps met there another frequent of these events, Paul Leventhal.

Rowe also sits on the National Commission on Energy Policy, along with R. James Woolsey, a Wohlstetterite and former CIA director, now very prominent among the neo-conservatives who want the United States to launch a strike against Iran.

There is now a renewed debate throughout Europe and the United States on nuclear energy. Finland is already building the first new nuclear power station in Europe in 10 years. Russia and China have announced the intention to build dozens of new nuclear power stations over the next quarter century. Africa has to become part of this process if it hopes to survive the ravages of globalization.

The PBMR project is on the front lines of that fight, and intends to win.

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