LETTER FROM KIEV BY DAVID COX

Kiev is a city rich in history and monuments. Its inhabitants, though, might wish that its history had been otherwise....

In this century alone, it has been the site of fierce battles and civil wars. In 1917 revolutionary and counter-revolutionary forces fought a see-saw struggle for the control of Kiev. In the Second World War it was captured by the Germans after a major campaign, and recaptured by the Soviets two years later in a battle of equal ferocity. The ravine at Babi Yar, where more than 100,000 citizens of Kiev were executed by the German invaders, is still an open sore, for the authorities have dedicated the monument not to the Jewish victims, who were undoubtedly the majority, but to the Kievites generally who resisted the invaders.

Kiev has once again been touched by catastrophe. It was dangerously close to the nuclear accident at Chernobyl, and for a week afterwards the fate of the city was uncertain. Now it is the command centre for the massive Soviet efforts to rehabilitate the contaminated area around Chernobyl, and to limit further environmental damage from the radioactive elements that were released by the fire at the reactor.

A 200-kilometre perimeter has been created around Chernobyl, within which access is restricted. The contamination within the zone is uneven, and so the efforts of rehabilitation are complicated.

Monitoring this operation are scientists at the Institute for Nuclear Research in Kiev and the Academy of Sciences of the Ukraine. In what may be for some a cruel irony, they have before them an environmental laboratory for nuclear research on a scale not seen since Hiroshima and Nagasaki.

The damaged nuclear reactor is sealed, but sensing devices have been installed which permit constant computer monitoring of the temperature, fissile activity and vibration within the concrete tomb. With the initial danger now over, the scientists at Kiev are engaged in detailed analysis of the consequences of the radioactive fallout. By their own admission, there have been many surprises.

Plant life has not reacted uniformly to the radioactivity. Some plants have absorbed great amounts, some very little. Don't eat blueberries after a dose of radioactivity, but do try the tomatoes – even in the most contaminated areas, they were virtually free of radioactive nucleides. At the heart of the scientific effort is an attempt to understand the pattern of dispersal of the individual elements of the radioactivity – particularly those like strontium and caesium whose effects persist the longest. To understand this in a total context, the research at Kiev seeks to relate this information to the complete ecological environment of the immediately-affected area, and of the larger region of the Ukraine. The problems are: how does the level of the water table vary from one location to another? How do the soils vary, and which ones absorb or resist radioactive nucleides? What happens when the rivers and streams carry the radioactivity from one area to another? How do the plants respond in the new area of contamination?

Teams of geologists, biologists, climatologists, physicists, and chemists have located in Kiev to analyze the problem. The Institute for Nuclear Research uses a supercomputer to assimilate all the data and it has produced a model of the region which will include every known detail of the ecology.

The Institute of Nuclear Research is clearly proud of its work, but recognizes that difficulties lie ahead. For example, with the heavy winter snows, there was a large spring run-off. Emergency water supplies for Kiev are planned. The migration of the nucleides is still uncertain, the full process of rehabilitation still problematic.

With all these imponderables, the authorities remain committed to nuclear power. They have no realistic choice, they argue, for coal is just as environmentally dangerous as nuclear power, and there are no other economically viable alternatives for the Kiev region. While the Soviets have abandoned plans to build two new reactors at the Chernobyl site, and will build no new reactors of the graphite design, they are repairing the second damaged reactor which was shut down after the accident.

In what may be for some a cruel irony, they have before them an environmental laboratory for nuclear research on a scale not seen since Hiroshima and Nagasaki.

One can only hope that the lessons at Chernobyl have been learned by Canada and other nuclear energy users. Could the Government of Ontario evacuate 45,000 people in the two hours following a major reactor accident? Do we have thirty-kilometre emergency evacuation zones? Do we know in intimate detail the micro-ecology of the regions in which our reactors are located, or even the local variations in the water table? Do we have the combination of scientists necessary for the recovery effort comparable to that now under way in Kiev?

Kiev's experience with the nuclear genie has other implications as well. The damage to life around Chernobyl was caused by the release of about four to five percent of the radioactive core of the reactor. This has been compared to the radioactivity that might result from the burst of a five-kiloton nuclear weapon (only about one-third the size of the one dropped on Hiroshima). But a real five-kiloton weapon would destroy the Institute for Nuclear Research, the Academy of Sciences, and the hospitals mobilized to deal with the victims of Chernobyl. What chance then for the survivors to discover that their best bet is to eat tomatoes?

Of course, the answer will be that Canadian reactors are completely safe. On this, however, the last word goes to the Soviets. Since they suffered the accident with their own "safe" reactor, they have increased all safety regulations many times over, and thoroughly reviewed the reliability of the reactor itself. But they admit frankly to one essential problem: the human factor. Nothing can be foolproof, they say, because the fools are too ingenious. □

David Cox is the Director of Research at the Canadian Institute for International Peace and Security. He attended the Moscow International Forum last February, and while in the Soviet Union visited the Institute for Nuclear Research in Kiev.