Pollution as Czech public enemy number one

- Dangerous levels of sulphur dioxide
- Reduced average life expectancy

Prague

CAUGHT between ecological and economic crises, the new government of Czechoslovakia is working feverishly to find a plan to preserve what is left of the ravaged environment without ruining the economy.

The coal-mining regions of northern Bohemia have been devastated by the effects of strip-mining and the burning of high-sulphur coal. During temperature inversions, which normally last two to four weeks each winter, the sulphur dioxide level can reach 2,000 μg per mm^3 of air, more than 20 times levels considered harmful to health.

Until recently, most such data were kept a secret by the Communist government, but "you did not need measurements to know something was wrong", says Vaclav Slavik. "You couldn't see more than 2 metres" during an inversion, he says, because of the acrid yellow fog.

Life expectancy in northern Bohemia is 1.5 years lower than the Czechoslovak average and the chances of dying of cardiovascular disease or cancer are significantly higher, says Jan Kasal of the Regional Health Station in Usti nad Labem.

The forests across Czechoslovakia are also endangered by the pollution. Svatomir Mlcoch of the Czech Environment Ministry reports that 40–60 per cent of the forests in Bohemia and Moravia are dead or severely damaged by pollution.

The situation is no better in Prague. Czechoslovak television reported in mid-February that the level of nitrogen oxides in central Prague, which supposedly never exceeded a limit set by the old government at 100 μg per mm^3 had reached 4,100 μg per mm^3 .

"We have all the political support we need" to enact anti-pollution measures says Bedrich Moldan, the harried new minister for the Czech lands, who is responsible for the environment in about two-thirds of Czechoslovakia. A poll released last week on Czechoslovak television showed that 83 per cent of respondents considered the environment the "first priority" for the new government, followed by health care. (An improvement in the variety of goods available in stores came tenth.) Another recent poll showed that 43 per cent of Czechoslovak citizens would accept a cut in their standard of living if the money were invested in improving the long-term welfare of the nation, its economy as well as its environment.

But despite the high level of public support, Moldan, an analytical chemist specializing in acid rain who succeeded in publishing a few data about the environment even under the old regime, says that a system to deal with pollution is still lacking. In the short term, he says, it will be very hard to reorganize the Czechoslovak economy along sound environmental principles.

Greater freedom may even make control of pollution more difficult. It will be impractical, he says, to grant autonomy to factories and at the same time expect them to install filters or water treatment plants to reduce pollution, because they may just decide to invest their money in something else.

Czechoslovakia is enjoying an exceptionally mild winter this year with fewer smog alerts than usual. But Moldan says he is afraid of strikes and demonstrations in northwest Bohemia if the pollution returns to its normal level. "The people are willing to make sacrifices", he says, "but they don't want to breathe polluted air any more." Pollution problems may even encourage harmful political battles.

The Ecoforum group, a part of the Civic Forum that organized the peaceful 1989 revolution, has sent a letter to Moldan and other leaders blaming the disastrous economic conditions in northwest

Bohemia on the need to "secure the supply of goods and energy to other people in Czechoslovakia". Moldan says it is politically very dangerous to blame the problems on other citizens instead of on the previous government.

The first priority, Moldan says, is a comprehensive energy policy that includes restructuring the economy around light industry in place of steel and other heavy industries.

Czechoslovakia, like other Eastern European countries, is caught between two unattractive energy alternatives — burning coal with a high sulphur content or building more nuclear power plants.

Even coal miners would favour nuclear power (despite the potential loss of their jobs), says Moldan, and the people who live near the two existing nuclear plants and the two under construction favour other energy sources. Moldan advocates completing the plants now under construction but phasing out nuclear energy in 20 years.

Moldan cannot even shut down the worst polluters in the country until there are alternatives. The factory at Ostramo which recycles used oil is a case in point. The factory is "old and dirty", he says, but if it is shut, "people will just dump the oil on the ground".

One obvious strategy — getting help from outside — will not be easy to apply after President Vaclav Havel declaration that Czechoslovakia wants to accumulate no new foreign debt. But Moldan will visit West Germany later this month to see about accepting help to reduce the sulphur content in the smoke from coal-fired power plants.

Steven Dickman

SPACE TRANSPORT

Firing pennies to heaven

Washington

FACED with the soaring cost of satellites, a US congressional agency is proposing that 'lightsats', 'fatsats' and legions of tiny disposable rockets with ice as fuel could provide imaginative ways to save money.

A new report from the Office of Technology Assessment (OTA) says that although launching a pound of payload into low-Earth orbit currently costs about \$3,000, the payloads themselves cost between \$200,000 and \$800,000 per pound. Using cheaper rockets — even an order of magnitude less expensive than current designs — would cut total cost by only a few per cent, OTA says.

A more effective way of making savings is to allow satellites to be larger, heavier and less technologically refined ('fatsats'), or simpler and lighter ('lightsats'). OTA's most startling suggestion is that simple tube-like rockets filled with ice or plastic could carry 20 kg 'microsatellites' into

space. Power would come from a ground-based laser that would be directed at the inert fuel and vaporize it. The launch cost would be about \$120 per pound. At up to 60,000 launches a year, such a systems could put twice as much tonnage — in 20 kg lumps — in space as current US programmes.

But the plan would require 25 MW lasers, about five times as powerful as the best that have been so far demonstrated. Developing such a laser could cost \$525 million, says OTA, quoting figures from the Pentagon's Strategic Defense Initiative.

And still unanswered is how useful 60,000 small packages in space might be. Fuel for interplanetary missions is one possibility, but even that proposal has its sceptics. "Think of all the astronauts you'd need to decant it", says Federation of American Scientists space analyst John Pike.

G. Christopher Anderson