

Chernobyl: An Unbelievable Failure to Help

Rosalie Bertell

The disaster at the Chernobyl power reactor near Kiev, which began on 26 April 1986, at 1:21 AM, was one of the world's worst industrial accidents. Yet the global community, usually most generous in its aid to a stricken community, has been slow to understand the scope of the disaster and reach out to the most devastated people of Ukraine, Belarus and Russia. This article probes the causes of this confusion of perception and failure of response; clearly the problem is one of communication. Has the World Health Organization failed to provide clear, reliable information on the health effects resulting from this disaster? Are there other historical problems or actors interfering with reasonable handling of the late effects of a nuclear disaster? Most importantly, what can be done to remedy this situation, to assist those most hurt by the late effects of Chernobyl, and prevent such injustice in future? With the current promotion of nuclear energy as a "solution" to global climate change, we need to take a sober second look at the nuclear energy experiment, and management of its hazards.

I sent my *Handbook for Estimating the Health Effects from Exposure to Ionizing Radiation*¹ to the Moscow Hospital 6, where the worst-exposed first responders were being treated, as soon as I learned about the Chernobyl accident, but my first trip to Kiev and Chernobyl was in 1989, three years after the disaster,. None of the photographs I took in 1989, within the 30 km. exclusion area or near to the sarcophagus, turned out - probably because the level to radiation being emitted from the failed reactor number 4 was still too high.

I learned that the area around Chernobyl was once the cradle of icon painting and I saw centuries-old icons strewn on the floor of the nearby new library. These medieval icons were now too contaminated with radioactivity to handle. The apartment buildings in Pripyat were abandoned, schools closed and playground swings and slides stood idle. Even a forest had been buried as radioactive waste. While a few physicians were alarmed at the health problems they were seeing, most were telling people that they did not have radiation sickness, and their worries were merely radiophobia.

By my second visit in 1991², five years after the disaster, there was no longer any talk of radiophobia, rather, the increased illnesses among children and the cleanup workers had become seriously disturbing. Dr. Maya Fomina, the physician who led the emergency medical team at the disaster site in 1986, told me that while about 33 percent of the clean-up workers were ill in 1987, 67 percent were ill by 1991 with a wide variety of chronic disorders. These workers were between ages 18 and 30 at the time of the disaster, and in prime health. Dr. Fomina had just lost a 22 year old assistant, one of her best medical technicians, also a worker in the emergency tent³. She commented softly: “I did not mean to give a death sentence when I chose her!”

Children exposed to Chernobyl fallout were experiencing chronic adult diseases of the respiratory and blood systems, gastritis, nervous system diseases, cardiovascular diseases and other diseases of internal organs. In general, in 1991, the level of serious illness in children was about six to seven times above normal, while serious illness in the clean-up workers was three to four times above normal. Medical technicians brought in to help in the emergency were not trained in identifying radiation-related blood changes, so they often missed the early symptoms of developing physiological abnormalities⁴. There was little overall control of medical and environmental exposure records to assist researchers who would later monitor the changes in health.

The numbers of victims was staggering: 650,000 workers were directly involved in fighting the fire, assisting evacuees, and cleaning-up. About 90,000 people had been evacuated from the 30 km. radius, which included the thriving city of Pripyat and more than 70 other settlements. Additionally, 77 administrative districts in 12 regions of Ukraine, including more than 1,500 villages, residential areas, and towns were heavily contaminated with radioactive material. It is estimated that by 1991, about 200,000 people were still living in the high-risk areas of Ukraine, and many more were exposed to the nuclear fallout in Belarus and Russia⁵. Yet internationally, there was little outpouring of help and concern by the general public!

Thyroid Disease

Even in 1991 there was widespread concern in Ukraine about 150,000 people, including 60,000 children exposed to high levels of radiation to the thyroid gland (2,000 mSv for children and 5,000 mSv for adults). This problem was not discussed or admitted internationally until the release of a paper in the British Journal *Nature*⁶ and the World Health Organization (WHO) call for help to aid children with thyroid cancer in 1995⁷. Dr. Keith F. Baverstock, head of the Department for Radiation and Health at the European Office of WHO in Rome, has testified that the International Atomic Energy Agency (IAEA) experts knew of at least twenty cases of rare childhood thyroid illness in Ukraine by 1990⁵.

Dr. Baverstock visited the Gomel Region of Belarus, which had received significant fallout from Chernobyl, and noted the dramatic increase in thyroid cancer, especially in very young children. Even in major European or American cities, one rarely saw more than one or two cases in a year, and on his visit to a hospital in Minsk he saw 11 such cases in one day. Baverstock stressed the problem of the very close dependency of the people of Ukraine, Belarus and Russia on their environment: “they depend on the

earth to grow things and feed themselves and their animals, on the rivers and lakes for fish and water, and on the forest for its fruits of berries and mushrooms.”⁷

The International Chernobyl Project

In 1989, the former Soviet Union, its credibility shattered because of its non-handling of the Chernobyl disaster, invited the IAEA to review the health impacts. In 1991 the IAEA reported that no health problems in the victims of Chernobyl could be linked to radiation! This 1991 report on health was chaired by Professor Fred Mettler, Jr., M.D. director of the Medical Expert Group of the IAEA International Chernobyl Project. Dr. Mettler, was chair of the Department of Radiology, at the University of New Mexico, School of Medicine, Albuquerque. On April 24, 2006, the twentieth anniversary of the Chernobyl disaster, Dr. Zenon Matkiwsky gave the following rebuttle of Dr. Mettler’s 1991 report: “In July 1992, I took part in a U.S. Congressional Hearing and I listened to the testimony of Dr. Fred Mettler, Jr., Director of the IAEA health study, as he testified before a U.S. Senate Subcommittee. Dr. Mettler assured Senator Joseph Lieberman that his organization had conducted the most comprehensive investigation possible on the Chernobyl survivors and that the IAEA had found no evidence of perceptible increase in thyroid cancer in children.” Dr. Matkiwsky continued: “Had he [Dr. Mettler] bothered to visit the Institutes of Endocrinology in Minsk or Kiev, or had he visited any of the regional children’s hospitals in Chernobiv, or Gomel or Zhytomyr, he would have found ample evidence that children were being stricken with an extremely rare form of cancer at alarming rates.”(quoted in 8).

Dr. Fred Mettler, Jr., ICRP and UNSCEAR

In both the British Journal *Nature*⁶ and WHO Report ⁷, Dr. Keith Baverstock quickly validated the Belarus and Ukraine research documenting the then 30-fold increase in thyroid cancer, and discrediting the IAEA report of Dr. Mettler. Yet the latter researcher was rewarded with a position on the Main Committee (now called The Commission) of the International Commission on Radiological Protection (ICRP). Dr. Mettler was also chosen as the U.S. representative on the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR). These inter-agency connections are important for understanding the strange silence on the suffering of those exposed to Chernobyl fallout.

UNSCEAR, in 1955 and IAEA, in 1957, were set up by the United Nations in response to the U.S. President Eisenhower’s Peaceful Energy talk at the United Nations, in 1953⁹. The IAEA was mandated to perform two tasks — to assist countries in harnessing nuclear energy for peaceful purposes and to carry out inspections to ensure that any assistance a country received from another was used exclusively for peaceful purposes and not diverted to developing any nuclear weapon. UNSCEAR was to report on the adequacy of the regulation of ionizing radiation and its effects on health. IAEA subsequently took its radiation protection recommendations directly from ICRP (rather than the WHO), therefore persons from the Commission who also sit on UNSCEAR both make the rules and judge their adequacy. Dr. Fred Mettler, Jr. is not the only person to sit

on the Commission and also sit on UNSCEAR. This dual role is commonplace and clearly a conflict of interest.

Other Internationally Sponsored Chernobyl Research

Japan provided \$20 million to the WHO in 1990 to gather data and address the thyroid disease problems, blood diseases and brain damage in utero. Funds for this project ran out in 1995. In 1992 the International Thyroid Project was launched by the WHO and the European Union. It soon folded, as did projects initiated by the G7, and the Organization for Economic Cooperation and Development (OECD).

Part of the difficulty with these projects was that, unlike the Hiroshima and Nagasaki research, there was only limited funding for Chernobyl research (at least \$200 million had been poured into the atomic bomb research from September 1945 on.)¹. Another difficulty was that governments controlled the scientists selected to work on the projects. Failure could also be assigned to the fact that only the medical radiology and nuclear industry were willing and ready to undertake the research, due to the restriction of all things radioactive or nuclear to nuclear physics, nuclear engineering, medical physics or health physics in the national agencies and universities. These three problems were intertwined, since the nuclear research “experts” were nuclear workers or medical physicists who were sent by their countries. These same countries were the funders of the projects. The need for occupational, community and public health professionals, epidemiologists, oncologists, pediatricians, etc., was not comprehended.

The U.S., Japan, the Netherlands and Germany were willing to fund short term studies of thyroid cancer, but local Ukrainian concerns about breast cancer and genetic irregularities were not addressed. There was no concerted long term research plan. Moreover, Russia declared its radioactive zone “clean” despite high radiation readings in many populated areas, and in Belarus, the government tried to lure farmers back into the radiation zones with tax breaks. The Ukrainian government began to invest in new Russian nuclear reactors, ignoring the calls for more research¹¹. At the Bryansk diagnostic center Russia’s chief geneticist Nikolai Rivkind said: “The Chernobyl experience - tragic as it is - should be a goldmine for world science. We’ve got maybe two years at most left to get it organized. I’m losing hope!”⁸

It is important to look at the underlying structure of the responsible international agencies which failed to organize medical help as well as scientific data after the Chernobyl disaster, in order to make constructive suggestions for alleviating the present suffering and future practice.

Founding of the International Commission on Radiological Protection

In order to promote the peaceful uses of nuclear energy, the IAEA was asked by the United Nations to recommend appropriate guidelines for the protection of workers and

1. Funding is difficult to estimate for the Atomic Bomb Casualty Commission (ABCC), September 1945 to 1974, and the Radiation Effects Research Foundation, 1974 to present, because of changes in the values of the dollar and yen. However, the U.S. Atomic Energy Commission and National Science Foundation contributed between \$1 and \$3.5 million each year in the ABCC period, and there has been joint U.S.-Japanese funding since 1974.(10)

the general public from nuclear-related activities. One should recall that atmospheric nuclear weapon testing, at the time of the IAEA mandate in 1957, involved the United States, United Kingdom and former U.S.S.R.. The United States began testing at the Pacific atoll of Bikini in 1946, and the first Russian nuclear test was in 1949. The United Kingdom began testing in Australia in 1952.

As can be easily gleaned from the published proceedings of a meeting on the “Biological Hazards of Atomic Energy”, held in London in October 1950¹², the nuclear physicists from the Manhattan Project had foreseen the problem of nuclear fallout over the entire northern hemisphere due to atmospheric nuclear testing. Through a series of meetings held between 1946 and 1950, they had agreed on a common regime of radiation protection. These physicists had decided that nuclear radiation would only be held accountable for: (a) cancer deaths, and (b) serious genetic disease in live born offspring. These are the usual “detriments” counted even today after radiation exposure, although the industry sometimes includes “in utero” mental retardation.

Counter to most people’s supposition, no general screening of the illnesses of the Hiroshima and Nagasaki victims had taken place prior to this decision in 1950. In fact, Japan’s National Census of 1950 was used to identify 284,000 A-bomb survivors throughout Japan, of which about 195,000 were still living in Hiroshima and Nagasaki. According to Atomic Bomb Casualty Commission (ABCC) documents, all eligible persons who were within 2.5 km of the atomic bomb’s hypocenter at the time of bombing were included, plus about 20% of those more distally exposed. This latter selection was made at random, within restraints as to age, sex and city, which ensured comparability with those within 2.0 km at the time of bombing. The researchers also included more than 26,000 people, identified as “not in the city”, who were located farther than 10 km. from the hypocenter. The first tentative dosimetry was not available until 1957.

The atomic bomb research has never made any correction for the “healthy survivor” effect. Those who endured the blast, thermal effects and radiation of the atomic bomb - plus the social upheaval, hospital destruction, contaminated food and water, lack of health care professionals and medicines - were those most healthy in 1945 and still alive in 1950.

After this 1950 meeting in London, where even the details of the Standard Man were explained, this committee of nuclear physicists went to the already established committee of the International Society of Radiology, which was setting protective standards for radiation exposure of medical radiologists, and asked to join them to form the International Commission on Radiological Protection. Since then, physicists have made up about 51% of the members of the ICRP Commission of 13, which makes all of the radiation protection recommendations used in most countries¹³.

The ICRP has since broken its tie to the International Society of Radiology, and is considered a self-appointed, self-perpetuating nongovernmental organization of physicists, medical regulators of nuclear nations, radiologists and others who use radiation in their work. One becomes a “member” of ICRP by being proposed by a present member and accepted by the executive committee. No professional society, or even the WHO, can put a person on the ICRP main Commission.

As previously note, when faced with recommending radiation-protection standards, the newly formed IAEA turned to the ICRP rather than WHO for advice. No one seems to have questioned the selection of fatal cancers and serious genetic disease in

live born offspring as inappropriately limited concerns for a major radiological disaster. Imagine being concerned only about the deaths after the Seveso dioxin crisis, the Bhopal Union Carbide disaster, the Asian tsunami or the Katrina hurricane! This restriction was clearly inappropriate for cases of thyroid cancer in the Chernobyl fallout area. According to the ICRP¹⁴, only about 5 percent of thyroid cancers are fatal.

UNSCEAR's mandate in the United Nations system is to assess and report on the nuclear industry's levels of pollution and the environmental and health effects of exposure to ionizing radiation. Governments and organizations throughout the world rely on UNSCEAR estimates as the scientific basis for evaluating radiation risk and for establishing protective measures. Generally, since all nations, with the exception of the United States, accept the IAEA/ICRP recommendations for radiation protection of workers and the general public, UNSCEAR can be thought of as the check on the acceptability of these recommendations.

As was previously noted, Dr. Mettler, leading the health investigation after Chernobyl for IAEA in 1991, was subsequently appointed to the main Commission of ICRP, and also to the health effects evaluation committee of UNSCEAR. This is a major conflict of interest because of the agency mandates. One might argue that the two positions, namely in ICRP and UNSCEAR followed and did not cause Mettler's deemed "successful" investigation of the aftermath of Chernobyl, which exonerated nuclear radiation from causing harm. The appointments were more likely a pay back.

Mettler's findings were obviously not influenced by his position on these two UN agencies, which post-date his report. However, when one understands that most professional information used in medical school text books and health physics programs has been provided by the ICRP since 1957, and Dr. Mettler, obtained a B.A. in mathematics at Columbia University and then received his M.D. from Thomas Jefferson University in 1970¹⁵, the failure to report early cancers becomes clear.

Dr. Mettler learned well that solid cancers without a ten year latency period did not "count" as radiation-related under ICRP latency models². Therefore the Chernobyl thyroid cancers were seen, but not reported as radiogenic, since they were within 5 years of a disaster! The nuclear industry has a monopoly on radiation and human health scientific information, and its dissemination through the universities into nuclear reactor facilities, hospital radiology laboratories and UN organizations. This poses a further serious problem. Normally, one believes the evidence at hand, rather than the theory! If one has been taught theory as fact, the situation becomes more complicated. The ICRP has created an artificial "consensus" on the health effects of radiation.

Setting Radiation Protection Standards

The next logical question is: Why would the serious health effects of radiation, such as non-fatal cancers, (including thyroid, breast and skin cancers), non-cancer somatic effects

1. Several published studies have shown increases in cancer above the expected value shortly after exposure to radiation, prior to the ICRP designated latency period for radiation induction. This was also observed after the Chernobyl disaster. In the report on the ankylosing spondylitis patients followed by Sir Richard Doll (16), there were 28 cancers of colon deaths in the irradiated patients, with 17.3 expected. Of these, six occurred in the first three years with 2.52 expected. The authors conclude: "the early excess was not caused by radiation, but was related to the treated disease. Although the group not treated with radiation showed no such early excess".

and teratogenic effects of radiation be discounted and ignored? It is my opinion that this administrative decision made by the physicists of the Manhattan Project was meant as a safeguard against possible objections to the northern hemispheric nuclear fallout. Clearly cancer was a better marker of exposure than skin burn, a marker used prior to 1950 by the Radiologists. However, by 1950 there was widespread concern for radiogenic cancer whether fatal or not, for all genetic disease (including that causing spontaneous abortion, still birth and “non-serious” genetic diseases) and for teratogenic diseases and malformations.

At the time atmospheric nuclear testing began, 1946, the United States, United Kingdom and Canada, had different radiation-protection standards. The 1950 compromise was their answer to any future objections or legal actions. Since it is generally admitted that cancer is caused by just one errant mutated cell⁽¹⁷⁾³, there is no dose of radiation which does not have the probability, however small, of causing a critical mutation that develops into a fatal cancer. The Hiroshima and Nagasaki health studies were so focused on cancer fatalities, that the serious non-fatal breast, thyroid and skin cancers caused by the atomic bombs were not reported by the Radiation Effects Research (RERF, subsequent name of the ABCC) until 1994 (for the four main papers on cancer incidence rate in atomic bomb survivors, see 19).

The teratogenic effects of radiation were well known in 1950, and in 1946, Hermann Muller had received the Nobel Prize in Physiology or Medicine for pointing out the genetic effects of radiation²⁰:

“Thus the influence of atomic energy on the human genotype is slightly to increase: (1) miscarriages and still births, (2) heritable diseases among a proportion of the surviving progeny of those subject to the radiation, and (3) that of familial disease here and there in remote posterity. The genetic effect of atomic energy will be wholly bad because it will slightly increase the sum of misery and wastage against which the race must battle; but it will not in the long term, hamper the course of human progress in the wider sense of that experience.”²⁴.

Thus the radiation protection standards proposed by the Manhattan Project physicists and later by ICRP and IAEA have been, from the start, a trade-off between the “benefits” sought by the professional users of ionizing radiation, not least of which were the bomb makers, and the “risk” to life and health of workers and the public.

Changes in Radiation Protection after Chernobyl

The general maximum permissible radiation-exposure limits for nuclear workers and for the general public remained at the 1950 recommended level until 1990. In 1990, after a petition from more than 700 scientists, physicians and Nobel Prize laureates, and after a reanalysis of the doses at Hiroshima and Nagasaki demanded by the Lawrence Livermore

3. This work has been confirmed recently by research into genomic instability: “The loss of stability of the genome is becoming accepted as one of the most important aspects of carcinogenesis” (18).

Nuclear Laboratory workers²¹, the atomic bomb cancer death rates were adjusted upward, and the maximum permissible doses recommended by the ICRP for the public were lowered by 80%¹⁴.

Changing of dose affects the dose-response estimates of any study, especially when the dose change is non-homogeneous, as were the changes at Hiroshima and Nagasaki made in 1986. Such changes raise suspicion in that fatal cancer risk estimates are open to manipulation. During the 1950s and 1960s, U.S. and Japanese scientists created the dosimetry systems T57D and T65D. By 1986, a complete change in dosimetry was undertaken, reducing the neutron component and introducing extensive shielding information, to produce DS86. Since DS86, considerably study of the neutron activation products, ³⁶Cl, ¹⁵²Eu, ³²P, and ⁶³Ni, have lead to a fourth new dosimetry, DS02, with refined shielding estimate, and changes both in the locations of the epicenters and the yield of the bombs. Studies based on the DS02 dosimetry will now replace all previous research findings²². All atomic bomb research dating before 2002 is now inadmissible science.

This post-Chernobyl ICRP document also introduced a new section giving specific instruction on (22):

- The basis of intervention in public exposure.
- Situations in which remedial action may be needed.
- Accidents and emergencies.

ICRP proposed that after a nuclear accident, the contaminated state of the environment becomes the “norm”, and a risk versus benefit study must be undertaken before any clean-up is justified²³. Levels of radiation exposure from nuclear activities which were too high to be permitted before Chernobyl became the “norm” after Chernobyl. A strong legal case had to be made for clean-up, and this was not generally known by physicians and their patients in the severely affected areas. The Chernobyl victims were the first to feel the brunt of this new attack on human health, and the effort to hide or minimize the suffering of the people^{24, 25}.

Since the ICRP methodology and radiation risks depend heavily on the atomic bomb research, which looked at the effects of high radiation doses delivered at a fast rate from an external (to the body) source, they fail to address chronic low-dose internal radioactive contamination. There is currently a scientific dispute about the acceptability of the ICRP methodology for assessing internal dose, especially from ceramic aerosol nuclear fuel particles, and for certain internal radionuclides which bind to DNA, as articulated by the European Committee on Radiation Risk²⁶. This critique was accepted by the radiation protection committee in France²⁷. The ceramic particles do not spread homogeneously in internal organs, as is assumed by ICRP methodology, since they do not dissolve readily in body fluid. These particles are formed in the high-temperature uranium fire (3000 to 6000 degrees Centigrade) such as occurred in the Chernobyl disaster when the uranium fuel burned out of control²⁸.

The IAEA Report of 2005^{28a} and UNSCEAR analysis of 2000²⁹ ignored these considerations. When the international scientific critics of the ICRP methodology develop an internationally acceptable alternative, and when the UNSCEAR data gaps are filled, we may be able to adjust this estimate of Chernobyl deaths and severe injuries

accordingly. However, the inadequate record-keeping in this high-technology age will always be seen as an attempt to cover-up the true effects of the Chernobyl disaster. Clearly, the true damage to health attributable to Chernobyl has been hidden from the general public through poor and incomplete scientific investigation, obfuscation and poor recording of data and outright lying.

UNSCEAR 2000

The UNSCEAR 2000 Report²⁹ of Chernobyl disaster exposure via the food web mentioned only cesium contamination of food, and only for those living in the local cesium-contaminated areas. Most experts consider air, water and food to be the greatest sources of internal radionuclide contamination for most people after a nuclear accident. As is well known, contaminated fresh produce and milk were mixed with relatively uncontaminated batches so as to spread the radioactivity over the larger regional population of the former USSR. Whether or not the exported contamination was subtracted from the local dose and added to the regional dose was not indicated in the report. Internal contamination, in the cesium-contaminated areas, reported in UNSCEAR 2000 was based on annual consumption only of milk and potatoes, although UNSCEAR admitted the majority of the pollution was in the milk, meat, potatoes and mushrooms. Other radionuclides were inhaled and consumed, but were not reported. All of these omissions and over simplifications of reality were passively condoned by IAEA. The WHO remained silent on these disputes.

The Nuclear Reactor Business

In order to understand to some extent the motivation behind this strange insensitivity to human distress, one needs to look closely at the mandate of the IAEA to “promote peaceful nuclear technology” and the history of this civilian technology:

- On June 27, 1954, the USSR's Obninsk Nuclear Power Plant became the world's first nuclear power plant to generate electricity for a power grid, and produced around 5 megawatts electric power³⁰.
- In 1955 the United Nations' "First Geneva Conference", then the world's largest gathering of scientists and engineers, met to explore the technology.
- In 1957 EURATOM was launched alongside the European Economic Community (the latter is now the European Union). The same year also saw the launch of the International Atomic Energy Agency³¹.
- The world's first commercial nuclear power station, Calder Hall in Sellafield, England was opened in 1956 with an initial capacity of 50 megawatts (later 200 megawatts)³².
- The first commercial nuclear generator to become operational in the United States was the Shippingport Reactor in Pennsylvania, in December, 1957³³.

By 1974, nuclear power was a failed technology in the United States. New requests for nuclear power plants almost came to halt even before the Three Mile Island accident, but after this accident, all nuclear power plants on order were canceled. The United States cancelled 124 nuclear power reactors after 1974, more than all of the plants then in

operation. In New York State, the Long Island Lighting Company (LILCo) gave up on its already completed \$5.5 billion Shorham nuclear reactor in 1989 and spent another \$186 million to dismantle it. The problem? LILCo could not get approval for an evacuation plan in case of an accident. Similarly, Western Europe became disenchanted with nuclear power after Chernobyl.

At the same time, in Asia, interest in nuclear power was increasing. Between 1986 and 1996, 20 economically developing countries each received more than \$6 million in nuclear technical cooperation, and 31 other economically developing countries received less than \$1 million in technical aid from IAEA. The leading beneficiaries of IAEA assistance were: Brazil, Bulgaria, China, Hungary, Pakistan, Mexico and Romania. Two countries, Poland and Egypt, canceled their nuclear reactor plans after Chernobyl. It is clear that the nuclear energy movement in Eastern Europe and Asia was economically important to the developed countries who were supplying the reactors and the technical assistance³⁴.

In 1989-90, two divisions of the IAEA Department of Technical Cooperation were developed. One dealt with putting together programs for each economically developing country in Africa, East Asia and the Pacific, West Asia, Latin America, Eastern and Western Europe. The other division arranged for delivery of various services, experts, research fellows, equipment and training courses.

This major effort toward carrying out its U.N. mandate to promote “peaceful uses of nuclear energy” seems to have overshadowed IAEA responsibility for assisting the survival and recovery of the Chernobyl-devastated people and land. This reality, alone, is strong reason for legal withdrawal of the IAEA conflicting mandate to report on the health of the people after a nuclear disaster as well as to promote nuclear technology!

The United Nations, IAEA and WHO

The IAEA mandate, on radiation-related health research, reporting, and assistance after a nuclear disaster, needs to be transferred to the WHO where it properly belongs. This transfer would, of course, mean strengthening the ability of WHO to deal with radiation health problems and also removing the mandate of IAEA to promote nuclear energy. The WHO is currently lacking in personnel with the scientific background needed to carry out this mandate, because of the historical secrets connected with this technology and the IAEA/ICRP monopoly on “leading” radiation research.

In 1957, a Memo of Understanding was drawn up between the IAEA and United Nation. One article of this memo is especially contentious. Article II states: “if divulging information may constitute ‘a violation of the confidence of any of its [IAEA’s] Members or anyone from whom it shall have received such information,’ then such information can be safeguarded as confidential.”

Even within a country the nuclear industry appears not to share its data. Apparently, the Chernobyl disaster was foreshadowed by a similar, less serious, accident in a reactor near St. Petersburg. The IAEA, in 1999, expressed concern about the undo secrecy within the industry³⁵:

“Some countries without experience in the operation of nuclear power plants have expressed interest in undertaking the construction and operation of such

facilities.....With the completion of these five [safety] tasks — greater sharing of relevant operating experience, enhanced reliance on common standards, worldwide encouragement of safety culture, enhancement of the Convention on Nuclear Safety, and establishment of multinational design review — the global safety regime could be significantly improved. These are not revolutionary changes; they build on both the current international cooperative efforts and the national systems that have served us well. But they will help to ensure that nuclear technology can continue to be harnessed for the benefit of all humankind.”

On 28 May 1959, the IAEA made an agreement on protocol with the WHO, which contains the following clauses (36, emphasis in original):

ARTICLE I:

2. In particular, and in accordance with the Constitution of the World Health Organization and the Statute of the International Atomic Energy Agency and its agreement with the United Nations together with the exchange of letters related thereto, and taking into account the respective coordinating responsibilities of both organizations, *it is recognized by the World Health Organization that the International Atomic Energy Agency has the primary responsibility for encouraging, assisting and coordinating research and development and practical application of atomic energy for peaceful uses throughout the world* without prejudice to the right of the World Health Organization to concern itself with promoting, developing, assisting and coordinating international health work, including research, in all its aspects.
3. Whenever either organization proposes to initiate a program or activity on a subject in which the other organization has or may have a substantial interest, the first party shall consult the other with a view to adjusting the matter by mutual agreement.

The interpretation of this document (in addition to the USSR invitation) has led to IAEA being the lead agency at Chernobyl in research on the health effects of exposure to nuclear debris. The WHO was “allowed” to study health care of the victims - for example, dealing with their psychological stress. While the WHO may send a representative to IAEA meetings of mutual interest, that representative may not vote.

The difference in actual power of these two agencies, IAEA and WHO, although they are “equal” agencies on paper, is great. The IAEA, because it deals with nuclear weapons proliferation, reports directly to the U.N. Security Council. The WHO reports to ECOSOC (The U.N. Economic and Social Council), which in turn reports to the U.N. General Assembly. The voice of the WHO is blunted by this procedural custom. The remedy appears to be to limit the IAEA to questions of nuclear proliferation and remove its mandate to promote nuclear power and other peaceful uses of atomic energy. It would also be helpful to recognize the WHO, which speaks for health and environmental security, and invite it to report directly to the Security Council. There is an encouraging movement in Europe to establish an International Renewable Energy Agency³⁷.

Summary

How could this bureaucratic problem have had such a great impact on health reports and international public concern for the Chernobyl victims? How could there be so many misconceptions in the minds of ordinarily generous people about the true situation in the nuclear-devasted areas?

Although Dr. Baverstock and an independent investigation by the BBC confirmed that IAEA “experts” were in possession of all of the relevant facts about thyroid cancer prior to Dr. Mattler’s 1991 Report on Chernobyl, the text was not a direct lie. It states:

- “The official data that were examined did not indicate a marked increase in the incidence of leukemia or cancer.”
- “Reported adverse health effects attributed to radiation were not substantiated either by those local studies that were adequately performed or by the studies under the Project.”
- “The children were examined and found to be generally healthy.”

Without information on “official data” available to the team; which data were “examined”; the meaning of “marked increase” and “adequately performed” research; and without an examination of the project protocol, these statements are useless and misleading. Saying the children were “generally healthy” does not mean that some did not have serious and unusual cancers. These misleading statements are made by those who are financially dependent on nuclear activities, and also by those who believe that the public should not be panicked! There are times when they *should* become alarmed and should speak up about their situation. The life and health of people and the environment take priority over the survival of an industry, even a weapon industry. Fear of public panic was probably used to sooth the conscience of those promoting nuclear reactors and nuclear weapons while ignoring the plight of the radiation victims.

For a long time IAEA maintained that there were only 30 worker deaths at Chernobyl, and although there were 6.7 million people exposed to the nuclear fallout, there was only a 10-fold increase in thyroid cancer among children (adult cases were not emphasized). Thyroid cancer was not fatal in most cases, and the IAEA maintained that it could have been avoided had potassium iodide tablets been available. At 1:21 a.m., waking everyone up and distributing pills to them, while at the same time, fighting a catastrophic accident, is an impossible scenario!

Failing to obtain a consensus on their 1991 or 1996 reports, and in anticipation of the 20th anniversary of the Chernobyl disaster, the IAEA admitted in September of 2005, to the death of 50 emergency workers and 4,000 deaths from radiation-induced cancers or leukemia^{28a}. While the IAEA Report of September 2005 listed the WHO as a collaborator, the report was disputed by a WHO employee³⁸:

“Zhanat Carr, a radiation scientist with the WHO in Geneva, says the 5000 deaths were omitted because the report was a ‘political communication tool’. ‘Scientifically, it may not be the best approach,’ she admitted to New Scientist. She also accepts that the WHO estimates did not include predicted cancers outside Ukraine, Belarus and Russia. The health impact in other countries will be

‘negligible’, she says, adding that there is no epidemiological research showing otherwise. The WHO ‘has no reasons to deliberately mislead anyone’, she insists. ‘WHO’s position is independent, free from political issues, and based on scientific evidence of the highest quality.’ The IAEA refused to comment.”.

There are other limitations to the 2005 “study”: IAEA omitted any effect which might be attributed to the burning uranium fuel, which would have included ceramic uranium oxide nanoparticle inhalation. IAEA focused on deaths due either to verified high doses of radiation or cancer, omitting the unverified exposures; the years of hospitalization, medication and suffering attendant on thyroid, breast and skin cancers; and effects in all European countries that had not undertaken epidemiological studies of the nuclear fallout effects on their populations. It also omitted future cancers that will develop under the chronic exposure that continues even today^{39, 40}. The Report omitted the non-cancer illnesses, such as heart disease and autoimmune diseases, that are caused by radiation, and the stress caused by illness, inability to work, loss of property, orchards and farm animals, and evacuation. It omitted the pain of having malformed or diseased children and reproductive loss^{14, 41}. With respect to the hundreds of radionuclides emitted, the IAEA dealt only with two: ¹³⁷Ce and ¹³¹I.

There are other areas of health research that have been transferred to physicists because of the need for a background in physics to identify the hazard - for example, electromagnetic radiation of all frequencies, cordless technology, cell phones and masts, iPods and laser technology. Before we add more hazardous technology to the civilian body burden, I would strongly recommend that physicians and medical researchers become deeply involved in understanding the subtle impact of these already existing technologies on the human nervous and immune systems. These problems are urgent. The world cannot afford to turn over responsibility for human survival to military and commercial interests.

I estimate roughly 1 to 2 million premature deaths will eventually be attributable to the Chernobyl disaster⁴². This estimate is conservative, for several reasons. Some have already been discussed, others include the failure of the radiation investigation by the IAEA and UNSCEAR to document the radionuclide variety and the extent of radiation contamination of air, water, food, and drink after Chernobyl. Moreover because of the use of faulty ICRP methodology and the absence of a comprehensive scientific examination of all deaths among emergency or rescue workers, and disaster witnesses, the IAEA number is erroneous. Data was sketchy and incomplete on all other exposed populations^{39, 43}.

The UNSCEAR researchers appear to have relied on eliminating all cancers occurring in the first 10 years after the accident, and they reported a rough estimate of deaths, using a minimal risk factor reduced by a DDRF (dose and dose-rate reduction factor) for estimating cancer deaths in the areas where they admitted the presence of contamination of land, milk and potatoes. It is well known that radiation, through its mutagenic ability, can accelerate the development of any cancers present in the population at the time of the disaster. Many early, uncounted cancers may fit into this category¹⁴.

Conclusions and Recommendations

Many people are mystified that three U.N. Agencies - the IAEA, WHO and UNEP(U.N. Environment Programme) - seem to be agreeing on the minimal damage done to the people directly affected by Chernobyl and other low-dose radiation exposures. I think this is a failure to understand the profound influence wielded by the ICRP, which not only dictates what should be of concern to U.N. agencies, but also provides the methodology that must be used to determine both the dose of ionizing radiation received and the risk posed by that dose⁴. All of the U.N. agencies use these same protocols, methodologies and risk estimates - hence there are no independent assessments. Reform of the United Nations must assure independence of its agencies.

Numerous independent scientists and physicians have challenged the ICRP “system” for its underestimating radiation dose and risk, especially that for internal exposures^{44, 45, 46, 47}. But while it is broadly admitted to be an underestimate of harm there is no widely accepted methodology to replace it. This is the direct result of the constrained and secretive science practiced since the early 1940’s and 1950’s in nuclear technology. It is a disgrace in the 21st century!

The time has come to replace closed science with open science, self-perpetuating committees with professional societies accountable to their peers, and monopolized areas of research with properly funded, transparent scientific research. While physics is needed to identify and quantify the strength and nature of a radiation source, physicians with expertise in epidemiology, toxicology, oncology, pediatrics and community health should describe the injury caused by the radiation, and the ramifications of the exposure for the public health. The need is urgent for U.N. reform in this important area on which the survival of the human species and the environment may well depend.

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Direct reprint requests to:

Dr. Rosalie Bertell
1750 Quarry Road
Yardley PA 19067-3910

Email: rosalieberzell@greynun.org
In the printed copy the last page is 560.