



REPUBLIKA SLOVENIJA



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Environmental Indicators for Slovenia

Ljubljana, December 2009

INTRODUCTION

Recently, we have become more aware of the importance of our environment. Climate changes and other increasing environmental pressures force us to change social values and behaviours while encouraging research and development of new technologies for its preservation. To effectively tackle environmental problems, an effective environmental policy is important; and the basis for successful implementation of such a policy is comprehensive monitoring of the environment, collecting environmental data and reporting about its changes.

Environmental indicators are due to their simplicity and the message they convey very useful as a tool for monitoring the situation and changes in the environment. They can be used to show different environmental topics. Appropriately selected indicators based on a long enough time series can show the key development trends, help describe the causes and effects of environmental conditions and track and evaluate the implementation of environmental policies. Indicators transform complex data into information used in political decision-making as well as for research purposes and the general public.

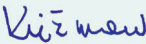
The development of environmental indicators involves a number of international organizations, including Eurostat, the Organization for Economic Cooperation and Development, the European Environment Agency, the United Nations and others.

Eurostat is the European Commission Directorate General responsible for the provision of statistics, indicators and meta-information, including in the field of environment. Environmental data are needed for the development, introduction and implementation, monitoring and evaluation of the European environmental policy, especially the 6th Environmental Action Plan. In these activities Eurostat closely cooperates with the European Environment Agency. Data on the environment, which Eurostat uses to calculate environmental indicators, cover the fields of waste, water resources and waste water, environmental protection expenditure, environmental taxes, plant protection products, air pollution and climate change, and land use. Included are also data that reveal the environmental impact of energy, transport and agriculture.

Environmental indicators are increasingly important in Slovenia as well. Slovenia joined the EIONET network (Environmental Information and Observation Network) in 1998, and has been a full member of the European Environment Agency since 2001. The development of environmental indicators at the national level is primarily the responsibility of the Environmental Agency within the Ministry of the Environment and Spatial Planning. The Statistical Office cooperates in providing data for the production of these indicators.

The Statistical Office of the Republic of Slovenia carries out a number of environment-related surveys, for example, the surveys on waste, water, environmental protection expenditure, etc. With these surveys data are collected that may also be used to calculate environmental indicators. The idea to prepare a publication which would present a synthesis of environmental data was being developed at our office for quite some time and here is the first publication on the environment in which we cover the selected environmental indicators. To present environmental issues in Slovenia clearly, we also added data that enable international comparisons and reflect the situation in a given area in Slovenia compared to other European countries.

The central part of the publication is 18 selected environmental indicators in the areas of air, water, waste, investment for environmental protection, energy and transport. All indicators are based on longer time series and include international comparisons at the EU level.


Irena Krizman
Director-General

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SELECTED ENVIRONMENTAL INDICATORS

Environmental indicators are the most useful tool for reporting on the environment and are always warning us about something. In Slovenia, these indicators have for a long time been developed by the Environmental Agency, which in line with Article 106 of the Environmental Protection Act is responsible for preparing the publication entitled Environmental Indicators. The publication covers 130 environmental indicators selected from a set of core indicators of the European Environment Agency. The indicators are divided into twelve thematic groups referring to three areas: environmental components, environmental issues and integrated indicators, which fall into the system of formulating sectoral policies. Appropriately selected indicators based on a long enough time series indicate the trends.

In this publication we decided to select those indicators that show significant changes in all three areas. Thus we included air and water from environmental components, climate change, waste generation and management, and investment in environmental protection from environmental issues, and energy and transport from integrated indicators.

For preparing the indicators, we used data that were collected with surveys conducted by the Statistical Office (except for air, where data were taken from the Environmental Agency of the Republic of Slovenia), that are based on a long enough time series and for which we were able to show international comparisons. International comparisons namely present in greater detail the current, actual situation of Slovenia in relation to other European countries.

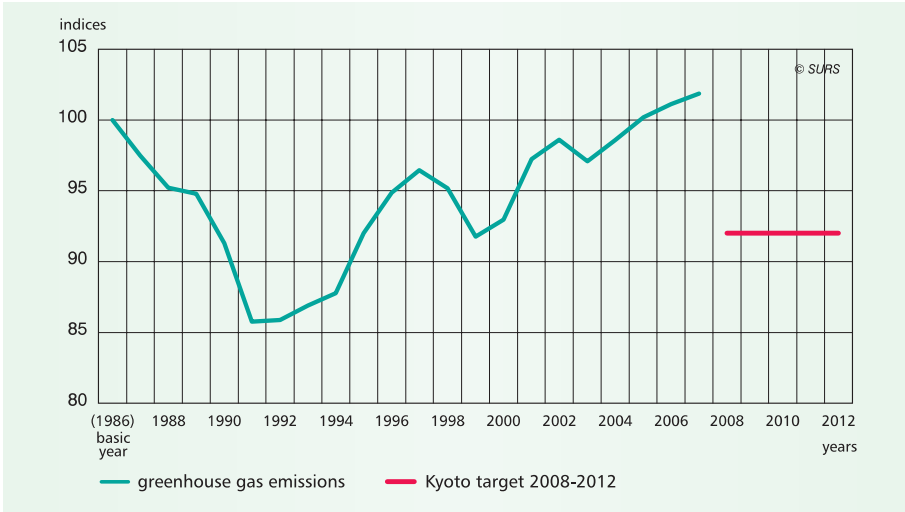
The brochure shows for each indicator first the development trend of the phenomenon, from which progress or decline in a given area can be seen, and then a comparison of Slovenia with other EU Member States and the EU-27 average.

For most of the indicators a time series from 2002 to 2008 is shown.

AIR

GREENHOUSE GAS EMISSIONS

Slovenia

Chart 1: Index of greenhouse gas emissions according to targets of the Kyoto Protocol, Slovenia, 1986-2007

Source: EARS

Table 1: Shares of greenhouse gas emissions, Slovenia, 2000 and 2004-2007

	2000	2004	2005	2006	2007
TOTAL	100.0	100.0	100.0	100.0	100.0
CO ₂	80.4	81.7	81.8	81.9	82.0
CH ₄	11.8	10.9	10.7	10.5	10.5
N ₂ O	7.0	6.3	6.3	6.4	6.4
F-gases	0.8	1.1	1.2	1.2	1.2

Source: EARS

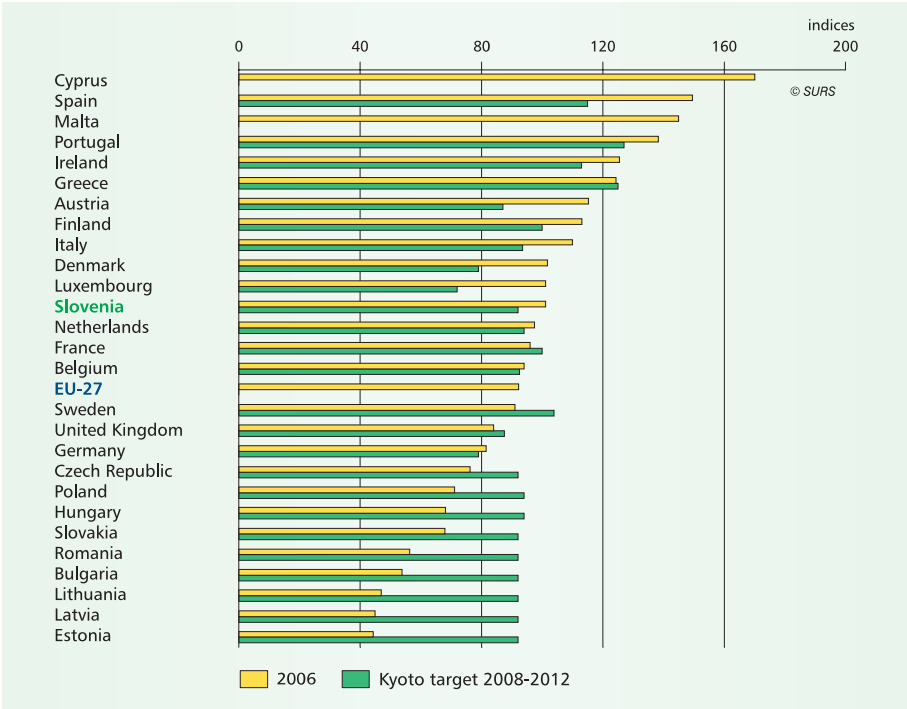
- With the ratification of the Kyoto Protocol Slovenia accepted an obligation to reduce greenhouse gas emissions till 2012 by 8% on average according to base emissions.
- In 2001 the highest increase of amount of greenhouse gas emissions in Slovenia was recorded (4.6%), after this year the amount kept gradually increasing from 0.7% to 1.6% on annual level, except in 2003 when the amount of emissions decreased by 1.6%.
- In the 2000-2007 period the amount of CO₂ emissions increased by almost 12%, while the amount of CH₄ emissions decreased by 2.5%. The amount of N₂O emissions in 2007 was equal to that in 2000, with minor fluctuations during the period. The amount of F-gases emissions increased by more than 58%.

AIR

GREENHOUSE GAS EMISSIONS

EU-27

Chart 2: Indices of greenhouse gas emissions according to targets of the Kyoto Protocol, European comparison, 2006



Source: Eurostat

- The total amount of greenhouse gas emissions decreased by 7.7% in the 1990-2000 period. In 2006, 5,143 million tonnes of CO₂ equivalent of greenhouse gas emissions were produced in the EU-27¹⁾. In fact about 21% of all greenhouse gas emissions are produced within the EU-27.
- Some countries have already reached the targets defined by the Kyoto Protocol, the others still have to reduce the total amount of greenhouse gas emissions to reach these targets. Among them is also Slovenia which exceeds the defined target by about 10%.

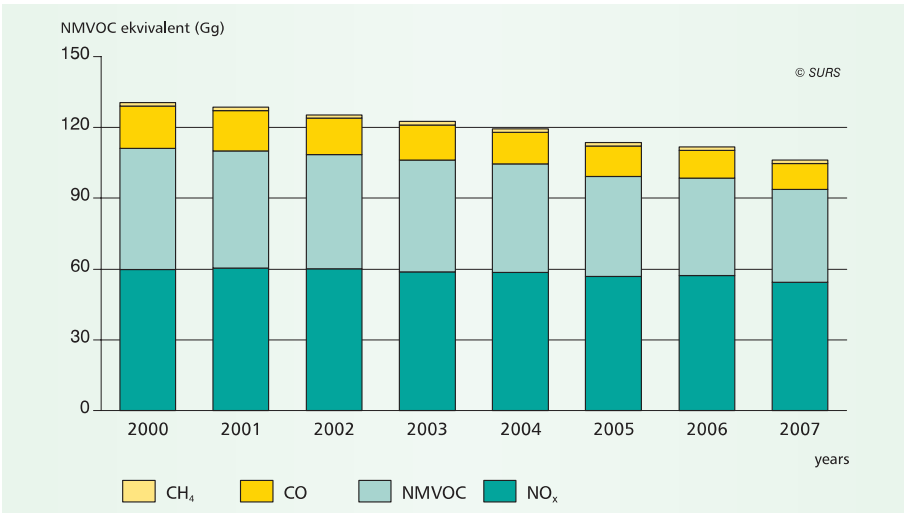
1) To ensure comparability, statistical data that refer to periods prior to 2007 have been recalculated and are published by Eurostat for all EU-27 Member States.

AIR

EMISSIONS OF TROPOSPHERIC OZONE PRECURSORS

Slovenia

Chart 3: Emissions of tropospheric ozone precursors, Slovenia, 2000-2007



Source: EARS

Table 2: Shares of emissions of tropospheric ozone precursors, Slovenia, 2000 and 2004-2007

	2000	2004	2005	2006	2007
TOTAL	100.0	100.0	100.0	100.0	100.0
NO _x	45.8	48.9	50.1	51.1	51.3
NMVOC	39.3	38.7	37.3	36.9	37.1
CO	13.7	11.2	11.3	10.7	10.3
CH ₄	1.1	1.2	1.3	1.3	1.4

Source: EARS

■ In high concentrations, tropospheric ozone, which is produced by photochemical reactions in the troposphere via its precursors, has a harmful influence on the respiratory system in humans and causes damage in the ecosystem.

■ Emissions of NMVOC and NO_x together contributed to more than 85% of all emissions which affect the formation of tropospheric ozone.

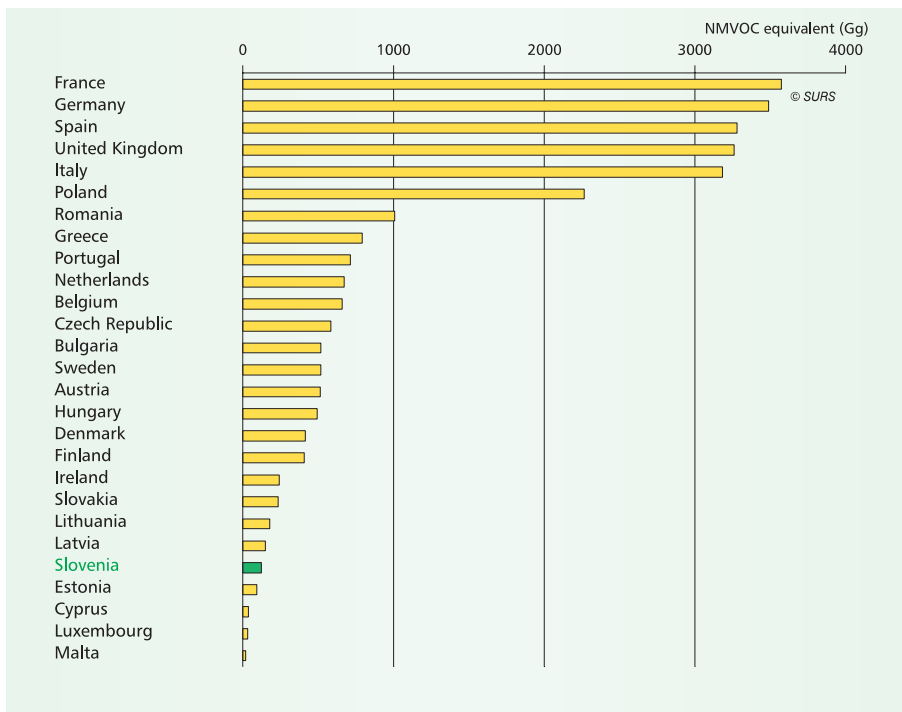
■ Between 2000 and 2007 the total amount of emissions of tropospheric ozone precursors in Slovenia decreased by almost 19%, mostly due to intensified use of vehicles with catalysts and partly because of an increased number of diesel vehicles. During this period, the total amount decreased between 1.5% and 5.1% per year. The most obvious decrease was recorded in the amount of CO emissions (by almost 39%) and NMVOC emissions (by slightly over 23%).

AIR

EMISSIONS OF TROPOSPHERIC OZONE PRECURSORS

EU-27

Chart 4: Emissions of tropospheric ozone precursors, European comparison, 2005



Source: Eurostat

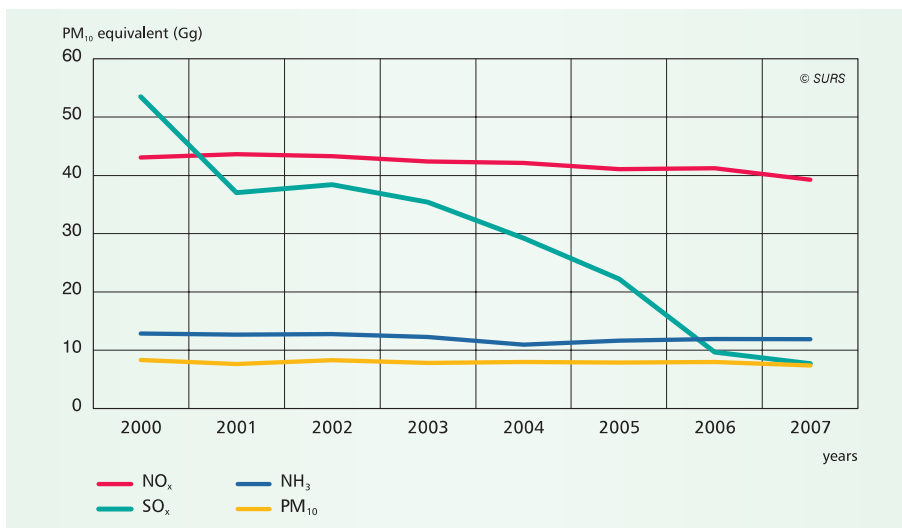
- Total emissions of tropospheric ozone precursors have been gradually decreasing since 1995. In 2005 the EU-27 produced 27.5 million tonnes of NMVOC equivalent emissions of tropospheric ozone precursors or almost 27% less than in 1995. In the same comparison the amount of NO_x emissions decreased by almost 23% and the amount of NMVOC emissions by almost 29%.
- In 2005 the maximum amount of emissions of tropospheric ozone precursors in the EU-27 was produced by France (13.0%), followed by Germany (12.7%), Spain and the United Kingdom (11.9% each), Italy (11.6%) and Poland (8.3%), while the minimum amount of emissions was produced by Malta (0.1%). Slovenia produced 0.5% of all emissions of tropospheric ozone precursors in the EU-27 in 2005.

AIR

EMISSIONS OF PARTICULATE MATTERS

Slovenia

Chart 5: Emissions of particulate matter and their precursors, Slovenia, 2000-2007



Source: EARS

Table 3: Emissions of particulate matter and their precursors, Slovenia, 2000, 2004-2007 %

	2000	2004	2005	2006	2007
TOTAL	100.0	100.0	100.0	100.0	100.0
NO _x	36.6	46.7	49.6	58.3	59.4
SO _x	45.4	32.4	26.9	13.7	11.6
NH ₃	10.9	12.1	14.0	16.8	17.9
PM ₁₀	7.1	8.8	9.6	11.2	11.1

Source: EARS

■ These particles are a mixture of solid and liquid particles of different shapes and sizes, suspended in the air. Their inhalation has a harmful influence on the respiratory and cardiovascular systems in humans. Emissions of NO_x and SO_x largely contribute to emissions of particulate matter.

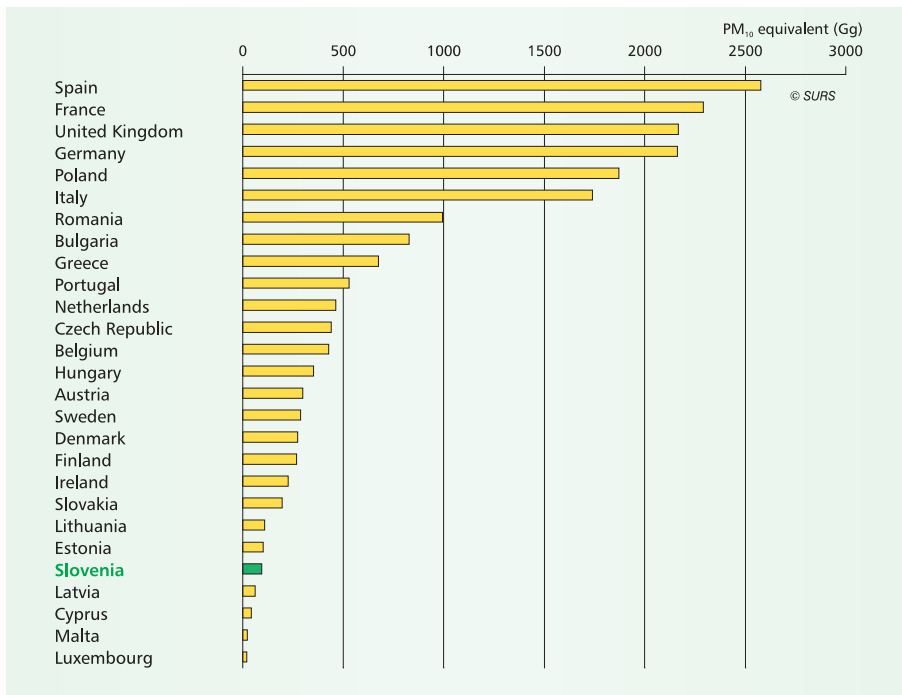
■ In the 2002-2007 period the total amount of emissions of particulate matter was on the decrease in Slovenia [except in 2002 when it increased by 2%]. The total amount decreased almost by 44% in the entire period. The amount of SO_x emissions decreased the most, by nearly 86%. The amount of emissions of NO_x and NH₃ decreased by 9% and 8% in the observed period and emissions of primary particles PM₁₀ decreased by almost 12%.

AIR

EMISSIONS OF PARTICULATE MATTERS

EU-27

Chart 6: Emissions of particulate matter and their precursors, European comparison, 2005



Source: Eurostat

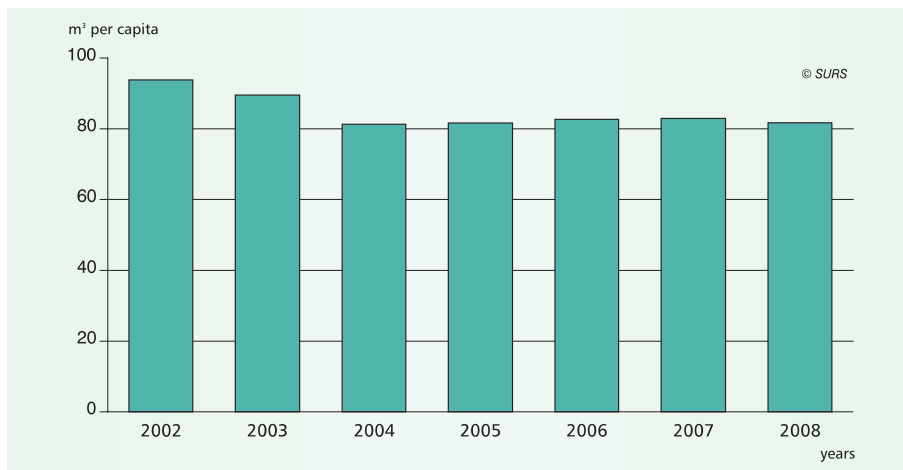
■ The total amount of emissions of particulate matter in the EU-27 has been gradually decreasing since 1995. In 2005 the EU produced 19.5 million tonnes of PM₁₀ equivalent emissions of particulate matter or almost 30% less than in 1995. The most obvious decrease (by more than a half) was that of the amount of SO_x emissions. The amount of NO_x emissions decreased by more than 23% and emissions of NH₃ and primary PM₁₀ decreased by more than 7% and 10%, respectively.

■ In 2005 the maximum amount of emissions of particulate matter in EU-27 was produced by Spain (13.2%), followed by France (11.7%), the United Kingdom and Germany (11.1% each), Poland (9.6%) and Italy (8.9%), while the minimum amount was produced by Luxembourg (0.1%). Slovenia produced 0.5% of all emissions of particulate matter in EU-27 in 2005.

WATER

WATER ABSTRACTION FROM PUBLIC WATER NETWORKS

Slovenia

Chart 7: Volume of water abstracted from public water networks per capita, Slovenia, 2002-2008

Source: SORS

Table 4: Volume of water abstracted from public water networks, Slovenia, 2002 and 2005-2008

	mio m ³				
	2002	2005	2006	2007	2008
TOTAL	187.1	163.5	166.2	167.4	166.7
Ground water	101.6	93.2	104.8	104.5	103.6
Springs of ground water	65.9	56.2	48.2	47.8	47.2
Springs of ground water with surface water affluence	14.6	9.7	9.8	11.2	11.5
Other	5.0	4.3	3.3	3.9	4.4

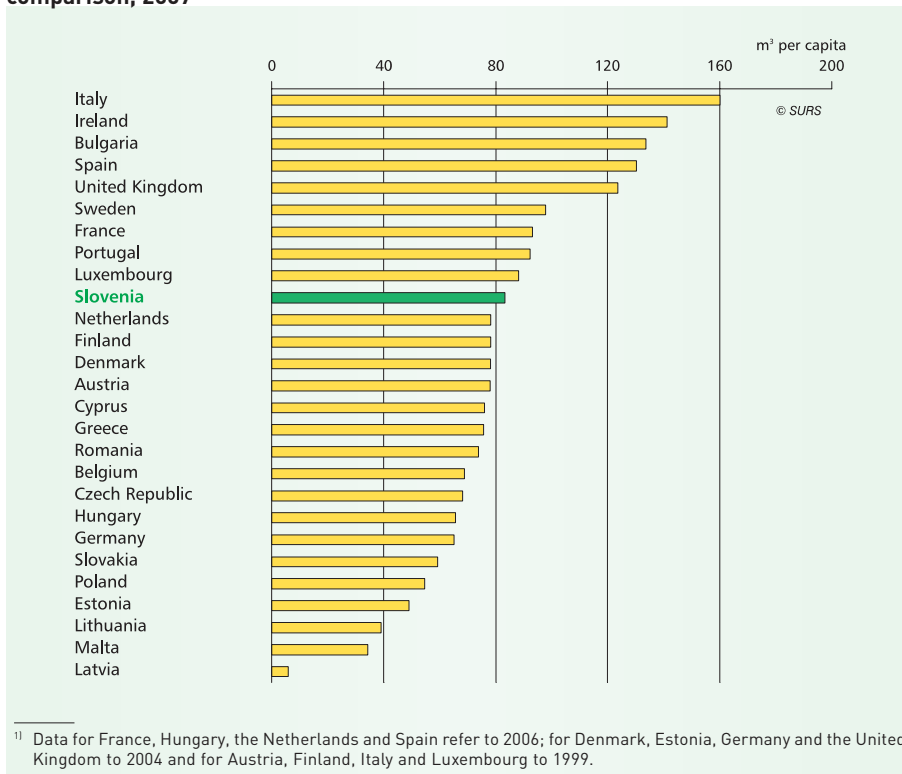
Source: SORS

- In 2008 the total length of the entire water supply network was 20,779 km and there were 507,806 connections to it.
- The volume of water abstracted from public water networks decreased by almost 11% between 2002 and 2008, even though there were noticeable differences between years. In 2008 the volume of abstracted water was nearly 82 m³ per capita.
- The largest share of water abstracted in 2008 represented abstraction of ground water (over 62%), followed by abstraction from springs of ground water and springs of ground water with surface water affluence. Only around 2% of water was abstracted from running water, which is understandable due to the quality of running water in Slovenia; however, the volume of such abstracted water increased by 16% over the previous year.
- Most of the water was abstracted from the Danube basin (around 87%), which is with the result of hydrographic characteristics of Slovenia.

WATER

WATER ABSTRACTION FROM PUBLIC WATER NETWORKS

EU-27

Chart 8: Volume of water abstracted from public water networks per capita, European comparison, 2007¹¹

Source: Eurostat

■ In the EU public water supply accounted for 21% of total water abstraction, but there were large regional differences. Groundwater was the predominant source (about 55%) for public water supply due to its generally higher quality than surface water (EEA Report, 2009).

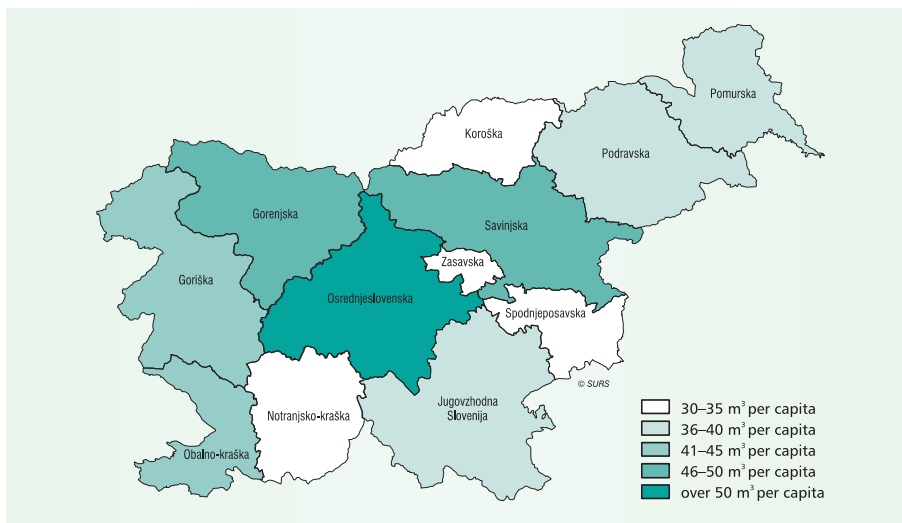
■ According to Eurostat data, most of the water for public water networks was abstracted in Italy, even though data referred to 1999. More than 100 m³ per capita per year were abstracted also in Ireland, Bulgaria, Spain and the United Kingdom. The least, only 6 m³ per capita, was abstracted in Latvia in 2007.

WATER

WATER SUPPLY FROM PUBLIC WATER NETWORKS

Slovenia

Chart 9: Volume of water supplied from public water networks per capita, Slovenia, 2008



Source: SORS

Table 5: Water supplied from public water networks, Slovenia, 2002 and 2005-2008

	2002	2005	2006	2007	2008
TOTAL	183.4	165.2	168.2	170.8	169.2
Water supplied to households	88.5	84.8	86.1	88.1	88.7
Water supplied to activities	37.6	34.5	34.4	34.0	33.4
Supplied but uncharged water	7.4	3.3	2.6	4.0	3.3
Water loss within waterwork networks	50.0	42.6	45.0	44.8	43.8

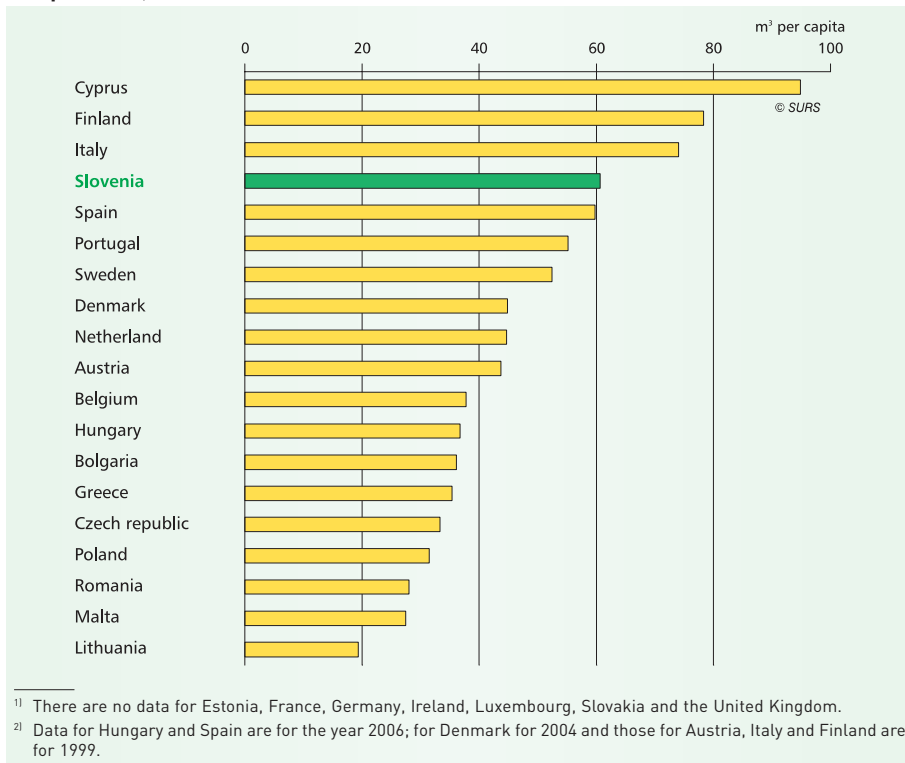
Source: SORS

- According to data from 2002 Population census nearly 91% of the Slovene population was then connected to public water supply.
- Water consumption in households is increasing. In 2008, households used 43.5 m³ of water per capita or 119 litres per day. The increase over the previous year was 1%. The volume of water supplied to the business entities is constantly decreasing and it decreased by 2% in 2008 over the previous year. Water loss within waterworks network is the result of old and damaged systems and has been substantially oscillating. Since 2002 the total water loss decreased by 12% and in 2008 it amounted to 43.8 million m³ of water.

WATER

WATER SUPPLY FROM PUBLIC WATER NETWORKS

EU-27

Chart 10: Volume of water supplied from public water networks per capita, European comparison¹⁾, 2007²⁾

Source: Eurostat

■ According to Eurostat data, the largest quantities of water were used by households in Cyprus (94.9 m³ per capita in 2007), followed by Finland and Italy (1999 data) with 78.3 m³ per capita and 74.0 m³ per capita. The least water per capita was used in Latvia, Lithuania, Malta and Romania.

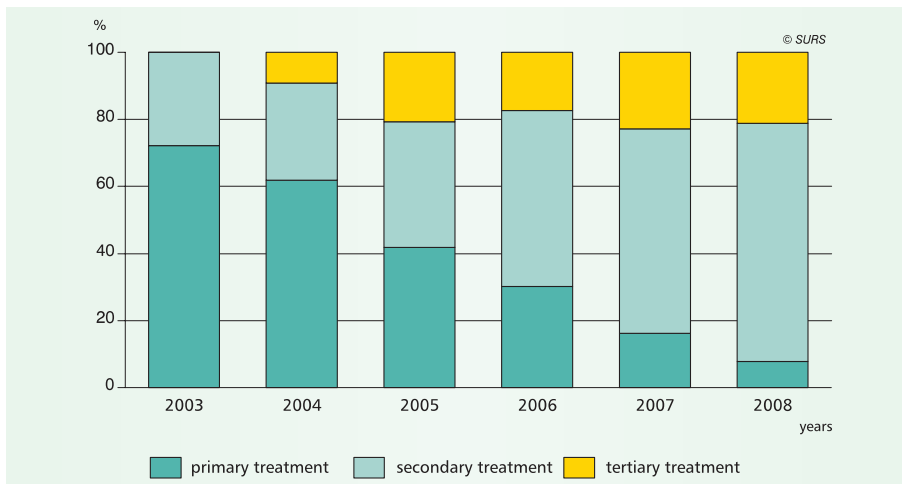
■ Please note that only water supplied from public water networks is included in these data. There are many countries where a large part of population is not connected to public water networks and therefore the amount of water used per capita is actually bigger there. On the other hand the amount of the water used can be overestimated in countries that have developed tourism and use a lot of water for such purpose.

WATER

WASTE WATER TREATMENT

Slovenia

Chart 11: Shares of the treatment levels of waste water, Slovenia, 2003-2008



Source: EARS

Table 6: Treated waste water, Slovenia, 2003-2008

	mio m ³					
	2003	2004	2005	2006	2007	2008
TOTAL	84.8	94.8	77.3	104.1	115.0	114.4

Source: SORS

■ In 2008, 156 mio m³ of waste water from different sources were collected in public sewage systems and treated in treatment plants or discharged directly into surface waters or ground water. Almost 74% of this water was treated.

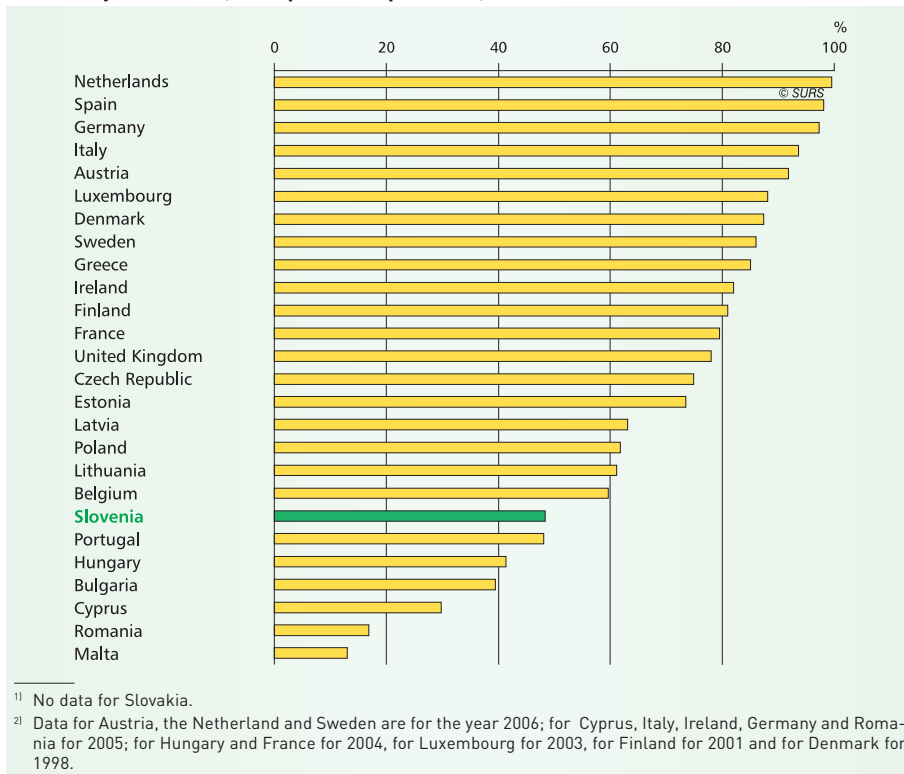
■ The share of water treated with primary treatment has been decreasing in recent years. Primary treatment removes only a small part of organic load; on the other hand, secondary and tertiary treatments remove the majority of organic load. The amount of primarily treated water decreased by almost 53% in 2008 over the previous year and represented almost 8% of all treated water. On the other hand, the shares of water treated with secondary and tertiary treatments increased considerably (71% and slightly more than 21% of all water treatment, respectively). The amount of secondarily treated water increased by almost 16% in 2008 over the previous year and represented 81.3 million m³ of water. The amount of tertiarily treated water decreased by almost 8% in 2008 over the previous year and represented 24.2 million m³ of water.

■ According to data from the 2002 Population Census and the Environmental Agency (2008), 47% of Slovenian population had cesspools, 2% of them had connections to primary treatment plants, 42% to secondary treatment plants and 9% to tertiary treatment plants. The trend was similar to that in the case of amounts of treated waste water. The share of population connected to primary treatment plants keeps decreasing and the share of those connected to secondary and tertiary treatments keeps increasing.

WATER

WASTE WATER TREATMENT

EU-27

Chart 12: Shares of population connected to waste water treatment plants with at least secondary treatment, European comparison¹⁾, 2007²⁾

Source: Eurostat

■ According to Eurostat data, in 2007 on average a little less than 70% of the EU-27 population was connected to waste water plants with at least secondary treatment. The higher share of people connected to waste water plants with at least secondary treatment was observed in the Netherlands (99.5%) and the lowest in Malta (13%). Spain, Germany, Italy and Austria apply at least secondary treatment to the waste water for more than 90% of their population. The waste water treatment system is more developed in Western Europe, i.e. in old EU Member States.

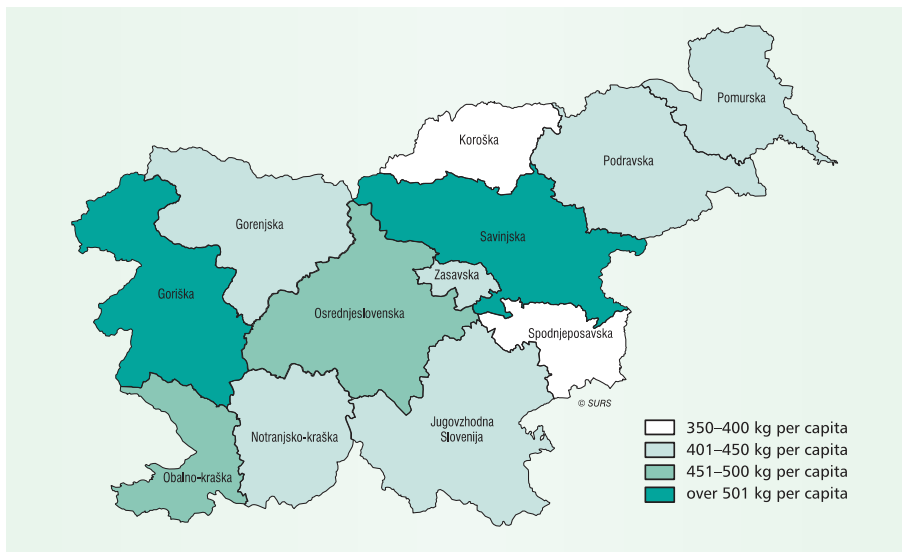
■ Slovenia with 48% (2007) ranked among countries with low shares. A large part of the Slovenian population namely still had cesspools.

WASTE

MUNICIPAL WASTE GENERATION

Slovenia

Chart 13: Amount of municipal waste generated per capita, Slovenia, 2008



Source: SORS

Table 7: Municipal waste generated, Slovenia, 2002 and 2005-2008

	2002	2005	2006	2007	2008
Municipal waste generated	812	845	866	886	923

1000 t

Source: SORS

■ In the developed world a person produces daily from 1 kg to 3 kg of municipal waste. According to this criterion Slovenia is classified to be a medium-developed country with about 1.24 kg (2008) of municipal waste per capita per day.

■ The amount of municipal waste in Slovenia has been slightly increasing since 2002. In 2008, 922,830 tonnes or 453 kg of waste per capita were generated. The amount of municipal waste kept growing annually between 1.5% and 4.2%, except in 2004 when the volume decreased by 0.1%. Compared to 2002, the volume in 2008 increased by almost 14%.

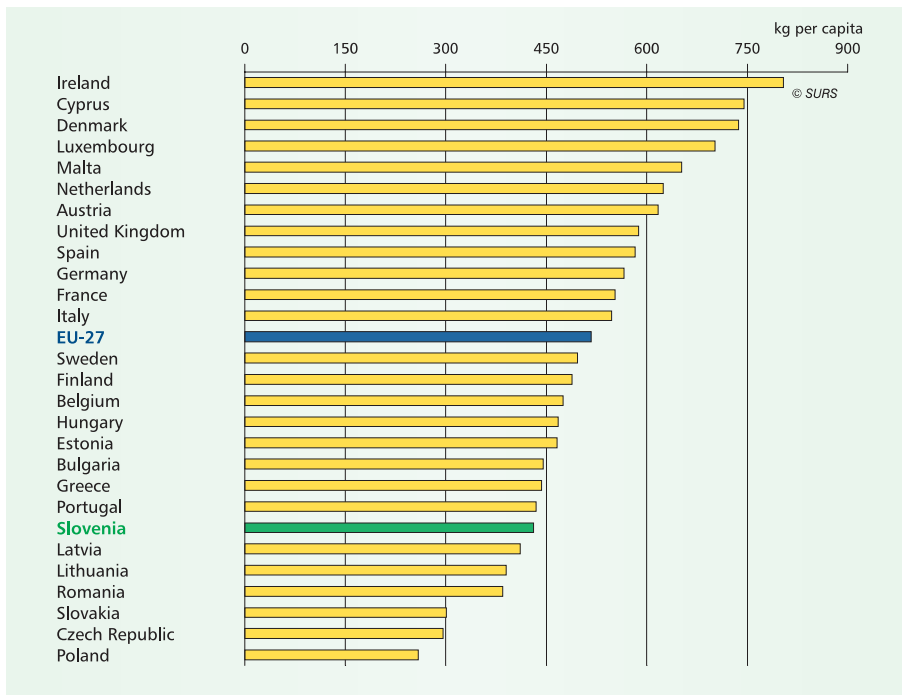
■ Municipal waste represented about 13% of the total waste generated in Slovenia in 2008. The remaining 87% was industrial waste, such as also construction waste, waste from the production activities, agricultural waste, waste from services and other waste.

WASTE

MUNICIPAL WASTE GENERATION

EU-27

Chart 14: Amount of municipal waste generated per capita, European comparison, 2006



Source: Eurostat

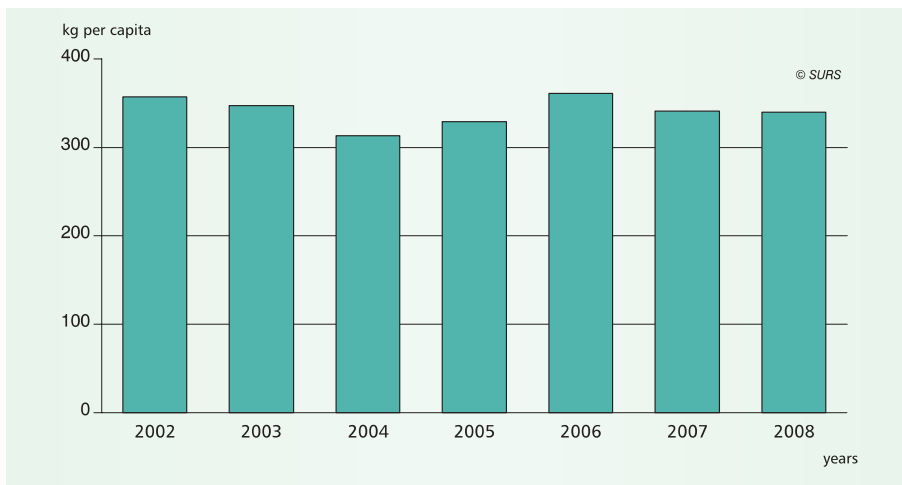
- The amount of municipal waste generated has been continuously growing until 2002, then a downward trend can be observed. However, the generation of municipal waste per capita remained at a high level with 517 kg per capita in 2006.
- In 2006 Ireland recorded the highest generation of municipal waste in the EU (804 kg per capita), whereas the lowest values were reported by Poland (259 kg per capita). Slovenia ranked below the EU average with 431 kg per capita.

WASTE

MUNICIPAL WASTE LANDFILL

Slovenia

Chart 15: Amount of municipal waste landfilled per capita, Slovenia, 2002-2008



Source: SORS

Table 8: Municipal waste landfilled, Slovenia, 2002 and 2005-2008

	2002	2005	2006	2007	2008
Municipal waste landfilled	713	659	725	688	693

1000 t

Source: SORS

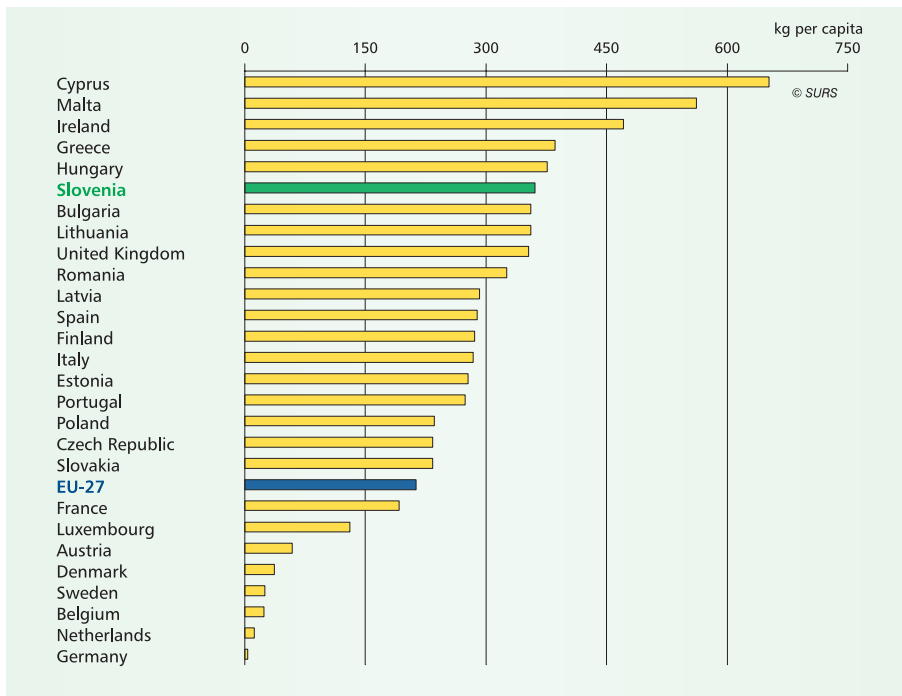
- In 2008, 61 landfills were operating in Slovenia, of which 47 were municipal, 14 were industrial and 1 was a hazardous waste landfill.
- Landfilling is still the most widespread method of disposal of municipal waste in Slovenia. In recent years the amount of municipal waste landfilled has remained at approximately the same level as it has been changing in the $\pm 10\%$ range. In 2008 we landfilled 75% or 340 kg per capita of municipal waste generated. The remaining 24% of municipal waste generated were recycled or disposed by other methods of disposal. Less than 1% of municipal waste was exported.

WASTE

MUNICIPAL WASTE LANDFILL

EU-27

Chart 16: Amount of municipal waste landfilled per capita, European comparison, 2006



Source: Eurostat

■ In 2006, more than 80% of municipal waste was landfilled in Lithuania, Poland, Cyprus, Greece, Malta, Romania, Hungary and also in Slovenia. Less than 10% of it was landfilled in Germany (1%), Netherlands (2%), Denmark, Sweden and Belgium (all 5%). On average, the EU-27 landfilled about 41% of municipal waste. Overall, the quantity of municipal waste landfilled is diminishing in the EU.

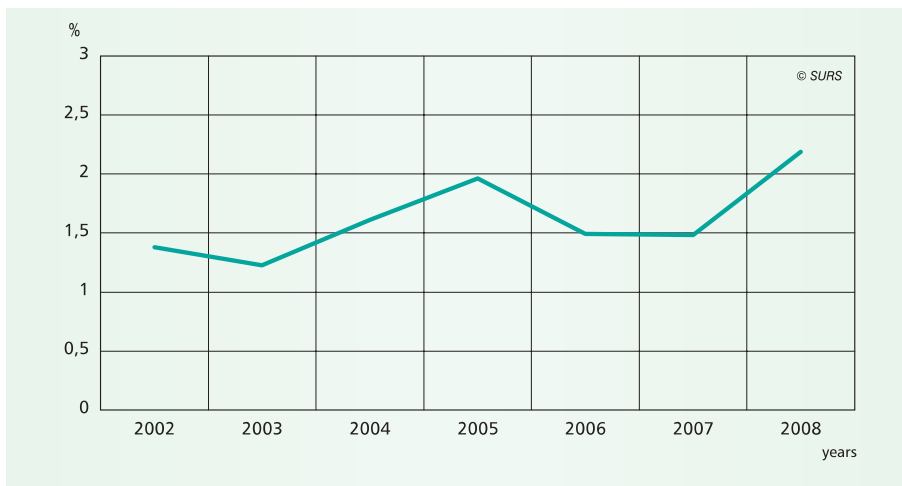
■ The biggest amount of municipal waste was landfilled in Cyprus (652 kg per capita) and the smallest in Germany (4 kg per capita). In 2006 Slovenia was with 361 kg of landfilled municipal waste per capita above the EU-27 average of 213 kg per capita.

WASTE

TOTAL WASTE GENERATED (HAZARDOUS AND NON-HAZARDOUS)

Slovenia

Chart 17: Share of hazardous waste in view of total waste generated, Slovenia, 2002-2008



Source: SORS

Table 9: Waste generated, Slovenia, 2002 and 2005-2008

1000 t

	2002	2005	2006	2007	2008
TOTAL	4,902	6,514	6,897	7,159	7,034
Hazardous waste	68	128	103	106	154
Non-hazardous waste	4,834	6,386	6,794	7,053	6,880

Source: SORS

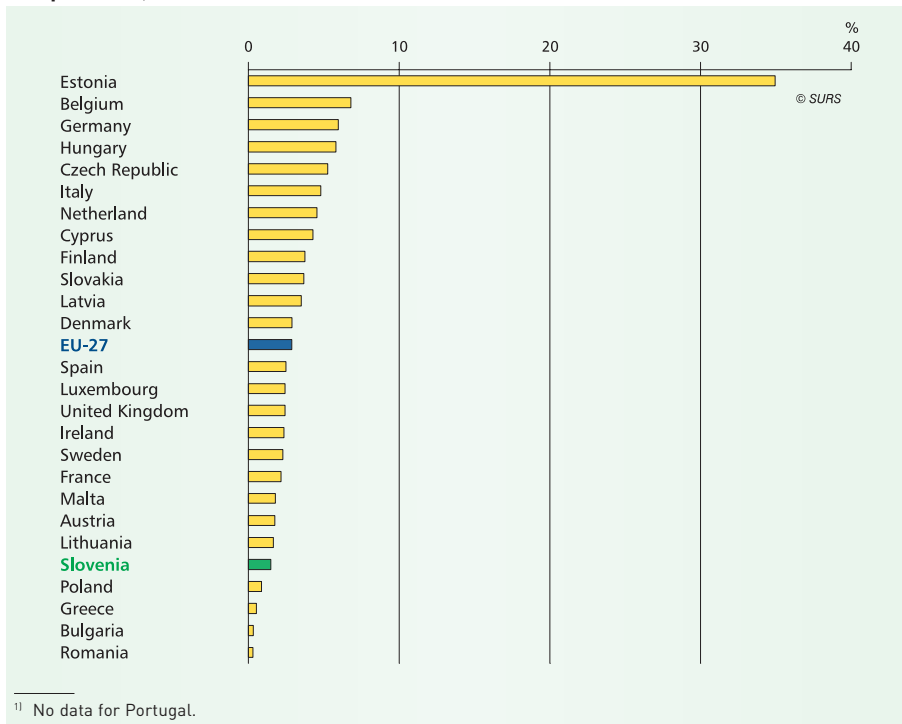
■ The total amount of waste was increasing between 2002 and 2007, while in 2008 it decreased slightly for the first time (by almost 2% compared to 2007), mostly due to the decrease (by about 3%) in waste generated in production and service activities. The amount of municipal waste increased by slightly more than 4% over the previous year. The share of hazardous waste varied slightly but remained at about the same level.

■ In 2008, the share of hazardous waste amounted to 2% of total waste generated, i.e. 153,939 tonnes of the total of 7 million tonnes. The amount of hazardous waste increased by 45% over 2007 but such an increase was due to one-off events (e.g. remediation). The amount of hazardous municipal waste increased significantly (by 99%) in 2007 as a result of the new legislation, which provided a separate collection of electrical and electronic equipment. In the past this waste was included mostly among the mixed municipal waste.

WASTE

TOTAL WASTE GENERATED (HAZARDOUS AND NON-HAZARDOUS)

EU-27

Chart 18: Shares of hazardous waste in view of total waste generated, European comparison¹⁾, 2006

Source: Eurostat

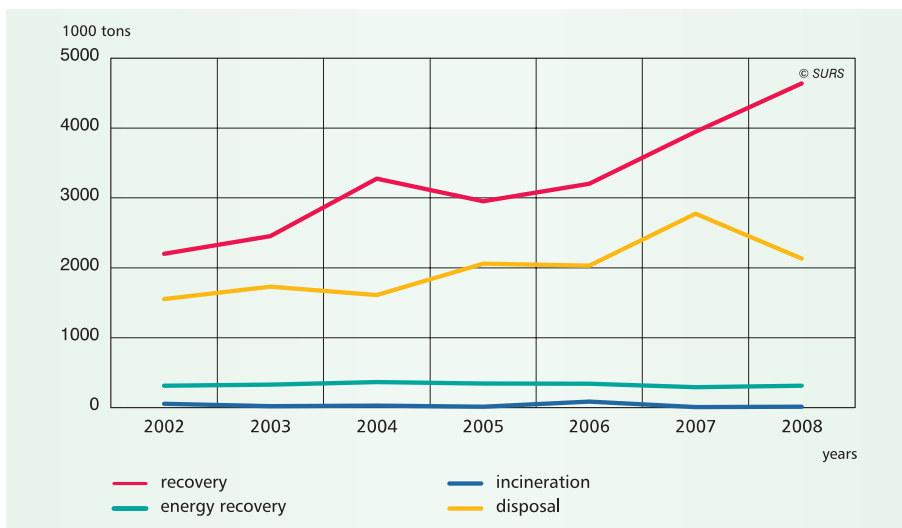
- Around 2,900 million tonnes of all waste were generated in the EU-27 in 2006. The highest amounts of all generated waste (over 300 million tonnes) were generated in France, Germany, the United Kingdom and Romania.
- The aggregated EU-27 share of hazardous waste was calculated to be almost 3% of the total waste. The largest share of hazardous waste in the total amount of waste was contributed by Germany (25.7%). Slovenia contributed 0.12% of hazardous and 0.24% of non-hazardous waste.
- Estonia had the highest ratio between hazardous and non-hazardous waste (more than a third of the generated waste was hazardous). In other countries hazardous waste represented less than 10% of all waste. Slovenia with 1.49% (2006) of all hazardous waste was below the EU-27 average.

WASTE

TREATMENT OF WASTE

Slovenia

Chart 19: Amounts of waste by waste treatment processes, Slovenia, 2002-2008



Source: SORS

Table 10: Shares of waste by waste treatment processes, Slovenia, 2002 and 2005-2008 %

	2002	2005	2006	2007	2008
Recovery	53.3	54.8	56.5	56.2	65.3
Energy recovery	7.6	6.5	6.0	4.2	4.4
Incineration	1.4	0.4	1.6	0.2	0.2
Disposal	37.7	38.3	35.9	39.5	30.1

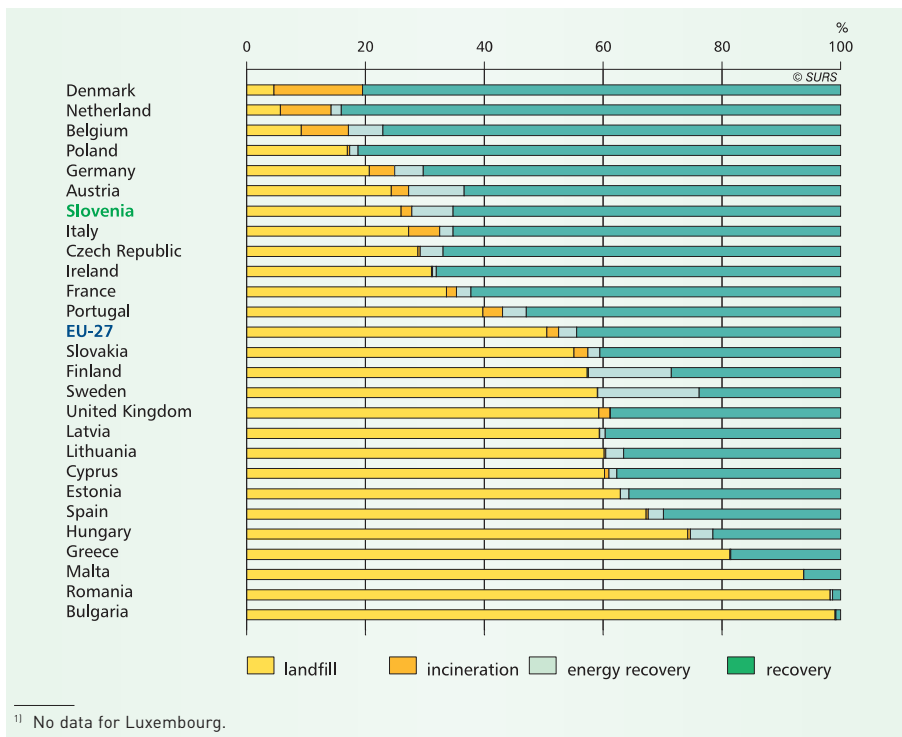
Source: SORS

- The Decree on waste management (OJ RS, No. 34/08) determines that waste must be treated and that recovery has precedence over disposal.
- Since 2002, on average around 60% of the waste has been recovered in Slovenia. The share has been varying slightly between years but remained at about the same level. In 2008, 65% of all waste was recovered. Energy recovery decreased from almost 8% in 2002 to about 4% of all treatments in 2008.
- Between 2002 and 2007 disposal represented about 40% of all waste treatments while in 2008 this share declined to about 30%. In 2008 about 49% of the disposed waste was landfilled and about 51% was disposed by other methods (biological, physical or chemical treatment). Incineration represented 0.2% of the total waste treatment.

WASTE

TREATMENT OF WASTE

EU-27

Chart 20: Shares of waste by waste treatment processes, European comparison¹⁾, 2006

■ In EU-27 about 51% of waste was landfilled, 2% recovered for energy, 3% incinerated and 44% recovered. Slovenia in 2006 landfilled 36% of all waste which was above the EU average and it recovered about 53% of waste which was above the EU-27 average.¹⁾

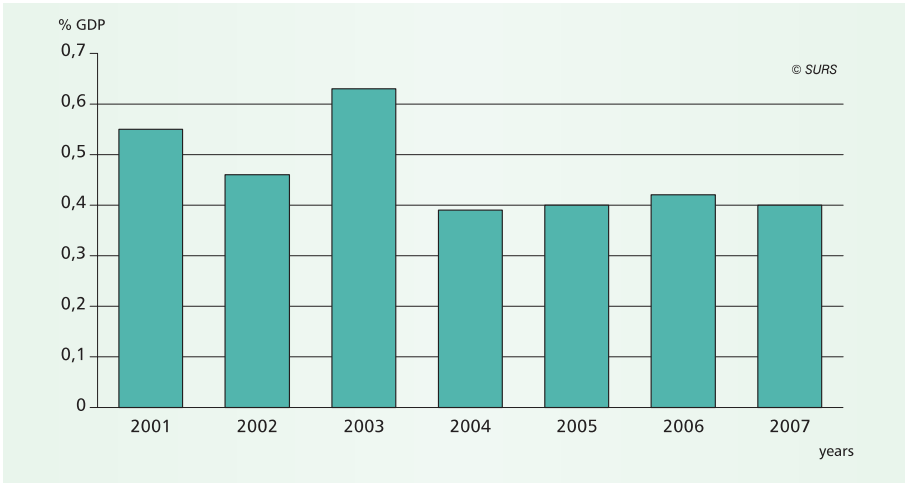
■ The largest share of waste was landfilled in Bulgaria (99%), Romania (98%) and Malta (94%) and the least in Denmark and Netherlands (in each by about 5%). The largest share of recovered waste (without energy recovery) was recorded in the Netherlands (84%), followed by Poland, Denmark and Belgium. The most waste was incinerated in Denmark (about 15%), in the other countries the share was below 10%. Sweden had (17%) the largest share of energy recovery and it was followed by Finland and Austria.

²⁾ Data only for the landfill and no other disposal treatments and only for recovery without the internal recovery were considered in the international comparison

INVESTMENT IN ENVIRONMENTAL PROTECTION

GROSS INVESTMENT IN ENVIRONMENTAL PROTECTION IN INDUSTRY
(without recycling)

Slovenia

Chart 21: Gross investment for environmental protection in industry as a share of GDP, Slovenia, 2001-2007

Source: SORS

Table 11: Gross investment for environmental protection in industry, Slovenia, 2001, 2004-2007

	mio EUR				
	2001	2004	2005	2006	2007
Gross investment	114	105	116	129	138

Source: SORS

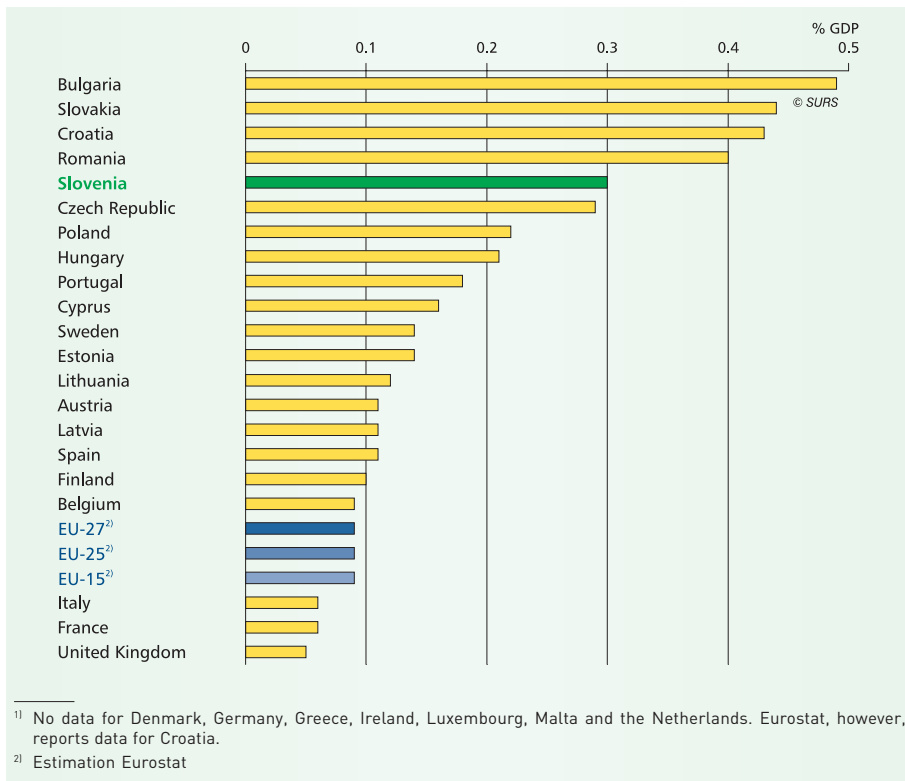
■ The index shows gross investments for environmental protection in industry (fields of activity C, D, E according to NACE Rev. 1). Gross investment for environmental protection in industry in Slovenia has been increasing from 2001 on and in 2007 amounted to EUR 138 million or 0.40% of GDP.

■ Gross investment for environmental protection nominally increased in 2001 in comparison to 2007 by 21.1%, in accordance to GDP they decreased by 0.15 of a percentage point.

INVESTMENT IN ENVIRONMENTAL PROTECTION

GROSS INVESTMENT IN ENVIRONMENTAL PROTECTION IN INDUSTRY
(without recycling)

EU-27

Chart 22: Gross investment for environmental protection in industry as a share of GDP, European comparison¹⁾, 2004

Source: Eurostat

■ Among EU Member States there are large differences in the share of gross investment for environmental protection in industry in view of the GDP. According to Eurostat data, the gross investments for environmental protection in comparison to GDP in 2004 were the highest in Bulgaria (0.49%), Slovakia (0.44%) and Croatia (0.43%), and the lowest in the United Kingdom (0.05%), France and Italy (in each by 0.06%). With 0.30% Slovenia was above the EU-27 average.

ENERGY

ENERGY DEPENDENCY

Slovenia

Chart 23: Energy dependency, Slovenia, 2000-2008



Source: SORS

Table 12: Net import and energy supply, Slovenia, 2000 and 2005-2008

	2000	2005	2006	2007	2008
					1000 toe
Net import of energy	3,373	3,846	3,808	3,868	4,288
Energy supply	6,487	7,307	7,318	7,336	7,749

Source: SORS

■ Energy dependency of Slovenia increased by 3.3% in the 2000-2008 period. The increase was more intense between 2001 and 2003 when the value of energy dependency was the highest, namely 53%. The rise occurred due to smaller electricity generation in the nuclear power plant and in hydro power plants on the one hand and due to the increase in natural gas import on the other hand. In the following years the energy dependency ranged around 52% and in 2008 it reached 55%.

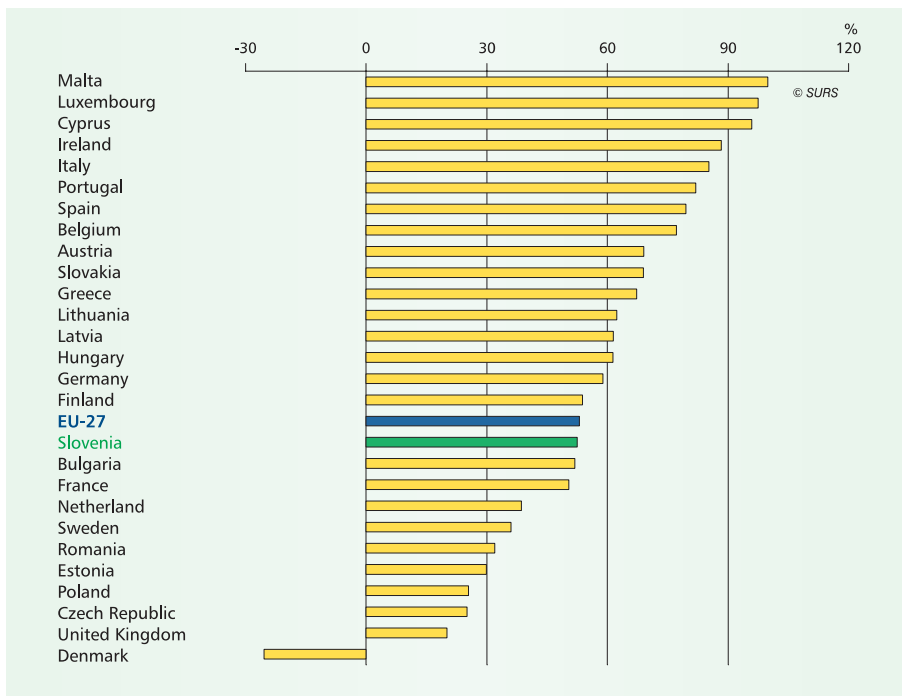
■ In the 2000-2008 period indigenous production of energy in Slovenia increased by 17% while the energy supply, which indicates energy needs of the state on the primary energy side, increased, by 19%. The difference was imported. Slovenia is fully dependent of the import of petroleum products and natural gas. Since the consumption of petroleum products is in constant increase, in particular in the transport sector, it could be expected that energy dependency will keep growing.

ENERGY

ENERGY DEPENDENCY

EU-27

Chart 24: Shares of energy dependency, European comparison, 2007



Source: Eurostat

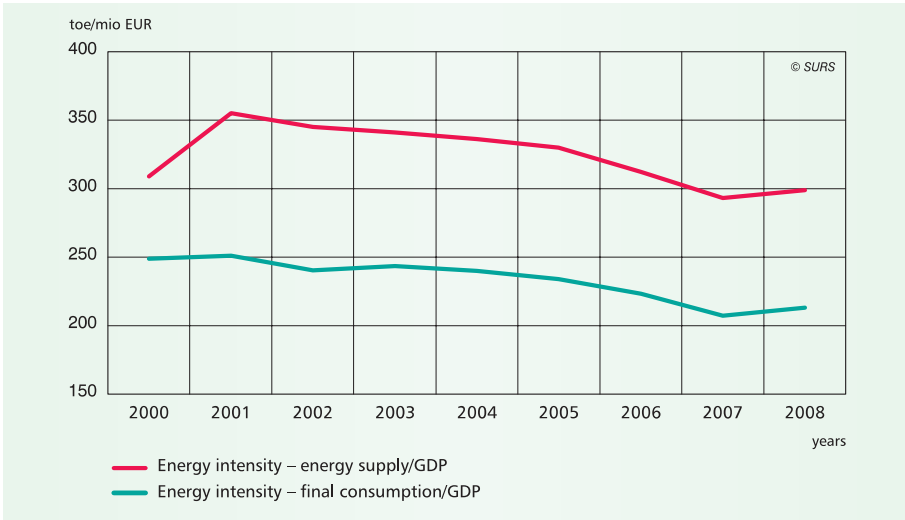
- In 2007, 53.1% of energy consumed in EU-27 member states was imported. The highest energy dependency was recorded in Malta (100.0%), Luxembourg (97.5%) and Cyprus (95.9%).
- Energy dependency in Slovenia was in 2007 by 0.6 of a percentage point lower than the EU-27 average, which ranked our country among medium energy dependent countries.
- The negative value of energy dependency shows that the energy production in a country is higher than its energy needs. In 2007 Denmark was the only net exporter of energy in the EU with an energy dependency of -25.4%.

ENERGY

ENERGY INTENSITY

Slovenia

Chart 25: Energy intensity, GDP at constant 2000 prices, Slovenia, 2000–2008



Source: SORS

Table 13: Energy intensity, Slovenia, 2000 and 2005–2008

	toe/mio EUR (2000 constant prices)				
	2000	2005	2006	2007	2008
Energy intensity - energy supply/GDP	351	330	312	293	299
Energy intensity - final consumption/GDP	251	234	223	207	213

Source: SORS

■ Slovenia has relatively high energy intensity, which has been on the decrease since 2001, both on the primary energy level and the final consumption level. In 2007 energy intensity dropped significantly on annual level; on the primary energy level by 6% and on the final energy level by 7%.

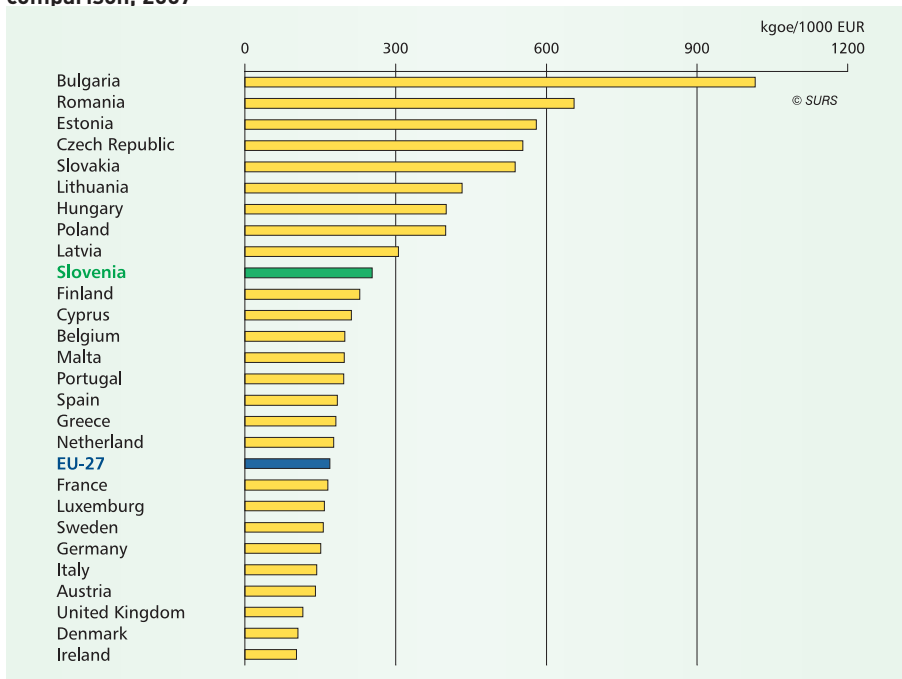
■ In the 2000–2005 period the trend of decreasing was around 2% per year. In 2006 energy intensity decreased by 5%. A part of the decrease was the effect of a smaller increase in energy supply. The increase on the primary energy side amounted to 0.2% and on the final energy side to 1% in 2006 and 2007. The smaller increase was also the result of better awareness of efficient energy use.

■ The decrease in energy intensity was influenced also by the increase of GDP (at 2000 constant prices) which increased by 7% in 2007 over 2006.

ENERGY

ENERGY INTENSITY

EU-27

Chart 26: Energy intensity - energy supply/GDP at constant 1995 prices, European comparison, 2007

Source: Eurostat

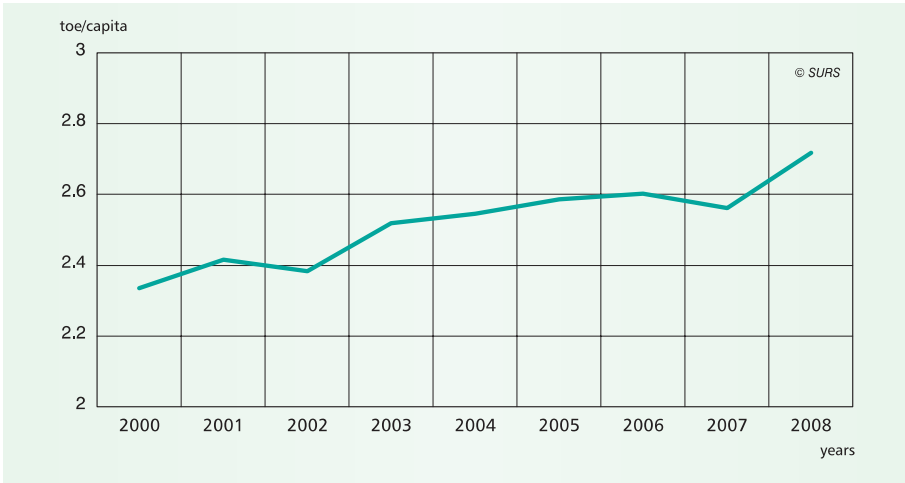
- Energy intensity in the EU-27 decreased by 10% in the 2000-2007 period. In 2007 it was 169 kgoe/1000 EUR (GDP at constant 1995 prices).
- In 2007 nine EU Member States had smaller energy intensity than the EU-27 average. The smallest energy intensity was recorded in Ireland (103 kgoe/1000 EUR) and Denmark (106 kgoe/1000 EUR).
- Countries with the highest energy intensity were Bulgaria (1,016 kgoe/1000 EUR) and Romania (656 kgoe/1000 EUR).
- In 2007 Slovenia had 1.5-times higher energy intensity than the EU-27 average.

ENERGY

FINAL ENERGY CONSUMPTION

Slovenia

Chart 27: Final energy consumption per capita, Slovenia, 2000-2008



Source: SORS

Table 14: Final energy consumption, Slovenia, 2000 and 2005-2008

	2000	2005	2006	2007	2008
Final energy consumption	4,638	5,182	5,232	5,191	5,521

Source: SORS

■ Final energy consumption in Slovenia has been increasing from 2002 onwards. At the beginning of the period the growth was higher and then it slowly calmed down by 2007 when final consumption of energy even decreased by 1%. The decrease was the result of smaller energy consumption in households. In 2008 final energy consumption grew by 6%. The largest increase was recorded in use of gasoline in traffic.

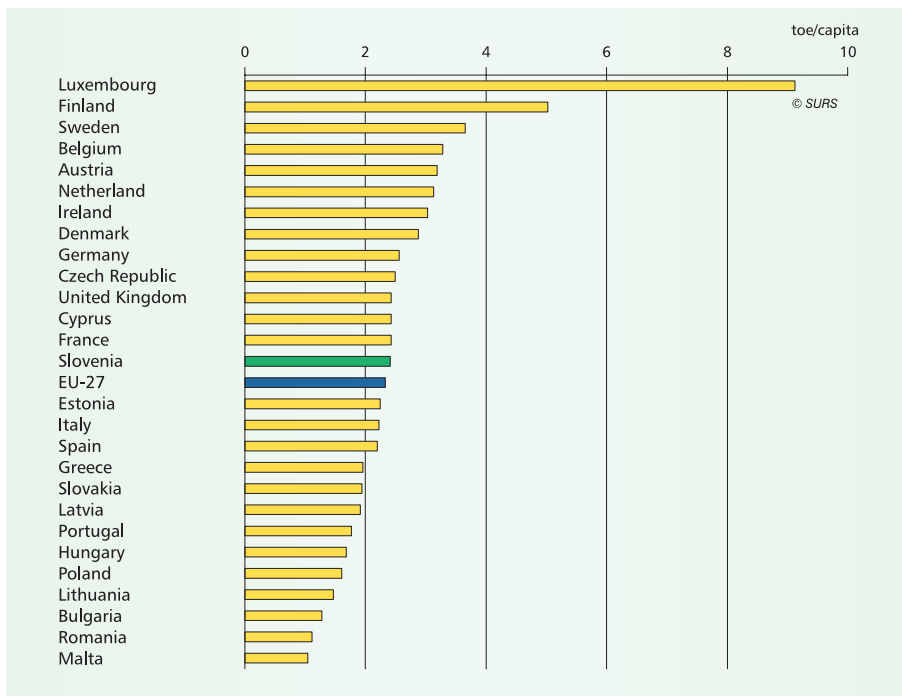
■ The same trend was recorded in energy consumption per capita, which was in 2008 15% lower than in 2000. Final energy consumption in 2008 in Slovenia was 2.7 toe/capita. This means that every person in Slovenia in 2008 consumed the equivalent of 86 kWh of electricity per day - of this, the actual daily electricity consumption per capita was 16 kWh, the rest was used in other energy forms.

ENERGY

FINAL ENERGY CONSUMPTION

EU-27

Chart 28: Final energy consumption per capita, European comparison, 2007



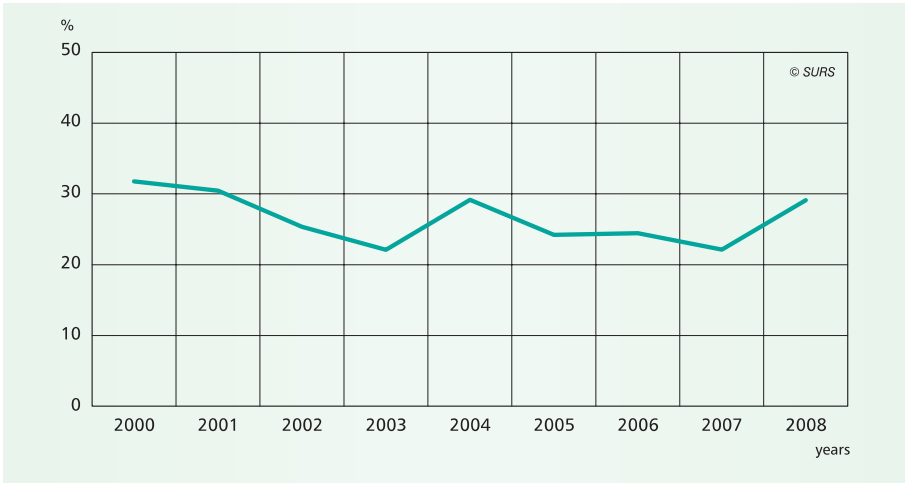
Source: Eurostat

- In 2007 the EU-27 average final energy consumption was 2.3 toe/capita, which was slightly less than in Slovenia.
- Fourteen countries exceeded the EU-27 average in 2007. The highest energy consumption per capita was recorded in Luxembourg (9 toe/capita) and the lowest in Malta, Romania and Bulgaria (in each 1 toe/capita).

ENERGY

RENEWABLE ENERGY SOURCES

Slovenia

Chart 29: Share of electricity from renewable energy sources in gross consumption of electricity, Slovenia, 2000-2008

Source: SORS

Table 15: Electricity generation, Slovenia, 2000 and 2005-2008

	2000	2005	2006	2007	2008
Gross electricity generation	13,624	15,117	15,115	15,043	16,398
- from renewable energy sources	3,903	3,580	3,706	3,382	4,310

Source: SORS

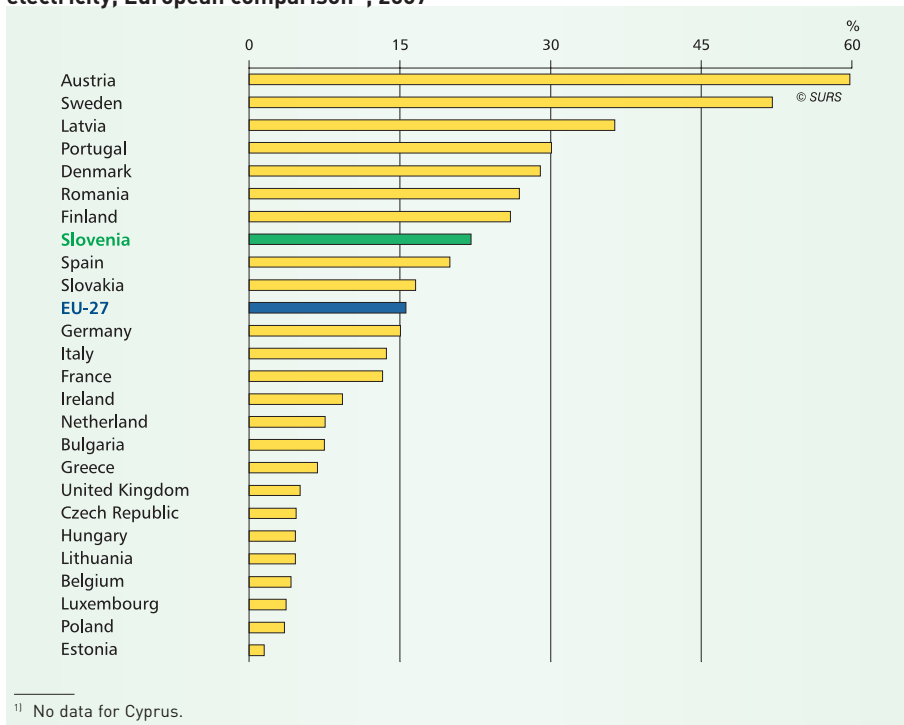
■ In 2008 in Slovenia 26% of electricity was generated from renewable energy sources. The highest share was generated in hydro power plants - main activity producer (87%), followed by small hydro power plants (4%), and hydro power plants - auto producers (2%). The remaining renewable electricity was generated from wood, wood wastes and bone meal (5%), photovoltaic, landfill gas, biogas and formalin gas.

■ The share of electricity generated from renewable energy sources in gross consumption of electricity in Slovenia highly depends on hydrologic conditions. In the years with high waters the share reaches 32% and in dry years only 22%. In the Directive on the Promotion of the Use of Energy from Renewable Sources Slovenia made a commitment that by 2020 it will be generating 25% of energy from renewable sources. The methodology for the calculation of the share will abolish the influence of the annual hydrology.

ENERGY

RENEWABLE ENERGY SOURCES

EU-27

Chart 30: Share of electricity from renewable energy sources in gross consumption of electricity, European comparison¹⁾, 2007

Source: Eurostat

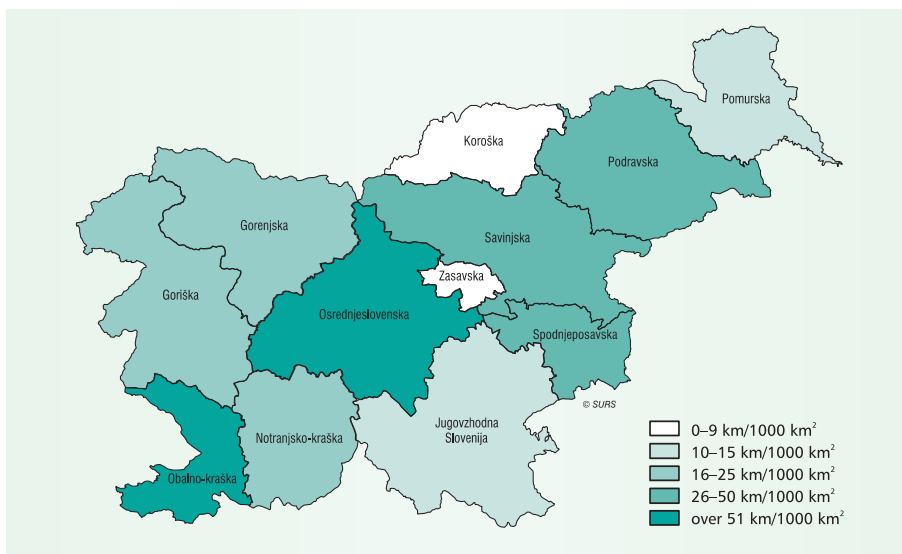
■ In 2007 Slovenia ranked eight in EU-27 with its 22% share of electricity from renewable energy sources in gross consumption of electricity. The highest share was recorded in Austria (60%), the lowest in Estonia (2%). The share of EU-27 was 16% and the EU target for 2020 has been raised to 20%.

TRANSPORT

MOTORWAY DENSITY

Slovenia

Chart 31: Motorway density, Slovenia, 2007



Source: SORS

Table 16: The length of motorway network by type of roads, Slovenia, 2000 and 2004-2007

	2000	2004	2005	2006	2007
TOTAL	426.8	482.7	568.9	578.6	578.5
Motorways	369.0	422.8	494.9	504.5	504.7
Expressways	57.8	59.9	74.0	74.1	73.8

Source: SORS

■ Motorway network density in Slovenia is on the increase, coinciding with ongoing growth of the length of Slovenian motorways and expressways. The biggest increase in motorway network density occurred in 2005 (28 km/1000 km²) when it amounted to 18% on annual level. In 2007, compared to 2006, the level of the motorway network density remained unchanged, amounting to 29 km/1000 km² or a total of the motorways and expressways length of 578.5 km. The level of motorway network density observed in the 2000-2007 period increased by 36%.

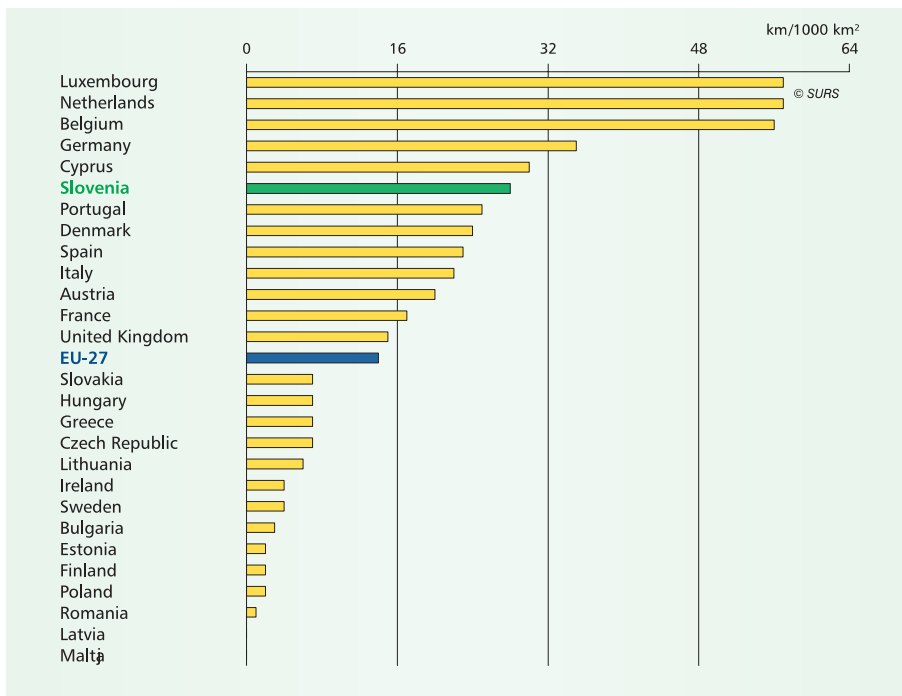
■ Amongst regions, the highest level of motorway network density was recorded in 2007 in Obalno-kraška (75 km/1000 km²), followed by Osrednjeslovenska (69 km/1000 km²), Spodnjeposavska (41 km/1000 km²), Podravska in Savinjska (both 27 km/1000 km²), Gorenjska (25 km/1000 km²), Notranjsko-kraška (22 km/1000 km²), Goriska (16 km/1000 km²), Pomurska (11 km/1000 km²), while in the Koroška and Primorska regions jointly the motorway network density did not exceed 10 km/1000 km².

TRANSPORT

MOTORWAY DENSITY

EU-27

Chart 32: Motorway density, European comparison, 2005



Source: Eurostat

■ The average EU-27 motorway network density in 2005 was 14 km/1000 km². Compared to the 2000 level, this figure represented a 12% increase. The motorway infrastructure appeared to be denser in Central European countries. However, for the objective presentation and comparability reasons, some other factors should be taken into consideration, including population density.

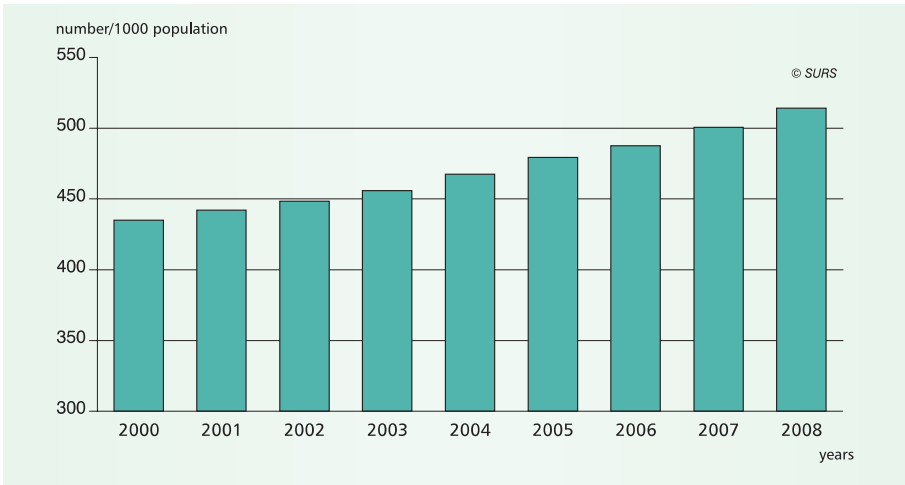
■ In terms of motorway density, in 2005 three countries were well ahead of the EU-27 average level: Luxembourg and Belgium (each with 57 km/1000 km²) and the Netherlands (56 km/1000 km²). Twelve countries were below the EU-27 average level, while Slovenia exceeded this level by almost 100%.

TRANSPORT

MOTORIZATION RATE OF PASSENGER CARS

Slovenia

Chart 33: Number of passenger cars per 1000 population, Slovenia, 2000-2008



Source: SORS

Table 17: Number of passenger cars per 1000 population, Slovenia, 2000 and 2005-2008

	number				
	2000	2005	2006	2007	2008
Passenger cars	866,096	960,213	980,261	1,014,122	1,045,183

Number of cars and inhabitants - on 31st December.

Source: SORS

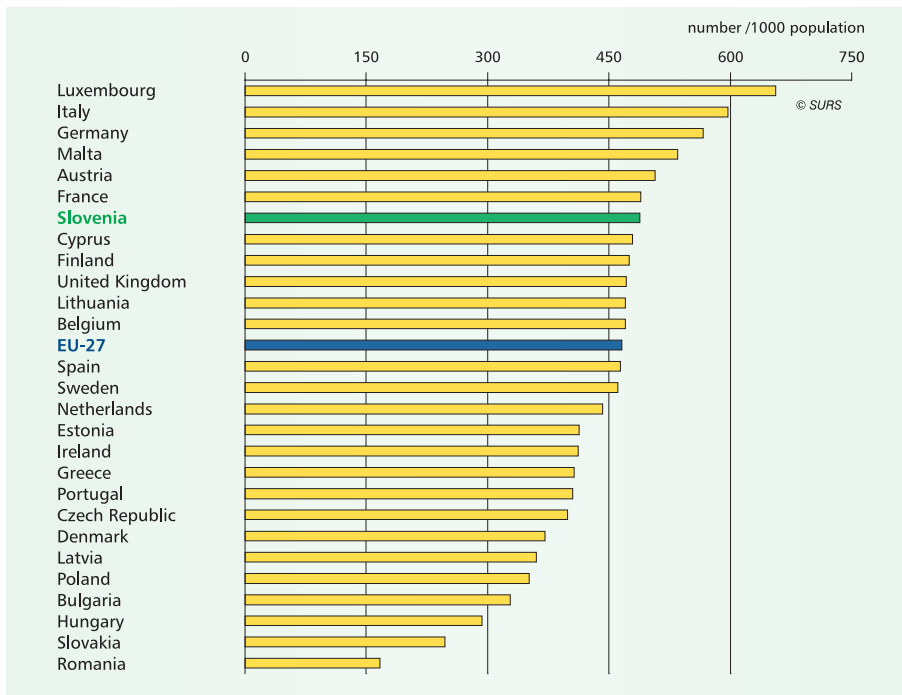
- In the 2000-2008 period the number of registered passenger cars per 1000 population in Slovenia increased by 18.2%. The annual growth intensity in the same period did not exceed 3%.
- In 2008, 514 registered passenger cars per 1000 population were recorded in Slovenia, which means that at annual level the motorization rate increased by almost 3%.

TRANSPORT

MOTORIZATION RATE OF PASSENGER CARS

EU-27

Chart 34: Number of passenger cars per 1000 population, European comparison, 2006



Source: Eurostat

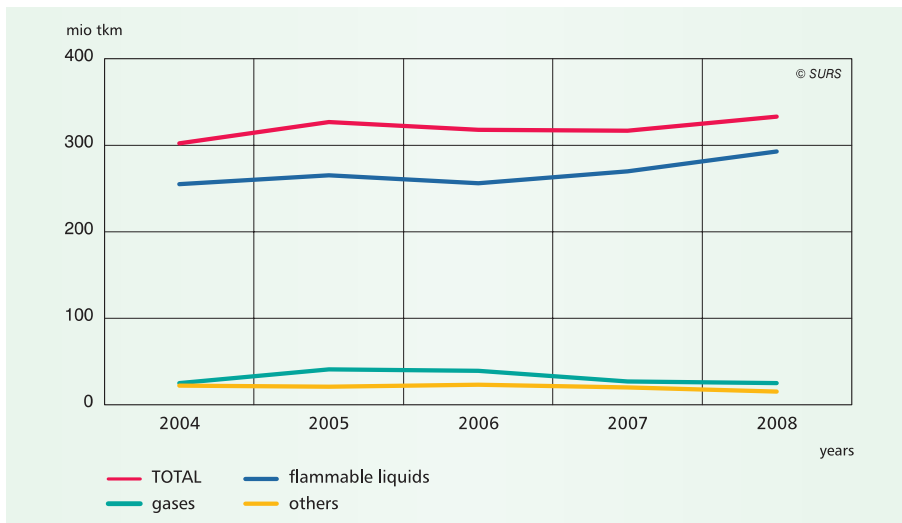
- According to Eurostat data, the motorization rate for the EU-27 in 2006 was 466 passenger cars per 1000 population, which corresponded to a 5% increase since 2002.
- Among EU Member States the highest motorization rates were recorded in Luxembourg and Italy with 656 and 597 passenger cars per 1000 population, while Romania had the lowest motorization rate with 167 passenger cars per 1000 population.
- Over half of the EU-27 Member States exceeded the EU-27 average motorization rate, including Slovenia in which the rate was 4.7% above the EU-27 average.

TRANSPORT

RAILWAY TRANSPORT OF DANGEROUS GOODS

Slovenia

Chart 35: Railway transport of dangerous goods, Slovenia, 2004-2008



Source: SORS

Table 18: Railway transport of dangerous goods, Slovenia, 2004-2008

	2004	2005	2006	2007	2008
Goods in 1000 t	1,549	1,594	1,555	1,507	1,605
Transport in mio tkm	302	327	318	317	333

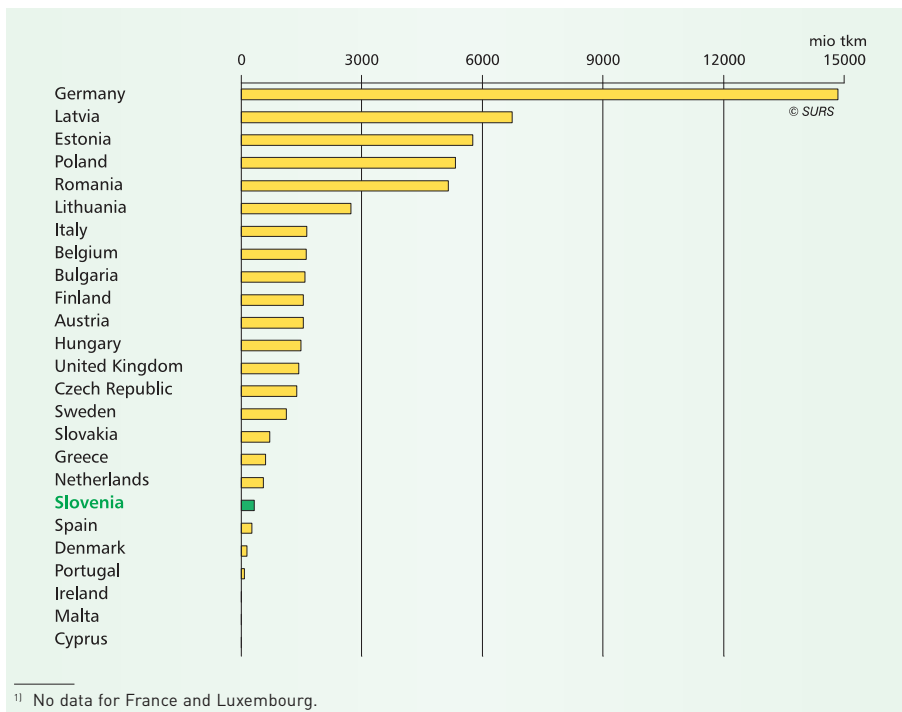
Source: SORS

- Railway transport of dangerous goods appeared to be very diverse. In terms of million tkm, rather steep increases and decreases in transport were observed between particular years. In 2008 railway transport of dangerous goods increased by 5%, amounting to 333 million tkm and 1.6 million tonnes, respectively.
- In the total structure of dangerous goods transported by railway the largest share was presented by flammable liquids (above 85%) and gases (above 8%), while all other goods (flammable solid substances, oxidising substances, corrosives, radioactive material, substances liable to cause infections, etc.) presented a rather negligible share.

TRANSPORT

RAILWAY TRANSPORT OF DANGEROUS GOODS

EU-27

Chart 36: Railway transport of dangerous goods, European comparison¹⁾, 2007

Source: Eurostat

■ As far as the volume of railway transported dangerous goods is concerned, the leading countries in 2007 were Germany (14,837 million tkm), Latvia (6,738 million tkm) and Estonia (5,752 million tkm). The EU-27 average has not been presented, because data for Luxembourg and France were not available, while Cyprus and Malta had no railway transport. Regarding the volume of dangerous goods transported, with 317 million tkm Slovenia ranked 19th among 25 countries for which data were publicly available.

DEFINITIONS

AIR

Emission is a discharge of particulate gaseous or soluble waste material / pollution into the air from a polluting source.

Greenhouse Gas Emissions are gases in the atmosphere which restrain thermal radiation of the Earth: carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF₆).

Tropospheric Ozone Precursors are substances that contribute on formation of tropospheric ozone: nitrogen oxides (NO_x), carbon monoxide (CO), methane (CH₄), nonmethane volatile organic compounds (NMVOC).

Particles are mixture of solid and liquid particles suspended in the air: primary PM₁₀, Particulate Matter precursors: nitrogen oxides (NO_x), sulfur dioxide (SO₂), ammonia (NH₃).

WATER

A **water resource** is a source of water that is collected for public water supply or for the technological process and cooling in enterprises. Water resources are: groundwater of larger aquifers, springs of groundwater, springs of groundwater with surface water inflow, running waters, natural lakes, artificial lakes, run-off rain water and artificial recharge.

The **primary water supply network** consists of pipelines from the pumping or drawing stations to the secondary waterworks network and pipelines between individual residential or other areas.

The **secondary water supply network** is used for direct linking of users in an individual residential, industrial or other area.

Fresh water is drawn from water resources in its natural state or is processed by the usual methods (coagulation, filtration, disinfection).

Drinking water must conform to regulations of Rules on drinking water (OJ RS, No. 19/2004, 35/2004, 26/2006, 92/2006, 25/2009) on the cleanliness of water in terms of microbiological, physical, chemical and radiological content, pesticides and poisons. These regulations prescribe a level of cleanliness of water intended for supply as public drinking water or water for the production of food intended for sale.

Waste (polluted) water is water which is of no further immediate value to the purpose for which it was used or in the pursuit of which it was produced because of its quality, quantity or time of occurrence. Waste water is after use or as atmospheric precipitation discharged into public sewage or waters. Waste water is a mixture of domestic, industrial/process or drainage wastewater.

Sewage system consists of a network of feeders, channels, gutters and other equipments for draining waste water which are connecting with the sewage network and from which drainage of waste water from buildings and drainage water from roofs and from hardened, paving or other covered area is assured.

Treatment plant is a device for treatment of waste water which reduces or eliminates water pollution. Treatment plants are urban, industrial or independent treatment plants.

DEFINITIONS

Primary treatment is treatment of (urban) waste water by a physical and/or chemical process involving settlement of suspended solids, or other process in which the BOD₅ of the incoming waste water is reduced by at least 20% before discharge and the total suspended solids of the incoming waste water are reduced by at least 50%.

Secondary treatment is treatment of (urban) waste water by a process generally involving biological treatment with a secondary settlement or other process, resulting in a BOD removal of at least 70%, a COD removal of at least 75% and the total suspended solids of the incoming waste water are reduced by at least 90%.

Tertiary treatment is treatment (additional to secondary treatment) of nitrogen and phosphorous and/or any other pollutant affecting the quality or a specific use of water. In addition to requirements for secondary treatment, this treatment includes nitrogen removal of at least 70% and/or phosphorus removal of at least 80%. Tertiary treatment is additional treatment of substances that remain after secondary treatment. This improved treatment is necessary for sensitive areas of watercourses.

WASTE

Waste is any material or object from one of the groups of waste of the List of Waste, which the causer or other person who possesses it, removes, intends to or must remove it.

Substances which are emitted in the air and materials, which are discharged to the water or to the sewage system, are not considered to be waste.

Municipal waste is waste from households, as well as other waste from production, trade, service or other activity, which, because of its nature or composition, is similar to waste from households.

Hazardous wastes are waste which has one or more of dangerous characteristics.

Waste oils, oxides, salts, acids, lye, concentrates, colours, lacquers, bitumen, agrochemical and pharmaceutical preparations, special waste from hospitals and other organic or inorganic hazardous waste are considered to be hazardous waste.

Hazardous wastes are classified by the Decree of waste management (OJ RS, No. 34/08) in the List of Waste together with other waste and have asterisk behind the number of waste classification.

List of Waste (LoW) includes non-hazardous and hazardous waste classified by proper group with regard to source of waste formation. Every type of waste has precise definition of name and proper classification number of waste.

Waste recovery is designed for beneficial use of waste or waste components, comprising first of all recycling, reuse, composting, use of waste in fuelling devices and industrial ovens, and use of waste for fuel generation. Incineration of waste and other thermal procedures designed for waste disposal are not considered to be waste recovery.

Waste disposal is an operation aimed at final treatment of waste that cannot be recovered, comprising mostly different waste processing procedures and waste land filling.

INVESTMENT FOR ENVIRONMENTAL PROTECTION

End-of-pipe investment (Pollution treatment investment) are purposed for better methods, technologies, processes or equipment designated for collecting or removing pollution and pollutants (e.g. air emissions, waste depositing effluents), treating and disposing

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of pollutants and regular measuring the level of the pollution (specially end-of-pipe as e.g. emission filters, wastewater treatment plants, collecting water and waste management).

Investment in integrated technologies (pollution prevention investment) are purposed for new or modification of existing methods, technologies, processes or equipment designated to prevent or reduce amount of pollution created in the production process and thereby associated releases of pollutants (reducing environmental impact).

Investment for environmental protection in industry is all the investment for environmental protection from fields of activity C, D, E under NACE Rev. 1.

Gross domestic product (GDP) is the most important national accounts aggregate and the most extensive measure of total economic activity. Three approaches are used to calculate it: - production approach, which measures GDP as the sum of value added of residential production units at basic prices and net taxes on products and services, - expenditure approach, which measures GDP as the sum of final consumption expenditure, gross capital formation and the difference between export and import, - income approach, which measures GDP as the sum of primary income distributed to residential production units.

ENERGY

Energy intensity is the ratio of energy quantity (total primary energy supply or total final consumption) and gross domestic product at constant prices. On the primary side the indicator is energy supply/GDP on the side of final energy consumption the indicator is final energy consumption/GDP

Energy dependency is the ratio of net imports (import-export) and total primary energy supply. It measures the extent to which the country relies on imports to meet its energy needs.

Renewable sources and wastes comprise solid biomass (wood, wood wastes, other solid renewable wastes), biogas, industrial and municipal wastes.

Total primary energy supply is made up of indigenous production + imports - exports - international marine bunkers + stock changes

Gross electricity generation is the generation on the generator of the power plant. After subtraction of the own use the power plant it is net generation.

Tonne of oil equivalent (toe) expresses the amount of heat equivalent to the heat of combustion of one tonne of oil. Toe is accounting unit which is used for expressing energy use in energy balances. 1000 toe = 41,868 TJ

TRANSPORT

Motorization rate relates to passenger cars ownership, expressed by the number of passenger cars per 1000 inhabitants (EEA, 2002).

Number of passenger cars per 1000 inhabitants. The number of passenger vehicles and the number of inhabitants on 31st December are taken into account. Special purpose passenger cars are excluded...

Passenger car relates to a road motor vehicle, excluding motor-bicycles, intended for the carriage of passengers and designed to seat no more than nine persons (including the driver). The number of passenger cars is defined as the number of country's ve-

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icles, registered on the selected day and allowed to use roads, open for public transport (SORS 2004).

Motorway network is a network comprising motorways and expressways with divisible carriageway.

Tonne-kilometres (tkm) are the aggregate product of the quantity of goods multiplied by the distances over which they have been conveyed.

METHODOLOGICAL EXPLANATION

To ensure comparability, statistical data that refer to periods prior to 2007 have been recalculated and are published by Eurostat for all EU-27 Member States.

ABBREVIATIONS

BDP	gross domestic product
EARS	Environmental Agency of the Republic of Slovenia
OJ RS	Official Journal of the Republic of Slovenia
SORS, SURS	Statistical Office of the Republic of Slovenia
2002 Population Census	Census of Population, Households and Dwellings in the Republic of Slovenia, 2002

UNITS OF MEASUREMENT

EUR	Euro
GWh	gigawatt-hour
kg	kilogram
kgoe	kilogram of oil equivalent
km	kilometre
m ³	cubic metre
mio	million
NMVOC	nonmethane volatile organic compounds
PM ₁₀	particulate matters
t	ton
tkm	ton kilometre
toe	tonne of oil equivalent
%	percentage

LIST OF COUNTRIES: NAMES AND ABBREVIATIONS (ISO 3166)

Country name	Abbr.	Country name	Abbr.
EU-27, TOTAL	EU-27	Latvia	LV
Austria	AT	Lithuania	LT
Belgium	BE	Luxemburg	LU
Bulgaria	BG	Malta	MT
Cyprus	CY	Netherlands	NL
Czech Republic	CZ	Poland	PL
Denmark	DK	Portugal	PT
Estonia	EE	Romania	RO
Finland	FI	Slovakia	SK
France	FR	Slovenia	SI
Germany	DE	Spain	ES
Greece	GR	Sweden	SE
Hungary	HU	United Kingdom	UK
Ireland	IE		
Italy	IT	Croatia	HR

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- <http://www.stat.si/pxweb/Database/Ekonomsko/Ekonomsko.asp>
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- <http://epp.eurostat.ec.europa.eu/portal/page/portal/energy/introduction>
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 - http://www.stat.si/eng/novica_prikazi.aspx?id=2458
 - http://www.stat.si/eng/novica_prikazi.aspx?id=2643

HOW TO OBTAIN STATISTICAL DATA AND INFORMATION?

- **on Statistical Office's website**

www.stat.si

- **via mail, phone, fax and e-mail**

address: Statistical Office of the Republic of Slovenia

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fax: +386 1 241 53 44

answering machine: +386 1 475 65 55

e-mail: info.stat@gov.si

- **by ordering statistical publications**

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- **by visiting the Information Centre**

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