EXECUTIVE BODY FOR THE CONVENTION ON
LONG-RANGE TRANSBOUNDARY AIR POLLUTION

THE 2000 REVIEW ON STRATEGIES AND POLICIES FOR AIR POLLUTION ABATEMENT

THE 1985 PROTOCOL ON THE REDUCTION OF SULPHUR EMISSIONS OR THEIR TRANSBOUNDARY FLUXES BY AT LEAST 30 PER CENT

REPLIES TO QUESTION 1 OF THE 2000 QUESTIONNAIRE

Prepared by the secretariat from submissions by the Parties

Introduction

1. This document is the basis for part of the 2000 Review of Policies and Strategies requested by the Executive Body at its seventeenth session in December 1999. It provides the answers as received from Parties in response to the questionnaire circulated in January 2000. It is in English only, non-English submissions were passed to the UN translation services, and are incorporated as translated. Answers have been reformatted for the document and subjected to minimal editing. Indication is given where responses have been altered, e.g. moved where an answer appears to be for a different question.

2. The document is intended as a reference for the summary to be found in the 2000 Review of Strategies and Policies (EB.AIR/2000/1) and will be provided to the Executive Body, the Implementation Committee and will be made available through the Executive Body document Web site. The document groups questions in accordance with the sections of the questionnaire.

3. This section summarizes the answers received to **question 1 of the questionnaire**: **As required by article 6 of the protocol, provide information on your country's national strategies, policies and programmes that specifically address the reduction of sulphur emissions.**

4. Responses to the question are mandatory for the Parties to the Protocol: Austria, Belarus, Belgium, Bulgaria, Canada, Czech Republic, Denmark, Finland, *France,* Germany, Hungary, Italy, *Liechtenstein*, *Luxembourg*, Netherlands, Norway, Russian Federation, Slovakia, Sweden, Switzerland, Ukraine. However, those Parties in italics failed to provide a response to the Secretariat. In addition responses were received from three other Parties to the Convention: Croatia, Republic of Moldova and Poland (identified with * below)

5. **Austria.** According to the Industrial Code and the Clean Air Act for Steam Boilers, a licence for each new or modified installation is required. The determination of emission limit values and/or measures according to best available technology is carried out in the licensing procedure; these provisions have been introduced in the 80's. For several categories of stationary sources explicit emission limit values and BAT requirement have been set by ordinance. Limit values for the sulphur content of fuels have been stipulated. As a consequence emissions of sulphur have dropped by 88% between 1980 and 1998 (by 49% between 1990 and 1998).

6. **Belarus.** National, regional and industry-specific programmes on environmental protection and energy saving are formulated and implemented in accordance with the Ambient Air Protection Act 1997 and the Energy Saving Act 1998 to pursue effective and targeted policies. Measures are also provided by law making it compulsory to include fuel and energy consumption standards in technical regulations, certificates and instructions for the use of all kinds of energy-consuming equipment. Energy monitoring is compulsory for installations with an annual fuel/energy consumption of more than 1,500 tons in standard fuel equivalent. The main approaches being taken to control sulphur emissions include converting industrial, utility and domestic sources of thermal energy from coal and fuel oil to natural gas, reducing consumption of high-sulphur fuel oil, gradually phasing out coal and making use of local fuels (peat, associated petroleum gas, wood and wood residues). In 1999 the share of natural gas in all fuel types was about 75%, or 87% at large power-generating facilities (thermal power stations). Action plans call for major power-generating facilities to use gas and fuel oil in a percentage ratio of 90 to 10.

7. In order to reduce sulphur emissions from mobile sources, the oil refining plant in Mozyr has begun producing diesel fuel with a sulphur content of 0.03-0.04%. The proposition of sulphur by mass in the petrol produced for motor vehicles is no more than 0.05%. The Government is also taking steps for the conversion of mobile sources to compressed and liquefied natural gas motor fuels.

8. **Belgium**. See question 18.

9. **Bulgaria.** Bulgaria is Party to the Protocol since 1986. 09.26. in accordance with Article 6, a National Programme was worked out and adopted by Government Decision 117/1985. Mentioned Programme encompasses scientific, research, development and investment activities, aiming at sulphur and nitrogen emission reduction. The political and economic changes after 1989 caused significant failure in the implementation of the measures intented for carrying out investment projects, as well as the construction of purification facilities provisioned in the Programme. The following activities were implemented:

a) The production of sulphur acid by frying pyrite was stopped in chemical plants;

b) Dual catalysis installations were employed in the production of sulphur acid for the non-ferrous metallurgy;

c) Natural gas share in the production of heat and electric energy was increased.

d) Also, due to the general decrease of production after 1989, the total annual sulphur emissions dropped from 2 420 thousand tonnes in 1987 down to 1 420 thousand tonnes in 1993, or as per the base year 1980 (2 050 thousand tonnes), a 31% reduction was achieved.

10. **Canada.** For sulphur dioxide, there is an eastern Canada cap (for the seven provinces from Manitoba eastward) of 2.3 million tonnes for 1994-2000; a permanent national cap of 3.2 million tonnes; and a 1.75 million tonne cap in the Sulphur Oxide Management Area (SOMA) in southeastern Canada by 2000. In 1998, emissions of in eastern Canada were 20% below the cap, national emissions were 16% below the cap, and emissions in the SOMA were 25% below the cap. The key policy measures used for the reduction of SO_2 emissions have been federal-provincial agreements, in which the federal government set the SO_2 target (or limit) and the provinces either regulated or entered into voluntary agreements with emitters to achieve the required reductions (with most provinces choosing to adopt provincial regulations).

11. The Canada-Wide Acid Rain Strategy for Post-2000, signed by all provinces and territories and the federal government in 1998, provides the framework for the achievement of the further major reductions in acidifying emissions, including SO_2. The strategy specifically commits the governments of Ontario, Quebec, New Brunswick and Nova Scotia (the provinces where acidic deposition continues to exceed harmful levels) to establish further reduction targets and schedules for SO_2. The strategy also commits governments to limit growth in emissions of SO_2, to review compliance with international commitments on SO_2 emissions, and to report annually on SO_2 emissions and forecasts.

12. The federal government is developing Phase 3 of the Federal Smog Management Plan, for release in Summer, 2000. Under Phase 3 government will engage industries in a multi-pollutant emissions reduction approach, addressing smog precursor emissions while taking into account climate change, acid rain and hazardous air pollutants. Sectors specifically targeted for sulphur dioxide emissions will likely include petroleum fuels, pulp and paper, base metals smelting and iron and steel.

13. **Croatia*.** Croatia did not ratify the above-mentioned Protocol. See Q.18.

14. **Czech Republic.** The basic strategy and national policy for complying with the requirements of the Protocol, i.e.a decrease in sulphur emissions by at least 30% by 1993 at the latest compared to the 1980 level, was concerned primarily with a decrease in primary energy consumption, and achieving of a decrease in the amount of burned solid fuels with high sulphur contents (especially brown coal with low heat capacity and high sulphur contents burned in power plants). Simultaneously, there was an increase in the fraction of fuels with a low sulphur content, especially natural gas. A further option was the production of electricity in nuclear power plants.

15. In accordance with this policy and strategy, the consumption of brown coal in the national category of large emission sources (combustion plants for production of electricity and/or heat with thermal output > 5 MW_{th} and selected technologies) decreased from 62.96 mil. tons in 1987 to 50.7 mil. tons in 1992 (19%), and the consumption of residual oil decreased from 2.43 mil. tons in 1987 to 1.29 mil. tons in 1992 (53%). The consumption of natural gas increased from 1573 mil. m^3 in 1987 to 3651 mil.m^3 in 1992, i.e. by 132%. In 1992, production of electricity in nuclear power plants corresponded to 21% of the total amount produced. Emissions were also decreased by the mining and combustion of brown coal with lower specific sulphur content and a decrease in consumption of electrical energy in 1990-1992 as a consequence of restructuring of the national economy and decrease industrial production. The requirement of the protocol was met, and sulphur dioxide emissions were decreased from 2257 thous. tons in 1992, i.e. by 31.9%.

16. **Denmark.** Sulphur emissions are considered to be one of the most significant regional air pollution problems in Denmark. The combustion of fossil fuels is the principal reason for the pollution of sulphur. Reduction of sulphur emissions is one of the main goals of the Danish energy policy. The general effort to stabilise the total energy consumption, the reinforcement of Combined Heat and Power and the replacement of coal and oil based production by renewable energy and natural gas are expected to reduce the emissions of sulphur. As described in ANS Q.18 the Danish Government has furthermore introduced a number of specific measures in order to ensure reduction of the sulphur emissions:

(a) A sulphur tax of DKK 10 per kg emitted sulphur.
(b) Limit values for the sulphur content in fossil fuels.
(c) Limit values for the emissions from large combustion plants.
(d) A quota system for large combustion plants setting a maximum for the yearly emissions. The limit has gradually been reduced from 163,000 tons in 1992 to 41,000 tons in 2003.

17. **Finland.** Effective measures were planned with the aid of adHOC Committees. Structural changes in industry and energy production were favourable for sulphur policies during the late 1970s and the 1980s. In 1987 seven Council of State decisions on reducing sulphur emissions were made according to the Air Pollution Control Act. They covered the reduction of sulphur content of oil products, sulphur dioxide emissions from new and major old coal fired power plants and sulphur emissions from major industrial installations. Already in 1994 a decrease of 80 per cent from 1980 emission levels was reached with these and some additional measures.

18. **Germany.** In the Federal Republic of Germany, the increase in the emissions of SO_2 was reversed in the mid-1970s as a result of an active emission abatement policy based on requirements on emission reduction according to the state of the art. Between 1980 and 1990 SO_2 emissions in the old federal Länder decrease by 70%, from 3164 kt to 942 kt. To achieve this reduction, all large combustion plants (both new and existing) were fitted with flue gas desulphurisation technology (FGD). In addition, the sulphur content of fuels was reduced and the use of low-sulphur fuels was required for those installations for which the use of flue gas treatment technology was not appropriate. With German unification the emission control regulations also became applicable in the new federal Länder. The concomitant unification of SO_2 emissions brought SO_2 emissions in 1980 (base year of the protocol) to a total of 7514 kt. By 1993 (target year of the protocol) the SO_2 emissions had been reduced to 2945 kt.

19. **Hungary.** Ministerial Decree 22/1998. (VI. 26.) KTM came into force on 11th July 1998. This piece of legislation reflects the national policies and stipulates the emission limit values for large combustion plants (including gas turbines). The maximum sulphur content of gas-oil is 350 ppm according to the MSZ EN 590 standard attached to the ministerial decree 12/1998. (XI.23.) GM.

20. Decree of the Minister for Economic Affairs No. 5/2000. (II. 16.) GM on the quality requirements of petrol and diesel fuel was adopted to fully comply with the requirements of Directive 98/70/EC of the European Parliament and of the Council relating to the quality of petrol and diesel fuels and amending Council Directive 93/12/EEC. The maximum sulphur content of gas-oil and petrol is 50 mg/kg since 1st of January 2000.

21. **Italy.** The Italian policy to control and reduce sulphur emissions is mainly inspired by the twin principles that the polluter pays and user pays, applied through a mix of command and control measures and economic instruments. Programmes and measures to reduce sulphur emissions are based on a regulation framework: air quality standards, limit and target values for air concentration of sulphur, attention and warning levels for population, emission limits for combustion plants and other industrial installations, fuel quality standards were introduced in order to reduce sulphur emissions. Promotion of renewable energies and energy saving, efficient use of energy resources in all the end-use sectors, use of methane in combustion plants and

residential and combined use of sulphur with sulphur-free fuels in combustion plants represent another important part of Italian strategies, programmes and measures to reduce sulphur emissions.

22. **Netherlands.** National strategies: The main objective of the Netherlands environmental policy is the pursuit of sustainable development, which has been apparent in all three environmental policy plans. The first plan was built on the stand-still principle, pollution prevention, the polluter pays and source-oriented measures based on effect-oriented quality standards. The second plan shifted the emphasis from regulation to self-regulating frameworks. The third plan aims to decouple economic growth from environmental pressure. The long-term aim is to reduce the emission of air pollutants to a sustainable level.

23. National policies for reduction of sulphur emissions: new emission reduction targets are expected to emerge in 2000 after a review which is currently in progress. This review will also include the risk levels for sulphur.

24. The current emission reduction targets and risk levels for sulphur concentrations in ambient air, the emission standards and emission limits are identical to those reported in the latest review.

25. **Norway.** Under the first sulphur Protocol, Norway's obligation was to achieve an emission reduction of 30% by 1993 compared with the 1980 levels. In 1993 this target was more than fulfilled with a reduction of 74%. In this section, national measures taken during the period 1980-1993 are mentioned. Measures implemented after 1993 are outlined in section 4. The most important measures taken to abate sulphur emissions in the period 1980-1993 were the stipulation of a sulphur-tax, requirements on the maximum permitted content of sulphur in fuel oils, and regulations trough emission permits in pursuance with the Pollution Control Act of 1981. In particular, emissions from stationary sources are mainly controlled through emission permits issued by the Norwegian pollution Control Authority (SFT), a directorate under the Ministry of Environment. The permit system is laid down in the Pollution Control Act of 1981 and comprises requirements on all types of discharges and emissions, e.g. emissions to air, discharges to water, noise and waste. When emission limits are set in the emission permits, local conditions and the state of the recipient are the most important criteria. The use of the best available techniques (BAT) is occasionally a requirement in the pollution permits issued by SFT for industry, where BAT is defined nationally or in an international framework (EU and OSPARCOM).

26. Norway implemented regulations related to the content of sulphur in fuel oils in 1985 in pursuance of the pollution Control Act. According to these regulations, the sulphur content in heavy fuel oil is limited to 2.5%. In the 10 southernmost counties the maximum sulphur content allowed is 1.0%. In the cities of Oslo and Drammen only destillates with a maximum sulphur content of 0.8% were allowed and the use of residual fuel oil was forbidden. All enterprises with furnaces of a capacity exceedind 150kg fuel oil per hour ought to apply for a permit. In the process industry permits were required if SO_2 emissions from a process corresponded to or were larger than the emissions from burning 150 kg fuel oil per hour. The above regulations were revised in 1995 and were made compliant with the EU directive on the sulphur content in gas oils (see response to question Q.19).

27. On 2 May 1992 Norway implemented the EU directive 88/609/EEC of 24 November 1988 on the limitation of emissions of certain pollutants into the environment from Large Combustion Plants (LCP directive). During the period 1980-1993 the economic instrument used to abate sulphur emissions was a tax on mineral oil which included a sulphur tax. This tax was first implemented in 1970 and its structure was revised in 1990. An amount of 0.07 NOK/l was then required for every 0.25% of sulphur contained in fuels, equalling about 17 NOK per kg SO_2.

28. **Poland*.** In spite of not being a Party to the Protocol, the pertinent SO_2 emission target (2870 thousands tons per year) Poland has been successfully attained by reducing the emission to the level of 2725 thousands tons per year in 1993 (reduction of 35% in relation to the level of the year1980).

29. **Republic of Moldova*.** The Republic of Moldova is not Party of this Protocol. At the same time the main activities for atmospheric air pollution prevention are included in the range of laws, prepared and entered in force after the Republic of Moldova became independent. The following legislative acts were developed and introduced:

(a) Law on Protection of Environment (nr.1515 from 16.06.1993);
(b) Law on Atmospheric Air Protection (nr.1422-XIII from 17.12.1997);
(c) Law on Ecological Expertise and Environmental Impact Assessment (nr.851 from 29.05.1996);
(d) Law on the Payment for Environmental Pollution (nr.1540 - XIII from 25.02.1998);
(e) Law on Sanitary-Epidemiological Protection of the Population (nr.1514-XII from 16.06.1993);
(f) Law on Hydrometeorological Activity (nr.1536 – XIII from 25.02.1998), - and other legislative and sub-legislative acts.

30. In the National Strategic Action Plan for Environmental Protection, approved by the Decree of the President of the Republic of Moldova in 1995 and National Action Plan on Environmental Protection, approved by the Decision of the Government in 1996 the principle "Polluter pays" was included. Realization of this principle was established in new legislative and normative acts:

(a) Law on change and adding to the Law on Protection of Environment (nr.1539 – XIII from 25.02.1998);
(b) Law on the Payment for Environmental Pollution (nr.1540 - XIII from 25.02.1998);
(c) Regulation on Ecological Fund (nr.988 from 21.09.1998).
(d) The main goal of the Law on the Payment for Environmental Pollution was implementation of the principle "Polluter pays" and stimulation of industrial enterprises in the process of restructuring and privatization. It was made for the implementation of the most economic installations with minimum impact on the environment, and also resources collection for formation of ecological funds for financing of environmental projects.

31. Also, strategic directions of environmental protection, including atmospheric air, from toxic substances were included in the following documents:

(a) Environmental Performance Review. The ECE Committee on Environmental Policy and the ECE review team wish the Moldavian environmental managers success in implementing and following up the policy recommendations that are included in this review.

(b) The National Plan of Activities for Health in relation with environment was developed in the Republic of Moldova in 1999, which includes a range of provisions for 2000-2010 regarding protection of environment, including atmospheric air, from sulphur oxides.

32. Economic instruments for reduction of the toxic substances, including HMs. The taxes for pollutant emissions into environment and wastes deposits are established by the Law on the Payment for Pollution of the Environment of the Republic of Moldova. Annex 1 of this Law includes activities for protection of environment, and their costs are taken into consideration when the tax for environmental pollution is estimated. The economic agents pay for air emissions from stationary sources in two cases: in established pollutants' limits; in limits that are higher than those established. Each economic agent pays for the pollutants that are enclosed in the permit given by State Ecological Inspection of the Ministry of Environment and Territorial Development. The payment is increased in 5 times when the emissions into air from stationary sources are higher than the established limits. When the accidental emissions from stationary sources are having place then it's going to be increased in 50 times. Payment for air pollution by mobile sources, using petrol as fuel (leaded, unleaded) and diesel fuel, is established for juridical and physic persons, importing this kind of fuel. The payment for the emissions into atmospheric air is established for the mobile sources (auto vehicles) in our republic that use liquefied natural gas as and pressed hydrocarbon gas as fuel (excluding the owners of private transport, that don't carry business activities).

33. According to the our reports presented by us regarding national annual anthropogenic emissions, emissions of all toxic substances, including SOx, in comparison with the reference year were diminished because of economic decrease in all of the branches of national economy and stopping of industrial enterprises activity. Also, were effectuated certain measures for reduction of the emissions and for stimulation of use of the most ecological technologies and installations:

(a) There was increased the volume of burning of gaseous fuels in comparison with other types of fuels in the Republic of Moldova in order to reduce the emissions of sulphur oxides from stationary and mobile sources;

(b) The import of transport with the exploitation period more than 10 years was prohibited;

(c) Best management practices such as good housekeeping, preventive maintenance programmes and primary measures such as the enclosure of dust-creating units;

(d) Prohibition of use of heavy fuel oil high-sulphur, was introduced as obligatory requirement for the construction of certain energetic and other enterprises in the cities of Chisinau, Balti and Cahul as a result of examination of projects by State Ecological Expertise;

(e) Enterprises under construction or reconstruction are designed according to the legislative acts, ecological and health standards which call for the use of minimum emission technology. The experts performing the environmental appraisal assess whether the right technology has been selected to reduce adverse environmental impact. The Law on Ecological Expertise and Environmental Impact Assessment stipulates that projects involving the construction of new enterprises or reconstruction of existing ones must make provision measures for reducing emissions in the environment, including atmospheric air, utilizing the best available technology;

(f) Multiple BAT requirements are contained in the Law on Protection of Environment and other laws. The Law on Protection of Environment, the Law on Atmospheric Air Protection and the Law on Ecological Expertise and Environmental Impact Assessment require the permit that should be obtained before commencing construction. This permit is a result of examination of

projects for the construction of new enterprises or reconstruction of existing enterprises, effectuated by State Ecological Expertise. Also, there are requirements regarding obligatory obtaining of permit for emissions of pollutants in atmospheric air;

(g) In conformity with national legislative acts and normative documents import and export of harmful products and substances is undertaken in the base of license, given by competent authorities with accord of the environmental protection authorities. The Law on Regime on Harmful Products and Substances stipulated that physical and juridical persons are obliged to take into consideration sanitary requirements and technical norms managing harmful products and substances, including transportation, import and export, and should undertake measures in order to prevent and liquidate harmful impacts on human health and environment. ;

(h) A range of provisions of the Law on Wastes of Production and Consumption notes the obligatory character of procedure realization for waste management, including their destruction or disposal, environmental risk minimization or exception of any risk.

34. Presently the following documents are under development:

(a) National Strategy on Sustainable Development "Moldova 21".

(b) First National Communication in the framework of UNDP project "Enabling Moldova to prepare its first National Communication in response to its commitments to the UN FCCC". Chapter "Diminishing of greenhouse gases" is included in this communication, where the measures for reduction of priority greenhouse gases and other gases such as SOx, NOx, NMVOCs, CO etc. were developed. Also, presently in the framework of mentioned UNDP project is under development chapter National Plan of Activities of Reduction of Greenhouse Gases.

(c) Draft of Programme of Integrated Monitoring of Quality of the Environment.

(d) Programme for emissions reduction from mobile sources. According to this Programme a range of measures for reduction of toxic emissions into air is foreseen:

- Total exclusion of use of leaded petrol;
- Supplying the auto vehicles with neutralizers and catalysts;
- Reduction of sulphur in fuel;
- Enhance the usage of gaseous fuel for transport.

This program is under development and in the nearest future will be presented in our Government of the Republic of Moldova.

(a) New Concept of Environmental Policy of the Republic of Moldova. One of the points of this concept is pollution prevention and improvement of the environment, including atmospheric air, from toxic substances, including SOx.

(b) National Programme on Production and Municipal Wastes Management.

(c) Law on Energy Conservation.

Ministry of Environment and Territorial Development plans in the nearest future elaboration of proposals for:

(a) Modification of the fuel quality standards in goals emissions reduction;

(b) Modifications of the Law on the Payment for Pollution of the Environment of the Republic of Moldova having as a goal implementation of new economic instruments for regulation of products containing toxic substances and stimulation of import and use of clean technologies and products (Heavy fuel oil medium-sulphur and high-sulphur, mineral oils and other products).

35. **Russian Federation.** The Government of the USSR adopted Decision No. 896 of 1

August 1987 concerning the formulation of a "Llong-term State programme on environmental protection and rational use of the natural resources of the USSR for the period covered by the thirteenth five-year plan and up to the year 2005". The programme was drafted in 1988. It set out the main tasks of ministries whose enterprises contribute substantially to emissions of sulphur compounds (ministries responsible for ferrous and non-ferrous metallurgy, the chemical and petrochemical industries, pulp and paper industry, power generation, construction materials, etc.). The main priority measures planned for reducing sulphur emissions were: conversion of large thermal power stations (especially those in major cities) to gas (instead of coal or fuel oil); review of SO_2 emission standards for boiler plants of various capacities; and establishment of standards on the content of sulphur and sulphur-containing substances for solid, liquid and gaseous fuels.

36. To achieve the aims and objectives of the State programme, the relevant ministries were assigned specific targets:

(a) USSR Ministry of Energy Reduce sulphur dioxide emissions by 10-15% (relative to the 1986 level) in the European part of the USSR by 1993; increase the percentage of collection or treatment for sulphur dioxide in the sector as a whole to 31%; beginning with the twelfth five-year plan period, bring 107 sulphur-collecting installations into operation at new or modernized electric power stations and build more than 50 installations to remove sulphur dioxide from off-gases at existing power stations.

(b) USSR Ministry of Ferrous Metallurgy Reduce sulphur dioxide emissions by 182,900 t (relative to the 1986 level) in the European part of the USSR by 1993; provide for the introduction of new technology for the injection of hot reducing gases into blast furnaces, suppression of emissions from the interconal region of blast furnaces and construction of aspirating systems with treatment of gases in blast-furnace bottoms; and proceed with the replacement of open-hearth furnaces having no dust or gas treatment devices with converters and electric-steel furnaces; in coke production, the use of briquetting, continuous coke-making and a combined process of heat treatment of the charge and dry quenching of the coke; reconstruction and a 32% reduction of coke-oven batteries; a 1.2% reduction in the share of fuel oil in the fuel balance; the introduction of enhanced desulphurization of coke-oven gas at the Novolipetsk integrated metallurgical plant; and a reduction of the sulphur content of source material.

(c) USSR Ministry of Non-Ferrous Metallurgy Reduce sulphur dioxide emissions by 407,500 t (relative to the 1986 level) in the European part of the USSR by 1993; convert to autogenous smelting of copper, nickel and lead concentrates at the "Pechenganikel", "Severonikel" and "Elektrotsink" plants, making it possible to recycle the sulphurous anhydride from process gases almost completely; devise and introduce methods for recovering "weak" sulphur-containing gases at nickel enterprises and the modernization of dust and gas treatment installations in all of the sector's enterprises.

(d) USSR Ministry of the Coal Industry Reduce sulphur dioxide emissions by 20,450 t (relative to the 1986 level) in the European part of the USSR by 1993; improve the process of combustion of solid fuel by means of "fluidized" bed coal drying; convert boiler plants from solid fuel to gas (methane) obtained from mine degassing; proceed with the centralization of boiler plants and the elimination of small boilers and take steps to eliminate burning spoil heaps.

(e) USSR Ministry of Building Materials Reduce sulphur dioxide emissions by 109,000 t (relative to the 1986 level) in the European part of the USSR by 1993; install treatment systems for emission sources not fitted with dust or gas collection devices; ensure the conversion of process equipment and boiler plants to gaseous fuels, low-sulphur fuel oil, etc.

(f) USSR Ministry of Timber and Paper Production Reduce sulphur dioxide emissions by 76,250 t (relative to the 1986 level) in the European part of the USSR by 1993; convert all digesters to brown-stock flushing instead of blowing-down; convert enterprises to polysulphide pulping with the addition of anthrachinon; exclude the use of gas-contact evaporators everywhere for soda recovery boilers and replace them with concentrators.

(g) USSR Ministry of Fertilizers Reduce sulphur dioxide emissions by 40,800 t (relative to the 1986 level) in the European part of the USSR by 1993; introduce a double-contact scheme for the production of sulphuric acid.

(h) USSR Ministry of the Gas Industry Reduce sulphur dioxide emissions by 13% (relative to the 1986 level) by 2005; increase the degree of conversion of hydrogen sulphide at gas-processing plants to 99.9%; introduce systems for additional tail gas treatment by the "sulphrin" method at all sulphur-producing plants; create flame devices for burning purge gases effectively in emergencies, preventing emissions of hydrogen sulphide into the atmosphere.

37. **Slovakia.** The National Environment Policy, approved by the Government and National Council of the Slovak Republic in 1993 sets as one of long-term strategic objectives *80% reduction in SO_2, NO_x, and dust emissions of VOCs, POP, heavy metals, CO_2 and other greenhouse gases emissions, in accordance with international conventions,* and as medium term objective in air protection *reduction of SO_2 emissions by more than 50% (from 438 000 tons in 1991 to 216 000 tons in the year 2000).* These objectives are going to be reached by means of several pieces of legislation (e.g. Act Nr. 309/1991 on air protection against polluting substances (the Act on Air), as amended by the acts 218/1992, 148/1994, 256/1995 and 393/1998. This act set inter alia opportunity for the ministry of the Environment to set emission quotas for certain pollutants the quotas for the SO_2 emissions are expected to be in force in 2002 Governmental order Nr. 9271996 by means of which the Act No.309/1991 of the on the protection of the ambient air against the pollutants (Act on Air) is implemented, which sets emission limit values for different types of sources, fuels and technologies Regulation Nr. 268/1997 on requirements on fuel quality, on operating report keeping and on scope, kinds and methods of reporting to the air protection administration bodies, which sets inter alia the limit values of sulphur content in certain fuels.

38. **Sweden.** Q1 & Q18. There are four major tools to reduce SO_x-emissions. They are described in more detail below:

(a) The general energy policy to reduce the consumption of fossil fuels and the carbon dioxide tax;
(b) The sulphur tax on fuels;
(c) Emission standards for major stationary sources;
(d) Environmental charges in the shipping sector.

39. **Switzerland.** Information, as required under article 6 of the Protocol, on national strategies, policies and programmes that specifically address the reduction of sulphur emissions. In 1986 the Government adopted an overall Air Pollution Control Strategy covering sulphur dioxide, nitrogen oxides and volatile organic compounds (VOCs). The target in Switzerland is to bring sulphur dioxide emissions down to 1950 levels (i.e. a 60% reduction compared to 1980 levels). The 1985 Federal Law relating to the Protection of the Environment and its implementing ordinances, in particular the 1986 Ordinance on Air Pollution Control (OAPC) and the 1997 Ordinance on the incentive tax on "extra light" heating oil with a sulphur content of more than 0,1

per cent (HELV) set the legal framework of a comprehensive air pollution control programme. The 1986 OAPC, amended in 1992, 1997 and 1999, regulates emissions from stationary sources. It contains emission standards for about 150 individual inorganic, including sulphur compounds and organic pollutants. Moreover, the Ordinance contains fuel and petrol requirements as well as effect-oriented ambient air quality standards. As regards pollution caused by motor vehicles, emission standards are laid down in the Ordinances relating to the Laws on Road Transport, Navigation and Aviation.

	1950	1980	1985	1990	1995	1998
Emission level (in 1000 t. SO_2)	46.2	116.0	75.9	42.5	34.3	27.6