

REPUBLIC OF BULGARIA
MINISTRY OF THE ENVIRONMENT

(a) Policies and Legislation

Institutions: Central institutions, responsible for the formulation and implementation of environmental policies in the PR of Bulgaria, include the following:

- The National Assembly (Parliament) holding supreme state authority. It passes the relevant legislation and exercises parliamentary control over its implementation. One of its special bodies is the Standing Committee for the Protection and Reproduction of the Environment. The Committee provides methodological support for environmental protection related activities, performs inspections, and assigns the implementation of its resolutions to competent authorities.
- The Council of Ministers. Within its prerogatives, it exercises general control over the protection of the environment.
- The Ministry of the Environment is an authority of functional competence implementing the state policy of protection and reproduction of the environment and rational use of natural resources, and co-ordinating and controlling environmental protection activities in the land. The Ministry's instructions, decisions and other actions can be overruled only by the Council of Ministers.
- Other Government Ministries and Departments exercise what is referred to as internal departmental control over environmental protection. Some ministries and the larger companies have special environmental protection divisions.
- The Municipal People's Councils, in their capacity of local governments, exercise environmental protection control. Their rights and responsibilities in this area are

defined in a number of acts and regulations. A new Bill on the Protection and Reproduction of the Environment is currently being drafted which will vest the Councils with greater rights and responsibilities as distinct from the rights and responsibilities of special environmental authorities.

Policies: The national environmental protection policy is based on the Constitution and the relevant laws and regulations. The newly elected Grand National Assembly is to work out a new constitution which is expected to lay a special emphasis on environmental protection.

In addition to that, a Long-term National Program for the Protection and Reproduction of the Environment until the year 2000 has been published for a nation-wide debate. A programme for immediate action has also been drafted aimed at improving the environmental situation in the PR of Bulgaria by focusing on particularly acute problems in the worst affected regions, subsectors of the economy and river basins.

Restructuring of the national economy is envisaged in line with requirements of environmental soundness.

Legislation:

- Law on the Prevention of Air, Water and Soil Pollution (9 Oct. 1963) and Regulation on the Application thereof (24 Nov. 1964);
- Law on the Protection of Nature (16 June 1967) and Regulation on the Application thereof (10 April 1969).

This basic legislation has been subsequently adjusted to the changing environmental situation by a number of amendments and supplements.

A new Bill on the Protection and Reproduction of the Environment is now being drafted which, when it comes into effect, will replace the above legislation. The Bill is expected to become a law by the end of 1990.

In addition to that, other laws and regulations of the land contain provisions related to environmental protection.

The present legislation includes a total of over 120 instruments which in one way or another relate to matters of environmental protection. A list of the most important ones follows:

- Law of the Bulgarian Maritime Territory (1980);
- Law on Forests (1958);
- Law on the Game Reserve (1982);
- Law on Territorial and Settlement Development (1973);
- Law on the National Cadastral Survey of the PRB (1979);
- Law on National Health (1973);
- Law on the Use of Atomic Energy for Peaceful purposes (1985);
- Law on the Protection of the Farming and Pasture Land (1973);
- Law on Plant Protection (1960);
- Law on the Protection of Farming Property (1974);
- Law on Apiculture (1983);
- Law on Veterinary Practice (1967);
- Code of Penal Procedure (1968).

Enforcement:

The law is enforced by competent authorities. The Ministry of the Environment holds authority to supervise the enforcement of and compliance with environmental protection regulations. In cases of violations, administrative or legal action is brought personally against offenders. Sanctions include a maximum fine of 100,000 leva and a maximum of five years' imprisonment (according to Penal Code provisions). Damages are claimed in all cases. Companies and other organizations which cause pollution of the environment above control limits are liable to property sanctions and sums, raised in this way, are deposited in special bank accounts earmarked for environmental protection expenditure.

Standards:

The quality of environmental elements in the PR of Bulgaria is regulated by the following instruments: Regulation No 2 of the Ministry of Health and Social Security on the Critical concentrations of Hazardous substances in the Atmospheric Air over Settlements (updated 1984); Regulation No 7 of the Ministry of the Environment, the Ministry of Health and Social Security and the Ministry of Construction Architecture and Amenities on the Quality Parameters and Standards of Flowing Surface Waters (updated 1986); Regulation No 8 of the Ministry of Health and social Security, the Ministry of the Environment and the Ministry of Construction Architecture and Amenities on the Quality Parameters and Standards of Coastal Waters (1987); Regulation No.3 of the Ministry of the Environment on the Permissible Content of Hazardous Substances in Soils (1979); Regulation No 1 of the Ministry of the Environment on the

Permissible Content of Hazardous Substances in Flue Gases (updated 1986); and the Bulgarian State Standard 2823-83 of Potable Water.

Monitoring:

The Ministry of the Environment and, in particular, its Research and Development and Information Center provide methodological and technical support for comprehensive background monitoring of pollution loads on elements of the environment and the environmental impact of such pollution. Sites have been selected for three comprehensive background monitoring stations, including: one in a highland area, one in a protected natural habitat area, and one in a coastal area, this siting being of key importance for the reliability of sample data on background pollution and environmental impact over the national territory. One of the monitoring stations is operational, although full scope has not been reached yet, and construction is on-going on the other two sites of laboratories for physical and chemical analyses and test-grounds for abiotic and biotic monitoring at background level. Facilities and expertise for comprehensive background monitoring are available at the Ministry's RDI Center but it suffers from the lack of special equipment for detection of back ground concentrations which can be

Sample Data on Pollutants Content in:

1. Atmospheric Air: dust 4–97 $\mu\text{g}/\text{m}^3$, sulphur dioxide 2–65 $\mu\text{g}/\text{m}^3$, nitrogen dioxide 0.5–14 $\mu\text{g}/\text{m}^3$, lead 0.01–0.45 $\mu\text{g}/\text{m}^3$, cadmium 0.01–0.39 $\mu\text{g}/\text{m}^3$, manganese 0.01–0.64 $\mu\text{g}/\text{m}^3$, copper 0.01–0.61 $\mu\text{g}/\text{m}^3$;
2. Rain and Surface Water: sulphates 1–22 mg/l, nitrates 0.3–8 mg/l, chlorides 0.3–23 mg/l, ammonium 0.02–4 mg/l, calcium 0.1–68 mg/l, potassium 0.02–0.7 mg/l.

The National Automated System for Environmental Protection is to be developed on the basis of a network of 158 stations to monitor surface water quality in 13 river basin the Danube and the Black Sea, and 79 stations to monitor air pollution.

Surface water quality parameters are subdivided into 5 groups and air pollutants are subdivided into 2 groups.

The Information System includes also 240 stations to monitor heavy metals in soils on the territory of 8 national regions. Records have been kept since 1980 and, so far, some 500 monitoring protocols have been compiled.

Dues and Taxes:

The use of natural resources in Bulgaria is covered by a system of dues and taxes. Relevant procedures are best organized as regards the use of water resources and releases of waste water.

Rates depend on the quality of water and the type of use:

- drinking water for household use;
- drinking water used by industries and companies;
- effluent (industrial) water for industrial use;
- water for irrigation; etc.

In each case, the user pays and the same applies to the sewage charge.

In cases where registered use exceeds particular limits, the amount used in excess is paid for at five times the initial rate, this being an incentive to contain water use within reasonable proportions.

In cases where critical concentrations of pollutants are exceeded in waste water, polluters (legal entities) are liable to penalties. Penalties are in proportion to levels of pollutions, amounts of waste water released, duration of non-compliance, etc. At present, and for the time being, the law covers 25 controlled pollution parameters.

No procedure exists to allow delegation of hazardous waste disposal.

(b) Polluters and Pollutants

The following regions are worst affected by air pollution: Pernik, Dimitrovgrad, Devnya, Sofia, Kurdzhali (cf Table below).

Region	Average concentrations of mg per cubic m for 1989						
	Dust	Sulphur Dioxide	NO _x	Lead	Fluorine	H ₂ S	H ₂ SO ₄
Pernik	0.245	0.469	—	0.0005	—	0.0052	—
Dimitrovgrad	0.462	0.062	0.0128	0.0007	0.0128	0.019	—
Devnya	0.414	0.020	0.0052	—	0.0094	0.0127	0.040
Sofia	0.303	0.067	0.048	0.0004	—	0.0077	—
Kurdzhali	0.289	0.092	—	0.0017	—	—	0.235

Major Power Stations (fossil fuel):

Station	Power MWe	Site (region)	Fuel parameters			Emissions x 000 tpa		
			KJ kg	A %	W %	S %	Dust	SO ₂
D. Dichev	840	Haskovo	5700	18	56	2.1	13	200
Maritsa 1ztok 2	1450	Haskovo	5700	18	56	2.1	18	340
Purva Komsomolska	200	Haskovo	5700	18	56	2.1	2.6	55
Maritsa 3	170	Dimitrovgrad	7400	38	37	3.8	6	50
Varna	1200	Varna	25600	18.4	6	1.75	5.2	75
Republica	100	Pernik	7800	21	52	1.3	11	25
Rouse 1ztok	400	Rouse	25600	18.4	6	1.75	3.5	26
Bobovdol	630	Sofia	9000	40	34	1.52	12	85

The Government has approved a programme for the development of the power industry till the year 2000.

The Programme allows for the restructuring of the economy and the decrease in energy consumption per unit of productions as a result of technological innovation. The industry's future development is to rely on local coal deposits and on nuclear power.

In 1990–1991, fully depreciated facilities will be shut down in the following power stations:

- Purva Komsomolska: two 210 mW blocks;
- Republika: two 80 GCal steam generators;
- Maritsa 3: one 90 GCal steam generator.

The Kozlodouli Nuclear Power Station is inspected by IAEA experts.

Other major polluters include:

1. Kremikovtzi Co., Sofia, iron ore processor and producer of cast iron, steel and steel alloys.
 - emissions:
 - dust, 105,000 tpa;
 - lead, 600 tpa.
 - causes: inadequate dust-catcher systems on the refractories line; inadequate ferroalloy technologies; unoperational dust catchers in ore and charge preparations; lack of technology to extract lead from the raw material or to catch lead aerosols in flue gases.

2. Lead and Zink Works, Kurdzhali.
 - emissions:
 - sulphur dioxide, 12,000 tpa
 - lead, 320 tpa
 - causes: obsolete dust-catcher technology; so called "lean gases" released without cleaning.

3. Him Co, Vratsa, producer of nitrogen fertilizers, carbamide ammonia and carbon sulphide from natural gas.
 - emissions:
 - ammonia, 2,500 tpa
 - dust, 960 tpa
 - causes: inadequate carbamide technology.

4. Voulkan Co., Dimitrovgrad, producer of cement (wet technology) and asbestos-cement pipes and slabs.
 - emissions:
 - mainly dust, 15,000 tpa
 - causes: obsolete technology and equipment.

5. Polihim Co., Devnya, producer of fertilizers, calcinated soda, polyvinylchloride, caustic soda, chlorine and hydrochloric acid.
 - emissions:
 - sulphur dioxide, 62,000 tpa
 - fluorine compounds, 980 tpa
 - dust, 10,300 tpa
 - causes: depreciated hydrochloric acid line; lack of facility to desulphurise flue gases from the thermal power plant; inadequate cleaning of fluorine compounds containing gases and carbide furnace gases.

6. Lead and Zink Works Plovdiv.

- emissions:

sulphur dioxide,	85,000 tpa
lead,	187 tpa
zink,	170 tpa
cadmium,	9 tpa
- causes: inadequate processes and gas cleaning facilities

7. Beloizvorski Tsiment Co., Vratsa, cement producer (dry method).

- emissions:

dust,	18,000 tpa
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- causes: inadequate gas-catcher capacity for one of the process lines; delayed replacement of faulty dust-catchers; inadequate process control.

Heating in Houses:

In bigger cities central heating is provided from power sources or local heating using solid and liquid fuel, and electricity.

Central heating is supplied to 16 per cent of the population and the remaining 84 per cent use domestic sources accounting for a consumption of 350,000 tpa of naphtha, 925,000 tpa of coal, 1,400,000 tpa of briquettes, 1,836,000 m³pa of firewood, and 6.5 billion KWhrs of electricity.

Central heating is supplied to a total of 500,000 flats, including 290,000 flats in Sofia while the remaining number is accounted for by flats in bigger cities, i.e. Plovdiv, Varna, Bourgas, Rouse, Pleven, Pernik and others.

Transboundary Pollution:

This has been detected in Bulgarian cities on the Danube as due to industrial activities in Rumania.

- Rouse: chlorine and compounds with measured concentrations in the range between 0.1 and 0.95 mg of Cl ions per m³.
- Nikopol: ammonia with measured concentrations in the range between 0.5 and 1.16 mg per cubic metre.
- Vidin: offensive smell of biotechnological (fermentation) releases detected organoleptically.

COAL CONSUMPTION (x 000 tpa)

Type of Coal	Total	Parameters +				Used by		
		KJ/kg	A %	W %	S %	Power Industry	Other Industries	Utilities
Lignite	29500	5700	18	56	2.1	27875	1500	125
Brown	4600	10600	38.2	29	1.4	3650	150	800
Black	129	26500	15.5	8.7	1.2	35	94	--
Anthracite	62	18800	33.7	7.5	0.8	25	37	--
Imported	6000	25600	18.4	6	1.75	4500	1500	--

OIL FUEL CONSUMPTION (x 000 tpa)

Type of Fuel	Total	Parameters			Used by			
		KJ/kg	S%	Power Industry	Other Industries	Utilities	Transport	
Black oil	5500	39900	3.5	5500	--	--	--	
Industrial	1200	41800	1.25	450	100	650		
Petrols	1600	44900	0.005		50		1550	
Diesel oil	2200	42500	0.2 0.4			35	2165	

+ A = ash content of effective mass
W = humidity of effective mass
S = sulphur content of effective mass

The People's Republic of Bulgaria has signed the Convention on Long-Range Transboundary Air Pollution; the Protocol on the reduction of SO₂ emissions by 30 per cent of 1980 levels; and the Nox Protocol on containing emissions at the 1987 level.

Air quality is monitored at 79 sites in the country. Samples collection is done with portable equipment two to four times daily during the first ten days on each month. Major pollutants are covered, including: dust, sulphur dioxide, nitrogen oxides and lead aerosols. Specific pollutants are monitored in some regions, e.g. fluorine compounds in Devnya and Dimitrovgrad; ammonia in Vratsa; sulphuric acid in Devnya. Source specific emissions are measured on a regular basis by the Ministry of the Environment using portable equipment.

Measures have been implemented and envisaged to reduce hazardous (toxic) emissions from motor vehicles including: retrofitting public transport buses to run on gas-diesel fuel; introduction of catalytic devices (still very limited, i.e. to the town of Rouse); introduction of lead-free petrol.

The set of measures aimed at improving the overall air quality are part of the environmental protection programmes and include: closure of polluting industries operating obsolete technologies and past modernization; economic restructuring and introduction of environmentally sound technologies; installation of gas cleaning facilities.

Water:

Is there evidence of ground water pollution on Bulgarian territory?

The regional system of ground water quality and pollution monitoring includes a total of 276 monitoring sites over pore, cavern and crevice ground waters. Samples are collected once to 12 times per annum to monitor 8 quality parameters: sulphates chlorides, nitrates, iron (total), total mineral content, per-manganic acidification, magnesia and total hardness.

Major regional level pollutants include: nitrates in Loudogorie, Dobroudzha, Yambol, Haskovo, Plovdiv, etc.; sulphates in Sofia, Plovdiv, Bourgas; chlorides in the Danube and Black Sea coastal areas; magnesia and high mineral content in Plovdiv, Stara Zagor Dobroudzha, etc. In addition, manganese has been detected in waters from river terraces along Maritsa, Toundzha, Danube. Ogosta and other rivers.

The country's annual use of fertilizers amounts to 1 mln tons. (in fertilizing substance) with a 45 per cent share of nitrogen fertilizers, mainly ammonium nitrate and carbamido. The aerial, mainly spring-time, method of fertilizing and the way the fertilizers are stored are the principal factors of pollution. The problem is made worse by the fact that 60 per cent of livestock wastes (33 mln m³) are not used as fertilizer.

Organochloric pesticides were banned in 1971 and their content in soil horizons and ground waters has since dropped significantly. Efficient administering of pesticides is a problem due to the lack of modern equipment.

Overview of Water Quality

The River Strouma:

A total of 65 various polluters in the basin totaling 218,238 m³ per day of waste water. Pollution reaches the river course mainly via tributaries, including:

- mid- and downstream river Dzherman polluted by domestic sources and utilities, industries, cattle farms and accidental releases from the Asen Zlatarov Pharmaceuticals in Stanke Dimitrov. Waste water BON 5⁺ values are 82 times higher than critical concentrations for the river;
- mid- and downstream river Konska polluted with livestock wastes from cattle farms in the basin. Critical concentrations of BON 5 have sometimes been exceeded by a factor of 197;
- mid- and downstream river kyustendilska polluted with municipal sewage and manure waters. BON 5 values 29 times higher than critical concentrations.

Pollution with oil products affects the entire basin.

The River Mesta:

Major polluters in the basin include municipalities, industries and cattle farming. Various pollutants total 46 with total waste water flow rate, measured in 1989, of 89,689 m³ per day.

The worst affected river course in the basin is that of the river Razlozhka on the outskirts of Razlog. Acidification, BON 5, insolubles, lubricants and oil products are considerably above critical concentrations. Acidification, for instance, is 2.5 times higher. Oil products are a major waste-water treatment problem.

The River Yantra:

Measurements show considerable organic pollution with dissolved oxygen content below normal and insolubles, BON, acidification and ammonia nitrogen twice higher than critical concentrations.

Under Gabrovo, critical concentrations are exceeded 2 to 50 times. Given that hydrogen sulphide is impermissible, concentrations have still been measured of up to 1.53 mg per liter. The content of oil products is high too; the norm being 0.3 mg per liter measurements have detected between 18 and 23.

Upstream from Turnovo a certain improvement of water quality has been measured.

Down stream from Dolna Oryahovitsa BOD pollution is considerable and insolubles and acidification reach up to 5 times the critical concentrations. Oil products exceed the norm of 0.5 mg per liter with measured concentrations between 2.5 and 11.

Downstream from Byala concentrations are three to four times higher of BOD mainly and 2.5 times higher of oil products.

At the river's mouth water quality is altogether within Group 3 standards.

The River Osum:

The towns of Troyan, Lovech and Levski on the river have no sewage treatment facilities which results in BOD and insolubles two to three times exceeding critical concentrations.

The River Toundzha:

Stretches considerably polluted under the towns of Kazanluk and Yambol with insolubles and BOD 3 to 5 times higher than normal in the Kazanluk stretch.

The River Iskur:

One of the biggest polluters in the country - the town of Sofia is situated in the basin. some 70-75 per cent of the overall pollution load on the river comes from Sofia sewage system and the tributaries Lesnovska, Gradska, Kakach and Blato.

Down stream from Sofia water quality is substandard. BOD pollution is three to five times on the average higher than critical concentrations. Phenols and cyanides contents are two to three times the critical etc.

Downstream from Eliseina lead and cadmium exceed critical concentrations up to twice.

The Sofia municipal waste water treatment station functions relatively well but, this notwithstanding, no significant improvement of water quality has been measured. The Kremikovtsi Iron and Steel Works are still a major polluter of Iskur's tributary Lesnovska; the tributary Blato is still very much polluted with municipal waste water from the towns of Kostinbrod and Slivnitsa part of Sofia is not equipped with adequate sewerage.

The River Rousenski Lom:

The river basin is affected by big industrial and domestic polluters. Effluents from the Razgrad municipal treatment station do not conform by a factor of 2 to 10 to Group 2 standards.

Process water of 8,800 m³ per day from the Razgrad antibiotic plant flows into a system of precipitant and after 24 hours is released into the sewerage.

In the Razgrad region, untreated waste water from a pig fattening farm flow into the river Beli Lom and account for 50 per cent of the river's pollution with organic matter and ammonia.

The River Kamchia:

Water quality in the river Louda Kamchia conforms to project Group 2 standards.

The river Golyama Kamchia, downstream from Turgovishte, does not conform to project standards on BON 5 and ammonia.

Due to self-purification, the river Kamchia meets project Group 3 standards before flowing into the Black Sea.

The River Maritsa:

Highest waste water loads have been measured on downstreams from Pazardzhik (16 per cent of the waste water flow) and Stamboliyski (11 per cent), Plovdiv (23 per cent), Dimitrovgrad (13 per cent), and downstream from the mouth of the tributary Sazliyka (27 per cent).

Water quality conforms to standard on BON 5 at Septemvri, upstream from Pazardzhik and Plovdiv, and upstream from Dimitrovgrad.

On insolubles content, waters do not conform to project group standards mainly downstream from Belovo, Pazardzhik, Plovdiv, and downstream from Dimitrovgrad to the national border.

Ammonia ions contents exceed critical concentrations up to 10 times downstream from Belovo, Septemvri (Zlokouchane), upstream from Pazardzhik and Plovdiv. Ammonia ions vary in a wider range at Stamboliyski, Mirovo, upstream from Dimitrovgrad, at Harmanli and Svilengrad, and downstream from Pazardzhik, Plovdiv and the tributary Sazliyka. Higher concentrations of nitrate ions have been measured downstream from Dimitrovgrad.

Oxygen content is within limits in the greater part of the river. During summer month concentrations are lower downstream from Pazardzhik and Haskovo.

Heavy metals have been detected downstream from Pazardzhik and at the mouth of the tributary Chepelarska.

Process water from the G. Damyanov metal works is released into the river Topolnitsa (Maritsa's tributary) which carries high concentrations of arsenic and other pollutants. Arsenic concentration in Topolnitsa is 20 to 50 times the critical.

The concentration of ammonia ions in the other tributary, Sazliyka, is high with ammonia nitrogen 5 to 20 times the critical concentration.

The Black Sea – Danube Problem Area

The Ministry of the Environment has information available on levels of sea pollution from sources on Bulgarian territory. This forms 3 per cent of the total flowing into the Black Sea with the river Danube. No information is available on pollution from sources on Soviet territory but qualified estimates suggest at least the same load as what comes with the Danube.

No information is available on water quality and its impact in the canal flowing out of the Danube at Cherna Voda. Given that the Danube delta is a natural biological filter and is farther along the coast from Bulgaria than the canal, the assumption can be made that higher concentrations of biogenous elements off the Bulgarian coast are due to water flowing in from the canal.

Observations on the dynamics of the hydrogen sulphide layer in the Black Sea are very inadequate to determine lasting trends.

Bulgaria has acceded to the following agreements on transboundary water pollution:

The 1958 bilateral agreement between the Governments of PR of Bulgaria and SFR of Yugoslavia on boundary and transboundary water courses.

The 1964 agreement between the Governments of PR of Bulgaria and the Greek Kingdom on water use from the transboundary rivers Strouma, Mesta, Arda and Maritsa. The last meeting of the joint Bulgarian-Greek Committee reviewed matters relating to pollution in the river Maritsa. Arrangements have been made for a meeting on Mesta and Strouma.

The 1968 agreement between PR of Bulgaria and the Republic of Turkey on co-operation in the use of water from transboundary rivers.

In Bucharest, 1985, Bulgaria signed the Declaration on Co-operation between the Danubian States in matters of the water reserve of the river Danube and its protection from pollution in particular, and has since been regularly meeting its obligations pursuant to this declaration. Bulgaria has undertaken various initiatives to promote the protection of the river Danube both in the framework of programmes adopted by international governmental and non-governmental organizations and unilaterally.

Bulgaria is an active contributor to the preparation, within the UN ECE, of a European Framework convention on Transboundary Water Courses which is expected to be ready for signing by 1992.

Bulgaria takes particular interest in the Convention on the Protection of the Black Sea which is currently under preparation with Bulgaria's active support.

Measures Proposed to Improve Overall water Quality

Projects have been assigned for the management and protection of surface water by river basin which will include the following measures:

- restructuring of water users;
- territorial redistribution of water users;
- installation of local industrial and sewage water treatment facilities.
- reversal of environmental damage to water sources, installation of water works, etc.;
- regulation of water sources in catchment area, including: humidification afforestation, building reservoirs, etc.;
- introduction of recirculating water supply system, low-water and non-water technologies, non-waste technologies, etc.;
- installation of an effective monitoring system;
- implementation of modern mathematical techniques of water ecosystem management.

(c) Environmental Protection Management

Procedures for environmental impact assessment have been laid down in a 1984 Instruction approved by the Ministry of the Environment (published, Bulletin of the Ministry of Construction Architecture and Amenities, 8/1985). Investors in construction projects assign environmental impact assessments to independent organizations and companies. Environmental impact assessments are approved by competent authorities (Municipal Councils, Regional Environmental Inspectorates, the Ministry of the Environment, the Ministry of the Economy and Planning, the Ministry of Construction Architecture and Amenities depending on the type of project). Rulings by the competent authorities are mandatory for the investors and the design institutes. Designs may not be accepted by investors without a positive environmental impact assessment approved by competent authorities. In the past, public participation in environmental impact assessment was limited.

In addition to the central institutions, mentioned in (a) above, which assume responsibility for environmental policies in the country, other organizations committed to the protection of the environment include: the Green Party, the Ecoglasnost Association, Green Balkans, Society for the Protection of Animals, etc.

A major effort is to be undertaken by the Ministry of the Environment, the Ministry of Education and the Ministry of Science and Higher Education jointly with the departments concerned for the development of a complete system of environmental protection training and retraining. Implementation is to start already in 1990.

Major environmental research organizations include: the Bulgarian Academy of Sciences, the Academy of Agriculture, the Academy of Medical Sciences, research divisions at higher learning establishments.

The following data systems are installed for maintenance and analysis of environmental data:

1. Water polluters in PRB

Information is maintained on all enterprises and organizations and subsidiaries listed as polluters and subject to control by Regional Inspectorates.

Files contain:

- data on water use;
- description and quantity of waste waters;

- administrative data on sites;
- type of treatment installation.

Some 400 files are maintained.

2. Air Polluters in PRB

Information is maintained on enterprises, organizations and subsidiaries listed as polluters and subject to control by Regional Inspectorates.

Files contain:

- administrative data, name of site, departmental identity, location by settlement, staff, shifts, etc.;
- technological data on treatment installations: number, type, type of treated waste, capacity, etc.;
- data on quantity of flue gases, type and content of pollutants.

Some 2,000 files are maintained.

3. Cardfile of Quarries

Information is maintained on all quarries in Bulgaria, working, abandoned, or prospective.

File contain:

- site data: code number, location name, etc.;
- production data: annual output, waste, statutory area, etc.
- technical data: known deposits, exploitation programme, recultivation programme, etc.

Some 500 files are maintained.

4. Protected Natural Sites in PRB

Information is maintained on national parklands, reserves, historic and protected sites and natural sights.

Files contain:

- site data: name, location, owner, etc.;
- applicable regulations;
- dimensions: area, number, etc.

Some 3,000 files are maintained.

5. Water Users

Information is maintained on water use by enterprises and organizations subject to inspection by Regional Inspectorates.

Files contain:

- name and location of the water user;
- description of the water use licence;
- code number and name of the water source used;
- flow rate (lps) and mass (m³ph).

The system generates tables by two break-downs.

Some 1,500 files are maintained.

Natural Resources

As regards underground resources, mining and quarrying is subject to a special law and there are the Rules of the State Inspectorate for the Protection of Underground Resources under the Ministry of the Environment. New legislation is to be voted on the protection of underground resources.

There some 70,000 ha of dry forests in Bulgaria, including 40,000 ha of coniferous trees and 30,000 ha of deciduous trees.

The area of dry forests accounts for 3 per cent of the forest area in the country.

Another 6 per cent are threatened.

Causes include: harmful emissions, acid rain, droughts during the last three to four years, herbivorous insects.

There are on the national territory 330 plant varieties and 472 animal species listed for protection.

Protected natural sites cover a total of 196,000 ha, including 10 parks, 98 reserves, 74 protected sites.

Protection of Coastal Waters

Bulgarian Black Sea coastal waters are controlled under the Law of the Bulgarian Maritime Territory on the Sea, from the air and on land by offices of the Ministry of the Environment in Varna and Bourgas, the Department of Sea Water Maintenance and the State Shipping Inspectorate under the Ministry of Transport.

However, at present, this control is only partial and inadequate. This becomes extremely evident in emergencies caused by oil spills, etc. The Ministry of the Environment bears responsibility for rapid localization and relief operations in such cases but the main technical facilities are managed by the Ministry of Transport. Thus, the Bourgas Regional Environmental Inspectorate has no sea vessel of its own and does not perform inspection on the sea. The only other option, which is available, is aerial control using helicopters on a contract basis with the Hemus Air company. This is done periodically and covers a wide area of territorial waters and the coast.

The Varna and Bourgas Inspectorates perform monthly analyses of the chemical and physical parameters of surface sea waters at 16 sites along the coast from Shabla to Ahtopol. In order to improve the effectiveness of observation, assessment and control, the Ministry of the Environment has assigned the Institute of Oceanography at the Bulgarian Academy of Sciences to develop the Environmental Monitoring of the Black Sea and an automatic floating station for constant control.

The protection of river courses and banks is under the control of the Ministry of the Environment through its special offices and of the Ministry of Agriculture and the Food Industry through the operation divisions of Water Works and Hydrotechnical Amelioration for banks where dikes, sluices, bank-enforcement structures are operated by this department.

Under a 1973 Regulation, in order to prevent adverse effects on natural water regimes, conductivity of river beds, flow and ice drifting, every intervention in the natural water course is subject to a licence issued by the Ministry of the Environment. In all cases of proposed construction or extraction of inert materials from river beds, the Ministry requires approved operation and recultivation programmes.

Control on river beds and banks is inadequate due to under-staffing of Regional Inspectorates (one inspector for the entire region) and this situation will soon be made worse by rapid establishment of various companies. Municipal authorities and mayors have the right to issue licences to companies and environmental considerations always come last, however small the economic benefit.

The Protection of Cultural Heritage is governed by the Law on the Protection of the Environment, the Law on Territorial and Settlement Development and the Law on Monuments of Culture and Museums.

Another eight regulations on the basis of the above legislation are applicable to this area. Heritage protection is financed from the State Budget and the relevant policies are formulated and implemented by the Ministry of Culture and its specialized department the National Institute for the Monuments of Culture.

(d) Investments, Priority Areas and Technical Co-operation

Statistical data are available on environmental protection expenditure going back to 1971: 324 mln levs were spent during the 1971-1975 period; 956 mln levs were spent during the 1976-1980 period; 1,872 mln levs were spent during the 1981-1985 period; and 2,150 mln levs are to be spent from 1986 till the end of 1990. Total environmental protection and reproduction expenditure for the 1971-1990 period is estimated at 5,300 mln levs, including 4,100 mln for capital investment.

It has been mentioned already that a National Programme for the Protection and Reproduction of the Environment until the year 2000 has been drafted and published for nation-wide debate. It is yet to be finalized and approved by the competent authorities. Finance for direct environmental protection activities under the Programme during the 1991-2000 period will amount to 3 per cent of the country's net material product and some 8-10 percent of total capital investment.

There is also the Programme for Immediate Action pursuant to the long-term National Programme and aimed at finding solutions to some of the sharpest environmental problems in the worst affected regions and sectors of the economy.

The immediate Programme features 134 tasks in the following areas: Industrial Regions; Installation of Very Important Treatment Facilities; the Black Sea, the Danube and Major River Basins; Agriculture and Forestry; Resource Sustainability.

Investment projects are prioritized under the Programmes according to their importance for respective air and river basins, industrial regions and other ecosystems.

(Of Annex: Programme for Immediate Action)

Technical Co-operation

Environmental problem areas where most urgent technical assistance is needed include the following:

1. Development of a National Automated Environmental Control System: software, hardware, air water and soil measuring devices, radiation control equipment, etc.
2. Development of a modern analytical potential on the basis of stationary and mobile laboratories: equipment for a central laboratory complex and 16 regional labs.
3. Technologies and equipment for the separation of SO₂ and NO_x from flue gases of fossil fuel power stations.
4. Installation and technologies for the safe disposal of arsenic in process water from the non-ferrous industry.
5. Industrial installation for the extraction of sulphur from oil and oil products.
6. Biogas installations using livestock wastes.
7. Installation (plant) for safe disposal of hazardous waste.
8. Installation and technology for biopreparations and reagents, and techniques of appropriate introduction.
9. Installation for liquid mixed fertilizers and techniques of introduction.
10. Training and retraining.

FEDERAL COMMITTEE FOR THE ENVIRONMENT, PRAGUE
MINISTRY OF ENVIRONMENT OF THE CZECH REPUBLIC, PRAGUE
SLOVAK COMMISSION FOR ENVIRONMENT, BRATISLAVA

STATE ECOLOGICAL POLICY

- Content: 1. Formulation of problem
2. Goals of environmental control
3. Principles of environmental control
4. Strategy of environmental control

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1. FORMULATION OF PROBLEM

The quality of the environment has sharply deteriorated practically on the whole territory of our State over the past decades owing to man's activity. In some areas the situation is critical. Next to the generally known problems related to the pollution of the air, surface and ground waters (including drinking water sources) there is a gradual degradation of soil, the reduction of the vitality of forests and their destruction and the extinction of a great number of plant and animal species. Foreign and hazardous substances are accumulating in the environment. The water regime of landscape ecosystems is being disturbed and their ability to cope with negative changes in living conditions is declining. Any further continuation of the present trend would therefore cause a further sharp aggravation of existing ecological problems.

The immediate cause of the continuing destruction of the environment in Czechoslovakia is the excessive and inconsiderate extraction of natural resources, extensive emissions of wastes and arbitrary interference in the landscape, failure to observe ecological and aesthetic laws. Deeper causes include especially the inefficient economy which does not sufficiently respect the natural conditions of the Earth, consumes excessive amounts of raw materials and energy, uses ecologically unsuitable technologies and manufactures products with poor ecological parameters. The directive management of the national economy directly led to the wastage of natural resources and to the destruction of the environment. A negative role was also played by the classification of data on the state of the environment, its causes and consequences. The institutional provision of environmental control was totally inadequate. Sources allocated to environmental care did in no way correspond to the scale and significance of the problems, and were moreover used almost exclusively for subsequent remediation measures which only limited some of the consequences of ecologically unfavorable technologies, not for the prevention of damage. The sad state of the environment in our country is the heritage of the totalitarian political system where legislative, executive and judicial power was concentrated in the hands of a narrow ruling group at the top of the hierarchy of the communist party which in fact excluded all corrective feedback. The attitude of people to nature and to the environment was loaded with arrogance, recklessness, indolence and exploitation.

Contributing significantly to the destruction of the environment (namely of air) in the Czech and Slovak Federal Republic was also transboundary pollution from the territories of other states which mainly affects the northern areas of Bohemia and Moravia, the Orava area and the High Tatras.

The destruction of the environment is one of the causes of the relative and absolute deterioration of the health state of the population and of the stagnation or shortening of the mean life expectancy - as compared with advanced countries we are thus being deprived of 5 - 7 years of

life.

This state of affairs has its impact on the disruption of the social structure of the affected areas and the growing estrangement of the individual and of society which is unable to provide the basic conditions of human existence. In some places, namely in the North Bohemian region, in Prague, the Ostrava-Karviná basin, in Bratislava, in Ziar nad Hronom and Ružomberok there is tension bordering on an explosion. The urgency of the demand for a substantial improvement of the quality of the environment in our country is also demonstrated by the results of public opinion polls where respondents rank this problem among the most pressing. Economic damage and losses caused by the depleted environment are constantly increasing and now equal at least 7% of the total volume of the national product. The Czech and Slovak Federal Republic significantly contributes to the pollution of the environment in other countries (the "export" of hazardous waste products is higher than their "import") and contributes to global climatic changes which in turn has negative effect on the international position of the State. The further deterioration of this position will result from the country's probable failure to fulfill the internationally adopted commitment to reduce by 1993 the emissions of SO₂ by 30% as compared with 1980. The Council of Europe has already succeeded to reduce the emissions of this hazardous substance by 50-70%.

Problems linked with the deterioration of the quality of the environment require systematic and effective solution oriented to the gradual and speedy "ecological optimization" of processes taking place in society and to the strategy of sustainable development. The experience of number of advanced countries, such as the USA the Federal Republic of Germany, Japan and Holland show that ecological motivation may also become a significant stimulus for further economic growth based on a qualitatively higher level of production and consumption.

State environmental policy may become the means of coordinating the effort for improving the quality of the environment in Czechoslovakia. Practically all advanced countries have not only formulated their ecological (environmental) policies but are also implementing it with great effort and remarkable speed. A joint ecological policy is also being created by supranational groupings, such as the European community which is now implementing its fourth action programme (since 1972). Our lag behind the advanced countries in this area is thus 15-20 years.

State ecological policy proceeds from the analysis of the state of the environment in our country, the evaluation of the health, social ethical, economic and political consequences of changes in the quality of the environment and the identification of internal and external (international) factors affecting the quality of the environment, this in continuity with the evaluation of actual and potential risks. It formulates the goal which Czechoslovak society wants to attain and suggests the strategy for such attainment.

The scale and depth of problems related to the destruction of the environment and the considerable inertia of the economy requires that effort, financial and other sources be concentrated, possibly even at the cost of delaying the growth of material consumption such as to provide that a substantial improvement in the quality of the environment should be attained within this decade. We have a moral obligation to limit the negative impact of the disrupted environment on people's health - especially on the health of children - to the shortest possible period. The basic pre-condition for this is to introduce a substantial change in the approach to the solution of the given problem.

The State should assume overall responsibility for the quality of the environment on its territory. This does not mean direct responsibility for eliminating the individual sources of environmental destruction which was what the State attempted, albeit hesitatingly and unsystematically, within the directive system of management. This responsibility must be indivisibly linked with production, consumer and other activities which affect environmental quality. Organizations and individuals must be aware of this responsibility because only thus can they be expected to make the desirable change in their behavior. The State must, however, create such conceptual, legislative, economic, institutional, educational, information, source and other conditions which will stimulate organizations and individual citizens to save energy and raw materials, to care of environment, to remove "old" sources of pollution and to punish those who waste natural resources and pollute the environment. Environmental control must be based on the autonomous activity of towns, communities and districts (or areas) proceeding from a detailed knowledge of local conditions. It is the role of the State and of its institutions to open wide space for the initiative and entrepreneurial activity of all citizens while at the same time regulating activities taking place in society.

State environmental policy can only be effective when it becomes an integral component of the overall concept of the development of Czechoslovakia and part of European and world policy oriented towards improving the quality of the environment on a regional and global scale. The ecological problems of Czechoslovakia cannot be resolved in isolation from the solution of all other substantial problem which our society faces and without active participation in the international effort for overcoming the threat of a global ecological crisis.

The formulation and gradual implementation of State ecological policy is not a one-off process. It must take place continuously on the basis of close cooperation between the two Republics and with the participation of ecologically oriented voluntary organizations, political parties and movements and primarily with the active support of the broad public.

2. GOALS OF ENVIRONMENTAL CONTROL

The goals of environmental control proceed from the right of citizens of this country to live in a healthy and good environment and from the general obligation to protect the environment.

The fundamental goal of State ecological policy is to restore the dynamic equilibrium between society and the environment and thereby to create preconditions for the allround physical and mental development of man and for maintaining the wealth of nature to the maximum possible extent. The attainment of this goal is the indispensable, albeit not sufficient, condition of the long-term oriented qualitative, and permanently sustainable development of our country as well as being a contribution to the attainment of harmonious relations between the human society and its environment on the European and global scale. The philosophy of permanently sustainable development was formulated by the World Commission on Environment and Development in its Report "Our Common Future" which was adopted by the 42nd UN General Assembly in 1987.

Following up on the basic goal are the following interdependent specific goals:

- a) the protection of human health and wellbeing oriented to wards protecting man before dangerous chemical physical and biological factors in the environment, creation or preservation of an aesthetic and undisturbed environment
- b) conserving nature's wealth, especially the plant and animal genofund as the basic condition of ecological equilibrium in nature, the wealth of non-living nature, this both as a goal in itself and as a means for meeting the needs of present and future generations
- c) the protection of cultural and economic values before the unfavorable impacts of the environment
- d) the protection of life-giving systems of the planetary biosphere dependent on the sensitive balance of interactive physical, chemical and biological processes whose disturbance by man's activity is manifested, e.g., by the destruction of the ozone layer or by global warming. For the attainment of the following goals it is primarily necessary to
 - substantially improve the quality of man's food chain by providing safe drinking water and food with a high nutritive value not contaminated by harmful substances
 - to minimize the extraction of renewable and especially non-renewable natural resources by reducing not only the relative but also the absolute consumption of raw materials,

including water, the better use of auxiliary and secondary raw materials, the recultivation of mining areas and systematic care of renewable resources

- to limit the introduction of solid, liquid and gaseous harmful substances and waste energies into the environment by reducing the volume and hazardousness of produced pollution and by improved utilization (recycling), possibly at least by the harmless and selective deposition of wastes, by reducing emissions of waste heat, noise and vibrations, ionizing and non-ionizing radiation
- to minimize the amount and hazardousness of foreign substances deliberately introduced into the environment in form of pesticides, manufactured fertilizers, salting materials, etc., and to consistently monitor the introduction of foreign or newly developed organisms into the environment
- to restore and maintain the ecological stability and aesthetic value of the landscape, primarily by ecological husbandry, the introduction of alternative methods of husbandry, the restoration of healthy forests, the reconstruction and maintenance of systems of ecological stability and the elimination of drastic interference in the landscape especially that which is related to technocratic investment projects
- to improve conditions in cities and villages for the healthy and the physically disabled population by creating functional and aesthetically valuable settlements, this by the comprehensive regeneration of villages and towns, better architectural concepts of new construction, better maintenance, etc.
- to provide a better protection of nature both in protected areas and in the economically intensively used landscape, this including the protection of livestock
- the reduction of the volume and danger of the transboundary transport of harmful substances across the borders of our State, as well as the "export" of such substances by air and water flows, and the "import" of such substances from sources on the territory of other countries (based on negotiations)
- to provide effective aid to other countries (namely the developing countries) in environmental control, mainly oriented to education, counseling and information activities.

The said goals should be attained primarily in a decentralized manner, at the level of enterprises, villages, towns, districts and other autonomous and self-governing units, where perfect knowledge may be expected of concrete conditions; moreover, decentralized systems are more flexible and less vulnerable. The irreplaceable role of State institutions is limited to the creation of overall concepts and strategies of environmental control, the coordination of processes of implementation and to activities which relate to the whole and which exceed the possibilities of autonomous units. Federal and republican governments, ministries and other State authorities cannot replace responsible, involved and initiative approaches and actions of individual citizens, voluntary organizations, local bodies of self-government and the management of production and other enterprises and institutions.

3. PRINCIPLES OF ENVIRONMENTAL CONTROL

Environmental control proceeds from the following principles:

- a) comprehensiveness - the endeavor for the overall improvement of environmental quality in the Czech and Slovak Federal Republic and on a global scale, this not only as concerns improving the quality of the individual components of the environment which in practice often means shifting problems, e.g., separation of fly ash often leads to improvement of environmental quality but the incorrect storage of ash contaminates soil and ground water and often means secondary pollution of the air;
- b) direct responsibility for environmental pollution, i.e., the polluter bears direct responsibility for the pollution of the environment, he shall pay damages and is responsible for the reuse or harmless deposition of the waste products of his activity. The polluter is also obligated to provide information on the real or potential impact of his activities on the environment;
- c) Prevention - preventive measures are preferred wherever they are technically and economically feasible. Preventive activities oriented to the restriction of emissions at source are more effective and usually less costly than subsequent clearing or compensation measures. To attain this goal it will be necessary to apply the best and practically available production and consumer technologies with minimal negative impacts on the environment;
- d) minimization of negative impacts - orientation to increasing quality of products and services allows to better meet the needs of users and consumers and minimizes negative impacts on the environment.

The said principles will be projected into generally binding legal regulations and into the overall strategy of resolving existing and potential ecological problems.

4. STRATEGY OF ENVIRONMENTAL CONTROL

The purposeful combination should be used of two mutually complementary strategies for the attainment of the set goals of environmental control.

A.

Subsequent and compensation measure (the ex post strategy) mainly oriented to the elimination or at least the attenuation of existing "old" polluters by building waste water treatment plants, plants for the treatment of combustion and other waste gases, controlled waste heaps and waste disposal or recycling facilities, to the partial compensation or restriction of damage caused by the destruction of the environment by the elimination of "wide-cat" dumps of hazardous wastes, the liming of forests and lakes, the organization of school camps in natural surrounding, etc.

The advantage of this strategy is the possibility to reduce relatively quickly part of the negative loading of the environment using tried technologies. Its disadvantage is the basic impossibility of removing all significant factors which disturb the environment, rapidly growing demands on financial and other resources reducing the overall efficiency of the economy and the high consumption of raw materials and energy for the production and operation of the required installations. This results in a vicious circle which deepens the imbalance between nature and society.

B.

Preventive measures (the ex ante strategy) aimed at attaining the ideal of relatively closed cycles of production and consumption with minimal negative impact on the environment.

The advantage of the said strategy is the preclusion of phenomena leading to the destruction of the environment and the efficient solution of ecological problems in the process of the innovation of products and technologies, the reconstruction, modernization and new capital construction and of other processes taking place in society. Its disadvantage is unsatisfactory preparation owing to insufficient environmental education, unsystematic and badly managed research and development, insufficient production capacity and their inadequate structure and often the absence or inavailability of environment friendly products and technologies.

The suggested ecological policy uses the advantages of both stated strategies while suppressing their disadvantages. In the first period, i.e., to the end of the millennium this policy will mainly be oriented to the accelerated implementation of subsequent and compensation measures, this mainly with regard to "old" sources of environmental pollution where low-waste technologies can not be expected to be introduced and which cannot be closed down. In the first phase, insofar as market mechanisms do not indicate the prospectiveness of individual production technologies it will be purposeful to focus on the municipal area, i.e., by the construction of municipal waste water treatment installations, etc. In such instances where the polluter cannot be identified responsibility passes to State institutions; this mainly applies to some old hazardous waste dumps.

The intensive preparation for the implementation of preventive measures (ex ante) will take place in parallel with the above stated measures and will include the implementation of tried own or accepted innovation. The said strategy should gradually prevail, this by the turn of the millennium at the latest.

State environmental policy must purposefully orient all basic factors directly or indirectly affecting the quality of the environment, and therefore namely comprises:

- a) the orientation of science and technology to the deeper recognition of relations between nature and society, the preparation and introduction of environment friendly production and consumer technologies and the development, production and marketing of all environment friendly products through all phases of their service life (from the cradle to the grave)
- b) changes in the structure and orientation of the Czechoslovak economy with emphasis on closing down or rapid limiting of the manufacture of highly power and raw material demanding production processes and processes which inadmissibly disturb the environment, the introduction of environment friendly production and technology innovations and to the endorsement of technologies based on renewable power and raw material resources
- c) ecological husbandry in the landscape oriented to the endorsement of the natural capacity to maintain the state of dynamic balance in changing conditions
- d) providing systematic information on the state of the environment, its consequences causes and development
- e) broadening and deepening environmental education and the education of all social groups

- f) cooperation with voluntary environmental organizations and giving allround support to their activity.

The first pre-requisite of the implementation of State environmental policy is the introduction of such a set of generally valid legal regulations which will stimulate the rapid improvement of the quality of the environment and will determine the respective sanctions (including penalization). These legal norms shall include the compulsory evaluation of ecological relationships of selected investments and ecological parameters and ecological parameters of certain product categories such as to provide the observance of valid regulations. Also in this area will it be necessary to restore the principles of the legal state which will as against the present state no longer operate poor laws, the existence of many exemptions and very often also the violation of valid laws. In the transitory period obsolete laws will speedily be amended to span the period of the drafting of new and missing laws while respecting legal regulations valid abroad, especially in the countries of the European communities. Environmental bodies will have to determine binding time schedules for the speediest removal of exemptions.

Another pre-requisite for resolving existing ecological problems and for preventing the development of new ones will be the drafting of system of institutional environmental control at the level of the federation, regions (or districts), towns and communities. It must incorporate a control system, e.g., integrate environmental inspection.

The support backbone of State environmental policy are economic instruments based on the principles of market economy. Economic instruments limiting the exploitation of natural resources and punishing disturbance of the environment include, returns, taxes and fees for the use of natural resources, fees and fines for the discharge of waste into the environment, fines for prohibited negative interference in the landscape, ecological taxes or customs fees for products with unsuitable ecological parameter. The respective environmental payments will be projected into increased prices of energy, raw materials and products in production or use causing extensive disturbance of the environment. This will be done in order to stimulate consumers to reduce energy consumption. The assessment of the economic effect of existing and projected enterprises shall take into consideration not only ecological projects by existing regulations but also expected future costs.

Economic instruments endorsing activities and products aimed at improving environmental quality comprise allocations and subsidies, advantageous credits and loans, including credit cost payments and credit guarantees, tax and return reliefs, import and export permits and customs reliefs.

The transition period to the full functioning of the market economy will be a critical period. This will roughly be to the year 1993. In that period it will be necessary to use to a certain extent the directive rule by State authorities at federal and republican levels. This will not only include the closing down of inefficient and environmentally harmful production units but also the State's participation in the implementation of economically more demanding measures which exceed the immediate real possibilities of concrete polluters and where it is not feasible to fully implement the principle of direct responsibility for pollution. Total costs of improving the quality our environment cannot as yet be determined but by analogy with the neighboring states it may be estimated at several tens of thousands of millions of crowns per annum, of this part will have to be paid in hard currency.

All measures aimed at improving the quality of the environment must be founded on broad international cooperation aimed at gaining knowledge on the development of the environment on a regional and global scale, seeking ways towards attaining permanently sustainable development.

