

New Air Rules Worry Czech Firms

By Lynda L. Maillet

The Czech Republic has made significant progress in tackling its legacy of environmental problems and in bringing environmental regulation closer to Western standards. Pollution control had been given a very low priority — by both enterprises and the state — in the planned economy with its focus on gross output. Moreover, whatever efforts were made to control pollutants before 1990 used equipment which was seriously inadequate. The Czech Republic is now trying to catch up in both law and practice. The government's task is made more difficult by the need to balance protection of the environment and public health with the limits of a still-transforming economy.

Many of the new regulations have been based on standards adopted by West European countries and are being phased in gradually in order, theoretically, to give Czech firms sufficient time to meet them. The firms' biggest hurdle is to find the financing necessary to install pollution control equipment or to move to new, more efficient technologies in their plants. Most of the technology needed to meet

these new standards must be purchased from abroad either by buying the equipment outright or licensing technology to be produced

domestically. By law, all plants must meet the limits set in legislation by the end of 1998. Many are complaining that they will not be able to meet the limits in time because they lack the needed funds.

The most serious air pollutant in the Czech Republic is sulfur dioxide (SO₂); in 1993, SO₂ emissions amounted to 1.8 million tons in the Czech Republic, averaging nearly 23 tons per square kilometer. Many other pollutants contribute to the deterioration of air quality in the country as well, including particulates, volatile organic compounds (VOCs), nitrogen oxides (NO_x), and heavy metals. The burden on the environment and the health of the populace is made worse by the country's location in the "Black Triangle," one of the most highly pol-

luted regions of Europe, which includes portions of Germany and Poland as well as the Czech Republic. This region has historically been heavily industrialized and reliant on local high-sulfur coal. The fact that emission sources are often concentrated and nearby mountains cause frequent temperature inversion situations (which trap air with high concentrations of SO₂ near the ground) exacerbate the situation.¹

Power and heating plants are the most extensive air polluters in the country because most use domestic soft (lignite) coal. Metal processing plants are also major polluters. Building heating systems (many of which also use coal) and vehicle exhaust contribute a great deal to local air pollution levels. Automobiles remain a serious source of air pollution since a large fraction still use leaded gas, and catalytic converters were not required on new cars until November 1993. In the last three years, however, auto ownership has expanded rapidly as the economy changed; and the new cars, whether imports or domestic Skodas, are all equipped with catalytic converters.

After the Velvet Revolution of 1989, the new Czech government finally took measures to start to control air pollution in the republic. They replaced an ineffective air pollution law from 1967 with the Act Concerning Protection of the Atmosphere against Pollutants (No. 309/1991 Sb.) or APA, amended in 1992 (by Act No. 218/1992 Sb.). The 1992 amendment made changes in the definition and categorization of pollution sources and added provisions for setting limits and fines. A separate act in 1993 (Act No. 211/1993 Sb.) focused on the protection of the ozone layer. It prohibits the production, import, and use of Class I ozone-depleting substances beginning 1 January 1996;² the ban on the import of freon-using

¹ Inversion situations in Prague in the winters of 1982 and 1987 caused the 24-hour SO₂ concentrations to exceed 3,000 micrograms per cubic meter of air where the admissible limit is 150 μ/m³. This same limit is exceeded for 117 days a year on average in the town of Chomutov.

² Class I substances include CFC-11, 12, 113, 114, and 115; halon 1211, 1301, and 2402; carbon tetrachloride; and methyl chloroform. The production and import of aerosols containing chlorofluorocarbons has been banned since July 1993.

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devices began on 1 January 1994. Another amendment to the APA — approved on 9 July 1994 and effective 1 October — adds provisions for setting fines for industrial polluters and, in some cases, eliminates waiting periods before new legislation takes force.³ Until this year, changes to environmental standards had to be announced three years in advance and then could not be changed for another five years. These provisions were relaxed for fuel and technology standards because they were seen as a barrier to the use of more efficient technologies.

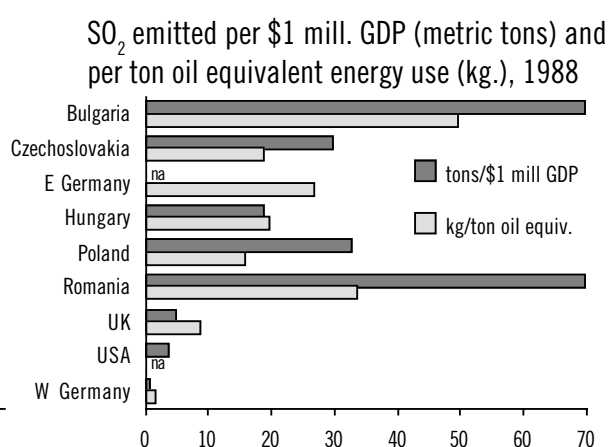
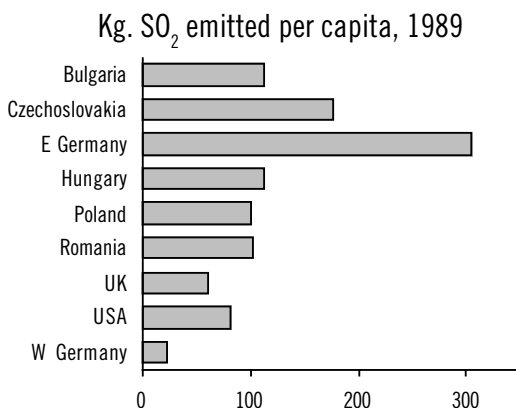
The Environment Ministry is responsible for issuing regulations which implement the laws. The ministry's enforcement arm, the Czech Environmental Inspectorate (CEI) ensures compliance with laws and regulations and has the authority to assess fines.

The APA divides sources of air pollution into two groups: mobile and stationary sources.

the U.S.). The term is not clearly defined in law, so interpretation will be left to regulatory authorities.

The air pollution limits employed under the APA are ambient air quality standards (AAQS), point source emission limits, and special ambient air quality limits. The Czech AAQS are based on international agreements; limits have been set for dust, SO₂, NO_x, carbon monoxide, ozone, lead, and cadmium. The standards are defined in terms of maximum yearly, daily, and hourly average concentrations of specified pollutants. Emission limits are set for all individual sources of pollution including new and existing stationary sources and mobile sources. Current limits have been set for new large and medium pollution sources based on the performance of "BATNERC" technologies. Existing sources have limits based on the minimum emission levels achievable with existing technologies. However, all individual sources

Sulfur dioxide emissions in East Europe on the verge of transition (and selected Western industrial countries)



Source: Worldwatch Institute, United Nations

Stationary sources are further divided into three classes: large, mid-sized, and small sources. Different requirements and fees affect the different classes.

Both direct regulations and incentives are used to help curb pollution under the APA. Emission limits, technology requirements, effluent charges and tax incentives are all used as pollution control measures. All new or refitted stationary sources of pollution must introduce the "best available technology not exceeding reasonable cost" (BATNERC — equivalent to "best available control technology" or BACT in

must reduce their emissions to West European levels by the end of 1998. Many Czech companies are nervous about meeting these standards given their current economic situation. Much of the equipment they need is only available in the West and many do not have the money needed to import the equipment.

Special ambient air quality standards were established to allow for emergency measures when changes in the weather cause extremely high pollutant concentrations in locales such as national parks, protected areas, and heavily polluted cities and regions.

The Ministry of Transportation issues regulations dealing with automobile emissions. The ministry sets engine emission standards based on United Nations Economic Commission for Europe regulations; limits were set for hydrocarbons, NO_x, and carbon monoxide in ex-

³The part of the amendment requiring automobiles to pass emission inspections was removed from the law by the Parliament's Economic Committee which was concerned about its economic effect. The Ministry of Transportation plans to resubmit this initiative to Parliament in November.

Pollution Emissions in the Czech Republic, 1993

('000 metric tons)

SO ₂	1,776
NO _x	725
CO	1,102
Hydrocarbons	227
Particulates	592

Source: Czech Environmental Management Center

haunts. The ministry also introduced regular auto inspections.

The 1994 amendment to the APA calls for a warning system to alert polluters if their emission levels are in danger of violating the law. Collection stations around the country monitor air quality; the Ministry for the Environment can then calculate if the limits in certain regions will be exceeded and warn the plants there to reduce emissions or face penalties.

Penalties imposed on polluters that violate the limits or requirements range from 500 to 10 million korunas (\$18 to \$360,000) depending on the size of the facility, the seriousness of the violations and the amount and kind of emissions. Penalties are doubled if the same violation occurs within one year. Plants that violate the limits are also required to take corrective measures. Under certain circumstances, the CEI may order a facility to stop or limit operations if violations continue.

Effluent charges — where polluters pay a fee per unit of emission discharged — are also

used to regulate pollution. The fees have increased gradually since their introduction in 1991 and will rise until 1997, at which time they should serve as a strong incentive to reduce emissions. Other economic measures include tax and tariff policies which favor environmentally friendly products.

Individuals and firms may be held liable for damages caused by air (and other) pollution under provisions of Civil and Criminal Codes. However, the judiciary in the Czech Republic, as in most of Eastern Europe, has not progressed to the point where these remedies are very viable. Denisa Kratochvílová of KZT (see box below) says that it is quite difficult for firms to sue for environmental damage caused by another company. The process would take years, and the absence of established case law makes the outcome uncertain. Government regulations rather than legal liability are the strongest incentive for compliance.

The Czech Republic is also preparing a program aimed at reducing VOC emissions.

One Czech environmental firm: KZT

KZT started life as an environmental information service during the Velvet Revolution of 1989. Its founders called themselves the Club of the Green Telephone (Klub Zeleného Telefonu), later KZT Ltd. The company has since grown into a well-respected environmental consulting firm specializing in environmental auditing, environmental impact assessments, environmental management, waste management, and investigation and remediation of groundwater and soil contamination. The project manager of the environmental management arm of KZT, Denisa Kratochvílová, has been involved recently in a survey of environmental management practices at 40 industries in Bohemia. KZT has also done environmental projects for companies ranging from Prague's international airport and the Melník powerplant to the Lovosice agricultural enterprise. The environmental protection division has also investigated soil and ground water contamination of various municipal landfills as well as proposed a monitoring system for Prague's landfill. KZT has designed waste management programs for over 70 municipalities to help them meet government requirements. KZT usually does its work in house

rather than hiring subcontractors or consultants; they have a geologists, chemists, solid- and water-waste specialists, and environmental management specialists.

KZT's publishing division provides information on environmental related subjects in the Czech Republic. Among other services, KZT publishes the monthly EKOjournal — covering environmental protection and business — and operates ENVIROBASE, a database with information on services, products, and environmental measuring techniques in the Czech Republic, available in both Czech and English. KZT also received funding from U.S. AID to hold business management training courses for Czech and Slovak small- and medium-sized environmental businesses.

According to Ms. Kratochvílová, the next big challenge is pollution prevention at the level of the individual firm, including air, water and solid waste; she is now attending a training program in pollution prevention techniques. The Czechs, however, need case studies of economically feasible pollution prevention in action to convince managers to employ these techniques. —LLM

When ready, the republic will be able to sign the Protocol on Volatile Organic Compounds adopted in Geneva in 1991, which calls for a 30% reduction in VOC emissions.

The Clean Up

According to Ms. Kratochvílová, the new regulations are still a big worry for most of the companies despite the three year advance notice to comply with air pollution limits. Some power plants have started desulfurization projects already, but many other industrial companies will find it very difficult to fund pollution control techniques. No companies are exempt.

A number of large power plants are already in the process of building flue gas desulfurization facilities using Western equipment. The Pocerady electrical plant in northern Bohemia recently began operating new desulfurization equipment imported from the Netherlands and Germany. The new technology, known as wet limestone wash, should reduce emissions of SO₂ by 95% from 126,000 tons per year to 12,500 tons by 1998. In another deal worth almost \$60 million, a group of Japanese firms led by JGC Corp. will install an emission-control and desulfurization plant at Elektrarny Opatovice, a power plant in eastern Bohemia, by the end of 1997.

Building heating systems will be dealt with

in different ways. The current system will be made more efficient by connecting individual homes or apartment buildings to the city's central heating system. Where buildings are already connected to a central system, individual meters will be installed in homes in order to encourage conservation of heat and hot water.⁴

Another interesting case shows the potential for international environmental agreements. Three American partners — Wisconsin Electric Power, Northern Indiana Public Service, and Commonwealth Edison — are investing \$600,000 to convert a Czech coal-fired heating plant to natural gas in a pilot project coordinated by the Center for Clean Air Policy in Washington. The project, in Decin in north Bohemia, will help reduce greenhouse gas emissions of carbon dioxide, which the American partners hope to use as a credit toward reductions required of their U.S. plants under provisions of the Earth Summit treaty signed in Rio De Janeiro in June 1992. The conversion will also result in dramatic reductions of SO₂ and particulate emissions. ◇

⁴In Prague, the average unmetered household consumes 60 cubic meters of hot water annually, while metered households consume only 27 cubic meters on average.

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Paying for the cleanup...

One particular worry for policy makers is the burden to newly privatized firms of years of environmental neglect under state ownership. The costs could be overwhelming, not only for upgrading technology and production techniques but also for the cleanup of existing environmental hazards. On the one hand, officials worried that these costs and liabilities might make it difficult to successfully privatize many firms; on the other, they were worried that the size of the burden would tempt managers and new owners to hide the scale of the existing problem.

As a result, the Czech government has set up a program to cover pollution clean up costs for enterprises prior to privatization. The costs are paid out of the National Property Fund (NPF). Before being privatized, a company must pay for an environmental audit. Only those problems identified in the audit are eligible for NPF grants. The audit must be ap-

proved by a state agency and the Czech Environmental Inspectorate can then enforce clean up. According to KZT's Denisa Kratochvílová, firms preparing for privatization are generally cooperative during the environmental audits, since (at least in theory) they can get government grants for cleanup costs exposed in the audit. Thus it is not in the firm's interest to hide environmental costs that might otherwise have become a time bomb for the private company later on.

The NPF program applies only to remediation of existing environmental damage and includes groundwater contamination, soil contamination, and existing dumps or disposal sites of toxic wastes. The program covers companies participating in the second wave of privatization (which is being completed this fall). Companies which participated in the first wave are not currently covered in this program.

—LLM