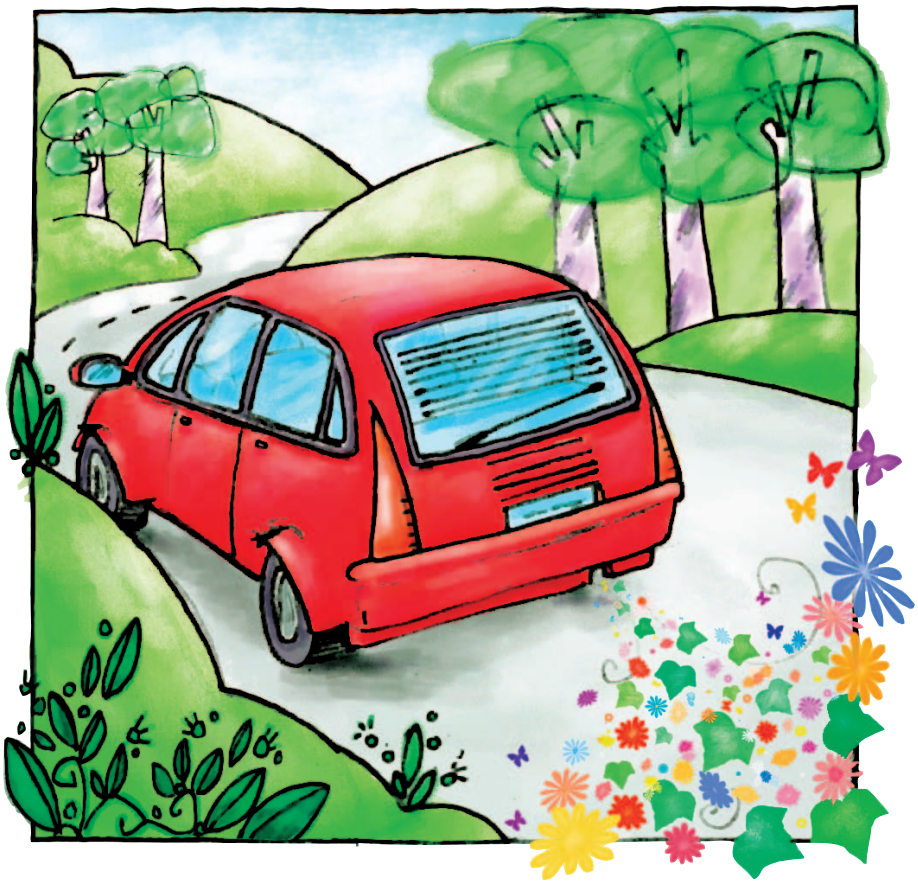
STATUS REPORT ON

Clean Fuel and Vehicles in Central and Eastern Europe



REGIONAL ENVIRONMENTAL CENTER

STATUS REPORT ON

Clean Fuel and Vehicles in Central and Eastern Europe

Based on country surveys and a regional Central and Eastern European conference that took place in Szentendre, Hungary on October 27-28, 2005

Compiled by **Ruslan Zhechkov**

REGIONAL ENVIRONMENTAL CENTER

About the REC

The Regional Environmental Center for Central and Eastern Europe (REC) is a non-partisan, non-advocacy, not-for-profit international organisation with a mission to assist in solving environmental problems in Central and Eastern Europe (CEE). The REC fulfils this mission by promoting cooperation among non-governmental organisations, governments, businesses and other environmental stakeholders, and by supporting the free exchange of information and public participation in environmental decision making.

The REC was established in 1990 by the United States, the European Commission and Hungary. Today, the REC is legally based on a charter signed by the governments of 28 countries and the European Commission, and on an international agreement with the government of Hungary. The REC has its head office in Szentendre, Hungary, and country offices and field offices in 16 beneficiary countries which are: Albania, Bosnia and Herzegovina, Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, the former Yugoslav Republic of Macedonia, Poland, Romania, Serbia and Montenegro, Slovakia, Slovenia and Turkey.

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LIST OF ACRONYMS

Central and Eastern Europe - **CEE**

Eastern Europe, the Caucasus and Central Asia - **EECCA**

European Commission - **EC**

European Union - **EU**

Greenhouse gas - **GHG**

Gross domestic product - **GDP**

Integrated pollution prevention and control - **IPPC**

Large combustion plant - **LCP**

Liquefied petroleum gas - **LPG**

Light-duty vehicles - **LDV**

Local environmental action plan - **LEAP**

Non-governmental organisation - **NGO**

New member states - **NMS**

Partnership for Clean Fuels and Vehicles - **PCFV**

Regional Environmental Center for Central and Eastern Europe - **REC**

Sofia Initiative on Local Air Quality - **SILAQ**

South Eastern Europe - **SEE**

Stabilisation and Association Process - **SAP**

Total suspended particulates - **TSP**

United Nations Economic Commission for Europe - **UNECE**

United Nations Environment Programme - **UNEP**

United Nations Department of Economic and Social Affairs - **UNDESA**

United Nations Framework Convention on Climate Change - **UNFCCC**

United Nations Industrial Development Organization - **UNIDO**

United States Environmental Protection Agency - **USEPA**

Volatile organic compounds - **VOC**

Background

Urban environments in Central and Eastern Europe (CEE) and Turkey continue to suffer from vehicular air pollution linked to the continued use of leaded gasoline, high sulphur levels of gasoline and diesel fuel, and the need for widespread use of emissions control technology. With support from the United States Environmental Protection Agency (USEPA) and the United Nations Environment Programme (UNEP) Partnership for Clean Fuels and Vehicles (PCFV), the Regional Environmental Center for Central and Eastern Europe (REC) has initiated an information-gathering and policy formulation project for cleaner fuels and vehicles in the CEE region.

The PCFV was launched to address the growing air pollution problems in urban areas of developing countries. The initiative was then extended to cover CEE.

Vehicles emit nitrogen oxides, sulphur oxides, particulates, carbon monoxide, and hydrocarbons, all of them seriously damaging to human health. Pollution problems can be reduced by using lower-sulphur and lead-free fuels and by introducing new vehicle technologies and emission control systems.

The PCFV is a global partnership helping to reduce vehicle air pollution in developing countries through the promotion of clean fuels and vehicles. Its initial focus is on two priority areas: the elimination of lead in gasoline and the phase-out of sulphur in diesel and gasoline fuels; concurrent with the adoption of cleaner vehicle technologies. The PCFV is supported by partner contributions, and currently consists of over 80 partners from the private sector, international organisations, governments, NGOs and experts in the field. UNEP hosts the PCFV Clearing-House.

Significant efforts have been made in CEE to phase out leaded gasoline, to control automobile emissions, and to introduce clean fuels, but the problems continue to aggregate. This situation calls for the extension of the Partnership for Clean Fuels and Vehicles to these countries as the basis for joint efforts to address the pollution challenge, the transfer of best practices and the exchange of experience.

The PCFV builds on the activities of the Sofia Initiative on Local Air Quality (SILAQ), which was launched in 1995 by the ministers of environment from the United Nations Economic Commission for Europe (UNECE) region at their third Environment for Europe conference. Between 1995 and 2003 it was part of the work programme of the Task Force for Implementation of the Environmental Action Programme for Central and Eastern Europe (EAP Task Force). The REC hosted the secretariat.

SILAQ focused on the promotion of unleaded gasoline and on the reduction of sulphur and particulate emissions in highly polluted urban areas. Bulgaria, Croatia, the Czech Republic, Hungary, the former Yugoslav Republic of Macedonia, Poland, Romania, Slovakia and Slovenia participated in SILAQ activities.

Air pollution has been categorised by specific pollutants. Portable sampling equipment, donated by the USEPA, has been used to measure particulate matter (PM 10, PM 2.5 and total suspended particulates — TSP), nitrogen oxides (NO_X) and carbon monoxide (CO) in the air. The data complement the information from the national monitoring systems and assist the authorities in identifying pollution in urban areas and high-risk zones. Measurements have been taken in Bulgaria, Croatia, Hungary, Romania, and Slovenia. SILAQ ensured a forum for exchange of expertise in the development and implementation of national programmes and specific measures for phasing out leaded gasoline. In general SILAQ activities covered data collection, exchange of experience and best practices, preparation of synthesis reports, and preparation of country analyses, as well as development of possible scenarios and legislative, economic and investment measures. The financial and technical support came mainly from the USEPA. The governments of Norway, Denmark and Germany also contributed to the individual projects.

Assessment methodology

This status report was developed on the basis of an assessment that was carried out in all CEE countries during May-July 2005. The assessment was based on a questionnaire developed by the REC in consultation with the UNEP Partnership for Clean Fuels and Vehicles (PCFV), USEPA and the United Nations Department of Economic and Social Affairs (UNDESA). The informa-

tion was collected by REC country offices or by independent consultants subcontracted by them. Information was collected through interviews and desktop research.

The questionnaire contained five main chapters:

1. Personal Information
2. Country Specific Data
3. Air Quality
4. Fuel Quality
5. Vehicle Emissions

The reporting year in the questionnaire is 2003. Wherever the data refers to a different year, this is explicitly stated. N/A is used in the cases when the information could not be found. N/R is used when data is not measured, monitored or reported.

While effort has been made to verify the information contained in this report, there are still a number of knowledge gaps. Thus, the information contained herein will require further clarification and verification by national and regional authorities.

Country profiles

TABLE 1

Territory, population, and gross domestic product (GDP) per capita

COUNTRY	**TERRITORY** (SQ.KM.)	**POPULATION** (MILLIONS)	**GDP PER CAPITA** (USD)
Albania	28,748	3.6	4,900 ppp*
Bulgaria	111,000	7.8	2,749
Bosnia and Herzegovina	51,209	3.8	1,845
Croatia	87,609	4.4	4,994
Czech Republic	78,866	10.2	8,858
Estonia	45,227	1.4	6,700
Hungary	93,030	10.1	6,159
Latvia	64,589	2.3	1,909
Lithuania	65,303	3.5	5,315
Former Yugoslav Republic of Macedonia	25,713	2.0	2,600
Poland	312,685	38.2	5,960
Romania	237,500	22.3	2,660
Serbia and Montenegro	102,173	8.1	1,450
Kosovo (territory under interim UN administration)	10,887	2.0	1,202
Slovakia	49,034	5.4	6,692
Slovenia	20,273	2.0	12,273
Turkey	783,562	67.8	3,111
Total	1,951,714	194.8	Not relevant

*ppp - parity of purchasing power

TABLE 2

General data

COUNTRY	TOTAL CONSUMPTION OF CRUDE OIL (IN BARRELS)	SULPHUR CONTENT OF CRUDE OIL (%)*	ENERGY CONSUMPTION BY TRANSPORT (TONNES OF OIL EQUIVALENT)
Albania	2,735,500	N/A	N/A
Bulgaria	44,134,924	1.5-3.5	2,281,000
Bosnia and Herzegovina	7,342,974	1-2	N/R
Croatia	32,000,000	N/A	1,790,000
Czech Republic	40,215,000	N/A	4,600,000
Estonia	N/A	No own refinery	
Hungary	N/A	N/A	N/A
Latvia	N/A	No own refinery	926,722
Lithuania	54,118,000 (7,102.1 kilotonnes)	1.3-1.8	1,220,500
Former Yugoslav Republic of Macedonia	8,938,260 (1,173 kilotonnes)	1-1.2	376,000
Poland	48,630,840 (6,382 kilotonnes)	N/A	13,453,000
Romania	82,448,400 (10,820 kilotonnes) (year 2000)	N/A	3,541,000 (year 2000)
Serbia and Montenegro	24,255,000	3-4	1,588,000
Kosovo (territory under interim UN administration)	N/A	N/A	357,192
Slovakia	24,661,379 (year 2002)	1.4	3,382,000
Slovenia	N/A	No own refinery	1,411,000
Turkey	185,416,224	N/A	12,396,000

*The sulphur content of crude oil varies depending on the supplier.

Air quality

Institutional framework of air quality legislation and EU approximation

In SEE and Turkey the responsibility for air protection lies to a big extent with the ministries of environment. However, other ministries like health and economy also have certain tasks. The national inspectorates are in charge of controlling enforcement and compliance with norms. There is a general problem with air quality monitoring. In all cases it was impossible to establish the exact number of staff dealing with air protection.

In the new member states, Bulgaria and Romania all institutions for air protection are in place. Active efforts for strengthening these institutions took place in the pre-accession period. The ministries of environment and national environmental protection agencies have a leading role in air protection through their air protection/quality departments. Enforcement and compliance are ensured by the national and regional inspectorates. Other ministries such as health, transport and economy also have certain responsibilities for air protection. Municipalities usually have one or two staff in charge of environment, including air protection. National environmental or specialised air quality institutes are also involved in air protection and should be a part of policy-making efforts. It has been difficult or impossible to assess the precise number of staff involved in air protection.

COUNTRY PROFILE: **BULGARIA**

Approximately 200 people are directly involved in air protection activities within the structures of the Ministry of Environment and Waters, the Executive Environmental Agency, the Regional Inspectorate for Environment and Water, the Ministry of Health, the National Centre on Public Health and municipalities.

There is full transposition of all EU air quality legislation with the exception of Directive 2004/107/EC relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons (PAHs) in ambient air. There is also full transposition of the three EU directives on emissions into air: volatile organic compounds (VOCs) from petrol, VOCs from solvents and sulphur contents in liquid fuels.

Air quality legislation

Croatia

Adopted in 2004, the Air Protection Act fully transposes the EU legislation, but the subsidiary legislation is still to be developed. The Ministry of Environmental Protection, Physical Planning and Construction is drafting new regulations on air quality in compliance with EU legislation. It has to be introduced by the end of 2006. The Directives on VOCs from Storage and Distribution of Petrol and the Directive on VOCs from Solvents have not yet been transposed. There is a partial transposition of the EC Directive on sulphur content in liquid fuel.

Former Yugoslav Republic of Macedonia

The new Law on Ambient Air Quality was adopted in 2004 and entered into force on June 1, 2004. The new Law on Ambient Air Quality has been harmonised with EU legislation after a gap analysis of the national air quality legislation and EC directives (Framework Air Directive and "daughter" directives). It transposes fully the Air Quality Framework Directive 96/62/EC.

The directives on VOC emissions from petrol, VOCs from solvents and sulphur content in liquid fuels have only been partially transposed. Full transposition will be achieved after the adoption of relevant subsidiary legislation. The Ministry of Environment and Physical Planning has drafted the Decree on Ambient Air Quality Limit Values, Margins of Tolerance and Alert Thresholds, which is expected to be adopted in the next several months.

Serbia and Montenegro

The existing emission and imission regulations are not harmonised with the EU. Besides harmonisation, the other important task is to upgrade the Ambient Air Quality Monitoring Programme and to modernise the monitoring network and laboratories.

TABLE 3

Technical assistance related to air quality

COUNTRY	MAIN PROJECTS
Albania	No assistance received
Bulgaria	Danish EPA — Approximation of the Environmental Legislation in Bulgaria with the EU Industrial Pollution Control Requirements
Bosnia and Herzegovina	N/A
Croatia	LIFE — Reconstruction of National Emission Inventory System and Enforcement of Its Implementation
Czech Republic	N/A
Estonia	Twinning projects: Finnish Ministry of Environment - Air Quality Management; Monitoring of Air Quality
Hungary	Development of Hungarian Air Quality Monitoring System
Latvia	N/A
Lithuania	World Bank — Development of Environmental Policy and Institutional Capacity Building PHARE — Preparation of National Emission Reduction and Ambient Air Quality Assessment Programmes
Former Yugoslav Republic of Macedonia	GTZ — Preparation of Air Quality Legislation
Poland	N/A
Romania	Several PHARE projects on: Implementation of IPPC, VOC, LCP and Seveso II Directives; Improving National Network for Air Quality Monitoring; Joint Air Quality Monitoring on the Romanian-Bulgarian Border
Serbia and Montenegro	N/A
Kosovo (territory under interim UN administration)	N/A
Slovakia	N/R
Slovenia	Several twinning projects with Austria and Germany: Implementation of Air Quality Framework Directive and Strengthening of Monitoring, Permitting and Enforcement System
Turkey	EC — Developing Capacity in Implementation and Enforcement through the AC IMPEL Network (component on air quality management); Capacity Building for the Implementation of the IPPC Directive; Approximation of Air Quality Management (96/62/EC and 2001/80/EC)

Note: This is not a comprehensive list. There may be other projects for which we do not have information.

Kosovo (territory under interim UN administration)

The Law on Air Protection from Pollution was adopted in 2004 and entered into force in 2005. EU legislation is partially transposed, but secondary legislation needs to be developed.

COUNTRY PROFILE: **TURKEY**

Even though it was not included within the scope of EU approximation, the adoption of two new regulations on air pollution control — one on Emissions from Industrial Processes in 2003 and the other on Emissions from Domestic Heating in 2005 — provided significant inputs for improving the institutional and legislative framework in the country.

Some 18 laws and a regulation of the Ministry of Environment and Forestry on the quality of petrol and diesel fuels were adopted in 2004. Two laws of the Ministry of Industry and Trade — one on the availability of consumer information on fuel economy and CO_2 emissions of new passenger cars, and the other on measures related to emissions of non-road vehicles - were adopted in 2003. In

June 2005, a draft law on Air Quality Management, transposing five EU directives was submitted by the Ministry of Environment and Forestry. There is still a big gap in approximation of EU legislation in air quality.

Turkey acceded to the United Nations Framework Convention on Climate Change (UNFCCC) in 2004, which is expected to lead to improving air quality, particularly through the promotion of renewable energy, energy efficiency, sustainable transport and waste management.

In all new member states, Bulgaria and Romania, EU air quality legislation has been fully transposed. There is usually one air protection framework law accompanied by specific laws or subsidiary legislation.

Fully transposed EU legislation

Air Quality

Old directives:

- 80/779/EEC (SO_2,PM)
- 82/884/EEC (Pb)
- 85/203/EEC (NOx)
- 92/72/EEC (Ozone)
- 93/389/EEC (GHG)

Air Quality Framework Directive 96/62/EC 97/101/EC (Information exchange)

Daughter directives:

- 1999/30/EC (NO_x, SO_2, Pb and PM10)
- 2000/69/EC (Benzene, CO)
- 2002/3/EC (Ozone)
- Fourth Daughter Directive (Proposal for As, Cd, Hg, Ni, PAH) 2004/107

Emissions into air

- 94/63/EC (VOCs from petrol)
- 1999/13/EC (VOCs from solvents)
- 1999/32/EC (Sulphur content in liquid fuels)

Primary air pollutant criteria standards

TABLE 4

National standards

COUNTRY	NATIONAL STANDARDS
Bosnia and Herzegovina	Targets are higher than those of the EU regarding NO_2, O_3, PM10, SO_2 and lead. The deadlines for reaching the targets are not available.
Croatia	Targets are similar to those of the EU with the exception of PM10 and SO_2 (annual arithmetic mean), but there are no deadlines for reaching them.
Former Yugoslav Republic of Macedonia	EU targets have been transposed in the drafted national secondary legislation with a deadline of 2012 for all parameters (except ozone, which has a deadline of 2010). The proposed secondary legislation has not been adopted yet.
Serbia and Montenegro	The actual national standards are stricter than those of the EU regarding CO, one-hour mean NO_2 and O_3. The actual standards for the other parameters are identical or weaker than the EU's.
Turkey	Since June 2005, EU standards are being negotiated in the framework of a twinning project on air quality management.
New member states, Bulgaria and Romania	Primary air pollutant criteria standards are harmonised with those of the EU and targets are identical. However, in some countries there are extended deadlines for reaching those targets. Regarding lead, the deadline for all countries is January 1, 2005. Only in Romania the deadline is January 1, 2007. In Hungary the target is slightly stricter than the EU standard (0.3 micrograms per cubic metre).

Pollutants in ambient air from road transport

TABLE 5

Annual emissions of pollutants in ambient air from road transport

Source	SO_2 [ktonnes]	CO_2 [ktonnes]	PM10 [ktonnes]	NO_2 [ktonnes]	NO_X [ktonnes]	VOC [ktonnes]	CH_4 [ktonnes]	NH_3 [ktonnes]	CO [ktonnes]	Hg [tonnes]	Cd [tonnes]	Pb [tonnes]	PAH [tonnes]	Dioxins/ furans [tonnes]
Albania	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R
Bulgaria	4.6	4,716	N/R	N/R	73.5	32.2	1.03	0.02	189.44	-	0.012	8.1	45.7	10.5
Bosnia and Herzegovina	0.58	2,927	1.8	0.22	16.3	10.1	0.67	0.14	76.2	N/A	0.009	47.9	N/A	N/A
Croatia	5.37	4,453	0.0005	N/A	27.79	25.1	0.82	0.51	149.49	0	0.084	55.77	0.09	220
Czech Republic	2.0	13,900	5.1	N/A	104	46	1.6	2.0	230	N/A	N/A	N/A	20	0.3
Estonia	0.64	1,782	0.8	N/A	13	7	0.31	0.26	54.88	0	0	3.96	0.035	0.1
Hungary	1.08	11,188	14.7	N/A	103	60.7	1.64	0.02	403.49	0.0048	1.125	0.92	2.32	3.998
Latvia	0.8	2,590	0.73	0.26	21.5	11.2	0.6	0.18	78.2	N/R	0.007	0.001	N/R	N/R
Lithuania	0.89	3,5507	3.8	30	41.6	15.7	171.43	0.02	93.95	N/A	0.07	10.656	N/A	N/A
Former Yugoslav Republic of Macedonia	0.514	1,120	0.67	N/A	11	N/A	0.19	N/A	49	N/A	N/A	47	N/A	0.284
Poland	6.97	28,179	15.75	1.88	N/A	117.7	4.4	N/A	636	N/A	0.2	18.6	1	638.2 mg TEQ
Romania	4.52	9,930	N/A	N/A	10.3	635.8	2,84	167	44.26	N/A	31	1.5	292	3.218
Serbia and Montenegro	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R
Kosovo (territory under interim UN administration)	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R
Slovakia	0.9	N/A	2.9	N/A	44.7	27.2	N/A	N/A	140.6	N/A	N/A	N/A	N/A	N/A
Slovenia	0.65	3,940	2.18	N/R	0.48	13.4	0.64	0.85	47.54	0.00	0.49	0.42	3.75	0.00
Turkey	N/R	34,000	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/A	N/R	N/R

Fuel quality

Institutional framework of fuel quality control and EU approximation

Albania

The State Inspection Office for Control of Oil, Gas, and Their By-products is responsible for controlling the quality of petrol products at customs and on the national market. There is only one authorised testing laboratory. EU Directive 98/70/EC is not transposed, and domestic production of petrol products does not comply with approved quality standards.

Croatia

At the moment Croatian refineries are not able to produce liquid oil fuels in EU standard quality. The modernisation on refineries in Sisak and Rijeka is starting, and they will produce clean oil fuels by the end of 2009.

Former Yugoslav Republic of Macedonia

There is a great necessity for better control, monitoring and enforcement of fuel quality standards in the former Yugoslav Republic of Macedonia given the number of complaints about the fuel quality on the market. The main argument of the car dealers is that there is no fuel according to the new EURO III specifications for the modern state-of-the-art cars they import. Consequently, a consensus among car dealers, private filling stations, fuel producers and distributors has been reached that there is a need for an independent certified laboratory for fuel quality control. Currently, there is no independent authorised laboratory with accreditation for testing fuel quality. Fuel quality control has been performed by the main producer and importers of crude oil and fuels, as well as by the National Market Inspectorate upon the complaints by the customers. Also, there are three academic institutions that provide fuel control services upon request of third parties.

There is a great need to strengthen the institution responsible for monitoring and reporting on fuel quality as well as to prepare the national annual reporting on fuel quality data in accordance with a common format for the submission of summaries of national fuel quality data in the EU (2002/159/EC Decision).

There is no financial support for the continuation of proposed actions in the Master Plan for phasing out leaded petrol.

There are, however, some positive responses in regard to fuel quality control. The oil refinery OKTA laboratory has been a member of the interlaboratory research on fuel quality at the Institute for Interlaboratory Studies, Netherlands. OKTA also applied for accreditation according to the ISO 17025 standard.

Serbia and Montenegro

Fuel quality is controlled as it exits the refinery, but the problem with fuel quality often lies in the chain between the refinery and the customer's tank. Illegal practices include mixing of different types of fuel and adding of other solvents and water during transport and at the pump stations.

The solution to the problem would necessitate the strengthening of inspection, and the adoption of the standard EN 14274 Automotive Fuels-Assessment of Petrol and Diesel Quality. It will also be necessary to strengthen the fuel quality monitoring system and to modernise the laboratories for fuel quality control. What is also needed is the strengthening of non-governmental laboratories and the opening of the market of automotive fuels to foreign producers. The country would need foreign technical assistance to prepare for the introduction and implementation of fuel quality standards according to EU Directive 2003/17/EC by 2010. Last but not least, the government has to set a date for banning unleaded petrol.

Kosovo (territory under interim UN administration)

There are some initial steps to set up a Council on Fuel Market Control. There is a lack of legislation for fuel quality control and there are no specialised institutions for fuel quality control. The non-defined status of Kosovo is an additional problem, and the competencies between UN administration and governmental institu-

tions are not clear. Customs, which is responsible for controlling fuel imports, still belongs to the reserved power of UN administration in Kosovo.

However, there are some steps that are being taken. The Law on Fuel Market (2004/5) has been approved and secondary legislation has to be drafted. Based on this law an institution for fuel quality control has to be set up.

Bulgaria

The country is still not prepared for the obligatory reporting on liquid fuel quality. There is also a lack of testing equipment, computers and personnel in the accredited laboratories. The next steps in improving fuel quality control will be the development of implementation plans with relevant financial strategies.

Romania

Apart from the Ministry of Economy and Trade, the responsibility for maintaining fuel quality lies with Rompetrol Quality Control, Romcontrol and the Research and Development Institute for Chemistry and Petrochemistry.

Fuel quality legislation

Croatia

Relevant EU legislation has not been transposed yet. Because of problems with the Croatian refineries, a new regulation on quality for liquid oil fuels (in compliance with Directive 2003/17 /EC) will be in force after 2009.

Former Yugoslav Republic of Macedonia

There is an ongoing process for the full transposition of the EU fuel quality legislation. This is done through the Law on Stipulation of Technical Requirements for Products and Conformity Assessment; the Rulebook on the Quality of Liquid Fuels and the Law on Ambient Air Quality, as well as the Master Plan for the Phasing out of Leaded Petrol.

Serbia and Montenegro

There is no transposition of the relevant EU directives. By 2010 the country should transpose EU Directive 2003/17/EC on fuel quality standards and EU Directive 94/63/EC on VOC emissions from petrol stations, containers and tankers. At the moment this is the

TABLE 6

Institutions responsible for fuel quality in new member states

COUNTRY	INSTITUTIONS
Czech Republic	The Ministry of Industry and Trade (Department of Liquid Fuel) is responsible for fuel quality. The Czech Inspection Authority is in charge of fuel quality inspection.
Estonia	The Ministry of Environment and the Ministry of Economic Affairs and Communication are responsible for setting environmental and quality requirements for fuels. The Estonian Environmental Research Center gathers data about the quality and quantity of sold fuel.
Hungary	The ministries of economy, transport and energy are responsible for fuel quality. The Mineral Oil Quality Control Institute is responsible for monitoring and certification of fuel products. According to a comprehensive monitoring report on Hungarian preparedness for membership, the country is ready to meet the commitments arising from membership negotiations regarding fuel quality.
Latvia	The ministries of economy, transport and energy are responsible for fuel quality.
Lithuania	The State Non-Food Product Inspectorate, the Lithuanian Customs Department and the Oil Refinery Mazeikiu Nafta are responsible for fuel quality control.
Poland	The institutions responsible for fuel quality are the Office for the Protection of Competition and Consumers, the Trade Inspection Agency and several laboratories within research institutes. Three of the laboratories are public and five private.
Slovakia	In Slovakia the control of fuel quality lies with the State Inspectorate for the Environment as well as with the company Slovnaft VURUP, within the structure of the Slovak fuel producer.
Slovenia	In Slovenia the Environmental Agency collects information about fuel quality. The private company Inspect performs the measurements.

regulation in force: Regulation for Technical and All Other Requests for Liquid Fuel Produced from Oil (Official Journal of Serbia and Montenegro 51/2004).

In all new member states, Bulgaria and Romania a full transposition of fuel quality legislation has been reported. These are:

- Council Regulation No. 2964/95 on Registration of Crude Oil Imports and Deliveries;
- EC Directive 98/70/EC on Quality of Petrol and Diesel Fuels; and
- EC Directive 2003/17/EC amending 98/70/EC.

Bulgaria

Until 2006 new amendments will be made to the Clean Air Act related to liquid fuel quality control, such as:

- developing a national monitoring system on fuel quality as per Decision 2002/159/EC (connected with the obligations to report yearly on the results of the control after accession); and
- incorporating legal texts related to the administration of the fund formed by sanctions, penalties and financing of the fuel samples.

One of the next steps will also be the harmonisation of the Bulgarian legislation with Directive 2005/33, repealing Directive 99/32, on the sulphur content reduction in some liquid fuels.

A database related to the EN 14 274 requirements will be prepared, including the results from the monitoring jointly with the national statistics.

CASE STUDY: **BULGARIA**

In 1998 the National Programme for Gradual Phase Out of Lead Gasoline Production and Usage was adopted in Bulgaria. From a government point of view the justification for the adoption of the programme included the following elements:

- the Sofia Initiative on Local Air Quality in Central and East Europe (SILAQ) adopted during the third Environment for Europe conference in 1995;
- the Pan European Strategy from 1996 on Phasing Out the Production and Usage of Lead Gasoline;
- the Aurhus Protocol on the Limitation of Heavy metals Emissions to the Convention on Long-Range Transboundary Air Pollution signed by Bulgaria in Denmark 1998; and
- health risk reduction.

The most important part of the programme is the Action Plan. It includes the tasks, the responsible authorities and the deadlines for the implementation of the tasks. The Ministry of Environment and Water (MoEW) is appointed as the controlling and coordinating body. Periodically MoEW reports to the Council of Ministers on the Action Plan's progress. A special task group has been formed with representatives of all the concerned parties. The Executive Environmental Agency is also included. The Task Force Group has several meetings per year to discuss and take measures for the timely and correct execution of the programme and Action Plan. The results are reported to the minister.

The National Programme was developed with the main goal of phasing out leaded gasoline, but in fact it goes beyond this and covers broader tasks, such as:

- to create a new legal frame for fuel quality;
- to improve the control of fuel quality and if necessary to implement sanctions;
- to introduce measures related to the vehicle fleet;
- to implement financial measures in order to promote unleaded gasoline;
- to ensure the production of unleaded gasoline in amounts that meet the internal market needs by the only producer in Bulgaria: Lukoil Neftohim, Bourgas; and
- to popularise the campaign for unleaded gasoline consumption.

The programme was successfully executed and therefore as of January 1, 2004 there is no leaded gasoline production or consumption in Bulgaria.

The adoption of the programme coincided with the privatisation of the Lukoil refinery. In the privatisation contract a clause was included obliging Lukoil to produce unleaded gasoline in quantities that cover the needs of the internal market. The refinery developed and implemented the Investment Programme 2000-2004, which was successfully completed in time.

CASE STUDY: **MOL**

The Hungarian Gas & Oil Company presented the sulphur content allowed in gasoline and gasoil at the Conference on Clean Fuels and Vehicles, October 27-28, 2005 in Szentendre, Hungary.

Gasoline:

- 2,000 parts per million (ppm) until January 1, 1993
- 500 ppm until January 1, 2000
- 150 ppm until January 7, 2005
- 10 ppm currently

Gasoil:

- 5,000 until January 1, 1993
- 2,000 until January 1, 1997

- 500 until January 1, 2000
- 350 until January 7, 2005
- 10 ppm currently

COUNTRY PROFILE: **FORMER YUGOSLAV REPUBLIC OF MACEDONIA**

The following standards apply to fuel quality:

- MKS B.H.2.220 motor petrol;
- MKS B.H.2.210 unleaded motor petrol;
- MKS B.H.2.410 diesel;
- MKS B.H.2.331 jet motor fuel; and
- MKS.B.H.2.430 heating oils.

The standards are partially harmonised with EU Directive 98/70/EC (quality of petrol and diesel fuels). They entered into force in December 2004 with the adoption of the Rulebook on the Quality of Liquid Fuels (Official Gazette No. 23/2004) with the following results:

- The lead content in leaded petrol (MB 96) was decreased from 0.6 gPb/l to 0.15 gPb/l.
- The lead content in unleaded petrol (BMB 95) was decreased from 0.02 gPb/l to 0.013 gPb/l.
- The sulphur content in diesel fuels was decreased from 0.6 percent to 0.20 percent.

In 2005 there was an initiative for changes and amendments to the Macedonian fuel quality standards: MKS.B.H.2.210:1999 for unleaded petrol and MKS.B.H.2.410:1999 for diesel fuel. The proposal for development and adoption of the new standards for BMB super 98+ and EKO diesel was submitted to the Technical Committee of the Institute for Standardisation. The procedure for preparation and adoption of these two standards is expected to start soon taking into account the standards: EN 228:2004, EN590:2004 and EN 589:2004.

Very important also is the Certificate for Compliance with Fuel Quality according the standards that should accompany each delivery of fuels issued by the fuel distributor, producer or authorised laboratory. The format and the procedure for issuing the certificate have been regulated by the Rulebook on the Quality of Liquid Fuels (Official Gazette No. 23/2004).

Fuel quality standards

Former Yugoslav Republic of Macedonia

Standards are partially harmonised with EU Directive 98/70/EC. They entered into force with the adoption of the Rulebook on the Quality of Liquid Fuels in December 2004. There was a decrease in the lead content in petrol from 0.6 g Pb/l to 0.15 g Pb/l. There is a proposal to prepare and adopt the new standards for unleaded petrol super 98+ and EKO diesel taking into account the standards EN 228:2004, EN590:2004 and EN 589:2004.

Croatia

Croatia adopted the Regulation on Quality Standards for Liquid Oil Fuels that can be sold and the manner of conformity verification. The provisions of this regulation are aligned with the standards EN 228/1999 and EN 590/1999. Liquid oil fuels placed on the market shall be accompanied by a Declaration of Conformity issued by a laboratory in compliance with EN ISO/IEC 17025. The government shall determine the annual quantity of liquid oil fuels not meeting the prescribed limit values.

A new regulation harmonised with EN 228 and EN 590 adopted in 2004 will be prepared by the end of 2005. As of January 1, 2006 leaded motor petrol cannot be sold. Following a decision of the government, the company INA developed the Programme for Modernisation of Refineries.

In all new member states, Bulgaria and Romania there are relevant national standards based on the EU ones. Standards are fully harmonised with EU Directive 98/70/EC.

COUNTRY PROFILE: **POLAND**

As indicated by control activities carried out in 2003,

TABLE 7

Unleaded gasoline consumption as a percent of total gasoline consumption in Bulgaria

Year	1997	1998	1999	2000	2001	2002	2003
Percent of unleaded gasoline	5.7	11	19	38	67	91	98

around 30 percent of fuels sold in Poland were of poor quality and did not comply with standards. The Polish Trade Inspection Agency had problems with allocating adequate financial resources for wide control activities (e.g. in 2003, only Silesia voivodship was controlled). Particularly scarce were the funds to pay for laboratory tests of fuels. The situation in this field somewhat improved recently after new regulations were adopted.

There is a need for a comprehensive and regularly updated database of petrol stations in Poland. The Trade Inspection Agency estimates that there are about 6,000 fuel stations. There is lack of full information on wholesale trade of fuels, and there is a problem with unrecorded import of fuel and petrol from Ukraine, Russia and Belarus, which is usually of very low quality. The Polish judiciary system carried out a large-scale investigation in the area of fuel related fraud across Poland in the 1990s and today. The implementation of Directive 98/70/EC has given the Polish administration a tool to step up fuel quality control and combat negative practices in this area.

Sulphur and lead content in fuels

TABLE 8

Sulphur content in petrol and diesel (parts per million)

COUNTRY	PETROL National specification, if any	DIESEL National specification, if any
	Maximum	Maximum
Albania	150	350/2,000**
Bulgaria	150 (50 after Jan. 1, 2007)	350 (50 after Jan. 1, 2007)
Bosnia and Herzegovina	150	350
Croatia	150	350
Czech Republic	50	50
Estonia	150	350
Hungary	150	350
Latvia	150	350
Lithuania	350	350
Former Yugoslav Republic of Macedonia	150	350
Poland	150	350
Romania	150	350
Serbia and Montenegro	2,000	10,000
Kosovo (territory under interim UN administration)	N/A	N/A
Slovakia	150	350
Slovenia	150	350
Turkey*	150 (500 until 2007)	7,000 until 2004; 350 from 2004 to 2005; 50 since 2005

* For the period 2005-2007, the regulation enables the marketing of high quality fuels 150 parts per million (ppm) sulphur in gasoline and 350 ppm sulphur for diesel, consistent with EU Standards. However, the regulation defines a transition period of 500 ppm maximum sulphur content in gasoline and 7,000 ppm sulphur in diesel until 2007.

** 350 ppm is the standard for imported diesel and 2,000 ppm for domestic production. A large portion of the fuel consumed in Albania is imported.

In reality, the sulphur content in gasoline is maximum 10 ppm in Hungary and Slovakia and maximum of 50 ppm in Czech Republic and Poland. (Source: MOL Group).

TABLE 9

Lead content in petrol (grams per litre)

COUNTRY	PETROL National specification, if any	
	Minimum	Maximum
Albania	N/A	0.005
Bulgaria	N/A	0.005
Bosnia and Herzegovina	N/A	0.005
Croatia	N/A	0.005
Czech Republic	N/A	0.005
Estonia	N/A	0.005
Hungary	N/A	0.005
Latvia	N/A	0.005
Lithuania	N/A	0.013 in unleaded petrol 0.15 in leaded petrol
Former Yugoslav Republic of Macedonia	N/A	0.005
Poland	N/A	0.005
Romania	N/A	0.005
Serbia and Montenegro	N/A	0.040 (in leaded gasoline MB 95)
Kosovo (territory under interim UN administration)	N/A	0.15
Slovakia	N/A	0.005
Slovenia	N/A	0.005
Turkey*	N/A	0.005

In connection with the scarcity of resources on one hand, and the need to cover the biggest possible number of stations with control activities on the other, since 2004 control of fuel quality has been carried out according to two norms: under the European quality control system, statistical monitoring of the quality of retail liquid fuels leading to a report for the EU Commission (statistical data on the quality of fuels), and under the national quality control system (in order to check the quality of wholesale traded fuel).

In the European system, all parameters of fuel quality mentioned in a regulation of the Minister of Economy on fuel quality (and Directive 98/70/EC) are checked. Within the national system control, only those within selected parameters are checked: those that are identified as easily abused. Quality control covers all types of fuel traded in Poland: unleaded 95 petrol, unleaded 98 petrol, universal 95 petrol and diesel oil.

In 2004, 2,000 stations were controlled, 4,000 samples of fuel were checked by the accredited laboratories under the national system, and 100 randomly selected stations in both seasons were controlled under the European (Directive 98/70/EC) system.

COUNTRY PROFILE: **TURKEY**

Use of leaded petrol, and high sulphur and lead content in the petrol and diesel oil were evaluated as the leading problems concerning fuel quality. The cost of converting refineries and the many old cars used by low income citizens are the main barriers to rapid improvements in fuel quality.

Significant investments in improving fuel quality of refinery products have been made since 1990 and concrete results have been achieved since the beginning of 2002. The Energy Markets Regulatory Authority became a player in the sector due to the liberalisation efforts. As of January 1, 2005 the sector is fully liberalised. In cooperation with the government and the private sector, METU-PAL has been conducting significant analysis and research on fuel quality and control of the market. After analysing 2,570 samples in 2004 and 2005 it became clear that 78.4 percent of the samples achieved the recommended fuel quality standards. Hence, illegal production and trade of diesel and unleaded oil has been regarded as a serious concern for the sector.

TABLE 10

Current status of lead phase-out in CEE and Turkey

COUNTRY	CURRENT STATUS* Leaded only	Unleaded only	Dual system	COMMENT
Albania			•	Ban planned for 2005; National legislation states 0.005 g/l max lead content
Bulgaria		•		Banned leaded petrol in January 2004
Bosnia and Herzegovina			•	Leaded petrol to be banned as of January 1, 2010
Croatia			•	80 percent unleaded now; total phase out planned for January 1, 2006; Leaded to be withdrawn from the market as of December 31, 2005.
Czech Republic		•		Banned leaded petrol in January 2001
Estonia		•		Banned leaded petrol in May 2001
Hungary		•		Banned leaded petrol in 1999
Latvia		•		100 percent unleaded as of 2001
Lithuania		•		100 percent unleaded as of 2001
Former Yugoslav Republic of Macedonia			•	In December 2004, the lead content of leaded petrol was decreased from 0.6 g/l to 0.15 g/l, while the lead content in unleaded petrol was decreased from 0.02 g/l to 0.013 g/l. A complete ban is planned for 2006.
Poland		•		Banned leaded petrol in 2003
Romania			•	N/A
Serbia and Montenegro			•	Both unleaded and leaded sold
Slovakia		•		Banned leaded petrol in 1995
Slovenia		•		100 percent unleaded as of 2001
Turkey			•	As of 2002, TUPRAS stopped production of leaded regu lar petrol. Lead content of premium petrol has decreased from 0.40 g/l to 0.1 g/l and unleaded premium petrol has a lead content of 0.013 g/l. Regulation TS 228, based on EN228 of 98/70/EC, completely bans the use of leaded petrol in 2006. It also defines full transposition of EU regulations related to fuel quality as of 2009 and calls for the replacement of lead with other additives.
Total: 16 countries	0	9	7	N/A

For additional information on regional and global progress of leaded gasoline phase-out, see <www.unep.org/pcfv>.

Fuel production by producers

Romania and Turkey have the largest number of refineries; most other countries have either one or two. Being relatively small countries, Estonia, Latvia and Slovenia have no refineries and rely on imports from neighbouring countries. Therefore the quality of their fuels depends entirely on the quality of imported fuels.

CASE STUDY: **ALTERNATIVE FUELS AT MOL**

- Gasoline: the product's MTBE component is replaced by bio-ETBE made from alcohol of agricultural origin;
- Investments:
  - transforming the MTBE units at Szazalombatta and Bratislava into ETBE units;
  - establishing a new ETBE unit at Tiszaujvaros (greenfield investment);

TABLE 11

Number of refineries and production of crude oil distillation

COUNTRY	REFINERIES (NUMBER AND TOTAL QUANTITY)	PRODUCTION OF CRUDE OIL DISTILLATION (1,000 m^3/year)
Albania	1	460
Bulgaria	1	5,282
Bosnia and Herzegovina	1	N/A
Croatia	2	5,525.2
Czech Republic	2	6,400
Estonia	0	0
Hungary	3	14,760 (12 million tonnes)
Latvia	0	0
Lithuania	1	8,733 (7.1 million tonnes)
Former Yugoslav Republic of Macedonia	1	919
Poland	2	N/R
Romania	8	25,773 (21.3 million tonnes) (capacity)
Serbia and Montenegro	2	4,500
Kosovo (territory under interim UN administration)	N/R	N/R
Slovakia	2	6,585
Slovenia	0	0
Turkey	4	30,067

* 1 metric tonne = 1.21 m^3

  - raw material: dehydrated alcohol product of agricultural origin (bioalcohol).

- Gasoil: blending of guaranteed quality biodiesel of agricultural origin;
- Requirement for raw materials: correspondence to the hydrocarbon industry's standards and the assurance of continuous supply.

Source: MOL presentation at the Conference on Clean Fuels and Vehicles, October 27-28, 2005, Szentendre, Hungary.

In Central and Eastern Europe, the Czech Republic is the biggest producer of bio-fuel with 100,000 tonnes of biodiesel in 2004. It is followed by Poland with 1,200 tonnes of biodiesel and 36,800 tonnes of bioethanol. Data is also available for Hungary, which is producing 2,000 tonnes of biodiesel, and there is available capacity for the production of bioethanol. The Czech Republic is also building up its capacity to produce bioethanol. (Source: Presentation by Fatin Alimohamed, UNIDO, at the Conference on Clean Fuels and Vehicles, October 27-28, 2005, Szentendre, Hungary)

COUNTRY PROFILE: **POLAND**

- Although there has been no specific ban on leaded fuels since 2004, the maximum lead content in fuel corresponds to the EU standard of 0.005 g/l (98/70/EC).
- There is excise tax differentiation for liquefied petroleum gas (LPG) and an exemption for bio-fuels. Excise tax on diesel is differentiated according to sulphur content. There are tax rebates for products containing at least 10 percent of regenerated oil.
- Bio-fuels: Bio-components have been added to engine fuel since 1994, with approximately 40 percent of petrol containing 4.5-5 percent of bioethanol. The highest level of production was achieved in 1997, with 110.6 million litres

Fuel distribution

TABLE 12

Number of filling stations per country*

COUNTRY	TOTAL NUMBER OF FILLING STATIONS REPORTED
Albania	930
Bulgaria	2,500
Bosnia and Herzegovina	670
Croatia	688
Czech Republic	1,057
Estonia	560
Hungary	2,143
Latvia	717
Lithuania	820
Former Yugoslav Republic of Macedonia	220
Poland	N/R
Romania	2,300
Serbia and Montenegro	2,300
Kosovo (territory under interim UN administration)	572
Slovakia	676
Slovenia	421
Turkey	N/A

* Numbers are approximate.

It is difficult to tell precisely the number of filling stations per country and these figures are only estimates. Although there are no figures for Poland and Turkey, the number of filling stations in both countries is relatively high.

accounting for 48 percent of the total raw spirit production. Since then the demand for ethanol has been falling and production of bio-fuels has decreased to approximately 30-50 million litres per year. In 2003 a law on eco-components in liquid fuels was adopted by Parliament. The law, which aims to increase the share of bio-fuels has encountered strong resistance from consumers and the automotive industry. In April 2004 the law on bio-fuels was rejected by the Constitutional Tribunal, which declared the law unconstitutional, since it imposed on fuel producers the obligation to add bio-components to the liquid fuels, forcing the drivers to use such fuels without providing information as to how much and what type of bio components were used. A new regulation in that field is currently being prepared. Directive 2003/30/EC requires member states to increase the use of bio-fuels to the level of 2 percent in 2005, 5 percent in 2009 and 5.75 percent in 2010.

Promotion of environment friendly fuels

TABLE 13

Measures promoting environmentally friendly and alternative fuels

COUNTRY	MEASURE
Albania	• A ban on leaded petrol, tax differentiation and the use of subsidies are in the approval phase.
Bosnia and Herzegovina	• A plan to phase out leaded gasoline after 2010 is in place.
Croatia	• As of January 1, 2006 selling leaded petrol is illegal.
Former Yugoslav Republic of Macedonia	• A Master Plan exists for the phasing out of leaded petrol. • Unleaded petrol is 7 percent cheaper. • A public awareness campaign on phasing out leaded petrol was launched. As a result of these measures the market share of unleaded petrol grew from 44 percent in 2002 to 77 percent in 2004.
Serbia and Montenegro	No measures are in place. There is no price difference between leaded and unleaded petrol.
Turkey	• Use of biodiesel is promoted within the framework of the draft Energy Efficiency Law. The amendment defines biodiesel as an alternative fuel and enables distribution in the petrol markets. Tax exemptions enabling the use of minimum 2 percent bio-diesel (derived from domestically grown biomass) in diesel will be defined by the Ministry of Finance. • The use of additives is recommended to replace lead in all fuels.
Bulgaria	• EUR 1.5 million from the state budget will go to sulphur content reduction.
Czech Republic	• A ban on unleaded petrol has been in place since 2001. • There is no excise tax on bio-fuels. • Production of ultra-low-sulphur diesel oil (max. sulphur content of 0.050 g/kg) is planned to be launched in 2005.
Estonia	• A ban on unleaded petrol has been in place since 2002. • Bio-fuel is free from excise tax.
Hungary	• A ban on unleaded petrol has been in place since April 1999. • In the National Environmental Programme, there is a national plan on the dissemination of environmentally friendly fuels.
Latvia	• Leaded petrol is banned. • There are plans to introduce a discount on excise tax on bio-fuels.
Lithuania	• A ban on unleaded petrol has been in place since 2001. • For fuel which meets bio-fuels and bio-oils requirements, the excise amount is reduced in accordance with the content of bio-fuel in the mineral fuel. • The government is promoting bio-fuel production from local sources by providing subsidies from the state budget as well as by providing tax exemptions.
Slovakia	• A ban on unleaded petrol has been in place since 1996.
Slovenia	• A ban on unleaded petrol has been in place since July 2001 with the adoption of Rules on the Quality of Liquid Fuels. • Bio-fuels are exempt from excise duty. • Agriculture receives subsidies of EUR 67,000 per year plus an additional EUR 27 per hectare of oil rape used for the production of bio-fuel. • Some Slovenian producers are already selling a 5-percent mixture of bio-diesel in the ordinary diesel.

Vehicle emissions

Vehicle emissions legislation

In all new member states and Bulgaria, there is full transposition of EU vehicle emissions legislation. In Croatia, the former Yugoslav Republic of Macedonia, Romania and Slovakia there is partial to full transposition. There is no transposition in Kosovo (territory under UN interim administration).

COUNTRY PROFILE: **SERBIA AND MONTENEGRO**

Data on pollution from traffic is not available, but it is believed to be a major source of air pollution (lead, soot, SO_2, NO_X). Pollution from traffic is increasing, including soot concentrations, especially in major towns. There are no plans for introducing systems of vehicle control in traffic or improving their maintenance, or the discharge of leaded gasoline.

The main problems of air pollution from traffic in Serbia and Montenegro are:

- old vehicle fleet;
- inadequate maintenance of vehicles;
- widespread use of old vehicles without catalytic converters;
- poor enforcement of the Regulation on Exhaust Gases Emissions from Motor Vehicles;
- poor quality of automotive fuels (especially high content of lead and sulphur);
- insufficient use of gas and alternative fuels;
- lack of national inventory of air polluters;
- excessive reliance on road transport; and
- insufficient road network for the increasing volume of traffic.

Possible measures include:

- improving the maintenance of vehicles;
- changing the structure of vehicle aging through a different programme;
- strengthening the control of exhaust emission as a part of vehicle technical control;
- improving road transport; and
- adopting the emission limit values for motor vehicles given in the EU directives.

In the future, the main activities will include:

- requiring that all cars produced in Serbia and Montenegro or imported must comply with the emission limit values for motor vehicles according to Directive 98/69/EC and Directive 2001/100/EC from 2010;
- improving conditions of public transport in cities and reducing emission from mobile sources in city centres; and
- constructing urban bypass roads.

Vehicle fleet structure

TABLE 14

Share of vehicles with catalytic converters

COUNTRY	VEHICLES WITH CATALYTIC CONVERTERS (%)	
	Passenger cars	All vehicles
Albania	N/R	N/R
Bulgaria	N/R	N/R
Bosnia and Herzegovina	57.3	49.1
Croatia	N/R	36.14
Czech Republic	47	N/A
Estonia	24.6	25.2
Hungary	N/R	N/R
Latvia	N/R	N/R
Lithuania	N/R	N/R
Former Yugoslav Republic of Macedonia	N/R	N/R
Poland	N/R	N/R
Romania	N/A	N/A
Serbia and Montenegro	30	55
Kosovo (territory under interim UN administration)	N/R	N/R
Slovakia	55.6	49.1
Slovenia	72	N/A
Turkey	N/A	N/A

This type of information is not available in most of the countries.

TABLE 15

Number of vehicles by type

COUNTRY	TOTAL NUMBER OF VEHICLES	PASSENGER CARS		LDV		HDV		BUSES	
		PETROL	DIESEL	PETROL	DIESEL	PETROL	DIESEL	PETROL	DIESEL
Albania	274,652	190,004		4,877		53,652		25,066	
Bulgaria	3,165,279	2,309,686		N/R	N/R	N/R	N/R	43,686	
Bosnia and Herzegovina	731,000	305,838	333,453	8,282	24,846	0	22,085	0	5,010
Croatia	1,461,000	1,124,000		N/R	N/R	22,200		4,500	
Czech Republic	4,056,000	3,124,000	575,000	64,000	164,000	0	109,000	2,800	17,600
Estonia	530,900	380,100	54,100	15,000	26,300	18,300	23,800	1,500	3,900
Hungary	3,761,000	2,417,000	344,000	*	*	65,000	310,000	17,000	
Latvia	848,428	543,374	91,089	*	*	49,041	52,637	5,137	5,530
Lithuania		88,229	24,084	285	4,225	38	4,921	27	924
Former Yugoslav Republic of Macedonia	444,000	349,000	38,000	7,500	7,300	13,000	27,000	600	2,000
Poland	15,899,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Romania	3,318,208	2,458,259	326,625	201,896	110,845	1,920	191,553	697	26,413
Serbia and Montenegro	1,801,000	1,057,000	453,000	146,000		133,000		12,000	
Kosovo (territory under interim UN adminstration)	307,000	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R
Slovakia	1,621,000	1,146,000	210,000	26,000	116,000	0	113,000	0	10,000
Slovenia	1,094,000	889,600		48,900		4,900		2,200**	
Turkey	7,806,000	4,700,343		973,457		405,034		368,864	
Total	**46,965,000**								

* No LDV and HDV differentiation. All lorries and trucks are considered HDV.
* There is no available data for distinguishing between petrol and diesel vehicles.

In the 16 studied countries there are more than 46 million vehicles and their number is constantly growing. Poland is the country with the highest number of vehicles (15.9 million) followed by Turkey (7.8 million), the Czech Republic (4.1 million), Hungary (3.8 million) and Romania (3.3 million). In most countries there are statistics on the breakdown of total vehicles by type and by fuel. It is interesting to note that diesel passenger cars are usually between 10 percent and 20 percent of all passenger cars. However, in BiH they are more than 50 percent, in Serbia and Montenegro about 30 percent. In Albania, Bulgaria, Croatia and Slovenia no information on the breakdown of passenger cars by type of fuel is available. Regarding LDV, HDV and buses, the majority are diesel.

TABLE 16

Share of newly registered passenger cars (%)

COUNTRY	1995		2003	
	New	Second hand	New	Second hand
Albania	N/A	N/A	N/A	N/A
Bulgaria	19.6	80.4	9.7	90.3
Bosnia and Herzegovina	N/A	N/A	30.2	69.8
Croatia	N/A	N/A	62	38
Czech Republic	N/A	N/A	3.6	2.8
Estonia	N/A	N/A	40.7	59.3
Hungary	N/A	N/A	78	22
Latvia	4.8	95.2	17.6	82.4
Lithuania	5.05 (2000)	94.95 (2000)	8.39	91.61
Former Yugoslav Republic of Macedonia	N/A	N/A	N/A	N/A
Poland	84.6 (1998)	15.4 (1998)	57.4	42.6
Romania	30.13	69.86	78.3	21.7
Serbia and Montenegro	N/A	N/A	N/A	N/A
Kosovo-territory under interim UN administration	N/A	N/A	N/A	N/A
Slovakia	71.4	28.6	88.9	11.1
Slovenia	9.5	90.5	7.5	92.5
Turkey	N/A	N/A	N/A	N/A

Much of the data on new cars versus second-hand cars is missing. However, from the existing data a conclusion can be made that the higher the GDP of a country the higher the proportion of new cars. It is also obvious from the figures that the share of new cars in 2003 has increased relative to 1995.

Vehicle aging

TABLE 17

Distribution of the age of passenger cars (%)

	0-5 YEARS	6-10 YEARS	11-15 YEARS	16-20 YEARS	>20 YEARS
Albania	6.5	11.1	32	35.6	8.8
Bulgaria	2.9	12.9	26.2	21.8	36.2
Bosnia and Herzegovina	18.9	17.6	20.7	31.3	11.4
Croatia	32	24	N/R	N/R	44
Czech Republic	19.7	23.8	21.3	16.4	18.8
Estonia	9.7	12.2	8.5	69.6	N/A
Hungary	28.77	40.86		30.37	
Latvia	5.8	7.7	59.2		27.3
Lithuania	10.78	25.2	49.9	5.17	0.46
Former Yugoslav Republic of Macedonia	8.8	15.8	15.2	10.5	49.7
Poland	18.2	25.2	19.9	15.1	21.6
Romania	12.16	21.89	14.53	22.32	29.09
Serbia and Montenegro	4	5	58	33	N/A
Kosovo (territory under interim UN administration)	N/A	N/A	N/A	N/A	N/A
Slovakia	21	21.2	23.1	20.1	14.6
Slovenia	N/A	N/A	N/A	N/A	N/A
Turkey	N/A	N/A	N/A	N/A	N/A

The vehicle park in the region is relatively old, with most of the cars between 10 and 20 years of age. There is a significant portion of cars older than 20 years in Bulgaria and Croatia.

Domestic vehicle production

TABLE 18

Production of own passenger cars as a total or as a percent

	2002	2003	2004
Albania	0	0	0
Bulgaria	0	0	0
Bosnia and Herzegovina	0	0	0
Croatia	0	0	0
Czech Republic	N/A	N/A	N/A
Estonia	0	0	0
Hungary	85,400	89,950	102,000
Latvia	0	0	0
Lithuania	0	0	0
Former Yugoslav Republic of Macedonia	0	0	0
Poland	N/A	N/A	N/A
Romania	65,266	75,706	98,997
Serbia and Montenegro	0.6 percent	0.7 percent	N/A
Kosovo (territory under interim UN administration)	0	0	0
Slovakia	226,351	242,030	N/A
Slovenia	126,661	118,200	131,761
Turkey	204,198	N/A	562,000

Cars are produced in most Central European countries. In most cases, Western European, Japanese and Korean producers set up their production for the region in one of the countries. Significant own production takes place in the Czech Republic (Skoda).

TABLE 19

Restrictions placed on imported vehicles

COUNTRY	MEASURES
Albania	N/A
Bulgaria	N/A
Bosnia and Herzegovina	Since 1999 there has been an age limit of seven years for imported cars and of 10 years for buses.
Croatia	Minimum EURO III engine installed for new cars. Minimum EURO II engine installed for used cars.
Czech Republic	Age limit of eight years.
Estonia	N/R
Hungary	All vehicles must meet the criteria of Decree 5/1990
Latvia	N/A
Lithuania	N/A
Former Yugoslav Republic of Macedonia	Until the end of 1999, the allowed age of imported vehicles was up to three years. Then it was increased to six years and since January 2002 to 10 years. In addition, the vehicles are subject to compulsory attestation (homologation) for verifying whether they fulfill the technical requirements prescribed in the Book of Regulation of the UNECE in the relevant EC Directives implemented by the Ministry of Economy.
Poland	
Romania	Only EURO III motor vehicles.
Serbia and Montenegro	Limited import of cars more than three years old.
Kosovo (territory under interim UN administration)	Age limit of seven years for import of passenger cars.
Slovakia	Catalytic converters are required, COC certificates of conformity and EMC — electromagnetic compatibility.
Slovenia	Catalytic converters are required.
Turkey	Importing used vehicles into Turkey is restricted.

Vehicle exhaust emission requirements (cars not exceeding 2.5 tonnes laden)

TABLE 20

Standards by country

COUNTRY	STANDARD/EMISSION TESTING
Croatia	Adopted the Euro III standards. There is mandatory annual emissions testing (ECO test) from mobile sources at each regular technical inspection of vehicles.
Czech Republic	Euro III for vehicles produced in 2000-2004 and Euro IV for vehicles produced in 2005.
Estonia	Euro III and Euro IV.
Hungary	Euro III and Euro IV.
Former Yugoslav Republic of Macedonia	The vehicle testing system measures the exhaust emission levels in CO in exhaust gases from petrol vehicles and exhaust gas opacity for diesel vehicles. The maximum allowable concentration of vehicle exhaust emissions is 4.5 percent volume CO for petrol and diesel. From 2000 the rulebooks for the homologation of vehicles have been in force. The rulebooks have been harmonised with the relevant EU directives (70/220, 93/59, 94/12, 96/44, 96/99).
Romania	Euro IV approval on January 1, 2007; Euro IV first legislation on January 1, 2008.
Slovenia	Euro IV for new cars.
Turkey	EURO IV for new cars after January 1, 2007, and for all cars after January 1, 2008.

Steps towards EU approximation: Vehicle exhaust emission requirements

COUNTRY PROFILE: **BULGARIA**

Steps:

1 Requirements for registration of motor vehicles;
2 Euro III and IV during the first registration will be introduced on January 1, 2007;
3 Registration certificate with the engine's emission data;
4 Establishment of uniformed information system for all vehicles from the data of their import until end of life;
5 Improvement of the technical equipment of the registration and testing services.

COUNTRY PROFILE: **POLAND**

No major problems were experienced. Poland fully complied with the EU regulations before EU accession in May 2004 (UNECE standards fully implemented and harmonised with the EU standards from 2000 onwards). Practical problems apply in connection with the import of used cars. After EU accession, Poland was obliged to abolish a prohibition to register imported cars which do not fulfil Euro II emission standards. Since then old homologations have no expiry date (member countries have the freedom to decide whether to impose limits in this respect), as long as a vehicle has emission parameters no worse than at the first registration for use in any of the EU member countries, it may continue to be used in Poland. In 2004-05 more than 1 million used cars were imported, most of them 10 years or older. One reason for the lax attitude of authorities in prohibiting the registering of old cars is the relatively old bus fleet. If these regulations were more stringent, many city buses would have to be withdrawn from the fleet, with no resources available to replace them in many cities.

Incentives for alternative fuels and vehicles

TABLE 21

Incentives for alternative fuels and vehicles by country

COUNTRY	MEASURE
Bulgaria	A draft National Programme on Encouraging the Production and Usage of Bio-fuels will be developed based on the requirements of Directive 2003/30. This task comprises collection and analysis of large amount of information on the potential of production of bio-fuels (basically bio-diesel and bio-ethanol); determination of regions for cultivation of crops and for their processing; possibilities for construction of installations and the necessary related investments; and market study and possible financial concessions or incentives.
Bosnia and Herzegovina	Public transport in Sarajevo uses LPG.
Croatia	A fee is paid into the Environmental Protection and Energy Efficiency Fund on an annual basis (during registration of vehicles), calculated by a coefficient depending on the vehicle type, engine, fuel type, engine capacity and vehicle age. The fee would thus favour new vehicles with the lowest engine capacity, tractors or passenger cars running on alternative fuels or electricity. However, such incentive is too negligible against overall vehicle registration costs to produce any significant effects at this point. No support exists for the promotion of the use of bio-fuels or alternative fuels and vehicles.
Former Yugoslav Republic of Macedonia	There is a project by the public transport enterprise JSP Skopje to introduce natural gas into the fuel for buses as a mixture with diesel. Two prototypes were constructed that run on 50 percent diesel and the rest on gas. The plan is to introduce 30 buses in the first phase and 100 in the second. The first phase has been supported by the Ministry of Environment and Physical Planning, the Office for LEAP-Skopje and Skopje City. Due to the high price of EUR 100,000 per bus, JSP-Skopje intends to apply for funding from international sources.
Hungary	Information on the biodiesel programme can be found at <www.energycentre.hu>.
Lithuania	Fuel with bio-fuel content is exempt from excise tax by a percent corresponding to the bio-fuel content. Cars with converters are exempt from the pollution charge.
Turkey	The government stimulated the retirement of cars older than 30 years. The incentive was implemented by the Ministry of Finance and YTL 2,500-4,000 was paid per retired car. As a result a total of 248,000 passenger cars that were heavily fuel consuming and emitting intensive pollutants were removed from traffic. The possibility exists to decrease taxes for cars manufactured in compliance with the EURO standard. Law No. 1318 on Vehicle Purchase Tax and Law No. 197 on Motor Vehicle Tax grant the Cabinet of Ministers the flexibility to decrease related taxes up to 50 percent if a car purchased meets certain standards.

TABLE 22

Promotion of environmentally friendly vehicles

COUNTRY	MEASURE
Former Yugoslav Republic of Macedonia	• Until the end of 1999, the allowed age of the vehicles being imported was up to three years. Then it was increased to six years and since January 2002 to 10 years. In addition, the vehicles are subject to compulsory attestation (homologation) with a view of verifying whether they fulfil the technical requirements prescribed in the Book of Regulation of UNECE in the relevant EC directives implemented by the Ministry of Economy. • The registration tax is differentiated between cars with and without catalytic converters. Cars without pay 4 percent, while cars equipped with catalytic converters pay 2 percent during the vehicle registration.
Croatia	• Homologation regulations require EURO III and EURO II engines in vehicles, and all such vehicles have catalytic converters. • The tax is differentiated between cars with and without catalytic converters. Cars without pay 4 percent while cars equipped with catalytic converters pay 2 percent.
Czech Republic	• All newly imported cars have to fulfill Euro III standards and must be equipped with catalytic converters. • A 25 percent road tax discount is given for cars compliant with Euro III. • There is a state subsidy for purchasing environmentally friendly public transport buses.
Estonia	• Catalytic converters are obligatory. • In Tallinn there is an initiative to allow free parking for ecological cars with hybrid engines.
Hungary	• VAT for alternative fuel vehicles is only 10 percent.
Poland	• The older the car the higher the excise tax.
Slovakia	• There is a ban on the import of cars without catalytic converters.
Slovenia	• There is a ban on the import of cars without catalytic converters. • New vehicles with emission of less than 110 mg CO_2/km are exempt from the motor vehicles tax. Currently this tax is 1-14 percent of vehicle value, depending on the price. • The Environmental Fund of the Republic of Slovenia offers loans for buying vehicles powered by electricity or hybrid sources (electricity and petrol).

Summary

Air quality regimes

Throughout the study there has been an obvious difference in findings between new member states (NMS), Bulgaria and Romania on one hand and Stabilisation and Association Process countries and Turkey on the other. The former have been through an extensive process of adopting the acquis communautaire, including those related to clean fuels and vehicles. They have adapted and strengthened relevant institutions and their focus has shifted from transposition of legislation and adoption of EU standards to their implementation. The SAP countries and Turkey have made significant progress in harmonising their legislation with the EU's, but there is a long way to go before completing the process. Albania, BiH, the former Yugoslav Republic of Macedonia and Serbia and Montenegro are all moving at their own speed, and it is difficult to make general conclusions or remarks. It is clear, however, that their legislative efforts are moving in the direction of the EU acquis communautaire.

All NMS, Bulgaria and Romania have fully transposed EU air quality legislation, namely the Air Quality Framework Directive 96/62/EC and its Daughter Directives 1999/30/EC (NO_X, SO_2, Pb and PM10), 2000/69/EC (Benzene, CO), and 2002/3/EC (Ozone). There is full transposition of air emission directives: 94/63/EC (VOCs from petrol), 1999/13/EC (VOCs from solvents) and 1999/32/EC (sulfur content in liquid fuels). SAP countries have adopted horizontal air protection laws and are drafting and adopting subsidiary legislation.

In all countries of the study, air protection departments of ministries of environment are primarily responsible for air protection. Certain responsibilities also lie with the ministries of transport, economy and health, and therefore good cooperation and communication are needed between them. Inspectorates are in charge of controlling the implementation of the recently adopted air legislation, while specialised scientific institutes play an important role in supporting national air protection policy. In the pre-accession period NMS have significantly increased institutional capacities in terms of personnel, financial and information resources. Among others, this process has been supported by international technical assistance funded by the EU and the World Bank, and through bilateral assistance, twinning projects, and other forms of assistance.

In NMS, Bulgaria and Romania primary air pollutant criteria standards are harmonised with those of the EU, and targets are identical.

There are several types of institutions in charge of fuel quality control in the study countries: ministries of environment, economy, transport and energy, state inspectorates and the refineries themselves. Executive environmental agencies, environmental research centres and laboratories are also a part of the institutional framework for fuel quality control.

In SAP and candidate countries there is a great need for strengthening institutions responsible for monitoring fuel quality and reporting. There are few or no independent accredited testing laboratories. The existing ones need strengthening in terms of equipment and personnel. Fuel quality control is carried out by producers and importers, but illegal operations may take place between the refinery and the consumer. To a certain extent these problems also exist in NMS, Bulgaria and Romania. The research has shown that there have been precious few international projects in this respect.

Fuel quality and production

All NMS, Bulgaria and Romania have fully transposed EU fuel quality legislation: Council Regulation No. 2964/95 on Registration of Crude Oil Imports and Deliveries; EC Directive 98/70/EC on Quality of Petrol and Diesel Fuels and EC Directive 2003/17/EC amending 98/70/EC. In the SAP countries and Turkey the process of transposition has started but has not yet been completed.

Leaded petrol has been phased out in all new member states and Bulgaria. Slovakia was the first to ban leaded petrol in 1995; Bulgaria was the last to do so in 2004. The others accomplished it between 1999-2001. A complete ban on lead petrol has been planned in some SAP and candidate countries as well: Albania (2005), Croatia (2006), BiH (2010), the former Yugoslav Republic of Macedonia (2006) and Turkey (2006). The deadline for all EU countries was January 1, 2005 with the exception of Romania, with a deadline of January 1, 2007. National country specifications set lead content in petrol at 0.005 g/l according to 98/70/EC with the exception of the former Yugoslav Republic of Macedonia (0.15 g/l for leaded petrol and 0.013 g/l for

unleaded petrol) and Serbia and Montenegro (0.020). In Hungary the national standard of 0.3 micrograms/m^3 is slightly stricter than the EU standard.

The ban on leaded petrol is the primary measure for promotion of cleaner fuels. Leaded gasoline has been banned in all NMS and Bulgaria, while Albania, the former Yugoslav Republic of Macedonia, Romania and BiH have yet to implement full bans. The former Yugoslav Republic of Macedonia has developed a Master Plan for the phasing out of leaded petrol, which has yet to be implemented. Tax differentiation, and hence price differentiation, is also common in the study countries. Only the Republic of Serbia has reported that there are no price differences between leaded and unleaded petrol.

Most of the national specifications set the sulphur content in petrol at 150 mg/kg, in accordance with 98/70/EC. Exceptions to the rule are Lithuania (350), the Czech Republic (50) and Serbia and Montenegro (2,000). In most of the study countries the sulphur content in diesel is set at 350 mg/kg, in accordance with 98/70/EC, with the exception of Albania (500) and the Czech Republic (50).

There are 29 refineries total in the 16 countries of the study. Most have at least one refinery, with the exception of Estonia, Latvia and Slovenia, which import their fuels. Romania has the most refineries (8) followed by Turkey (four), Hungary (three), and the Czech Republic and Slovakia (two each). Turkey produces the biggest quantity of crude oil distillation (30.1 million m^3/year), followed by Romania (25.8 million m^3/year), Hungary (14.8), Lithuania (8.7), Slovakia (6.6) and the Czech Republic (6.4). Countries with the highest number of filling stations are Romania (2,300), Hungary (2,143) and the Czech Republic (1,057). Hungary has the most filling stations per capita and per vehicle.

Alternative fuels

Some NMS have reported that there is no excise tax on bio-fuels — a measure intended to increase their market share. The use of bio-fuels is also promoted through laws (Turkey), and national environmental programmes (Hungary). Lithuania and Slovenia have targeted state subsidy programmes to boost bio-fuels production and consumption.

LPG is used extensively in some of the countries. For example, Bulgaria is quite advanced in this respect, with a wide network of LPG filling stations. The high price of conventional fuel is the main driver behind this development. It has been reported that the public transport in Sarajevo uses LPG, and that the public transport company in Skopje is introducing a mixture of liquefied natural gas and diesel as fuel for buses.

Vehicles and emissions control technology

In the 16 countries there are more than 46 million vehicles, and their number is constantly growing. Poland is the country with the highest number of vehicles (15.9 million) followed by Turkey (7.8 million), the Czech Republic (4.1 million), Hungary (3.8 million) and Romania (3.3 million). Diesel passenger cars are usually between 10 percent and 20 percent of all passenger cars; figures are higher in BiH (more than 50 percent) and in Serbia and Montenegro (about 30 percent). The majority of LDV, HDV and buses are diesel.

Information on the number of vehicles with catalytic converters was largely unavailable for most countries. Among the countries where such information is available, Slovenia has the highest percentage of catalytic converter-equipped vehicles — 72 percent of passenger cars — followed by BiH (57 percent), Slovakia (56 percent) and the Czech Republic (47 percent).

In most countries the share of new cars has increased from 1995 to 2003. This is a logical consequence of the increase in the standard of living in most countries in the region, and larger access to bank credit. However, the share of second-hand cars in the region is still rather high, often exceeding 90 percent.

The age distribution of passenger cars is uneven in the region. Countries with a relatively high number of newer cars (0-5 years) include Slovenia, Hungary, Slovakia and the Czech Republic. Judging from the figures, Bulgaria has the oldest passenger car fleet with as many as 36 percent older than 20 years. In the region as a whole the majority of cars are between 11 and 20 years of age.

Some of the countries have their own domestic vehicle production, with recognisable brands in the region: Skoda, Dacia and Zastava. The Czech Republic, Hungary, Poland, Slovakia, Slovenia and Turkey are regional hubs for production subsidiaries of Japanese and Western European companies.

In most countries there are some limitations on the import of cars. There is usually a requirement for catalytic converters and a EURO III engine to be installed. There is also an age limit for imported second-hand cars in some countries: BiH (seven years), the Czech Republic (eight years) and the former Yugoslav Republic of Macedonia (10 years).

In all countries there are at least some basic incentives in place for purchasing newer and cleaner cars. In most of them, registration fees vary with vehicle age and availability of catalytic converters. In Turkey there is a state subsidy for the accelerated retirement of cars older than 30 years. Sometimes cars with converters are exempted from paying environmental pollution charges (Lithuania). In the Czech Republic EURO III cars have a 25 percent discount on road tax, and in Slovenia low emissions cars are exempt from the motor vehicle tax.

Annex: **Joint Conclusions by the Participants of the Conference on Clean Fuels and Vehicles,**

October 27-28, 2005, Szentendre, Hungary

Government officials, representatives of refineries, research institutes, the academic community, non-governmental organisations, automotive manufacturers and importers associations from Albania, Bosnia and Herzegovina, Bulgaria, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, the former Yugoslav Republic of Macedonia, Romania, Serbia and Montenegro, Slovakia, Slovenia, Turkey and the US, together with representatives of the United Nations Environment Programme (UNEP), the Regional Environmental Center for Central and Eastern Europe (REC), the International Fuel Quality Center, the FIA Foundation, the United Nations Department of Economic and Social Affairs (UNDESA), the United Nations Industrial Development Organization (UNIDO), certifying and consulting businesses, academia and international consultants met on October 27-28, 2005 in Szentendre to discuss cooperation in Central and Eastern Europe on clean fuels and vehicles. The conference is taking place with the financial support of the US Environmental Protection Agency and UNEP.

The conference is launching the Partnership for Clean Fuels and Vehicles (PCFV) activities in Central and Eastern Europe and Turkey.

At the conference the objectives and activities of the PCFV were presented, along with technological, financial and legal aspects of clean fuel production, air emissions and fuel quality developments in the EU; global trends in clean fuels and vehicles; and biodiesel production. The REC presented a summary of the study on clean fuels and vehicles conducted in 16 countries in Central and Eastern Europe and Turkey. The participants from different countries presented fuel quality and vehicle improvements in their countries. Countries in the region are working to implement EU vehicle and fuel quality standards and timetables as rapidly as feasible.

Based on discussions in three working groups the following issues and actions have been identified by the participants for implementation in the region.

Lead phase-out should involve:

- lead removal from gasoline as soon as feasible;
- instituting national regulations to ban leaded gasoline, with official dates;
- improved monitoring/control of fuel quality;
- information campaigns for better understanding of lead phase-out (public, fuel stations, possible blood level lead monitoring);
- launching of vehicle renewal programmes (e.g. scrappage);
- improved vehicle import regulations (to include age limits and catalytic converters); and
- improved interaction on all levels of governance.

Reducing sulphur should involve:

- public awareness on the benefits of cleaner fuels (including NGOs) and awareness for decision makers;
- highlighting the importance of fuel taxes to the economy (check with government inspectors and policy);
- ISO accredited labs that are independent from producers (country specific);
- for poor quality refineries, designation of fuel for non-transport use, industrial boilers, and marine, domestic heating (temporary measure);
- availability of mobile testing labs for testing fuel quality (at least for sulphur and colour marking);
- modernising the equipment of state-owned labs;
- training personnel on fuel quality control;
- higher tax for dirty fuels compared to cleaner fuels;
- sliding scale for penalties (starting with lower); and
- implementation of national plans for step-by-step sulphur reduction.

Promoting cleaner vehicles should involve:

- public awareness raising;
- training for policy makers;
- improving access to information;

- introduction of fiscal incentives;
- launching a discussion on how to harmonise the second-hand car market (standardisation);
- introduction of differentiated environmental taxes;
- work with other stakeholders and the private sector; and
- retrofitting for older vehicles.

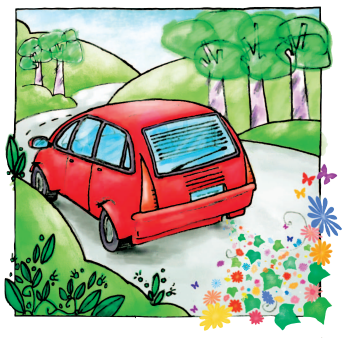
The participants concluded that:

1. There is a need for coordinated national and regional action for improvement of vehicle fuel quality and reduction of vehicle emissions.
2. Fuels and vehicle quality and public transport issues need to be integrated in national and local environmental and sustainable development plans.
3. There should be increased participation in the PCFV from CEE and Turkey. All participants from this event are invited to join the PCFV.
4. A regional network of experts and practitioners is established to support the above actions. In close cooperation with the PCFV, the REC will facilitate the network operation.

THE REGIONAL ENVIRONMENTAL CENTER FOR CENTRAL AND EASTERN EUROPE (REC) is a non-partisan, non-advocacy, not-for-profit international organisation with a mission to assist in solving environmental problems in Central and Eastern Europe (CEE). The REC fulfils this mission by promoting cooperation among non-governmental organisations, governments, businesses and other environmental stakeholders, and by supporting the free exchange of information and public participation in environmental decision making.

The REC was established in 1990 by the United States, the European Commission and Hungary. Today, the REC is legally based on a charter signed by the governments of 28 countries and the European Commission, and on an international agreement with the government of Hungary. The REC has its head office in Szentendre, Hungary, and country offices and field offices in 16 beneficiary countries, which are: Albania, Bosnia and Herzegovina, Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, the former Yugoslav Republic of Macedonia, Poland, Romania, Serbia and Montenegro, Slovakia, Slovenia and Turkey.

Recent donors are the European Commission and the governments of Austria, Belgium, Bosnia and Herzegovina, Canada, the Czech Republic, Denmark, Estonia, Finland, Germany, Hungary, Italy, Japan, Latvia, the Netherlands, Norway, Poland, Serbia and Montenegro, Slovenia, Sweden, Switzerland, the United Kingdom and the United States, as well as other inter-governmental and private institutions.



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Clean Fuel and Vehicles in Central and Eastern Europe