

# Yeltsin voices concern over 'brain-drain'

[MOSCOW] The Russian president, Boris Yeltsin, has expressed concern that the continued exodus of scientists — and the resulting decline in the strength and prestige of Russian science — has become a threat to national security.

Presiding over a meeting of the Security Council in Moscow last week, Yeltsin pointed out that about 50 of the country's 100 best known scientists had left Russia.

"The 'brain-drain' still continues, although not as intensively as earlier," he said. "This is leading to dangerous consequences, both economic and political, since our intellectual and spiritual resources are being exhausted."

Yeltsin's concerns are based on the fact that, although a growing number of students and postgraduates are being temporarily sent abroad by the government to study at foreign universities, many postgraduates and researchers at Russian universities are choosing to leave the country permanently.

Yeltsin is reported to have started to discuss the brain-drain problem spontaneously — it was not on the agenda of the Security Council meeting. In an address lasting almost two hours, he also expressed concern that Russia's education system does not produce enough scientists. He warned members of the council that Russia may lose its technological independence as a result.

Yeltsin said he was dissatisfied with the efforts of federal ministries and other government bodies to reform science. He demanded that all scientific organizations immediately be paid all the money owed to them by the state, even within the present restricted budget.

A report prepared for Yeltsin by the Science Statistics Research Centre of the Ministry of Science and Technologies says that Russia is continuing to lose its strategic scientific potential at an increasing rate.

Since the beginning of the decade, 2,000 individuals engaged in science and education have left the country each year, and

overall Russian science has lost about 40 per cent of its top level researchers.

Unesco estimates the cost to Russia of this brain-drain as US\$30 billion. But the country no longer has the ability to restore such intellectual losses, as its universities receive only 5 per cent of government funds allotted for science.

This, in turn, means that public interest in science is low. A survey by the statistics centre showed that only 2 per cent of scientists expect young researchers to join their laboratories. And half of those questioned had not heard about recent scientific achievements such as cloning.

Commenting on Yeltsin's remarks, Vladimir Aleksandrov, deputy rector of Moscow State University, admitted that 10 per cent of its scientists are now abroad.

According to Vladimir Kryuchkov, former chief of the KGB (State Security Committee), "unofficial sources and unpublished information" to which he had access indicated that 200,000 scientists left the former Soviet Union between 1988 and 1991.

Vitaly Goldansky, a counsellor to the Russian Academy of Sciences, challenged this figure, suggesting that there were only "a few tens of thousands" of such people. But he admitted that "it is not the figure that matters, but the fact that they were the most able and talented scientists". **Carl Levitin**



## US air base in Japan increases monitoring of local dioxin threat

[TOKYO] Officials at a US naval air base in Atsugi, Japan, plan to install an infrared sensor to monitor gases from a nearby waste incinerator which they claim is discharging toxic pollutants such as dioxin and tetrachloroethylene.

The problem is "the number one issue of concern for US forces in Japan," says an official at the US Naval Air Facility (NAF) base, which has more than 2,500 residents.

Although some local authorities have taken action against various sources of dioxin — for example, by ordering the closure of school incinerators — national regulations have yet to be implemented. Officials have refused to take action in the Atsugi case, claiming that the exhaust gases are within permitted limits.

The move by US officials to increase their own monitoring capabilities comes after Jinkampo, a privately owned waste incineration facility 250 metres from the NAF base, was granted a five-year extension of its waste disposal licence, despite objections from residents of the base.

US military officials have been analysing the emissions since 1988, after complaints from residents. Recent tests have allegedly

identified 12 pollutants emitted from Jinkampo. Officials concluded that the health risks were unacceptably high by US standards. The officials say that twice as many individuals suffer from respiratory diseases such as asthma at Atsugi as at other bases in Japan.

But appeals to the local prefectural government in 1989, asking for action to stem the emissions, and a report submitted to the Environment Agency in 1995 listing toxic substances detected in air samples, have been ignored by Japanese officials. They argue that emissions are within Japanese air pollution standards.

Officials at the base now intend to use Fourier transform infrared spectroscopy, which can monitor and analyse emissions from chimneys whatever the wind and atmospheric conditions, to improve their analyses of air samples. Data collected by the previous method, which used ambient air data, were not recognized by the Japanese government.

According to Brian Murphy, an environment specialist at NAF Atsugi, the main difficulty is that the waste incinerator is privately owned, and that Japan does not

have an "environment protection agency" to establish and enforce pollution laws.

Japan depends heavily on incinerators for waste disposal, burning 73 per cent of its waste, compared to only 16 per cent in the United States. In the United States, stringent air quality standards make it difficult for incinerators to comply with pollution laws.

The Japanese government has tried in the past to seek alternative methods of waste disposal. But opposition from industry has blocked implementation, partly because limited land means that methods other than incineration are expensive and complex. One result is that Japan regulates only ten hazardous air pollutants, compared with 195 in the United States.

The government has only recently started to introduce measures to regulate dioxin levels, following appeals from the public, including lawsuits against incineration plants for causing health hazards. Pollution caused by dioxin, a by-product of waste incineration suspected of causing cancer, is a major problem in Japan, where 450 million tonnes of waste are disposed of each year. **Asako Saegusa**