Chernobyl effects not as bad as feared

■ Study finds no cancer or birth defects

■ Two key populations omitted, though

Vienna

THE first international study on the medical effects of the Chernobyl nuclear accident has found that, contrary to media reports, the 1986 accident did not result in any measurable radiological effects on the health of the local population. The only health effects of the accident were related to psychological effects such as stress, the study concluded.

The year-long study, presented last week at a four-day scientific meeting of the International Atomic Energy Agency (IAEA) in Vienna, was carried out at the request of the Soviet Union between March 1990 and January 1991. Its purpose was to assess the effects of the accident on the 825,000 inhabitants of the three most contaminated republics, the Ukraine, Byelorussia and the Russian Federation.

The researchers who carried out the study admit that it had several limitations. Because they were limited in both time and money, the visiting researchers relied on spot checks and statistical analysis of Soviet results instead of attempting to verify Soviet measurements from scratch.

Furthermore, the researchers did not look at two populations thought to be most at risk from radiation: the emergency clean-up crews known as 'liquidators' and the more than 100,000 residents who were evacuated in 1986 from the prohibited 30-km zone around the reactor.

Fred Mettler of the University of New Mexico, a member of the study team, said that the liquidators would have been a more valuable, if logistically difficult, group to study, but that the research team was restricted to observing the population that the Soviet government had requested. Soviet experts at the meeting said that they too were very interested in studying the effects of radiation on the liquidators, but that it would be difficult for a number of reasons, including insufficient data on the health of the liquidators before the accident.

The team members did say, however, that they could state with confidence that there is no known increase observed in any radiation-related illnesses, such as leukaemia, birth defects or thyroid cancer, for the populations of villages near the reactor that had been contaminated by radiation. Only in the case of thyroid cancer did researchers consider it likely that a significant, if small, number of excess cases might occur in the next five to ten years.

The study is seen as the most convincing evidence yet that the Soviets had not been covering up any disastrous health consequences of the accident — charges that had

been widely reported in the media (see *Nature* 351, 4; 1991). The study was sponsored not only by IAEA, but also by six other United Nations agencies, and the scientists on the team stressed that they carried out their measurements independently of IAEA.

Not everyone at the meeting accepted the team's conclusions, however. Representatives from the Ukraine objected to what they called the "optimism" of the study. The situation, at least in the Ukraine, is "definitely worse" than described in the study, said Viktor Bar'yakhtar, vice-chairman of the Ukrainian Academy of Sciences in Kiev. He said that there are statistically significant increases observed in both pregnancy abnormalities, such as stillbirths and vaginal bleeding, and thyroid disorders in children.

Environmental organizations also criticized the study. Greenpeace issued a statement saying that the study was "fully insufficient" and has grave weaknesses.

On the other hand, participants familiar with the data on the long-term radiological effects of the atomic bombs dropped on Hiroshima and Nagasaki said it is not at all surprising that no excess cancers have been reported yet at Chernobyl because it is just too early — and the Japanese experience does not point to a large increase in cancer even decades after the initial exposure.

Itsuzo Shigematsu, director of the Radiation Effects Research Foundation in Hiroshima, said a five-year study on survivors of the atomic blasts would not have identified many excess cancers either, despite the much higher radiation doses received. Even after 45 years, said Shigematsu, just 700 excess cancers had been identified among about 110,000 survivors.

Indeed, the study implied that the Soviet government's overreaction to the accident poses a greater danger to the population than the radiation. The study found that the purposely conservative Soviet measurements placed the radiation dose absorbed by the population at two to three times its actual value. Politicians in Moscow and the republics then used these data to justify resettling hundreds of thousands of people.

According to study team member Terence Lee, a professor of psychology at University of Surrey who assessed the psychological effects of the accident, moving people out of the region now is medically unwarranted and would be a "disaster" for their health, as the trauma of relocation would be "colossal".

But the Soviet Union seems intent on continuing the resettlements. According to

a new law passed on 20 May, Moscow promises to provide relocation costs and new housing to anyone living in areas where the population is affected by a certain minimum radiation dose. Lee argues that the dose, which the law sets as an average annual radiation dose of 0.5 rem above natural background, is an "absurdly low threshold". Furthermore, Lee said, the move sets a dangerous precedent for other countries with high natural radiation levels. If Britain followed the Soviet guidelines, for example, it would "have to evacuate half of Cornwall".

Viktor Gubanov, deputy chairman of the Soviet Union Council of Ministers' State Committee on the Elimination of the Consequence of Chernobyl, says that the government will relocate at least 218,000 people between 1990 and 1992.

Incorrect information and a lack of scientific understanding of radiation have combined with political opportunism to create a huge psychological problem in the Chernobyl area, the study team said. The study found the psychological effects "wholly disproportionate" to the biological significance of the radiation.

The results "shout at you so loud," Lee said, that a study was not really needed to see how bad they are. Every little illness in the affected areas is being attributed to radiation, says Lee. "If a child gets a nosebleed, it is considered a hospital case," he says.

The study showed that, despite the absence of immediate danger, 72 per cent of adults living in the so-called "danger zone" wanted to move out.

Several members of the study team said their work was complicated by a reluctance among Soviet scientists to share all their data. "All this talk about scientific collaboration is nonsense," Lee said. The study, he said, was carried out in an atmosphere of "colossal tension" between Western and Soviet researchers — a factor that study participants fear will affect the accuracy and usefulness of future health studies in the Soviet Union.

The main problem at the outset, Lee said, was simply getting a look at the Soviets' data. Researchers would talk at meetings about their results, but they refused to give copies of their papers or summaries of their data to study team members. Mettler said it took delicate negotiations to persuade the Soviets to cooperate. "Many of them said, 'I've worked many years to get this data, and now you're going to run off and publish it'." Mettler had to promise not to copy their data, but just to take notes on it for use in the study.

Because of the public distrust of Soviet science, the scientists at the meeting saw it as essential that the researchers who performed the survey be invited to return to the Soviet Union in order to deliver its results. "If we rely now on official Soviet media to announce the results," said Friedrich Steinhäuser of the University of Salzburg, "they will just be met by more distrust."

Steven Dickman