

Energy and transport

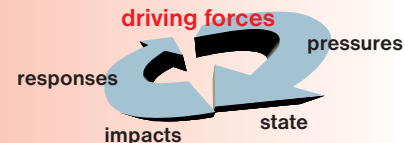
In the period from 1992 to 2000, the consumption of final energy in the Republic of Slovenia increased by a fifth. The need for fuels used for propelling vehicles is increasing most rapidly.

An efficient transport system is of fundamental importance to the economy and quality of life. The volume of transport increases with economic growth – rapid growth in the demand for freight transport, in particular road transport, is driven by contemporary business needs, while the demand for passenger traffic is driven by growing tourism and the need for the mobility of people. Therefore, the adverse environmental effects of transport are also increasing, despite the great technical improvements to motor vehicles.

Emissions of greenhouse gases, in particular carbon dioxide, generated from transport are increasing faster than emissions from other sources. Due to the termination of leaded petrol use and use of catalytic converters, lead emissions have been successfully decreased, while emissions of certain predecessors of the harmful tropospheric ozone are increasing. The need for the increase in road transport volume also entails the growth in the transportation infrastructure and the surface occupied by the latter, and thereby the deprivation of plant and animal species of their habitats and fragmentation of natural areas. The transport of hazardous substances and the risk of spills in the event of accidents represent a danger. We are becoming increasingly aware of the adverse effects of noise caused by various forms of transport, as well as costs arising from the disposal of discarded vehicles.

In Slovenia, the share of vehicles equipped with catalytic converters is increasing among private motor vehicles and has already reached the average of the EU, which is mainly the result of a fairly rapid upgrading of the fleet of vehicles. The average age of personal vehicles in Slovenia is 7.3 years, which constitutes a slight increase in comparison with the previous six years. However, the afore stated age is still slightly below the average age of personal vehicles in the EU. According to the results of the survey citizens of the Republic of Slovenia are conscious of the problem of the ever increasing transport and its effects on the environment. Another important aspect, in addition to a relatively strong expression of concern, is also the support given to the measure relating to the improved public transport and improved conditions for pedestrians and cyclists. The results also attest (at least on a declarative level) to a rather high level of preparedness to use public transport, provided, however, that the latter is more comfortable, cheaper and more frequent.





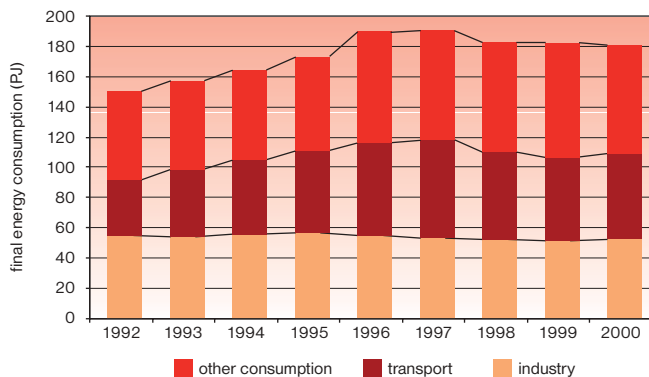
45. FINAL ENERGY CONSUMPTION

Final energy denotes various forms of energy which enter the facility of use and technological process, respectively, at the user threshold (such as electricity at the junction box of a residential building or of a machine, petrol at the pump and so forth).

The object of consideration is the presentation of the quantity and shares of final energy consumption at the locations of end use by industry, transport and other consumption sectors of use within Slovenia, as well as the comparison with the European Union (EU-15).

In the area of industry, we show the consumption of final energy in mining and processing industry; in the area of transport, we show the consumption of final energy in total transport (land transport, pipeline transport, water navigation, air transport, rail transport and shipping); and in the area of other consumption, we show the consumption of final energy in households, service and public sectors, agriculture and other activities.

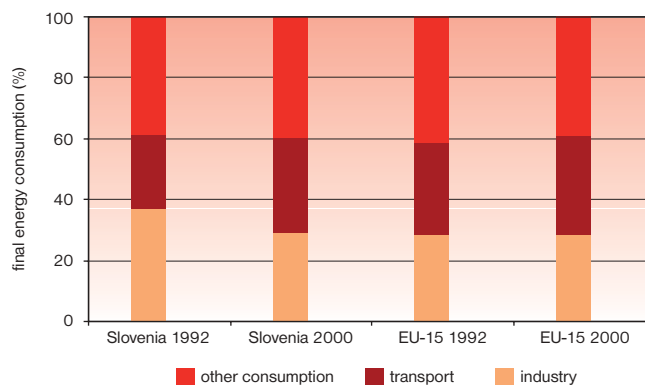
Figure 45-1: Final energy consumption by sector of use in Slovenia



GOAL

The Resolution on the National Energy Programme adopted by the Government of the Republic of Slovenia in 2003 provides for a steady growth of final energy consumption in the period from 2000 to 2010 with an average annual growth rate of 1.9 % (2.2 % in industry, 1.3 % in transport and 2.1 % in other consumption). In 2010, the final energy consumption is expected to amount to 217.4 PJ.

Figure 45-2: Structure of final energy consumption by sector of use in Slovenia and the EU-15



Consumption of final energy in the industry sector fell in the Republic of Slovenia in the period from 1992 to 2000 by 2.9 PJ or by 5.3 % (in the EU-15 it grew by 803.9 PJ or 7.6 %) with an annual rate of reduction of -0.7 % (in the EU-15 by +0.9 %). The share held by the industry in the entire final energy consumption, which in 1992 amounted to 36.8 % (EU-15 only 28.6 %), fell in 2000 to 29.0 %, which is already comparable with the European Union (28.5 %) where the industry share remains at the practically same level as in 1992.

Consumption of final energy in the transport sector grew in Slovenia between 1992 and 2000 by 20.0 PJ or by 54.4 % (in the EU-15 by 1833.8 PJ or 16.5 %) with an average annual growth rate of 5.6 % (in the EU-15 by 1.9 %). The share of transport in the entire consumption of final energy in the Republic of Slovenia, which in 1992 amounted to 24.4 % (30.1 % in the EU), grew in 2000 to 31.1 % (in the EU-15 to 32.5 %), which is just under the European Union average.

Consumption of final energy in the other consumption sector grew in Slovenia between 1992 and 2000 by 13.5 PJ or by

23.1 % (in the EU-15 by 293.1 PJ or 1.9 %) with an average annual growth rate of 2.6 % (in the EU-15 by 0.2 %). The share of other consumption in the entire consumption of final energy in Slovenia, which in 1992 amounted to over 38.8 %, grew in 2000 to 39.7 % (in the EU-15 it fell from 41.3 to 39.0 %), which is already on the level of the European Union average.

The planned reduction of final energy consumption, which was expected under certain scenarios in previous years, is no longer relevant.

DATA AND SOURCES

Table 45-1: Final energy consumption by sector of use in Slovenia

Source: Energy Balance Sheet of the Republic of Slovenia 2003

sector	unit	1992	1993	1994	1995	1996	1997	1998	1999	2000
industry	PJ	55	54	55.7	56.4	54.9	53.4	52.6	51.9	52.4
transport	PJ	37	44.3	49.4	54.9	61.6	64.8	57.1	54.4	56.7
other consumption	PJ	58.3	58.8	58.9	62	72.7	71.8	72.5	76.2	71.8
final energy total	PJ	150.4	157.1	163.9	173.3	189.2	189.9	182.2	182.5	181

Table 45-2: Structure of final energy consumption by sector of use in Slovenia and the EU-15

Source: Energy Balance Sheet of the RS 2003; Eurostat, 2003, Final energy consumption by sector, Indicator fact sheet. European Environment Agency, 2002

sector	unit	Slovenia 1992	Slovenia 2000	EU-15 1992	EU-15 2000
industry	%	36.8	29	28.6	28.5
transport	%	24.4	31.3	30.1	32.5
other consumption	%	38.8	39.7	41.3	39

Data for Slovenia

Energy Balance Sheet of the Republic of Slovenia 2003 and National Energy Programme (NEP), 6 November 2003

Data for Europe

Eurostat statistics (for 2000) and EE-18 Final energy consumption by sector, Indicator fact sheet. European Environment Agency, 2002 (for the period 1992-1999)

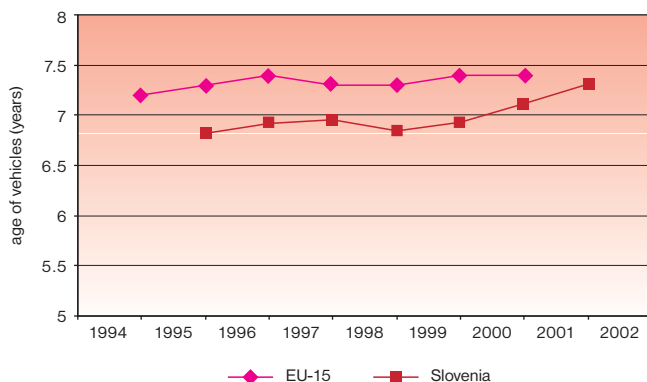




46. AVERAGE AGE OF VEHICLE FLEET

This indicator shows the average age of private motor vehicles. The age structure of vehicles is directly linked to the structure of vehicles fulfilling the threshold values for emissions of harmful substances in accordance with EU directives (emission standards EURO I-III).

Figure 46-1: Average age of private motor vehicles in Slovenia and the EU



GOAL

The European Commission and the EU Member States, as well as the candidate countries have no specially defined target average age of vehicle fleet, but the common goal – of improving the age structure of the vehicle fleet and replacing old vehicles that place more load on the environment with new and cleaner vehicles – remains.

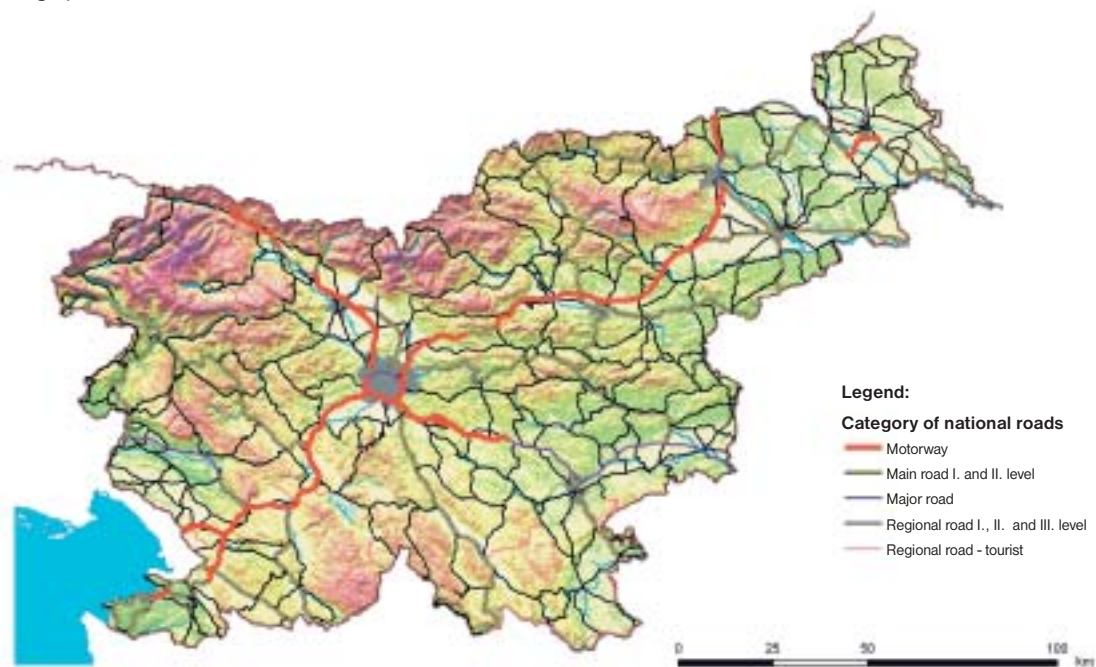
In view of the increasingly stringent environmental requirements, newer vehicles are more efficient, place fewer loads on the environment, and are quieter and safer.

In the Member States, individual programmes are being implemented to promote the replacing of old vehicles, among them a monetary bonus for abandoning the use of old vehicles without purchase of a new one and for exchanging older vehicles for new ones or for vehicles which put less load on the environment, as well as administrative measures that have no direct financial consequences, but indirectly influence the decision to replace old vehicles. In Slovenia, these programmes came into effect in 1999.

In comparison with the EU countries, the Republic of Slovenia has a favourable vehicle age structure, the average age of registered personal vehicles being 7.3 years in 2002, which is approximately the same as the average vehicle age structure in the Member States, although the average age of personal vehicles in Slovenia is growing. At the same time, we have observed that older vehicles are being used as a second or third vehicle, for which reason their pressure on the environment is smaller.

Figure 46-2: Road network in Slovenia

Source: Directorate of the Republic of Slovenia for Roads, 2004; basic layer: Anton Melik Geographical Institute SRC SASA



DATA AND SOURCES

Table 46-1: Average age of private motor vehicles in Slovenia and the EU

Source: Ministry of the Interior Database, 2004; TERM 2002 33 EU, 2002 and TERM 2003 33 EEA 31, 2004, EEA; Processed by the Environmental Agency of the Republic of Slovenia.

	unit	1995	1996	1997	1998	1999	2000	2001	2002
EU-15	years	7.2	7.3	7.4	7.3	7.3	7.4	7.4	n/a
Slovenia	years	n/a	6.82	6.92	6.96	6.85	6.93	7.11	7.32

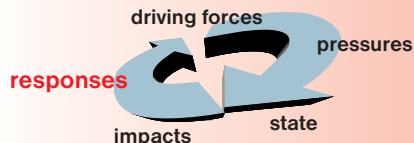
Data for Slovenia

The Slovenian Ministry of the Interior Vehicle Fleet Database contains data on the year of manufacture of the vehicle, date of first registration and year of first registration; the database is updated monthly. The average vehicle age is determined primarily in months, specifically, from the month and year of first registration to the observed end of the period. The calculation of average personal vehicle age in Slovenia incorporates the Ministry of the Interior vehicle classification of two types of vehicle: OA (osebni avtomobil – personal vehicle) and OS (osebno specialno vozilo – personal special vehicle). The data are reliable, and in the event of calculating age on the basis of year of vehicle manufacture, small deviations from the average personal vehicle age are possible.

Data for other countries

Data source is TERM 2002 33 EU – Average age of the vehicle fleet., Indicator fact sheet. European Environment Agency, 2002 and TERM 2003 33 EEA 31 Average age of vehicle fleet, Indicator fact sheet. European Environment Agency, 2004. The original data used in the indicator fact sheet are taken from Eurostat.

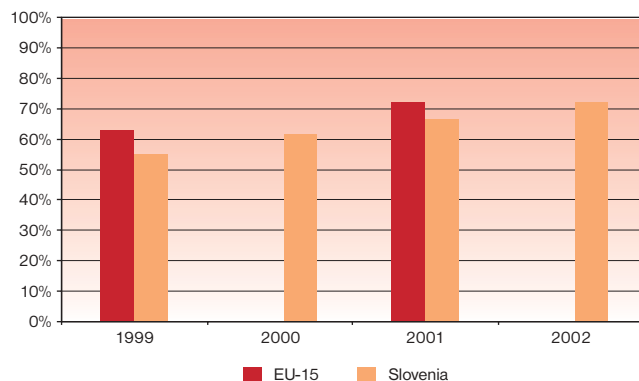




47. VEHICLES MEETING EMISSION STANDARDS

This indicator shows the share of road motor vehicles that meet emissions standards (EURI I, EURO II and EURO III). The share of motor vehicles that meet emission standards is linked to specific emissions, the number of registered motor vehicles and the average age of motor vehicles.

Figure 47-1: Share of private petrol engine vehicles with catalytic converters



GOAL

Increasing the share of vehicles that meet the latest emission standards for new vehicles.

Legislation in the area of emissions from new motor vehicles has been in effect in the EU countries since 1970. It is divided into individual types of vehicle (personal vehicles, light goods vehicles, heavy goods vehicles) and engine fuel (petrol and diesel), but it does not prescribe the share of vehicles that meet emission standards in the vehicle fleet of individual Member States. The latest legislation is defined for private and light goods vehicles in Directive 1998/69/EC, for heavy goods vehicles in Directive 1999/96/EC and for motor cycles in Directive 97/24/EC.

The share of motor vehicles equipped with a catalytic converter is growing. The spread of new technology depends on the lifetime of motor vehicles. Owing to the more rapid renewal of the vehicle fleet, the structure of motor vehicles in Slovenia is more rapidly approaching the average of the EU countries. Estimates of the share of personal vehicles with a catalytic converter confirm that for the implementation of new technology in the entire motor vehicle fleet, at least ten years will be needed.

DATA AND SOURCES

Table 47-1: Share of private petrol engine vehicles with catalytic converters

Source: TERM 2002 34 EU, 2002 and TERM 2003 34 EEA 31, 2004, EEA; Ministry of the Interior Database; processed by Environmental Agency of the Republic of Slovenia

	unit	1999	2000	2001	2002
EU-15	%	63	n/a	72	n/a
Slovenia	%	55.3	61.7	66.6	72.0

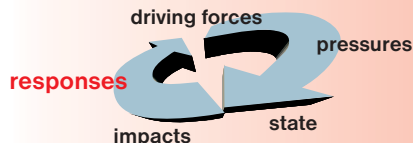
Data for Slovenia

The Ministry of the Interior Slovenian Vehicle Fleet Database contains data on the type of vehicle (taking account of personal vehicles and personal special vehicles), the engine fuel (taking account of motor petrol) and the year of manufacture of the vehicle, which is the basis for calculating the share of motor vehicles equipped with a catalytic converter. The number of motor vehicles equipped with a catalytic converter is calculated for individual years from the state of the vehicle fleet as of 31 December. For individual motor vehicles corrections must be made in the Ministry of the Interior database to the data on the type of engine fuel, which affects the final number of motor vehicles running on petrol and in this way the share of petrol-driven vehicles equipped with catalytic converters. In view of the small share of necessary corrections (<1 %) we may assess the data as accurate and of good quality. By changing the calculation of the share of catalytic converters from the year of manufacture of the motor vehicle to the type or subtype of vehicle we would also incorporate those vehicles that already had catalytic converters installed before it was required.

Data for other countries

Data source is TERM 2002 34 EU - Proportion of vehicle fleet meeting certain air and noise emission standards, Indicator fact sheet. European Environment Agency, 2002 and TERM 2003 34 EEA 31 - Proportion of vehicle fleet meeting certain emission standards, Indicator fact sheet. European Environment Agency, 2004. The original data used in the indicator fact sheet are taken from the Eurostat Statistical Compendium and are an estimate of the share of vehicles with catalytic converters relative to the age of vehicle.





48. AWARENESS OF ENVIRONMENTAL EFFECTS OF TRANSPORT

With this indicator we are establishing the relationship of the public towards the problems resulting from the ever increasing transport and, in part, habits of the public related to the mobility in cities. It is a matter of conducting surveys of public opinion on the level of concern over the pressing problems related to motor vehicles and ways of finding solutions to environmental problems related to motor vehicle transport in cities, as well as readiness to change certain habits as regards mobility.

Figure 48-1: Concern over environmental problems (the average on the scale ranging from 1 – not concerned to 5 – very concerned), N=971

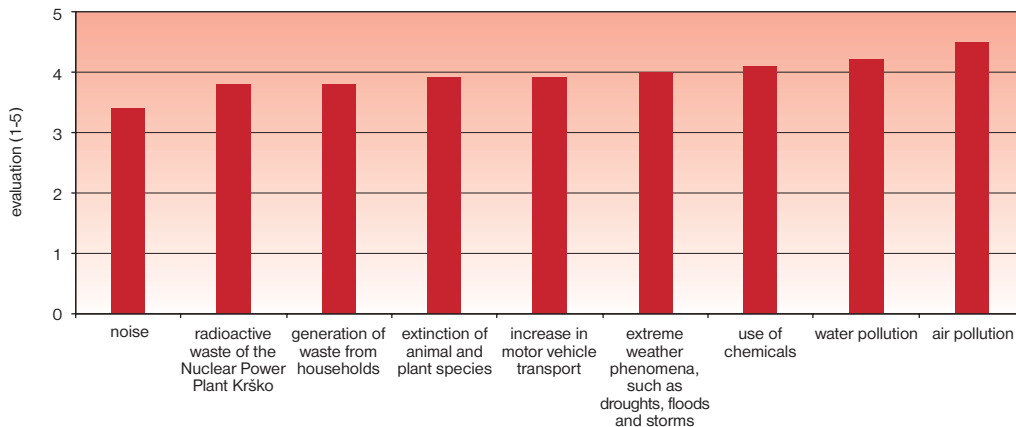
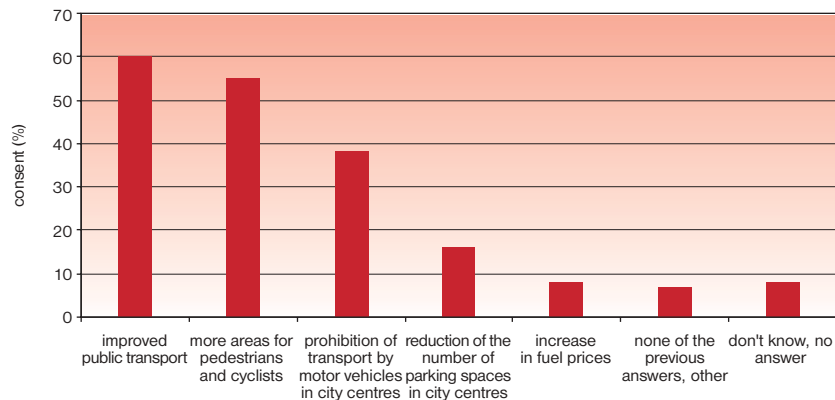


Figure 48-2: Most appropriate measure for the solving of environmental problems in urban traffic (the sum of the percentages of two entries), N=971



GOAL

In accordance with the National Environmental Action Programme, the goal is to reduce the environmental pollution resulting from transport. The National Environmental Action Programme defines the measures for increasing environmental consciousness, among them two sustainable measures which contribute to the furthering of the aforementioned objective, namely: provision of information (among them information on environmental pollution resulting from transport) and implementation of awareness-raising campaigns (also in the area of sustainable mobility).

Figure 48-3: If the public transport were more frequent, cheaper and more comfortable, would you use it on a daily basis? N=971

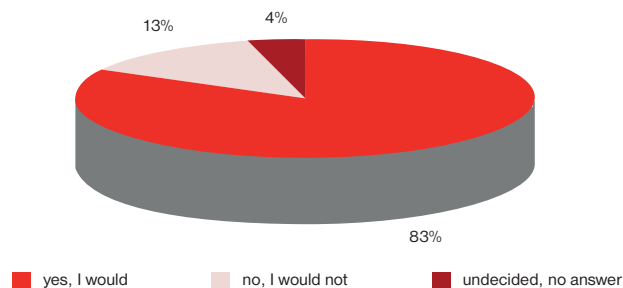
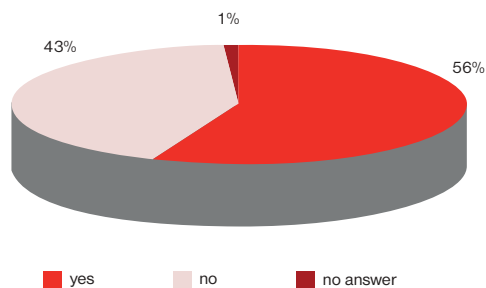


Figure 48-4: Do you use car for daily errands? N=971



According to the results of the survey, citizens are conscious of the problem of the ever increasing transport and its effects on the environment. Another important aspect, in addition to a relatively strong expression of concern, is the support given to the measure relating to improved public transport and improved conditions for pedestrians and cyclists. The results also attest to a rather high level of preparedness to use public transport (82.4 %), provided however, that the latter is more comfortable, cheaper and more frequent.

According to the data of the European Environment Agency (TERM 2001 40 EU), the discontent of EU citizens over transport represents the most common complaint among those relating to the environment (followed by air pollution, destruction of landscape, waste disposal, noise, lack of green areas, quality of drinking water), however the percentage of citizens complaining over the aforementioned issues is in significant decrease (assessment of trend 1992-1999). Concerning the measures for resolving this problem, an increase was observed in the support given to the measure relating to improved public transport and improved conditions for pedestrians and cyclists, while the price policy (more expensive fuel) received weak public support. These public opinion findings are similar to the data from the Slovenian survey. Also important is the finding that public awareness of the transport problem does not automatically result in different mobility habits.

By providing information and awareness-raising we contribute to the changing of the patterns of habits in the area of sustainable mobility. In Slovenia, as well as in the majority of other European countries, an annual campaign is being pursued since 2000 entitled "In town without my car", which in the last two years evolved into the "European Mobility Week" initiative. The main objective of both activities is foremost to facilitate the implementation of sustainable measures and find a way to reduce the excessive use of personal vehicles.

In addition to the aforementioned activity, we also have to mention the Rules on consumer information on fuel economy and CO₂ emissions in respect of new passenger cars which entered into force in the beginning of 2004. Among other things, it provides for the preparation of a manual on fuel economy and CO₂ emissions.

DATA AND SOURCES

Table 48-1: Concern over environmental problems (the average on the scale ranging from 1 – not concerned to 5 – very concerned), N=971

Source: Faculty of Social Sciences - Public Opinion and Mass Communication Research Centre, November 2003

	unit	noise	radioactive waste of the Nuclear Power Plant Krško	generation of waste from households	extinction of animal and plant species	increase in motor vehicle transport	extreme weather phenomena, such as droughts, floods and storms	use of chemicals	water pollution	air pollution
level of concern	evaluation (1-5)	3.4	3.8	3.8	3.9	3.9	4	4.1	4.2	4.5

Table 48-2: Most appropriate measure for the solving of environmental problems in urban traffic (the sum of the percentages of two entries), N=971

Source: Faculty of Social Sciences - Public Opinion and Mass Communication Research Centre, November 2003

	unit	improved public transport	more areas for pedestrians and cyclists	prohibition of transport by motor vehicles in city centres	reduction of the number of parking spaces in city centres	increase in fuel prices	none of the previous answers, other	don't know, no answer
consent	%	60	55	38	16	8	7	8

Table 48-3: If the public transport were more frequent, cheaper and more comfortable, would you use it on a daily basis? N=971

Source: Faculty of Social Sciences - Public Opinion and Mass Communication Research Centre, November 2003

	unit	yes, I would	no, I would not	undecided, no answer
answer	%	82.4	13.2	3.9

Table 48-4: Do you use car for daily errands? N=971

Source: Faculty of Social Sciences - Public Opinion and Mass Communication Research Centre, November 2003

	unit	yes	no	no answer
answer	%	55.9	42.8	0.9



The indicator was created with the help of the Politbarometer survey (November 2003), which is being conducted by the Public Opinion and Mass Communications Research Centre of the Institute of Social Sciences at the Faculty of Social Sciences in Ljubljana. The survey was conducted in the form of a telephone poll with the use of a standardized questionnaire covering three sets of content, namely: 1. perception and assessment of the level of concern for every one of the aforementioned environmental problems and phenomena, respectively, among which the problem of the increasing motor vehicle transport was also stated; 2. identification of the ways of remedying environmental consequences of motor vehicle transport in Slovenian cities; 3. assessment of preparedness to use the means of public transport (in connection with the assessment of the use of personal vehicles as daily means of transport). The public opinion survey of the aforementioned issues was the first of its kind in Slovenia, therefore data comparison and trend assessment, respectively, are not possible.

As regards its methodological features and qualitative level, the survey equals a regular politbarometer survey. Following an agreement with the contractor (Government Public Relations and Media Office and Ministry of the Environment, Spatial Planning and Energy), the survey

was designed by the POMCRC group (University of Ljubljana, Faculty of Social Sciences, Institute of Social Sciences, Public Opinion and Mass Communications Research Centre (POMCRC), Ljubljana) and the practical part of the polling implemented (with the use of a standardized questionnaire) in November 2003 by 26 trained interviewers who, using of a data pool containing 2036 telephone numbers of natural persons and under the principle of random selection, were able to realize a total of 971 polls (a 48 % level of sample realization). The 971 interviewees represent both a structurally and quantitatively representative sample.

The Eurobarometer public opinion survey from 1999 (contractor: European Commission) which is also used by the European Environment Agency as the source of data for the preparation of the environmental indicator TERM (Transport and Environment reporting mechanism for the EU) – »Public awareness and behaviour«, was used as the source for the drawing up of the questionnaire.

TERM 2001 40 EU (Transport and Environment reporting mechanism for the EU): »Public awareness and behaviour«; Indicator fact sheet. EEA, 2002. The data in the indicator fact sheet are taken from the 1999 Eurobarometer survey commissioned by the European Commission.

