2010 PROGRESS REPORT ON THE IMPLEMENTATION OF THE NATIONAL SUSTAINABLE DEVELOPMENT STRATEGY FOR THE PERIOD 2009 – 2017

INTRODUCTION

The second Progress Report on the Implementation of the National Sustainable Development Strategy for the period 2009–2017 (hereinafter: the Strategy) has been prepared on the basis of the Report on the implementation submitted by the authorized institutions, and in cooperation with the experts which have been working on the preparation of the Strategy and the Action Plan for its implementation. The data relating to values of outcome indicators of the sustainable development in the Republic of Serbia in 2010 are official statistical data, gathered from any available sources. In some cases, the dynamics of monitoring a specific number of indicators does not match the envisaged dynamics of reporting on the progress of Strategy implementation. For the indicators which are not being monitored by the official statistics, the data obtained from other sources have been used. During the period between the two reports, and in cooperation with the Statistical Office of the Republic of Serbia and other institutions, monitoring of certain indicators whose values were not available during the process of preparing the first Report, have been carried out.

The Strategy itself provides for annual reporting on the progress of its implementation. The first Report was written in 2009, defining the basic values for monitoring the changes in the Republic of Serbia, on its way towards the sustainable development. The values of the outcome indicators given in the first Report represent the initial values, against which the progress of the Strategy implementation is evaluated each year.

Sustainable development represents the general direction and orientation of the Republic of Serbia, and the tendency towards creating better living conditions through balancing social and economic factors and environmental protection factors. The Strategy was adopted on 9th May 2008 ("Official Gazette of the Republic of Serbia", no. 57/08). Its goal is to achieve the balance between the three "pillars" of the sustainable development, which are as follows: knowledge-based economy, social and economic development and environmental protection, and natural resources. The Strategy defines the following national priorities:

- European Union (EU) membership;
- Developing competitive market economy and balanced economic growth;
- Developing human resources and the rise in employment rate;
- Developing infrastructure and equitable regional development;

- Protecting and improving the environment and a rational utilisation of natural resources;

The second Progress Report on Strategy implementation shows evident and significant improvement in creating the strategic, legislative and institutional framework as the necessary elements for achieving the aims of sustainable development. During the forthcoming period, however, it is still necessary to strengthen the institutional and administrative capacities for implementing the Strategy, as well as to establish the new regulations, strategies and plans. Infrastructure development in the field of environmental protection has started, but it still represents a great challenge, due to the lack of financial resources and technical documentation. The global economic crisis has taken its toll, and the economy is slowly recovering.

During 2010, a large number of activities, projects and measures envisaged by the Action plan of the Strategy were initiated and partially or fully realized. The measures and activities which were planned to be, for the most part or entirely, financed from the budget, could not be, in most cases, realized, due to the consequences of the global economic crisis. A great number of activities, however, has been carried out mostly as a part of the regular activities of the administrative bodies, which is why they cannot be regarded solely as the result of the efforts of implementing the Strategy and the orientation of the Republic of Serbia towards the sustainable development, while in some areas department priorities are, to a great extent, the same as the ones defined by the Strategy. There is still not enough coordination between different departments.

Based on such conclusions from the Report, and on the overall status of the progress made in the Strategy implementation in 2010, the recommendations have been given regarding the priorities in its further implementation, for the purposes of the operationalisation and stronger orientation towards the sustainable development. These priorities would be:

- increasing the employment rate and stopping the trend of overall poverty rise, while at the same time reducing the regional inequality and securing the greater social inclusion;
- expanding and strengthening the so-called "green economy" as an important element of the sustgainable development of the economy and society;
- increasing the energy efficiency on all the levels and reducing the energy intensity in many sectors, including industry, energy, traffic, agriculture, public utility services, housing, etc.;
- reducing the overall dependency of the economy and society on fossil fuels (decarbonization) and getting actively involved in the global efforts to protect the climate from antropogenic changes;
- improving the ways of dealing with the waste and the liquid waste, and developing the appropriate infrastructure; and
- the systematic introduction of the sustainable development education into the educational process.

The abbreviations used in this text:

AP – Autonomous Province;
GDP – Gross Domestic Product;
BOD-5 – Biologic Oxygen Demand in 5 days;

UE – University education
GINI – Generalized Inequality Index
GHG – Greenhouse gasses
DALY – Disability Adjusted Life Year
DSL (ADSL) – Digital Subscriber Line (Asymmetric Digital Subscriber Line)
EU –European Union
EUR – Euro
EFAS – European Flood Alert System
IBA – Important Birds Area
IEA – International Energy Agency
IPA – International Plants Area
IUCN – International Union for Conservation of Nature
FPF – Financial Provisioning for Families
MI – Ministry of Interior
MWe – electric power unit
NO_x – Nitrogen oxide
OECD – Organization for Economic Co-operation and Development
ODA – Official Development Assistance
PEC – Primary Energy Consumption
PPP – Purchasing Power Parity
RHCI – Republic Health Care Institution
RID – Republic Institute for Development
SORS – Statistical Office of the Republic of Serbia
FDI – Foreign Direct Investment
WHO – World Health Organization
SEPA – Serbian Environmental Protection Agency
toe – tonne of oil equivalent
UNCCD – United Nations Convention to Combat Desertification
UNDP – United Nations Development Programme
UNESCO – United Nations Educational, Scientific and Cultural Organization
UNFCCC – United Nations Framework Convention on Climate Change
UNICEF – United Nations Children's Fund
UN – United Nations
USD –US dollar
HCFC – hydro chlorofluorocarbons
HDI – human development index
CDM – Clean Development Mechanism
CLC – Corine Land Cover
CO_2 – carbon dioxide
CPI – corruption perception index

1. POVERTY

1.1. Lack of income

Percentage of population under the national poverty line

The decline in economic activities, the stop put to the increase in the number of employees and the level of income and subsequent rise in unemployment rate in the

Republic of Serbia, caused by the economic crisis, led to the increase in the number of the absolutely poor during the period 2009 - 2010. The estimated population of the Republic of Serbia which lived below or on the poverty line in 2010 is nearly 650, 000[1], while the number of the unemployed rose to nearly 600,000. Following the rise in the absolute poverty rate in 2009 compared to 2008 from 6.1% to 6.9%, this trend also continued in 2010. The poverty line for the first six months in 2010 was 8,544 RSD per month per expenditure unit (Statistical Office of the Republic of Serbia, *Poverty in the Republic of Serbia 2008–2010*). Monitoring the trend of the absolute poverty indicates that, in this way, the poverty rate in the Republic of Serbia returned to the level from 2006.

According to the absolute poverty estimations, the most vulnerable was the population of the rural areas, especially in central Serbia, children up to 14 years of age, uneducated, unemployed and inactive persons. Huge regional differences in poverty are in line with the existing differences in regional economic development.

The period 2009–2010 in the Republic of Serbia is marked with the gradual transition from the concept of poverty reduction to the concept of social inclusion, whose goal is to eliminate the cause of poverty, secure the adequate level of living standard and create the conditions for active participation of the population in economic, social and cultural life. Accordingly, Laeken indicators, whose aim is to monitor the social inclusion more closely, are being monitored in accordance with the monitoring systems in the European Union. According to this data, poverty risk rate dropped to 17.7% in 2009.

It is estimated that 1% of the population of the Republic of Serbia in 2010 is exposed to multiple deprivation, while additional 4% is vulnerable to the multiple deprivation. The deprivation depth (deprivation intensity) is 40%.

Gender Wage Ratio

In 2009, the average earnings of women in Serbia accounted for 96.5% of the average earnings of men in the same year (Statistical Office of the Republic of Serbia, 2010). The average salary of men in 2009 amounted to 48,197 RSD, while the average salary of women was 46,489 RSD. The trend of reducing the difference between earnings of men and women, recorded in 2008, when the average earnings of women were 95.2% related to the average earnings of men, is continued. Increase in the absolute poverty rate during the period of economic crisis did not reflect badly on the average women's earnings to average men's earnings ratio, which indicates that the poverty increase in the Republic of Serbia in the previous period was not gender related and that it still cannot be associated with gender inequality.

Besides, in the Republic of Serbia, there is still a significant difference between men and women with respect to their position in the labor market, which is to a great extent the result of the traditional employment distribution, in certain departments and according to different levels of education. There is almost no difference between average earnings of men and women having a university degree, while the greatest difference is with those who have the lowest qualification levels. The segregation index in 2010 was 23.32.

[1] At the time when the Report was being written, no official data of SORS for 2010 were available.

1.2. Inequality

GINI coefficient

In 2010, the GINI coefficient was **0.282** (Republic Institute for Development, 2011). Compared to 2009, the value of GINI coefficient dropped by 0.037, which represents a significant change, i.e. decrease of inequality among households. Impact of the economic crisis and the deterioration of all the employment and poverty indicators brought about the "poverty equality" increase. In this way the Republic of Serbia is coming closer to the countries which traditionally have a low level of GINI coefficient (Scandinavian countries and some of the most developed countries of Western Europe), but in a way in which the economic performance of "the rich" is decreased, instead of lowering the level of poverty.

HDI – Human Development Index

In 2010, Human Development Index (HDI) in the Republic of Serbia was **0.735**,[2] which ranks Serbia in the group of countries having high level of human development, i.e. the 60th out of 169 ranked countries.[3] Between 2005 and 2010, human development index for the Republic of Serbia grew from 0.719 to 0.735, which represents the average annual growth of 2%, while at the same time the average global annual growth of human development was 0.5%. Human development index in the Republic of Serbia is higher than the average index value for the European and Central Asian countries (0.717).

Table 1.1. Human Development Index changes in the Republic of Serbia for the period 2006 – 2010

Year	Human Development Index
2006	0.821
2007	0.826
2008	0.830
2009	0.733
2010	0.735

Index of regional inequality in human development

Regional inequality in economic and social development of the Republic of Serbia is on the increase. Ratio between the most and the least developed local government units, with regards to the level of the economic growth in 2008, was **10 : 1** (Government, *First National Report on Social Inclusion and Poverty Reduction in the Republic of Serbia,*2011), which represents a significant increase compared to the previous year (6.9 : 1). Regional inequality in development is more evident in the southern than in the northern parts of the country, as well as in rural compared to

[2] Due to the transition to the new methodology of calculating human development index in the UNDP Human Development Report (*United Nations Development Programme*– UNDP) in 2010, human development index values are lower than the values stated before 2010.
[3] United Nations Development Programme, *Human Development Report 2010*

urban areas. Out of 150 municipalities, 46 are extremely undeveloped, 40 of which fall into the category of devastated municipalities, the ones which are below 50% of the national economic growth average. Apart from the level of earnings and employment, regional inequality is to a great extent manifested through the quality of living conditions, infrastructure (road networks, telecommunications, housing conditions), health indicators and education level of the population.

1.3. Assistance to the poor

Population covered by state aid and support programs

During the first eight months of 2010, the financial support was used, on a monthly basis, by approximately 66,664 families, i.e. 168,121 users. The number of families which were granted the financial provisioning went up during the crisis period in 2009 compared to the two previous years, and such trend was continued in 2010 as well (11% rise compared to 2009). For that purpose, 5.1 billion RSD were paid from the budget funds, during the first eight months of 2010. Along with the increase in the number of beneficiaries, the number of requests for the financial provisioning of families and for the lump sum financial aid also rose, as well as the number of users of the lump sum financial aid in almost all the municipalities in the Republic of Serbia.

In 2010, the allowances for providing care and assistance to other persons were granted to 49,208 individuals, accounting for the monthly amount of 7,400 RSD in December. This represents an increase of 5.3% compared to 2009.

During the first eleven months of 2010, parents' allowance was granted to the average number of 69,200 beneficiaries per month, for 70,169 children, which is a 14.2% increase in the number of beneficiaries compared to 2009. The right to the compensation earnings during maternity leave, absence from work for childcare and absence from work for special childcare was exercised by 33,898 individuals.

Child allowance was granted to the average number of 227,160 beneficiaries per month, for 435,679 children, which is 12.7% more than in 2009. Average monthly amount paid to the child allowance users was 877.7 billion RSD, which represents an increase of 28.1% compared to 2009.

1.4. Living conditions

Percentage of built social housing units compared to the total number of finished housing units

Housing quality and conditions of socially vulnerable and sensitive groups is still inadequate. Even though the Social Housing Law was adopted in 2009, there are still no data gathered on the number of social housing units built in the Republic of Serbia. Ministry of Environment, Mining and Spatial Planning announced that the construction of 1,663 social housing units in 12 cities in the Republic of Serbia (Zaječar 114, Zrenjanin 100, Kikinda 60, Kragujevac 400, Kraljevo 100, Kruševac 100, Niš 300, Pančevo 64, Pirot 65, Smederevo 150, Užice 80, Čačak 100) will only start in summer 2011. Total value of the project amounts to 60 million EUR, of which 32 million EUR will be paid by means of loans provided through the Council of Europe Development Bank, while the remaining funds will be paid by the State and

local governments. The Ministry has envisaged the construction of 626 housing units for the non-profit lease, and 1,007 housing units for the non-profit sale. Realization of this project within the next three years should contribute to the further development of the social housing system in the Republic of Serbia on the basis set out in the Social Housing Law.

In 2010, the housing issues of 1,550 families of refugees and internally displaced persons were resolved, by means of constructing the housing units, providing construction materials for finishing the building of new houses and the reconstruction of the old ones, repurchasing houses and lots and building prefabricated houses. 16 buildings with 188 housing units for refugees and internally displaced persons (total no. of 541 persons) have been moved into, as well as 46 housing units intended for socially vulnerable citizens from the local community. Based on a special program, since 2003, the city of Belgrade has built a number of housing units, 237 of which have been given for temporary use to the individuals with social needs.

Eight cities in the Republic of Serbia have created local housing strategies which envisage the measures and actions to be taken in the process of resolving housing problems of the socially vulnerable citizens. Local Housing Agencies have been founded in eight municipalities for the purposes of executing the local housing policy and creating and running the municipal housing trust fund.

2. GOVERNANCE

2.1. Corruption

CPI – Corruption Perception Index

In 2010, *Corruption perception index* – CPI in Serbia stayed at the same level (3.5) as in the previous year, which however resulted in better ranking of the Republic of Serbia on the list of countries, moving up from 83rd to 78th place (out of 178 ranked countries). Value of the Corruption perception index in the Republic of Serbia is below the world's average. Among the neighboring countries, Hungary (4.7), Macedonia (4.1), Croatia (4.1), Montenegro (3.7), Romania (3.7) and Bulgaria (3.6) have a higher Corruption perception index, while only Bosnia and Herzegovina (3.2) and Albania (3.3) have lower values than the Republic of Serbia. Serbia is still far below the index value 5.0, the corruption perception index value considered to be a tolerable level of corruption. Although the efforts were made with respect to dealing with the corruption institutionally, no improvements were recorded in the previous year.

Degree of general trust of citizens

So far, there has been no survey on the degree of general trust of citizens, such indicator data being accordingly unavailable.

2.2. Crime

Number of recorded criminal acts of violence per 100,000 inhabitants

According to the data provided by the Ministry of Interior of the Republic of Serbia (the most significant results of MI of the Republic of Serbia in 2010) the total number of criminal acts on the territory of the Republic of Serbia went down by 1,213 criminal acts in 2010 compared to the number recorded in 2009 (from 101,614 to 100,401). The number of general criminal offences was also reduced from 89,419 in 2009 to 88,416 in 2010. Total crime rate was reduced in the area of the major city centres, such as Belgrade (287 criminal acts less), Niš (around 4% less) and Kragujevac (2% less), which is a significant fact given that the crime in the region of these three police administrations makes up 40% of the total crime in the Republic of Serbia.

The number of homicides (crimes against life and body) went down by 5.8% (from 4,668 to 4,395 criminal acts). There was a decline in the number of murders (from 77 to 55), first-degree murders (from 63 to 59), first-degree attempted murders (from 46 to 29) and serious bodily injuries (from 1,455 to 1,399). The number of attempted murders is higher (went up from 167 to 176). When it comes to juvenile deliquency, a slight decline in the number of criminal acts commited by minors is recorded (from 7,639 to 7,517). What worries is the fact that the number of crimes against life and body commited by the minors is on the increase – murders (from 2 to 5), attempted murders (from 15 to 17), first-degree murders (from 3 to 4) and first-degree attempted murders (from 3 to 4), while the number of crimes against property commited by the minors is lower than in 2009.

2.3. Efficiency of public administration

Degree of e-government efficiency

There is no data available for determining this indicator.

3. HEALTH

3.1. Mortality

Mortality of children under the age of 5

According to the data provided by the United Nations Children's Fund (UNICEF), in 2009, mortality rate in the Republic of Serbia of children under the age of 5 dropped to 7 deaths per 1,000 live births, compared to 7.8 in 2008. Thereby, the reducing trend is maintained in the first decade of 21st century. Even though it is still below the European Union average, when it comes to mortality rate of children under the age of 5, the Republic of Serbia can be considered as a country with the highly developed healthcare system in this field.

The mortality rate of the infants in the Republic of Serbia has a long-term dropping tendency (Statistical Office of the Republic of Serbia, 2010). There are, however, significant differences in regional distribution of this parameter, which are not influenced by the degree of development. In three districts, the mortality rate of the infants is above 10, and in Šumadija district it has the highest value (13.8). In contrast, in South Bačka district, the mortality rate of the infants is the lowest and

amounts to 3.5. Comparing to the neighboring countries, in 2009, Serbia had the highest mortality rate of infants.

Healthy life expectancy

Healthy life expectancy in the Republic of Serbia was 65 years of age in 2007 (64 years for men and 66 years for women), while in 2008, it was 73.3 years of age. This is less than in Croatia (68), Bosnia and Herzegovina (67) and Macedonia, and at the same level as in Romania and Montenegro.

The life expectancy for live births in the Republic of Serbia was 74.06 years of age (71.11 years for men and 76.4 years for women) in 2009. Although the trend of the life expectancy growth in the Republic of Serbia is also continued in 2009, the life expectancy in Serbia is constantly lagging behind, compared to the EU-27 countries. In 2009, life expectancy in EU-27 was 81.7 years of age for women (5.3 longer than in the Republic of Serbia) and 75.7 years of age for men (4.6 years longer than in the Republic of Serbia).

Life Expectancy of people with disability (DALY indicator)

In the period between the two reports, no new surveys regarding these indicators were conducted.

3.2. Provision of health care

Percentage of population having access to primary health care

The percentage of citizens having mandatory health insurance in the Republic of Serbia was 92.87% at the beginning of 2010. Within the primary health care services, in the field of general medicine, occupational medicine, health care of children, schoolchildren, youth and women, and within the specialized consulting health care, the total number of 58,508,394 visits to the doctor's (7.99 visits per capita) and 45,507,569 visits to the nurses – technicians, was performed. The total number of visits to the doctor's in the aforementioned fields of health care in 2009 is by 3.8% higher than in 2008 (*Health Statistical Yearbook of the Republic of Serbia*, Institute of Public Health of Serbia "Dr Milan Jovanović Batut", 2009). Average number of citizens per one doctor varies from 651 in children's health care to 5569 in women's health care.

Percentage of women using any of the modern birth control methods

In the period between the two reports, no new surveys regarding these indicators were conducted.

3.3. Health status and risks

Smoking prevalence among children between 13 and 15 years of age

In the period between the two reports, no new surveys regarding these indicators were conducted.

Smoking prevalence among adults above 20 years of age

In the period between the two reports, no new surveys regarding these indicators were conducted.

Number of suicides per 100.000 citizens

In 2009, there was an increase in the number of suicides in the Republic of Serbia (from 1290 in 2008 to 1376 in 2009) for the first time after 2001, by which the decreasing trend that started in 2005 was stopped. 892 of these suicide cases were recorded in Central Serbia, 484 in Vojvodina, while 245 suicides were recorded in Belgrade. The most vulnerable was the population older than 55 years of age. According to the number of suicides, the Republic of Serbia ranks 13th in the world, with 20 cases per 100,000 citizens, while in Vojvodina the situation is even more alarming (22 cases per 100,000 citizens).

4. EDUCATION

4.1. Level of education

Percentage of population having university education

After the upward movement in 2009, compared to 2008, there was a drop in the share of population having university degree in 2010 (both in terms of the overall population and the population above 15 years of age), where the share of the population having university education compared to the overall population is below the level recorded in 2008.

Table 4.1. Share of population having university education

Indicator	Value in %		
	2008.	2009.	2010.
University education / overall population	11.0	11.9	9.6
University education/ population above 15	13.1	14.1	13.9

Source: Republic Institute for Development, 2011.

This kind of downward movement is extremely alarming, and it reflects the current situation of the socio-economic development. Considerable decrease in the percentage of population having university education additionally lowers the already low level of the population education structure and reduces the capacity of the society to transform into the society based on knowledge and the one directed towards the sustainable development. It is especially disturbing that this downward movement did

not change its direction even after the establishment of a great number of private universities and vocational schools, which have significantly increased the number of possibilities for obtaining university degree, through a wider choice of schools.

4.2. Literacy

Adult literacy ratio

Information regarding adult literacy cannot be analyzed with any relevance, since the most recent available data are those collected at the last census in 2002, which means that they are outdated and insufficiently reliable. More recent or more detailed information which could be used for this parameter are not available.

According to the 2002 census, there were 232,925 illiterate persons above 10 years of age in the Republic of Serbia, i.e. 3.45%. Based on the gender structure, the share of men is far smaller and accounts for 1.08%, while there are 5.66% of illiterate women. In terms of the average age structure of illiterate persons, it is reported that majority of them are elderly, given that the average age of men is 57.22 and of women 69.72. This indicates that the illiteracy among female population is predominantly connected with older generations, while the younger women increasingly opt for regular education and therefore literacy. On the regional level, the illiteracy in Serbia is far more present in the Central Serbia (3.83%, with extremely high rate of 6.88% of illiterate female population), while in Vojvodina, 2.41% of the population above 10 years of age is illiterate.

4.3. Level of education of the population

Rate of enrollment at elementary and secondary schools

According to the statistical data in the Republic of Serbia, during the school year of 2008/09, pre-school and elementary school system comprised around 780,000 students, secondary education 283,000 and college and university education encompassed 235,000 of the population. The rate of enrolment at elementary schools was higher than in the previous school year (2007/08) and made up 98.53%. The rate of enrolment at secondary schools was also higher and amounted to 83.20%. Growing trend of enrolment at colleges and universities recorded by 2007 was not continued in the following 2008/09 school year, i.e. it was reduced by 0.7% in 2009 comparing to the previous year.

According to the 2010 survey, the educational structure of the overall population aged 15 and above is as follows: 3.2% without any form of education, 34.5% having elementary education and 48.4% secondary education. Therefore, the share of population having secondary education in the overall population aged 15 and above amounts to almost a half of the total number of citizens.

In Serbia, the share of population having finished secondary school amounts to 48.4% which is above the level of EU countries, but in comparison with some of the neighbouring countries it is considered as low. The average share of population having secondary education in 27 countries of the European Union is 44.6%.

5. POPULATION

During the previous year, there were no significant changes in demographic movements in the Republic of Serbia. In order to improve a bad demographic situation, it is necessary to bring about radical changes in the attitude towards birth, health care, but above all changes in the economy, feeling of overall security and life opportunities for the widest range of social classes. The focus should be on prevention, as far as health care is concerned, and in economy, on the rise in employment rate, while timely implementation of already adopted stimulating measures of the pro-birth policy, as well as their continuous development, should also be of great importance.

5.1. Population

Rate of increase of the total population

Demographic movements in the Republic of Serbia have been showing, for many years, the depopulation trend, together with an evident process of population ageing and the rising negative natural population growth. At the beginning of 2010, the estimated population of the Republic of Serbia was 7,306,677 (Statistical Office of the Republic of Serbia), representing a decrease by **0.38%** compared to 2009. The population drop was mostly connected with the negative natural population growth. The rate of natural population growth per 1000 persons was -4.6 ‰. This value was lower than the lowest rate value recorded in EU countries. In the same year, the natural population growth rate in EU amounted to 1 ‰.

Natural population growth was also negative in Central Serbia and AP Vojvodina: in Central Serbia it was -24,000 (-4.4 ‰), while in AP Vojvodina the indicator value was -9,700 (-5.0 ‰). Proper ratio of negative natural population growth can be analyzed at municipal level. In 2009, the negative or zero natural population growth was recorded in 157 out of 165 cities and municipalities.

Total fertility rate

Total fertility rate in the Republic of Serbia rose in 2009, compared to 2008, from 1.41 to 1.44 children per a woman in her fertile period (Statistical Office of the Republic of Serbia, 2010). The number of live births slightly went up, from 69,083 in 2008 to 70,299 in 2009, while the birth rate was higher by 0.2 per 1000 persons. The trend of decreasing fertility rate, recorded during the period from 2003 to 2007 was stopped, but the fertility is still by almost one third below the level required for the natural reproduction of population.[4] Although it is minimal, the fertility increase is consistent with the European, but also with the regional trends. In most Balkan countries, fertility rate is higher than in Serbia; it is moderately lower in Albania and Romania, while the lowest rate is recorded in Bosnia and Herzegovina (1.2 children per woman).

[4] The rate amounting to 2.1 provides the natural reproduction of population, the rate higher than 2.1 enables the population growth, while the rate lower than 2.1 results in the decrease in population.

On the other hand, mortality is on the increase, for the first time after 2005. The number of deaths rose by 1.25% compared to 2008. It is also disturbing that in 2009, for the first time after 2001, infant mortality rate went up (from 460 to 492).

On the regional level, total fertility rate is below 1.50 in the largest number of municipalities in the Republic of Serbia (118) regardless the size and socio-economic development. The lowest total fertility rate was recorded in the following municipalities: Gadžin Han (0.70), Lapovo (0.89), Žagubica (0.88) and Malo Crniće (0.91), while in Tutin (2.21) and Novi Pazar (2.09) total fertility rate values are above the level of natural reproduction of population.

Old-age dependency ratio

In 2009, there were 25.2 persons aged above 65 per 100 people of working age in the Republic of Serbia, which is still by 0.8% more than in 2001, which once again confirmed the rising trend in population ageing in the last couple of years, even though a slight drop in old-age dependency ratio was recorded during the same period of time. The share of children aged 0–14 in the overall population is constantly dropping (from 16% to 15% in the last decade). Similarly, the share of working age population (15–64), as a demographic frame from which the active population is formed, is continuously on the decrease in the Republic of Serbia.

For the first time in 2009, old-age dependency ratio in the Republic of Serbia (25.2) was slightly below the EU average. In 2009, the average old-age dependency ratio in EU-27 amounted to 25.6, i.e. it was by 0.4% higher than in the Republic of Serbia.

In 2009, the demographic ageing ratio (the ratio between old and young population) in the Republic of Serbia was 108.8, which indicated its growing trend, as well as the fact that the Serbian society is still very quickly and alarmingly growing older. It is common to consider the society with the demographic ageing ratio exceeding 40 as a society with an old population.

Indicators of internal migrations of the population

Although there are no available data of the official statistics on internal migrations, it is estimated that every year, since 2001, approximately 150,000 people, or on the average 2.7% of the working age population in the Republic of Serbia leave their former homes. These migrations are, to the greatest extent, related to the process of urbanization (the rate of urbanization rose up to 56% in 2009) and moving from the most undeveloped municipalities.

In 2009, the overall migration balance (the ratio between the number of immigrants and the number of emigrants) in the Republic of Serbia was, according to the estimates made by SORS, still positive (**5,433**, SORS). However, this estimated value is not realistic, since the official data do not comprise the largest number of emigrants who emigrate with their families without notifying the authorities of their departure. Deeper analysis of the unrepresentative type shows that the emigration trend in Serbia continues and that people who emigrate are mostly young and educated (First National Report on Social Inclusion and Poverty Reduction in the Republic of Serbia, 2011).

The research conducted in 2009 showed that the real potential for migration[5] in the Republic of Serbia is at the level of 0.5%, while the probable potential for migration[6] makes up 6%, i.e. more than 380,000 citizens. The potential migrants are young persons, most probably 15 – 24, but up to 39 years of age, of either sex. The higher their education level is, the stronger is their desire to emigrate – 24% of highly educated individuals as well as 33% of master or doctoral students who were questioned, are considering the emigration from the Republic of Serbia. The potential migrants are most likely pupils or students, unemployed or people employed in the areas other than production process. They have not started their families yet, but they do not live on their own. The reasons stated as crucial when it comes to emigration, are bad economic situation and disorganized social system (Pavlov, T., *Migration Potential of Serbia. Belgrade: Group 484,* 2009).

5.2. Tourism

Tourism turnover in major tourist regions and destinations

In 2010, according to the Statistical Office of the Republic of Serbia, around 2,000,597 tourists were reported in Serbia, i.e. 6,413,515 of overnight stays. The most visited cities were Belgrade, Novi Sad and Niš, and the most visited tourist destinations were: Vrnjačka Banja, Sokobanja, Zlatibor, Kopaonik, Tara, Divčibare, etc. Among cities, the highest number of tourist visits in 2010 was recorded in Belgrade – 589,456 (1,129,837 overnight stays), followed by Novi Sad – 92,620 (168,347 overnight stays). The most popular spas were Vrnjačka Banja with 146,246 tourists (559,549 overnight stays) and Sokobanja with 48,837 tourists (295,098 overnight stays). Of mountains, the most tourists and overnight stays were recorded on Zlatibor – 104,824 tourists (404,224 overnight stays), Kopaonik – 57,990 tourists (233,912 overnight stays), Tara – 51,007 tourists (160,760 overnight stays) and Divčibare – 28,935 tourists (117,215 overnight stays) – (Statistical Office of the Republic of Serbia, *Tourist turnover in the Republic of Serbia*, December 2010).

6. ECONOMIC DEVELOPMENT

6.1. Macroeconomic performances

GDP per capita

GDP (gross domestic product) rose by 1.8% in 2010. Such slow increase in GDP was caused by the still present effects of the global economic crisis (in 2009 GDP dropped by 3.5%, which was the first negative GDP trend in the last decade) and the unfinished process of structural reforms which should set the sound foundation for rapid and sustainable economic growth and development.

[5] Percentage of people considering the emigration from Serbia who have already applied for the residence permit in some other country.
[6] Percentage of people who are seriously thinking about emigrating from Serbia.

Table 6.1. GDP per capita

Development indicator	Unit	2001.	2002.	2003.	2004.	2005.	2006.	2007.	2008.	2009.	2010.
GDP per capita	*EUR*	1,723	2,162	2,338	2,556	2,736	3,174	4,002	4,500	3,945	3,901
GDP per capita (PPS)	*EU27=100*	21.1	25.4	25.8	28.9	31.4	32.7	33.5	34.6	37.0	-
GDP per capita (PPP)	*USD*	-	5,463	6,293	7,547	8,477	9,135	10,694	12,893	11,298	11,301
GDP growth	*Real growth*	5.6	3.9	2.4	8.3	5.6	5.2	6.9	5.5	-3.5	1.8

Source: Statistical Office of the Republic of Serbia, 2011.

Share of investments in GDP

In 2010, there was a new increase in the scope of undertaken investments, but their share in GDP (21.1%) still remained below the level reached during the period before the crisis (in 2008 – 23.8%). Even less favorable was the situation regarding the direct foreign investments (DFI) whose share in GDP was still constantly dropping in 2010 (4.1%) declining to the level recorded in 2004, which is considerably lower than the peak level, reached in 2006 (14.1%).

Table 6.2. Share of investments in GDP

Development indicator	*Unit*	2001.	2002.	2003.	2004.	2005.	2006.	2007.	2008.	2009.	2010.
Gross investments	*% GDP*	10.7	12.4	16.7	19.2	19	21	23.3	23.8	18.8	21.7
Direct foreign investments (DFI)	*% GDP*	1.4	3.1	6.9	4.1	6.1	14.1	6.2	5.3	5.1	2.9

Source: Statistical Office of the Republic of Serbia, 2011.

Internal and external debt

The unfavourable trends in the fields of production and employment affected the current liquidity in the national economy. More specifically, the high deficit as the outcome of insufficient budget refilling and the lack of fresh capital to finance the production, were made up by intensified foreign borrowings and increase in the public consumption deficit, which is shown in the following table:

Table 6.3. Internal and external debt

Development indicator	Unit	2001.	2002.	2003.	2004.	2005.	2006.	2007.	2008.	2009.	2010.
Current account deficit	*% GDP*	-2.5	-8.2	-7.2	-11.9	-8.8	-10.1	-16.2	-16.6	-7.2	-7.3
Foreign debt	*% GDP*	85.5	58.7	55.9	49.8	60.1	60.9	60.2	64.6	77.9	82.5

Source: National Bank of Serbia, 2011

Trends in retail price index

Negative trends are observed in all development indicators. The share of foreign debt in GDP increased from 77.9% in 2009 to 82.5% in 2010. The share of budget deficit in GDP rose in 2010, although at a slower rate than it was the case with the increase in 2009 compared to 2008, and the level it reached in 2010 was the highest in the last ten years. In 2010 current account deficit (in GDP %) stayed at the same level as in 2009, but it is still significantly below the value recorded in the pre-crisis period – in 2008 it accounted for 21.6% in GDP.

In 2010, the pressure was also put on the price stability, which can be seen from the double digit value of the inflation rate, amounting to 10.3% (inflation rate in 2009 was 6.6%).

Table 6.4. Inflation rate

Development indicator	Unit	2001.	2002.	2003.	2004.	2005.	2006.	2007.	2008.	2009.	2010.
Inflation (Dec/Dec)	*Growth rate*	40.7	14.8	7.8	13.7	17.7	6.6	11.1	8.6	6.6	10.3

Source: Republic Institute for Development, 2011.

6.2. Employment

Employment rate

Negative trends in the field of employment have continued, demonstrating how deep and powerful the economic crisis is. The employment rate dropped from 40.8% in October 2009 to 37.7% in October 2010. This would be, as shown in the following table, the second consecutive year in which the rate of employment is dropping, which could be interpreted as a reaction of mostly private employers to the decrease in business volume due to the crisis effects, as well as the attempt to cut down business expenses.

Table 6.5. Basic indicators of the market condition in the Republic of Serbia

Rates	October 2008. (%)	April 2009. (%)	October 2009. (%)	April 2010. (%)	October 2010. (%)
Unemployment rate among persons aged **15-64**	14.7	16.4	17.4	20.1	20.0
Employment rate among persons aged **15-64**	53.3	50.8	50.0	47.2	47.1
Unemployment rate among women aged **15-64**	17.3	18.1	19.1	20.9	21.2
Unemployment rate among young population, aged **15-24**	37.4	40.7	42.5	46.4	46.1

Source: Workforce survey, Statistical Office of the Republic of Serbia,

Unemployment rate

Unemployment rate in October 2010 rose by 2.6 percentage points compared to October 2009 and it was considerably higher than the average in European countries. As the ability of Serbian employers to influence the increase in business volume is rather limited, the primary crisis measure is to fire all the surplus employees, i.e. those employees whose absence would not impact the possibility of work assignments being carried out. This strategy of "cutting costs" can be defined as a defensive measure, as opposed to business expansion and growth, which would be the "active measures" for overcoming the crisis.

Unemployment rate among women

The unemployment rate among women follows the rising trend of the overall unemployment rate. More specifically, in October 2010 it was 20.4%, which accounts for an increase of 2 percentage points, compared to October 2009. However, some surveys show that there was an improvement regarding the employment of women having university degrees in the Republic of Serbia, not only quantitative, but also qualitative, in terms of providing them with better, more responsible and better paid jobs.

Unemployment rate among persons between 15 – 24 years of age

Particularly disturbing is the situation in the category of persons under 25 years of age, in which the unemployment rate in October 2010 amounted to 46.1%, which is by 3.6 percentage points higher than in October 2009. This is, in percentages, the highest increase recorded in any of the observed population categories. This piece of information is somewhat mitigated by the fact that young people having higher education find jobs more easily.

Unemployment per regions

The situation regarding the unemployment per regions confirms the positions that development in Serbia is not even. Although there is a considerable influx of population, Belgrade is developing much faster than other parts of the country.

Table 6.6. Labor market condition per regions, in October 2010

Region	Unemployment rate of the working age population 15-64 (%)	Employment rate of the working age population 15-64 (%)
Belgrade	16.0	50.7
Vojvodina	20.4	44.0
Šumadija and Western Serbia	21.0	48.4
Southern and Eastern Serbia	22.1	45.8
Kosovo and Metohija	...	...

Source: Workforce survey- October 2010, Statistical Office of the Republic of Serbia,

Serious problems in this field are also indicated by the fact that the Republic of Serbia has got the highest rate of long-term population unemployment (13.8% in October 2010) compared to EU countries (the average being 3.8%) and the neighboring countries. At the same time, the Republic of Serbia has a lower rate of unemployment of the population with elementary school education (3.2%) compared to the EU average (15.6%) and the neighboring EU countries Romania (6.9%), Slovenia (12.3%) and Croatia (12.8%). However, the rate of unemployment of the population with secondary school education (13.8%) is high, compared to EU countries (the average being 8.6%) and the neighboring countries. On the positive side, the Republic of Serbia has the lowest rate of unemployment of the persons with higher education, amounting to 2.6%, compared to other countries. In 27 EU countries, the average rate of unemployment of the population with higher education is 5.6%, while in Slovakia it amounts to 6.6%, and in Croatia it is as high as 8.8%.

6.3. Information and communication technologies

Number of active Internet users per100 inhabitants

In 2010, there were more than 2.4 million Internet users (55.9% of the overall population). 39.0% households and 96.8% businesses have Internet access. Compared to 2009, the total number of Internet users and the number of households and businesses having Internet access grew by 2.3%.

With regard to the Internet use, the Republic of Serbia is significantly lagging behind the average and behind most of the EU member states. In 2010, only 44% of individuals in Serbia used the Internet (EU-27 average being 71%). Similarly, the Internet usage in households amounted to 39%, while the EU average is 70%.

Although the overall number of Internet users went up (by 2.3 percentage points) and the trend of continuous enhancement of basic performances continued in 2010, as follows:

1) The share of quality broadband access to Internet was increased. Out of the total number of households, 27.6% has broadband Internet connection (by 4.7 percentage points higher than in 2009);
2) The share of modem access was reduced- 12 percentage points in households and 2 in businesses; and
3) The most obvious improvement was achieved in DSL (ADSL) Internet access (in both households and businesses the rate of increase was 9 percentage points) – the Republic of Serbia is still lagging behind in terms of the mode of Internet access compared to the EU member states (other than Romania).

In 2010, the structure of Internet users also changed: the share of students who use Internet rose to 95.1% (by 0.3 percentage points higher than in 2009), of the unemployed to 32.8% (9.6 percentage points higher) and of the others to 25.8% (2.3 percentage points higher), while only the share of employed persons using Internet dropped (to 58.2% – a drop by 5.1 percentage points). The usage of electronic services in public administration by the businesses which have Internet access was on the increase (by 1.5 percentage points compared to 2009), but the number of businesses which have a web-page and use the electronic business services in their work grew at a slower rate (compared to 2009, the growth was by 0.5 and 0.9 percentage points).

Number of mobile phone subscribers per 100 inhabitants

The number of mobile phone subscribers has not changed significantly compared to 2009, i.e. there are around eight million subscribers in the Republic of Serbia, as it was stated in the last year's report. The statements published in the media, which are based on the reports written by the mobile phone companies, are taken as a source of these information.

6.4. Research and development

Share of research and development costs in GDP

In 2009, 0.48% of GDP was appropriated, in total, for research and development, which is far below the average in most EU countries. Beside the appropriation being insufficient, the structure of funds is also unfavorable, since 0.38% are the budget funds, and only 0.10% are the funds taken from private sources. The trend comes as unfavorable as well, in comparison with 2008, because the appropriations from the budget rose by 2.1 percentage points, while the funds from private sources are reduced by 9.6 percentage points (which is an obvious consequence of the crisis).

Current rate and structure of the appropriations for research and development are pushing Serbia away from the goals set in the development strategy "Europe 2020", in which it is envisaged that the investment in research and development should amount to 3% of GDP, and that 2/3 of the funds should be taken from the private sources.

Table 6.6. Share of research and development costs in GDP(%)

	2005.	2006.	2007.	2008.	2009.		
					Total	Source	
						Public	Private
EU - 27	1.82	1.85	1.85	1.90	2.00	0.75	1.25
Bulgaria	0.49	0.48	0.48	0.49	1.86		
Czech Republic	1.41	1.55	1.54	1.47	1.53	0.61	0.92
Hungary	0.94	1.00	0.97	1.00	0.47	0.47	0.66
Poland	0.57	0.56	0.57	0.61	0.59	0.41	0.18
Romania	0.41	0.45	0.52	0.59	0.48	0.29	0.19
Slovenia	1.44	1.56	1.45	1.66	1.86	0.66	1.20
Slovakia	0.51	0.49	0.46	0.47	0.48	0.28	0.20
Croatia	0.87	0.76	0.81	0.90	0.84	0.50	0.34
Macedonia	0.24	0.21	-	-	0.18	0.14	0.04
Serbia	**0.43**	**0.48**	**0.50**	**0.50**	**0.48**	**0.38**	**0.10**

Source: Eurostat, Statistical Office of the Republic of Serbia, for 2009 Innovation Union Scoreboard 2010.

Low level and unfavorable structure of funds appropriated for research and development are one of the factors of the low level economy innovation in Serbia, which is, in terms of its innovation performance, among the least successful innovators (together with Latvia, Turkey, Bulgaria Lithuania, Macedonia and

Romania), while Croatia belongs to the group of moderate innovators, and Slovenia is in the group of innovation followers, heading towards the group of innovation leaders.

However, taking into consideration the events which took place at the end of 2010 and the significant additional credit funds provided from abroad for the purposes of financing the department of scientific research, as well as the start of construction of the Centre for the Promotion of Science in Belgrade, it is reasonable to expect a considerable improvement in this field during 2011 and the following years.

7. GLOBAL ECONOMIC PARTNERSHIP

7.1. Trade

Trade deficit

Foreign trade deficit of the Republic of Serbia, which amounted to 5.2 billion EUR in 2010, is lower by 5.3% compared to the previous year, due to the faster growth of export (24.0%) which reached the level it had before the start of the global economic crisis. The import into Serbia has increased by 9.7% compared to 2009 but it is still below the values recorded in 2008 (by 23.4%). Apart from the global economic crisis which led to the fall in the economic activities in the world, the decline in Serbian export in 2009 was also influenced by the significant price reductions of primary products in the world market (share of raw materials and products with low value added in the export of Serbia amounts to over 55%), while the drop in industrial production and domestic consumption were the basic reasons for the reduction of import. However, in this year, for the first time since the beginning of the transitional period, import/export coverage ratio is significantly above 50% which can be described as extremely favorable. Due to faster export, compared to import growth, in 2010, the import/export coverage ratio is higher and amounts to 58.6%. The only surplus in trading, the Republic of Serbia achieves with Montenegro, Bosnia and Herzegovina and Macedonia, while the highest deficit is reported with Russia (1.2 billion EUR, due to the significant energy import dependency, especially of natural gas) and Germany (0.6 billion EUR, but it is reduced by one quarter compared to the previous year).

The following two tables show the import/export coverage ratio (in %) and foreign trade balance of the Republic of Serbia (in million EUR).

Table 7.1. Import/export coverage in the Republic of Serbia (in %)

	2001.	**2002.**	**2003.**	**2004.**	**2005.**	**2006.**	**2007.**	**2008.**	**2009.**	**2010.**
Total	39.8	37.0	37.1	35.6	46.1	48.8	46.1	45.1	51.8	58.6

Table 7.2. Foreign trade balance of the Republic of Serbia (in million EUR)

	2005.	**2006.**	**2007.**	**2008.**	**2009.**	**2010.**
The Republic of Serbia	-4,620	-5,361	-7,075	-8,066	-5,195	-4,768

7.2. External financing

ODA as a share of GDP

According to the available data, the share of ODA (*Official Development Assistance*) with respect to GDP amounted to 2.18% (838.89 million USD) in 2007, and 2.05% (973.11 million USD) in 2008. The share of ODA in 2009 was 608.48 million USD, i.e. 1.44% of GDP, which indicates that there was a considerable decrease in external financing in 2009, compared to 2008.

Table 7.3. ODA as a share of GDP

	2007.	**2008.**	**2009.**
ODA net in current USD	838,890,000	973,110,000	608,480,000
ODA net in permanent USD from 2008	897,500,000	973,170,000	627,460,000
ODA per capita	113.65	132.39	83.13
ODA net as % of public consumption	5.65	5.20	3.76
ODA net as % of GDP	2.18	2.05	1.44

Source: The World Bank Statistics, 2011.

8. CONSUMPTION AND PRODUCTION

8.1. Establishing balance between current production and consumption

Ratio of current production and consumption

No data related to this category are available.

8.2. Energy consumption

Energy consumption per capita

According to the energy balance for 2011, published by the Ministry of Infrastructure and Energy, the production of primary energy is constantly but slowly increasing. The projected primary energy production in 2011 is 9.838 Mtoe. According to the estimations, the production in 2010 was 9.744 Mtoe, which is by 3% more than in 2008. The projected net import of primary energy in 2011 amounts to 5.536 Mtoe, which is by 4% more than the estimated net import in 2010 which amounted to 5.309 Mtoe.

The overall quantity of primary energy required for the consumption in 2011 is 15.092 Mtoe, which is by 1% more than the overall estimated primary energy of 14.966 Mtoe required for the consumption in 2010. The required quantity of primary energy will be provided from the national production (63%) and net import (37%). Such estimated quantities of primary energy show an increasing trend in import dependency by 3% compared to the estimated import dependency in 2010.

In 2011, the consumption of final energy was planned in the quantity of 8.139 Mtoe, which is almost at the same level as it was in 2010 when it amounted to 8.142 Mtoe. The share of traffic in the structure of final energy consumption is 30%, the share of industry is 29%, while all the other sectors together (households, agriculture and public and commercial activities) have the share of 41%.

In 2011, compared to 2010, the increase in consumption by 4% was projected in the traffic sector, while in the industry sector, there is a consumption decline by 3%, and in other sectors, the planned consumption decrease amounts to 4%.

In 2011, the share of liquid fuels in the structure of final energy consumption per energy types is 33%, electric power share 30%, share of solid fuel 11%, gaseous fuels 13%, the share of heating energy is 10% and the share of geothermal, solar energy and wood used for heating, all together make up 3%. The envisaged consumption of solid and liquid fuels and electric power supply is by 1% higher than in 2010, heating energy consumption is by 2% higher than in 2010, while the consumption of gaseous fuels will be lower by 7% compared to 2010.

Energy intensity (energy used per unit of GDP measured in purchasing parity)

The energy consumption in Serbia is considerably irrational. Along with the extremely low energy efficiency in all the energy using sectors (industry, traffic, agriculture, public utility services and households), there is also a high rate of electric power used for heating purposes. The energy efficiency in Serbia is one of the lowest in Europe.

In all the final energy using sectors: industry, construction and traffic, the lagging regarding the energy efficiency is obvious, when compared to European developed countries, as well as the countries in the region. By comparing energy intensity in industry and traffic, it is found that the energy intensity of traffic is significantly higher than industrial energy intensity, by which it can be concluded that the rationalization of energy consumption should be, in the first place, sought in the traffic sector. (Environmental Protection Agency, *Report on the State of the Environment in the Republic of Serbia for 2009,* 2010*)*

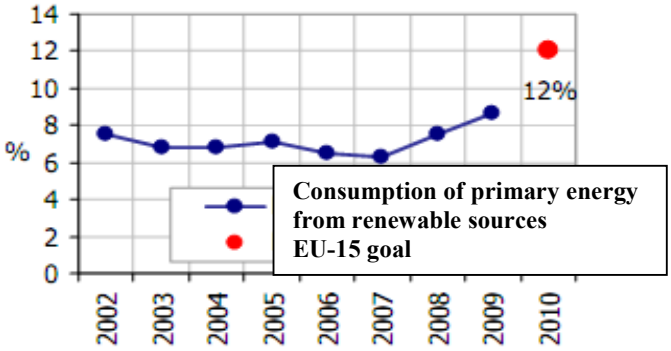
According to the International Energy Agency, consumption of primary energy (CPE) per capita in the Republic of Serbia was 2.18 toe in 2008, which is slightly higher than the global average – 1.83 toe per capita. When compared to the countries which went through the process of transition (Hungary – 2.64 toe per capita; Bulgaria – 2.59 toe per capita) it is obvious that Serbia is lagging behind.

According to the data provided by The World Bank in 2010, the average consumption of electrical energy per capita in the Republic of Serbia was 4,155 KWh, which is significantly higher than in 2003 (3,341 KWh). The unreasonably high level is also noticeable in comparison with the other countries in the region. According to the same source, the average consumption of electrical energy per capita is as follows: global average – 2,846 KWh, in UE-15 – 6,693 KWh, in Hungary – 3,977 KWh, in Romania - 2,452 KWh and in Croatia - 3,793 KWh.

As far as the energy intensity, shown as toe/1000$$_{2000}$ GDP, is concerned, there are no official data, but based on the rough estimates, it could be said that the energy intensity in the Republic of Serbia is twice or three times higher in relation to EU-15 countries, which is a consequence of the drop in industry activities during the 1990s, slow recovery of the industry, low prices of electrical energy and discrepancy in prices of energy and energy types, which do not stimulate a more rational use of energy. Data on energy intensity published by the International Energy Agency for the Republic of Serbia, are related to the total consumption of primary energy per realized GDP unit, and for 2008, according to the International Energy Agency, this indicator was 1.16 toe/1000$$_{2000}$, i.e. 0. 31 toe/1000$$_{2000}$ in purchasing parity, while in 2007 it was 1.20 toe/1000$$_{2000}$, i.e. 0.33 toe/1000$$_{2000}$ in purchasing parity.

Share of energy from renewable sources in total primary energy consumption

In 2009, the share of energy produced from renewable sources in total primary energy consumption was estimated to 8.5%, solely if the primary produced electric power from hydro power potentials of large hydroelectric power plants is taken into account (and not only the hydroelectric power plant potential up to 10MW). Compared to 2008, when it was 5.86%, a growth in this share has been recorded.



Source: Environmental Protection Agency, Report on the State of the Environment in the Republic of Serbia for 2009, 2010

Figure 8.1 Share of renewable energy sources in primary energy consumption

The aim of the Republic of Serbia is to increase the production of electrical energy from the renewable sources to 10,713.1 GWh by the end of 2012. The set goal is planned to be achieved by way of engaging the private investments in the amount of 200 million EUR to finance the construction of 100 MWe of new capacities using renewable sources, whereby until the end of 2012, the production of "green power" would be increased by 7.4% compared to the values reported in 2007 i.e. by additional 735 million kWh. This is the quantity that could cover the annual electrical energy demands of 175,000 households (with an average monthly consumption of 350 kWh), whereby the emission of nearly 1 million tonnes of CO_2 would be avoided. In the period until 2012, the construction of at least 45 MWe (electric power) of capacity in small hydroelectric plants, 45 MWe of plants using wind energy 5 MWe of solar power plants, 2 MWe of biomass and 5 MWe of biogas power plants, is planned.

8.3 Waste generation and waste management

Waste generation

The total quantity of waste generated in 2009 in the Republic of Serbia, according to Statistical Office of the Republic of Serbia, was 2.37 million tonnes, and the quantity of collected and disposed waste was around 1.58 million tonnes. 0.98 kg of waste per capita is generated daily, while 360 kg annually. Since the collection of approximately 60% of waste is organized, mainly in urban areas, around 40 % of utility waste is disposed in illegal landfills, which therefore represent a great risk to environment. According to Waste Management Strategy for the period 2010 - 2019,

there is a plan to reach the waste collection coverage of 80% of population by 2015. Several of regional landfills are under construction in the Republic of Serbia. The current rate of recycling, i.e. waste usage is not sufficient.

From the total of 28,553,539 tonnes of generated waste in industry, mining sector generated 21,098,339 tonnes, processing industry 1,252,760 tonnes and supply of electric energy, gas, steam and air conditioning 6,201,911 tonnes. In all three sectors of industry, the largest share of waste is of mineral origin, accounting for 99.98% in mining, 99.80% in electrical power supply, gas, steam and air conditioning and 57.25% in manufacturing sector. Manufacturing sector has a heterogeneous structure, and along with the predominant share of mineral waste, it contains 24.6% of animal and plant waste, 6.4% of non-metal waste, 5.0% of metal waste, 3.4% of mixed waste and 1.2% of other chemical waste, while the remaining waste makes up 3.4%.

In the manufacturing sector, the share of non-metal waste is the largest in wood processing and wood, cork, straw and brushwood products, except for furniture (88.3%), followed by paper manufacturing, paper products, printing and copying of audio and visual records (53.3%), furniture manufacturing, other manufacturing services, repairing and mounting of machines and equipment (43.5%), manufacturing of textile, clothing items, leather and leather objects (39.6%), and in the production of chemicals, chemical products, basic pharmaceutical products and rubber and plastic products (28.8%). Waste of animal origin and organic biodegradable waste is predominant in production of food, beverages and tobacco (84.0%). Mineral origin waste prevails in the production of remaining non-metal mineral products (81.9%), as well as in the production of basic metals, metal products, apart from machines and devices (93.0%). Metal waste is mostly predominant in the production of computers, electronic and optical products, electrical equipment, machines and equipment otherwise not mentioned, motor vehicles, trailers and semi-trailers and other means of transport (37.9%). Chemical waste prevails in the production of coke and oil derivatives (41.7%) (Statistical Office of the Republic of Serbia, *Announcement - Industrial waste in the Republic of Serbia 2009*, 2011).

The Republic of Serbia adopted the Waste Management Strategy for the period 2010-2019 ("Official Gazette of the Republic of Serbia", no. 29/10) which defines the conditions for rational and sustainable waste management in the country. The construction of 26 regional centers for waste management containing a regional landfill for utility waste, a facility for segregation of recyclable waste, a transfer station and composting facility, is being envisaged. The plan is also to build a national facility for physical-chemical treatment of hazardous waste. Total amount of estimated investments necessary for solving the problem of waste management in the Republic of Serbia, for the period 2010-2019, is 958 million EUR.

The establishment of National Environmental Protection Programme ("Official Gazette of the Republic of Serbia", no. 12/10), by which the strategic goals of the environmental protection have been defined, as well as the specific goals of air, water and soil protection and protection from the impact of certain sectors on the environment (industry, energy, agriculture, mining, traffic), has been carried out. Necessary reforms regarding regulatory instruments, economic instruments, institutional framework, monitoring system, financing system in the field of environmental protection and the necessary infrastructure in that field have been defined.

Passing the sublegal regulations on the basis of the Waste Management Law was also continued in 2010 ("Official Gazette of the Republic of Serbia", no. 39/09

and 88/10). During 2010, six laws were adopted: Law Amending the Law on the Protection of Nature, Law Amending the Law on Waste Management, Law Amending the Law on Environmental Protection from Noise, Law Amending the Law on Biocidal Products, Law Amending the Law on Chemicals and Law Amending the Law on Strategic Environmental Assessment – by which the solutions to the problems related to the environment have been considerably improved.

Hazardous waste generation

In 2009, the recorded quantity of hazardous waste, by different industrial activities, is as follows: 27,312 t from processing industry, 688 t from electrical energy, gas, steam and air conditioning supply sectors, and over 9 million t of hazardous waste from mining sector, which is the waste created by the extraction and treatment of minerals (Statistical Office of the Republic of Serbia, *Announcement – Industrial Waste in the Republic of Serbia in 2009,* 2011).

Out of the total quantity of the generated hazardous industrial waste, the largest share is disposed in industrial landfills: tailings, flotation tailings, phosphogypsum, fly ash from thermo-electric power plant, etc.

According to the data gathered by the Environmental Protection Agency, and submitted by the waste producers in accordance with the Rule book, 652,792 t of hazardous waste was generated in 2009.

In the same year, according to the data provided by 141 health care institutions (health centers, clinical centers, hospitals, institutes, veterinary stations, etc.), there was 6,744 t and 7,567 l of medical waste, which also represents the hazardous waste.

Quantity of waste being processed

The Rule book on waste reporting and the Rule book on packaging and packaging waste reporting constitute the basis for obtaining the information on total quantity of waste being processed in accordance with D and R list of reusage and waste disposal.

In accordance with the Rule book, the Environmental Protection Agency has been monitoring the quantity of this waste since 2010, but there are still no data available.

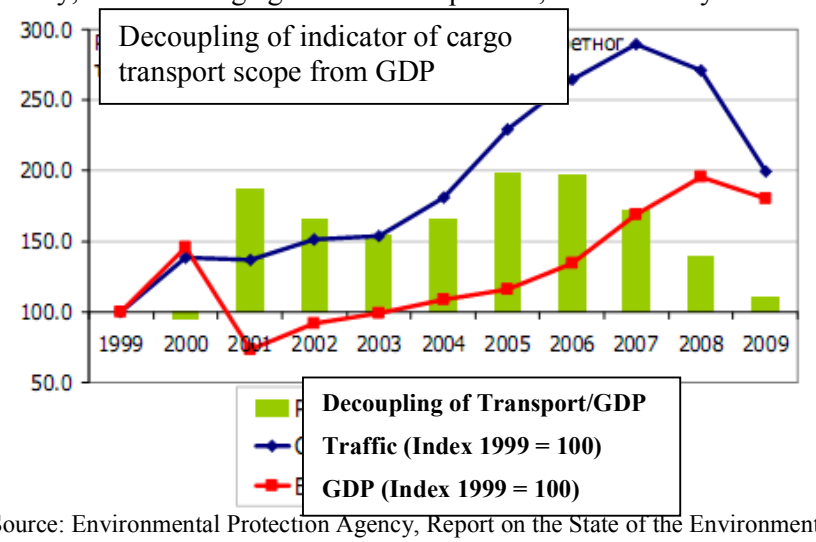
8.4. Transport

Energy intensity of transport

Energy consumption indicator for transport, relative to the quantity of cargo or number of passengers and distance covered, as well as the value of energy used per monetary unit generated in transport, is not being monitored.

The Environmental Protection Agency monitors the indicator of decoupling indicators related to the scope of cargo transport from the gross domestic product. (Environmental Protection Agency*, Report on the State of the Environment in the Republic of Serbia for 2009,* 2010). The structure of cargo transport comprises the transport in railway, road and waterway traffic. The largest share of cargo transport is recorded in railway traffic, ranging between 60% and 65%, during the respective period

of time. Important connection of the scope of cargo transport and the development of society, shown through gross domestic product, can be clearly seen from the chart.



Source: Environmental Protection Agency, Report on the State of the Environment in the Republic of Serbia for 2009, 2010

Figure 8.2 Decoupling of indicators of cargo transport scope from GDP

Traffic infrastructure of all forms of traffic is inadequate. Cargo transport is the main generator of transport development. The energy intensity of traffic may be described as high, given that the participation of energy friendly waterway transport is very low.

9. NATURAL DISASTERS

9.1. Sensitivity to natural disasters

Number of death cases from natural or technological disasters

Data related to the share of population affected by natural disasters (floods, droughts, earthquakes, land-slides), are not available.

As regards to the indicators on the number of death cases from technological disasters (traffic accidents, chemical accidents, fires), the Statistical Office of the Republic of Serbia reports, for now, only on the number of persons killed in accidents. In 2009, there were 1,823 deaths caused by accidents in the Republic of Serbia. In 2008, this number was 1,910. This includes traffic accidents, falls, fire accidents, accidental poisoning, and other causes.

Percentage of population living in naturally risky areas

Data on the share of population living in areas threatened by floods, earthquakes, land-slides etc. are not available.

Within the system of early warnings against atmospheric and hydrological disasters of the Republic Hydro meteorological Service of Serbia, electronic systems "mateoalaram" and "hidroalarm" were established to warn against the occurrence of the natural disasters on the territory of the Republic of Serbia. In the period 2007-2009, these systems were officially included in the EU system "Meteoalarm" and

"EFAS" (*European Flood Alert System*) and are functioning within the mentioned systems.

10. **ATMOSPHERE**

10.1. Climate changes

Emission of CO_2 per capita

The indicator of total annual emission of gases having greenhouse effect in tonnes of CO_2 per capita may be calculated on the basis of the greenhouse gas registry, established for the needs of First National Communication to UNFCCC Convention. First National Communication of the Republic of Serbia regarding the obligations resulting from the membership in United Nations Framework Convention on Climate Change was adopted in 2011. By this, inventory of the gases having greenhouse effect was set up for 1990 as the reference year, as well as for 1998.

In 2007, the Republic of Serbia ratified the Kyoto Protocol as non-Annex I member country of the UN Framework Convention on Climate Change, i.e. non-Annex B member country of Kyoto Protocol, by which the Republic of Serbia got an opportunity to participate in the application of the clean development mechanism.

The sector of energy, along with the traffic sector, is the main source of CO_2 emission in the Republic of Serbia, predominantly due to the combustion of fossil fuels in thermoelectric power plants and heating plants. The use of wood as a fuel in households, also contributes to CO_2 emission.

According to the statistics of the International Energy Agency - publication for 2010, the intensity of CO_2 emission (0.96 kg CO_2/1000 GDP in 2000USD PPP) in the Republic of Serbia, is 2.5 times higher than the average in OECD countries in Europe. Since 2001, when the CO_2 emission was 4.43 t CO_2 per capita, there has been a growing trend – in 2007 it reached 6.73 t CO_2 per capita, but in 2008, there was a slight decrease – 6.69 t CO_2 per capita, according to the International Energy Agency data (the same source).

Emission of greenhouse gases

The indicator of the emission of greenhouse gases comprises the anthropogenic emissions of greenhouse gases (CO_2, CH_4, N_2O, NFC, PFC, SF_6, CFC and HCFC), reduced by the losses, together with indirect greenhouse gasses (NOx, CO and VOC excluding methane). The Republic of Serbia, as non-Annex I party (developing country), is not obliged to reduce the quantity of greenhouse gas emission during the first commitment period (2008-2012).

At the same time, the Republic of Serbia has its commitments regarding the drafting of national communication to the UNFCCC, the international cooperation in the field of climate research and systematic surveillance, knowledge transfer and clean technologies, the enactment and implementation of climate change adaptation measures, the enactment and implementation of the mitigation measures, education, training and public notifications on the causes and possible anthropogenic effects of climate change (*National Environmental Protection Program,* 2010).

The total emission of greenhouse gases in the reference year was 80,803 Gg CO_2eq (not including the net of removed quantity of CO_2 from the forest complex),

where the largest part (77.7%) came from the energy sector. The sector of agriculture emitted 14.6% of the total emission, due to the relatively intensive agricultural production. Industrial process emissions made up 5.3%, while utility and mud waste landfills 2.4% of the total emissions. It is estimated that 6,665 Gg CO_2eq was removed in the forest complex (Government, *First National Communication under the United Nations Framework Convention on Climate Change*, 2011).

Decrease in industrial activity led to the significant drop in emission of these gases, therefore, in 1998, total emission was reduced by 21.8%, i.e. the emission was 66,346 Gg CO_2eq.

During the period 1990-1998, all the sectors, except for landfill waste, recorded the reduction of total emission. Emission from the sector of energy was decreased by 24.19%, from industry by 18%, and from agriculture 24.5%. The increase of 27.9% in emission in the sector of utility waste management resulted from the increase in waste quantity in landfills. The removed quantity of CO_2 in forest complex was increased by 23% compared to the reference year, 1990.

Including the removed quantities of CO_2 in the forest complex, the total emission of greenhouse gases in the Republic of Serbia recorded the drop of 28.5% compared to the reference year.

In terms of gases, the most emitted was CO_2 (62.970 Gg), the emission of methane was 432.5 Gg, the emission of nitrous oxide was 28.3 Gg, the emission of nitrogen oxides was 208 Gg, carbon monoxide 664 Gg, the emission of non-methane organic vaporizable substances was 271 Gg, and of sulfur oxides 490 Gg, while there was no generation of synthetic gas.

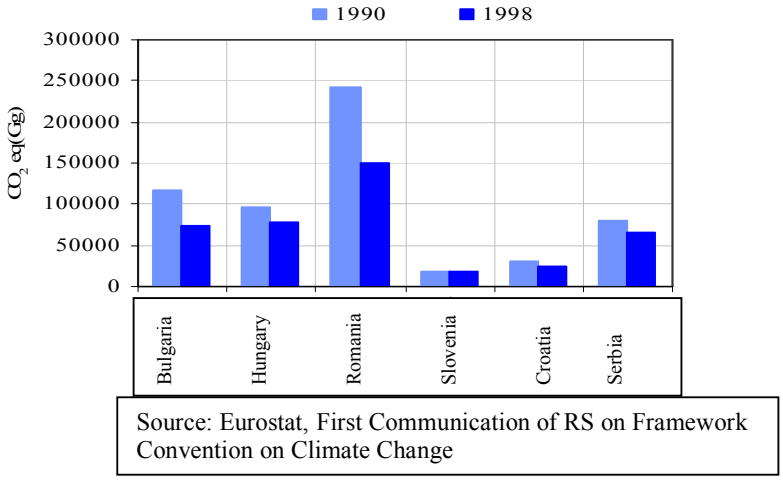


Figure 10.1 Total emission of greenhouse gases in the Republic of Serbia and the neighboring countries

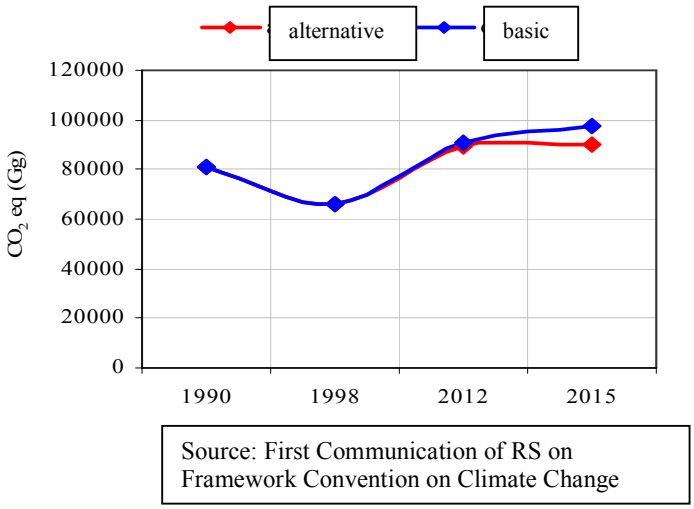


Figure 10.2 Changes and estimations of the emission of greenhouse gases in Serbia

According to the basic plan, total emission of greenhouse gases in Serbia will go up by 12.2% in 2012, i.e. by 20.4% in 2015 compared to the emissions from 1990 (reference year), while the alternative plan envisages the alleviation of this trend, which means that the emissions in 2012 would be increased by 10.6%, and in 2015 by 11.7%.

Along with the activities whose goal is to reduce the emission of greenhouse gases, determining how much the country is affected by climate change and how adapted it is to the change is also very important for Serbia. This is confirmed by the fact that some parts of Serbia have become more frequently exposed to floods, erosions, landslides, droughts and other atmospheric and hydrological natural disasters, causing great economic damage. With the aim of efficiently establishing and carrying out the actions regarding the adjustment to climate change, in the following period, the systematic collection and creation of the data base should be carried out and the technical and technological and financial capacities improved. Considering the fact that the assessment on how much the sectors have been affected and the adaptation are inadequate, it is necessary to establish the National Action Plan for Adaptation in the following period.

10.2. Ozone layer depletion

Consumption of substances depleting the ozone layer

Republic of Serbia is the Party to the Vienna Convention for the Protection of the Ozone Layer and Montreal Protocol on Substances that Deplete the Ozone Layer, including all 4 Amendments to the Protocol. According to the provisions of the Montreal Protocol, the Republic of Serbia belongs to the group of countries covered by Article 5 – developing countries.

As of 1st January 2010, in keeping with the provisions of the Montreal Protocol, the consumption of certain substances depleting the ozone layer, in particular, the substances covered by Annex I, Group A, has become prohibited. The Republic of Serbia is bringing the National Plan Project for full elimination of the use of CFC (completely halogenated carbon hydroxides) to its end, in connection with a

few investment projects, while there are still obligations regarding the training of service technicians in handling the substances depleting the ozone layer, and training of customs officers in identifying such substances. Also, the preparation of the National Plan for gradual elimination of HCFC (hydro chlorofluorocarbons), is in progress, as well as some of the individual projects, the most important being the elimination of carbon tetrachlorides used in laboratories and the activities on raising awareness and promoting the importance of the protective role of ozone layer (*National Environmental Protection Program*, 2010).

The Ministry of Environment, Mining and Spatial Planning keeps the records on substances depleting the ozone layer. In accordance with the Montreal Protocol, the prohibition of the use of chlorofluorocarbons (CFC) entered into force on 1st January 2010 (Government, *2009 Progress Report on the Implementation of the National Sustainable Development Strategy*, 2010). In 2009, the overall consumption of ozone depleting substances was 27.6 ODP tonnes.

10.3. Air quality

Concentration of air pollutants in urban areas

The major air pollutants in Serbia are: thermal energy facilities (thermoelectric power plants and heating plants), oil refineries, and products of fuel combustion in industry and transport, as well as the use of solid fuel in households, individual boiler plants and burners.

According to the Environmental Protection Agency (Environmental Protection Agency, *Report on the State of the Environment in the Republic of Serbia for 2009,* 2010), the three main sources of sulphur-dioxide emission in 2009, were the same as in previous year: "Nikola Tesla" A and B power plants in Obrenovac, "Kostolac" A and B power plants in Kostolac and the Cooper Mining and Smelting Complex Bor.

The main sources of NO_2 emission were "Nikola Tesla" A and B and "Kostolac" A and B power plants. The largest sources of solid particle emission during 2009 were as follows: "Nikola Tesla" A and B, "Kostolac" A and B power plants, and "Morava" power plant in Svilajnac.

Results of measuring the level of pollutants in 2009 showed that the annual value of sulphur dioxide was above the threshold of 50 $\mu g/m^3$, in Bor, with reported 111 $\mu g/m^3$, Smederevo with 69 $\mu g/m^3$ and in Kostolac with 53 $\mu g/m^3$. During 2009, the daily values above the permitted threshold of 150 $\mu g/m^3$ in the Republic of Serbia, were most frequently recorded in Bor, lasting for 83 days and in Belgrade, Vračar where this occurrence lasted for 11 days. During 2009, the maximum daily concentrations of sulphur dioxide were reported in Bor, 1,412 $\mu g/m^3$, Smederevo – 222 $\mu g/m^3$, Belgrade, Vračar – 220 $\mu g/m^3$ and in Užice – 189 $\mu g/m^3$

In the course of 2009, the annual threshold for NO_2, which amounts to 60 $\mu g/m^3$, was not exceeded at any of the measuring points. The highest annual values were in Belgrade, in Despot Stefan Boulevard - 44 $\mu g/m^3$, as well as in Čačak – 55 $\mu g/m^3$. During 2009, the daily threshold which amounts to 85 $\mu g/m^3$ in the Republic of Serbia, was exceeded at the measuring points in Belgrade, in Despot Stefan Boulevard (for 19 days) and in Omladinskih Brigada Street (for 25 days), and in Čačak (for 17 days).

During 2009, there was a significant increase in the concentration of ground-level ozone, compared to the former period. In 2009, there were 45 days in which the

average daily threshold (85 μg/m^3) was exceeded in the Republic of Serbia (Novi Beograd). The maximum concentration of ground-level ozone (138 μg/m^3) was measured on 27th April 2009. There were 11 days during which the threshold was exceeded at the location called Zeleno brdo, with the maximum concentration of 111 μg/m^3 recorded on 7th April.

In 2010, the National Automatic Air Quality Monitoring System was introduced in the Republic of Serbia, including 28 new automated measuring stations and the reference laboratory.

11. LAND

11.1. Land use and status

Changes in land use

During the period 1990–2006 land occupancy by urban area and sports and recreation facilities was 351 ha/per year, by industrial and commercial premises 127 ha/per year, road network and accompanying infrastructure 2 ha/per year, and by mines, landfills and construction sites 239 ha/per year. The analysis of Corine Land Cover database from 2006, showed the presence of 28 out of 44 CLC nomenclature classes in the Republic of Serbia.

Based on the information provided by the Statistical Office of the Republic of Serbia, the country has 5,096,646 ha of agricultural land at its disposal, which makes up 65.8% of its overall territory. The change in agricultural land use, through its conversion into other types of agricultural land or into non-agricultural land, is being monitored.

Changes in the structure of the plough-land area in the period 2000–2009, indicate a decrease in the share of areas covered in grains, from 64.4% in 2000 to 59.3% in 2009. In 2009, plough-land and garden areas were predominant with 3,300,999 ha, i.e. 64.8% of the overall agricultural land. There was an increase in the areas of industrial crops, from 11.4% in 2000 to 12.2% in 2009. Based on the analysis of the changes in agricultural land according to the categories of use, a conclusion can be drawn that the overall agricultural area in the Republic of Serbia was on the decrease during the period 2000–2007, mostly due to the reduction of vineyard and orchard areas, while in 2008 and 2009 there was a slight increase in agricultural land areas, i.e. arable areas, mostly due to the increase in areas covered in meadows.

Table 11.1. Agricultural land by different types of use in the period 2000–2009 (in thousands ha)

Year	Agricultural land - total	Arable areas					Pastures	Fishponds, reed beds and ponds
		Total	Plough-land and gardens	Orchards	Vineyards	Meadows		
2000	5,109	4,259	3,356	245	71	587	815	35
2001	5,111	4,255	3,355	243	69	588	821	35
2002	5,107	4,255	3,351	245	69	590	817	36
2003	5,115	4,253	3,345	246	67	594	826	36
2004	5,113	4,252	3,344	244	66	598	823	38
2005	5,112	4,242	3,300	239	64	609	832	38
2006	5,105	4,228	3,318	238	62	610	838	39

2007	5,092	4,218	3,299	240	59	620	835	39
2008	5,093	4,222	3,302	241	58	621	833	38
2009	5,097	4,224	3,301	240	58	625	834	39

Source: Environmental Protection Agency, *Report on the State of the Environment in the Republic of Serbia for 2009,* 2010.

Degradation of soil

The basic processes of soil degradation include water erosions, wind erosions, loss of organic substances, compactness through the increase of volume weight, loss of soil porosity, salination through accumulation of soluble salts in the soil, land-slides caused by slope failures, and/or moderately fast or fast movement of soil mass and rocks.

The incidence and development of erosion processes represent one of the main causes of soil degradation, and/or deterioration of its quality (class). It has been estimated that the erosion processes (having different stages of advancement) occur on about 80% of agricultural land in the Republic of Serbia. The soil degradation largely takes place through activation of land-slides and landslips, scree, rock slide and mudslide. 25-30% of Serbian territory is covered by potentially unstable areas, while around 8-10% of the territory is affected by active slide process.

In 2009, according to the data provided by the Statistical Office of the Republic of Serbia, there was a total of 320,100 ha of land which eroded and 50,500 ha of land which was still, or the land on which the consequences of erosive processes were alleviated (washing off, removing, sliding down and layering the new material).

11.2. **Desertification**

Soil degraded through draught

United Nations Convention to Combat Desertification in the countries heavily affected by draught and/or desertification (UNCCD) is the first international legal instrument dealing with the issues of desertification and the consequences of draughts. Desertification process means the degradation of soil in arid, semi-arid and dry sub humid regions, as the consequence attributed to different factors, primarily climate change and anthropogenic activities. The principal objective of this Convention is to combat desertification and alleviate the consequences of draught in the countries severely stricken by heavy draughts and/or desertification, by acting on all levels in line with the arrangements on international cooperation and partnership, aimed at achieving the sustainable development on the affected territories. In 2007, the Republic of Serbia ratified this Convention and joined the Annex V of the countries of middle and Eastern Europe.

The Environmental Protection Agency has no available data to enable the assessment of this indicator.

11.3. Agriculture

Share of standing crops in the structure of total arable land

The sector of agriculture in the Republic of Serbia disposes with considerably favourable natural conditions for having an intensive agricultural production.

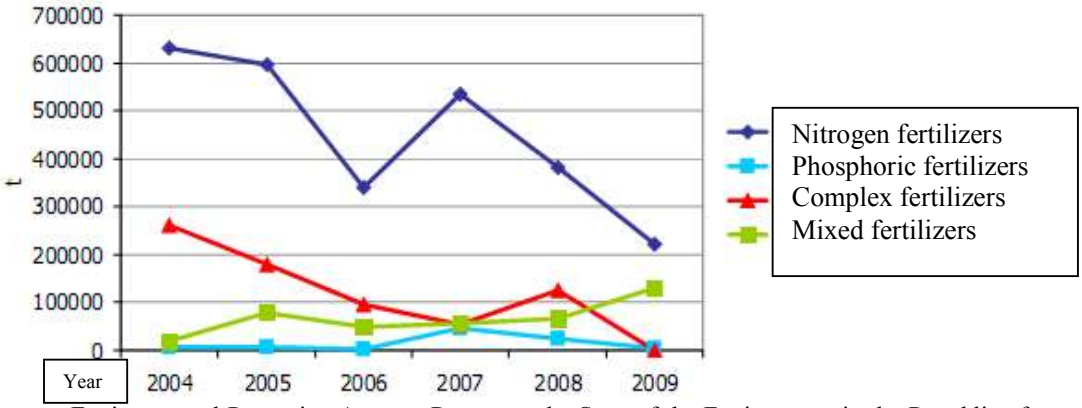
In 2009, according to the data of the Statistical Office of the Republic of Serbia, the total area covered in permanent crops (orchards and vineyards) was 298,000ha. The share of land under permanent crops in the overall area of arable land was 7.05 % (Environmental Protection Agency, *Report on the State of the Environment in the Republic of Serbia for 2009*, 2010)

In accordance with the Food Safety Law ("Official Gazette of the Republic of Serbia, no.41/09), the Directorate of National Reference Laboratories and the Plant Gene Bank have been established, for the purposes of improving the control of the food chain as well as the long-term preservation and sustainable usage of the plant genetic resources for food and agriculture.

Use of mineral fertilizers

It is typical that, in the field of soil protection, there is no systematic monitoring of soil which would imply harmonized collection, analysis and giving feedback on the testing results, and there are not enough financial funds for dealing with the problems in this field. One particular problem is the lack of identification of the specific effect the usage of fertilizers and pesticides has on soil.

There is no reliable information regarding the use of fertilizers in the Republic of Serbia which is why the data given are related to the production of fertilizers during the period 2004–2009. There is a noticeable reduction in the production of nitrogen, phosphoric and complex fertilizers in 2009 compared to 2008, while the production of mixed fertilizers was on the increase during the same period of time. In 2009, the total production of mineral fertilizers in the Republic of Serbia amounted to 579,078 t.



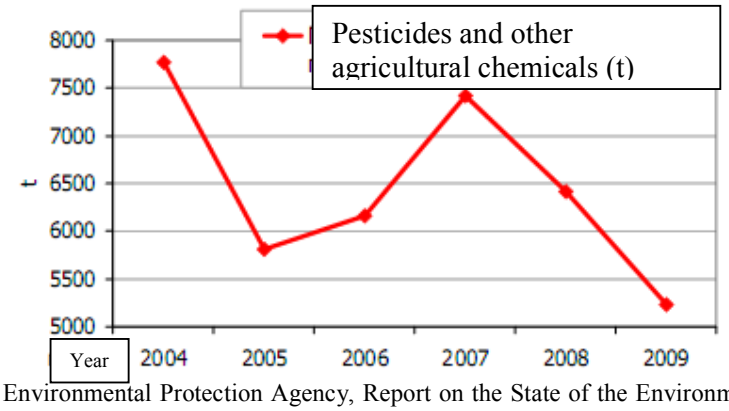
Source: Environmental Protection Agency, Report on the State of the Environment in the Republic of Serbia for 2009, 2010.

Figure 11.1. Production of mineral fertilizers in the Republic of Serbia

Already in 2010, a total of 905,842 t of mineral fertilizers was produced in the Republic of Serbia. Apart from the amount of fertilizers produced in Serbia, in 2010, 431,589.6 t of fertilizers was imported.

Use of pesticides

Plant protection products are extremely important in agricultural production in terms of crop protection, but they can have a negative impact on the environment. There are no reliable data on the consumption of pesticides in the Republic of Serbia. For this reason, the data on produced pesticides and other chemicals related to agriculture are presented. In 2010, 4,040 t of pesticides and other agricultural chemicals were produced, with the production being reduced compared to 2008 and 2007, while in 2009, 5,229 t were produced. In 2010, 1,544.3 t of pesticides in the form of finished products were imported.



Source: Environmental Protection Agency, Report on the State of the Environment in the Republic of Serbia for 2009, 2010.

Figure 11.2. Production of pesticides and other chemicals in the Republic of Serbia

Serbian Chemicals Agency has been established, as an independent, developing, expertise and regulatory organization which exercises public authorities in accordance with the law, regarding the management of chemicals and biocidal products. During 2010, Serbian Chemicals Agency has introduced the Registry of Chemicals as a database on chemicals which are available in the Serbian market. National Information Desk („help desk") has also been established for the purposes of providing information and givig guidelines to the industry and all other interested parties, providing answers to the questions asked, and providing help/support in terms of fulfilling numerous obligations resulting from domestic regulations.

11.4. Forests

Share of forest land in the total territory

The share of natural and planted forest land cultivated in the specific period of time is 35.33% of the productive land in the Republic of Serbia in the overall land fund.

Out of the total territory of the Republic of Serbia, 29.1% is covered in forests, while the remaining area is the forest land which, according to the international definition includes scrub and bush.

In 2008, the total area covered in forests in the Republic of Serbia, is 1,978,112 ha. 949,497 ha, or 48% of this area, is owned by the state, and the remaining 52% is privately owned forest land (Statistical Office of the Republic of Serbia, *Statistical Yearbook of the Republic of Serbia 2010,* 2010).

The rate of forest coverage in the Republic of Serbia, compared to the global values, is close to the global rate, accounting for 30%, but it is considerably lower than the European one, which reaches 46%.The territory having the least coverage by forests in the Republic of Serbia is AP Vojvodina, being 6.4%, while the rate of forest coverage in Serbia is 30.6%, and Central Serbia and AP Vojvodina 29.1%, according to Spatial Plan of the Republic of Serbia ("Official Gazette of the Republic of Serbia", no.88/10).

The new Law on Forests ("Official Gazette of the Republic of Serbia" no. 30/10), adopted in May 2010 , shall primarily secure the preservation of forests by establishing constant monitoring of their state, as well as destimulation of changing the designation of forest and forest land.

11.5. Fishing

Annual fish catch for 5 most common species of fish

The territory of the Republic of Serbia is relatively rich in rivers and lakes. The majority of rivers in Serbia belong to the drainage basin of the Black Sea, followed by Adriatic and Aegean drainage basins. Ichthyofauna of the Republic of Serbia waters comprises around one hundred of fish species, which is more than 50% of the total ichthyofauna in Europe.

The fish catch of 22 species is being monitored, as well as other less dominant species. In the period 2006-2009, the rise in catch trend was recorded. In 2009, the total amount of fish catch was 3,845 t, which is by around 20% more than in 2008, or 45% more than in 2006. In 2009, compared to 2008, the significant rise in the catch of the most important fish species is recorded, as follows: sterlet by 63%, carp 72%, pike-perch 77% and catfish by 79%.

In 2009, the total annual fish catch for 5 most common species of fish in the Republic of Serbia was 3,845 t, and specifically- 955.4 t of the silver crucian carp, 528.2 t of bream, 330.6 t of carp, 269.1 t of catfish and 243.9 t of silver carp (Environmental Protection Agency, *Report on the State of the Environment in the Republic of Serbia for 2009,* 2010).

The Law on Protection and Sustainable Use of Fish Fund ("Official Gazette of the Republic of Serbia" no. 36/09) regulates the management of fish fund in fishing waters, which encompasses the protection and sustainable use of fish fund as the natural resource and wealth of public interest.

12. WATERS

12.1. Quantity of water

Annual quantity of drained ground and surface water, expressed as both the absolute value and the share in total renewable quantity of water.

Ground and surface waters are used for water supply of population. Ground waters provide for 70% of water needs of households and industry in the Republic of

Serbia and this is the exclusive type of water supply in the territory of AP Vojvodina. Total water quantity collected for the public water supply system (drinking water) was 667,552,000 m^3 in 2009, i.e. 1% less water was collected than in the same period of 2008. Out of this, there was 484,390,000 m^3 of collected ground water, and 183,162,000 m^3 of collected surface water. In 2009, there was 43,477,000 m^3 collected for irrigation.

According to available statistical data on use of ground waters for public water supply (484,390,000 m^3) and estimation of quantities used for individual supply of rural population, about 600 million m^3 of ground waters are collected in the Republic of Serbia today. Total capacities of existing ground water sources in the Republic of Serbia are about 670 million m^3 per year, and estimated potential quantities of ground waters until 2021 are 1,948 million m^3 per year.

Comparing to total existing ground water capacities, about 90% of exploitable potential of existing water sources is being used today, this being 31% of the estimated potential quantities of ground waters. Ground water resources will be a predominant type of water sources used for water supply of the population and industry in the Republic of Serbia in the future period, and their quality is highly uneven and varies from high quality waters to those which need to be treated up to the level of drinking water (Environmental Protection Agency, *Report on the State of Environment in the Republic of Serbia for 2009;* 2010).

In 2009, 2.4% less water was supplied to users than the quantity supplied in 2008. Out of that, in 2009 the following quantities were delivered: 339,005,000 m^3 for households – 2.6% less, 68,593,000 m^3 for industry – 7.6% less, and 57,062,000 m^3 for other users – 6.5% more water than in the same period of previous year.

The number of households that water was supplied to was increased in 2009 by 1.8% comparing to 2008, amounting to 2,033,045.

Percentage of distribution water losses in the total water collection is higher in 2009 by 1.4% comparing to reference value from 2008 (Statistical Office of the Republic of Serbia, *Announcement – Drinking Water Supply*, 2010).

Passing the Law on Waters ("Official Gazette of RS", no. 30/10), enabled harmonization with appropriate EU regulations. Legal status of waters, integral water management, water facilities and water ground management and other issues relevant to water management will be regulated.

Water consumption per sectors

Out of total of 187,647 million m^3 of water used in industry in 2009 (184,260 million m^3 are flow waters for hydroelectric power plants, while the total consumption of other parts of industry is 3,389,227 m^3 of water), 99.29% comes from own water collection (98.39% of surface waters, 0.91% of ground waters) and 0.71% of water from public water supply system. The following branches of industry are especially notable: production of electrical power, gas and hot water, basic metals, food and beverages, chemicals and chemical products, as the ones taking and using 99.08% of total water quantity.

Out of total waters used in industry, 0.32% is waters used in extraction of ores and stone, 3.13% in processing industry, and 96.55% in the production of electrical power, gas and hot water.

In 2009, the quantity of 339,005,000 m^3 was supplied to households. Share of water drained for irrigation in agriculture was 43,477,000 m^3. The quantity of water used up in cattle farming was 34,891,000 m^3.

12.2. Quality of water

Presence of faecal bacteria in drinking water

Physical and chemical water quality has a trend of improvement starting from the period 2002–2009, while the most common parameters of the unsafe water – increased blurriness and color, elevated concentrations of iron, manganese, ammoniac, nitrates and nitrites, as well as increased use of potassium permanganate – have remained unchanged for years. In 2009, out of total number of tested samples, 13.82% were physically and chemically incorrect, which is for about 6% less than in the previous years. Presence of arsenic in certain public water facilities in the Republic of Serbia is a great public health issue.

In 2009, percentage of microbiologically incorrect samples of drinking water was 4.9%, which is within allowable deviation. Aerobic mesophilic bacteria, increased count of coliform bacteria E. coli and faecal streptococci, are the most common causes of water being unsafe. Small local power supply systems that do not have regular controls of health safety of distributed water, and quite frequently do not even put chlorine in the water, are a greater problem (Institute of Public Health of Serbia "Dr Milan Jovanović Batut", *Report on Drinking Water for 2009*, 2010).

Water is not safe in 33 cities in the Republic of Serbia. The most difficult situation is in Vojvodina – in Subotica, Bačka Topola, Mali Iđos, Sombor, Kula, Apatin, Titel, Srbobran, Kikinda and Zrenjanin, as well as in some parts of Central Serbia – in Ćićevac, Šumadija and Jablanica district and in Belgrade municipalities Mladenovac and Grocka.

BOD in watercourses

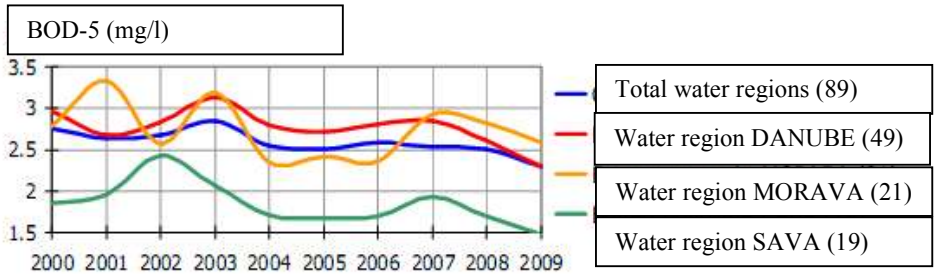
Methodology for establishment of this indicator has been harmonized with the methodology of European Environmental Protection Agency. Such data represent the median of a set of arithmetic mean values of BOD-5 (biological oxygen demand during five days) on an annual level, from appropriate measuring points. Data from measuring points of water regions that have continuous reporting for the respective period were used. Total of 89 measuring points were included for BOD-5 parameter. BOD-5 concentration shows it is moving within limits prescribed for class I and II. Analysis of concentration trends shows that there is no significant concentration decrease or increase trend (negligible trend) for parameter BOD-5 for water regions of Danube and Morava, and that there is the decreasing trend (quality improvement) for the water region of Sava.

Table 12.1. Median concentration of BOD-5 in (mg/l) per total water regions

Year	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Total water regions	2.50	2.75	2.64	2.67	2.84	2.55	2.51	2.59	2.53	2.51	2.30

Source: Environmental Protection Agency, 2010

All the water regions, both together and individually, reported a negligible trend in the ten-year period from 1999-2009.



Source: Environmental Protection Agency, Report on the State of the Environment in the Republic of Serbia for 2009, 2010

Figure 12.1. Median concentration of BOD-5 in (mg/l) in rivers of water regions in the Republic of Serbia

Percentage of treated waste waters

According to data of the Statistical Office of the Republic of Serbia, about 3,357,739,000 m^3 of industrial waste waters, and about 339,429,000 m^3 of waste waters from public sewage systems of settlements, as well as 23,849,000 m^3 of waste waters from settlements without public sewage, were directly discharged to watercourses of the Republic of Serbia in 2009. Total quantity of waste waters in 2009 is 3.3% lower comparing to reference period of 2008, out of which the quantity of waste waters in municipalities with public sewage is reduced by 2.8% comparing to the same period in 2008. The quantity of waste water discharged in municipalities without public sewage was reduced by 9.6% compared to 2008.

Out of total quantity of industrial waste waters, about 178,000,000 m^3 (5.29%) of waste waters from industry and about 56,037,000 m^3 (16.5%) of waste waters from households and other non-financial sectors are being treated (Statistical Office of the Republic of Serbia, *Statistical Yearbook 2010*, 2010)

Out of total of 3,357,739,000 m^3 of industrial waste waters, 99.29% originates from several industrial branches (production of electrical power, gas and hot water, basic metals, food and beverages, chemicals and chemical products) that are the biggest users of water, and remaining 0.71% from mining and other branches of processing industry. 98.35% of water in production of electrical power, gas and hot water, and 84% in production of basic metals, are used for cooling and do not have great damaging effect to the environment. Situation is far more complex in the production of food and beverages, where 79.46% of water is used for production and other purposes, and in the production of chemicals and chemical products, where that percentage is 67.78%, because waste waters contain large quantities of organic substances and it is necessary to increase the level of treatment and reduce damaging effect before releasing it into nature.

In 2009, in municipalities with public sewage, households discharged 1.8% more waste water than in 2008, quantity of waste water in industrial sector was reduced by 15.4%, while other users discharged 4.6% of waste water less than in the same period of previous year. In 2009, 16.4% more waste water was treated than in 2008, and the predominant method of treatment was secondary treatment, by which 8.7% less waste water was purified than by using the same method in 2008 (Statistical

Office of the Republic of Serbia, *Announcement – Water Use and Preservation from Pollution*, 2010). Share of purified waste waters in the total discharged waste waters in 2009 increased by 19.8% compared to 2008.

Despite numerous improvements, the status of water protection field is still not satisfactory. Basic problems in this field are:

insufficiently developed sewage network - although the number of sewage connections has been significantly increasing in the previous years, the number of households connected to the sewage network in 2009 is 52.3% and it is still not at the satisfactory level;

discharge of waste waters from settlements, industry and agriculture into watercourses and zones of sanitary protection of ground and surface waters is uncontrolled and without any pretreatment – during 2009 settlements discharged 363.3 million m^3 of waste water, out of which only 16.5% was treated; industry discharged 3,357 million m^3, out of which only 5.29% of waste waters was treated.

Table 12.2. Waste waters in the Republic of Serbia 2007–2009

	2007	2008	2009
Number of sewage connections	639,027	882,753	1,282,971
Percentage of households connected to sewage network	48.3	49.6	52.3
Total waste waters from municipalities with public sewage (in million m^3)	366.6	349.2	339.4
▪ from households	248.4	224.8	228.9
▪ from industry sector		75.6	64.0
▪ from other users	118.2	48.8	46.5
Treated waste waters (in million m^3)	54.9	48.1	56.0
▪ primary treatment	7.4	4.1	5.2
▪ secondary treatment	46.2	42.5	38.8
▪ tertiary treatment	1.4	1.6	12.1

Source: Statistical Office of the Republic of Serbia, 2010, Republic Institute for Development, 2011

13. BIODIVERSITY

13.1. Ecosystems

Surface of protected areas in the Republic of Serbia relative to its total territory

The area of the protected ecosystems on land or inland waters, expressed as the share in the total area of ecosystems, is 5.86% in 2009.

Apart from five national parks, 14 natural resorts, 17 extraordinary landscapes, 73 natural reserves, 312 natural monuments (Environmental Protection Agency, *Report on the State of the Environment in the Republic of Serbia for 2009;* 2010), there are also nine protected regions of international importance, according to Ramsar Convention on Wetlands of International Importance, in particular, as habitats of wetland birds: Obedska bara, Ludaško jezero, Stari Begej – Carska bara, Slano Kopovo, Gornje Podunavlje and Zasavica, the region of exceptional qualities, Vlasina as well as Labudovo okno and Peštersko polje. According to the Convention on the

protection of world cultural and natural heritage within the UNESCO program (*United Nations Educational, Scientific and Cultural Organization*), the natural park Golija was protected as part of the Golija – Studenica Biosphere Reserve. The Republic of Serbia ranks among the countries having medium level of protection, according to the share of its protected areas in the overall territory.

Areas under selected key ecosystems

In the period 1953 - 2000, there was an increase in areas covered by forests by about 1,000,000 ha, or 75%, to reach the current 2,300,000 ha under forests.

Considerably stable trend was recorded in the Republic of Serbia in the period of 1990-2003 with regard to the population of 22 forest bird species, which points to the stability of forest ecosystems. Out of 22 selected species of field birds, nine have stable population, five reported decline and 5 reported increase of population.

13.2. Species

Changes in the status of endangered species

The Rule book on proclaiming and protecting strictly protected and protected wild species of plants, animals and fungi, which was adopted in February 2010 ("Official Gazette RS" no 05/10) provides for strict protection of 1,760 species, while 868 species are registered in the protected species category (Statistical Office of the Republic of Serbia, *Statistical Yearbook 2010*, 2010).

Years of monitoring populations of bird species have yielded the data on the status and population trends of these species in the Republic of Serbia. Out of 22 selected species of forest birds, 14 have a stable population, four reported a decline, and four an increase of population.

The following species are particularly endangered: *Gentiana lutea*, *Gentiana punctata*, *Adonis vernalis*, *Arctostaphyllos uva ursi*, *Menyanthes trifollata*, *Cetraria islandica*, *Sideritis Scardica*, *Gypsophyla paniculata,* etc., and some species have vanished (Environmental Protection Agency, *Report on the State of the Environment in the Republic of Serbia for 2009;* 2010).

Share of endangered species in the total number of species

The share of endangered species in the total number of species is as follows: plants 1%, mammals 8%, birds 34%, fish 12.5%, and amphibians 56 %.

About 360 species of birds were registered in the Republic of Serbia (74% of the total count in Europe), 250 of which are breeding birds. Among them, about 34% of species are on the list of species that on the European level need protective measures, and among them there are also five globally endangered birds: ferruginous duck, imperial eagle, lesser kestrel, great bustard and corncrake.

Based on the Bern Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention), 61 potential Emerald areas were identified for the ecological network, within the territory of the Republic of Serbia. Moreover, 42

areas of international importance for birds have been selected (*Important Birds Area* – IBA), which is 14.25% of the territory of the Republic of Serbia: Gornje Podunavlje, Subotička jezera i pustare, Ribnjak Bečej, Jegrička, Koviljski rit, Fruška gora, Bosutske šume, Zasavica, Obedska bara, Dunavski lesni odsek, Pašnjaci velike droplje, Slano Kopovo, Carska bara, Vršački breg, Deliblatska peščara, Cer, Valjevske planine, Tara, Ovčarsko-kablarska klisura, Uvac – Mileševka, Kopaonik, Prokletije, Šar-planina, Pčinja, Vlasina, Suva planina, Stara planina – Vidlič, Sićevačka klisura, Djerdapska klisura, Mala Vrbica, Karadjordjevo, Titelski breg, Okanj i Rusanda, Gornje Potamišje, Srednje Potamišje, Labudovo okno, Ušće Save u Dunav, Donje Podrinje, Pešter, Golija, Gornje Pomoravlje, Sitnica, as well as 40 areas selected for daily butterflies (PBA) and 61 internationally significant areas for plants (*Important Plants Area* – IPA) – (Environmental Protection Agency, *Report on the State of the Environment in the Republic of Serbia for 2009;* 2010).

The Republic of Serbia is characterized by great diversity of ecosystems and species. Five of the six main European bioregions are in the Republic of Serbia, and only marine ecosystem does not exist out of all ten types of ecosystems. According to IUCN (*International Union for Conservation of Nature*), the Republic of Serbia is one of 153 biodiversity centers. There are 110 fish species, 44 amphibian and reptile species, about 250 breeding bird species and 94 mammal species in the territory of the Republic of Serbia.

About 1,600 of wild plant and animal species in the Republic of Serbia are internationally recognized as species of extreme importance. There are about 500 endangered species among them (Environmental Protection Agency, *Report on the State of the Environment in the Republic of Serbia for 2009;* 2010)

Index of endangered species ENDAN

The index of endangered species considers certain species of mammals, fish and birds. The index of endangered species ENDAN for the Republic of Serbia in 2009 is 0.21. One (1.00) is the highest possible degree of endangerment of living species.

14. CONCLUSIONS AND RECOMMENDATIONS

Conclusions

1. In 2010, a large part of measures envisaged by the National Strategy for Sustainable Development could not be realized, as a consequence of global economic crisis. This particularly relates to all the measures and activities the financing of which was mostly or completely planned from the budget funds.
2. After a period of significant reduction of the number of the absolutely poor and poverty risks, an increase in the number of people below the absolute poverty line was recorded, as well as worsening of all other indicators of poverty. This was contributed by the decline in economic activity, a halt in employment and earnings growth, and consequential unemployment growth caused by the economic crisis, as well as structural problems in economy.

3. Participation of public expenditure in distribution of generated GDP was not reduced, and on the other hand the county's debt in the international financial market was increased, which would put burden on the following period within which the significant investments in enforcing the Strategy were planned.

4. Despite the Government's efforts, unemployment continued its accelerated growth, which states the fact that private sector in the Republic of Serbia, as a primary way of dealing with ongoing crisis, applied the strategy of reducing costs through employee layoffs and reduction of all types of appertaining costs.

5. Despite great efforts of the Government, investments in research and development are far below the average of most EU countries. In the previous period, appropriations from the budget increased, but appropriations from private sources decreased.

6. Regional development continued with the trend of very high disbalance in income generation and distribution between the regions of the Republic of Serbia. This is, among other things, a consequence of absence of essential decentralization on the state level.

7. Demographic trends continue to deteriorate. Total population is decreasing, and at the same time old-age dependency ratio is increasing.

8. A considerable advancement in creating strategic and legislative framework for improvements of social protection system was made towards realization of equality principle, but the enforcement of this framework still remains a big challenge.

9. A considerable advancement was made in preparing design documentation and providing funds for infrastructure development (roads, water supply system, construction of sewage systems, and construction of regional landfill sites).

10. Regarding natural resources management, the new Law on Waters and Law on Forests were passed, but it is also necessary to pass subordinate regulations and intensively work on their enforcement.

11. During 2010 no significant changes in energy efficiency were made, and its value remained among the lowest in Europe because far more energy per product unit is still consumed. This has unfavorable effect on competitiveness of export and increase of import and disturbs foreign trade balance of the Republic of Serbia.

12. In 2010 the Government adopted the First Communication of the Republic of Serbia in accordance with the United Nations Framework Convention on Climate Change, and the National Strategy for Integration of Serbia into Clean Development Mechanism in accordance with the Kyoto Protocol in sectors of agriculture, forestry and waste management. National Ozone Office, in charge of gradual prohibition of substances destroying the ozone layer, was established.

Recommendations

1. Additional actions need to be taken to stop the increase of total poverty in 2011, and the number of those living under the national line of poverty must be reduced significantly in the following period. Special measures must be taken for reducing poverty of sensitive social groups and for their incorporation into labor market and other processes that enable higher social inclusion.

2. It is necessary to immediately reduce public expenditure to realistic limits, i.e. in accordance with possibility of financing it from realistic public income.

3. It is necessary to increase efforts for creating sustainable production and consumption, strengthen the production and enforce incentive measures in agriculture.

4. It is necessary to adopt internationally accepted nomenclature of activities and professions and apply statistical standards for monitoring the "green economy" and "green employment", which should be done in accordance with international regulations and practice, primarily in the EU, in order to compare the status and process of sustainable development relization in the Republic of Serbia.

5. Reducing corruption remains to be one of priorities. It is necessary to further strengthen mechanisms of control and fight against corruption, as well as institutional and legal mechanisms that will reduce corruption to acceptable levels.

6. The educational system reform needs to be enforced in order to establish education for sustainable development. Likewise, through the reform it is necessary to incorporate contents from the field of sustainable development into teaching plans and programs at all levels: pre-school, elementary, secondary and higher education.

7. It is necessary to apply the system of economic measures and instruments intended for increase of energy efficiency in a broader and more consistent manner, both in total, and separately, in key and critical sectors. It is necessary to initiate the broadest action to raise public awareness of this problem, as well as of the possibilities to resolve it. The necessity of correcting electrical power prices is increasingly imposing itself as imperative that must be faced in near future if the system that was created and has functioned for a long time is not to be destroyed.

8. Having in mind that in 2012 the first binding period that the Kyoto Protocol refers to is ending, and that the content of future international activities on prevetion and protection against global climate change consequences is still uncertain, all activities of competent authorities and institutions for preparation of the Second Communication of the Republic of Serbia in accordance with the United Nations Framework Convention on Climate Change need to be supported. Special attention should be dedicated to passing and enforcing a system of measures for adaptation and alleviation of climate change consequences in all sectors.

9. A set of economic measures and instruments for introducing cleaner production in all sectors need to be developed and expanded (reduction of waste production and reduction of emissions into air and water, and more efficient use of resources and energy), and transforming environmental protection funds – from strictly budgetary to credit institutions – need to be continued.

10. More intense enforcement of strategy and regulations on waste management is needed, in order to establish an integral system and create infrastructure necessary for such management.

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APPENDIX 1: Table including indicator values

Subject matter	Areas	Key indicators	Year	Basic value	Year	Current value	Data source	Note	Trend
Poverty	Lack of income	Percentage of population under the national poverty line, %	2009	6.9	2010	9.2	SORS		
		Gender wage ratio, %	2008	95.2	2009	96.5	SORS		
	Inequality	GINI Coefficient	2009	0.319	2010	0.282	RID		
		HDI – Human Development Index	2009	0.733	2010	0.735	UNDP	Change in calculation methodology compared to the previous report	
		Index of regional inequality in human development	2007	6.9 : 1	2008	10 : 1	First National Report on Social Inclusion and Poverty Reduction in the Republic of Serbia		
	Assistance to the poor	Population covered by state aid and support programs, number of inhabitants	2009	676,682	2010	756,106	First National Report on Social Inclusion and Poverty Reduction in the Republic of Serbia		
	Living conditions	Percentage of built social housing units compared to the total number of finished housing units, %		–		–		Data not available	
Management	Corruption	CPI – Corruption Perception Index	2009	3.5	2010	3.5	Transparency International		
		Degree of general trust of citizens		–		–		Data not available	

	Crime	Number of recorded criminal acts of violence per 100,000 inhabitants	2009	101,614	2010	100,401	MI	Total crime rate. Information updated for 2009	
	Efficiency of Public Administration	Degree of e-government, in %	2009	46	2010	....	The National Information Technology and Internet Agency		
Health	Mortality	Mortality of children under the age of 5, %	2008	7.8	2009	7	UNICEF		
		Healthy life expectancy	2008	73.7	2009	74.06	UN Statistics		
		Life expectancy of people with disability (DALY indicator)	2000	26.1 and 18.1 for ischaemic heart diseases 17.9 and 18.1 for myocardial infarctions 8.7 depression in women		–	Janković and others, The burden of disease and injury in Serbia, The European Journal of Public Health 2007	During the period between the two reports, no new surveys were conducted.	
	Provision of health care	Percentage of population having access to primary health care, %	2009	92.5	2010	92.87	RHCI	on 1st January 2010	
		Percentage of women using any of the modern birth control methods, %	2006	37.3		–	Institute of Public Health of Serbia « Dr Milan Jovanović Batut»	During the period between the two reports, no new surveys were conducted.	
	Health status and risks	Smoking prevalence among children between 13 and 15 years of age, %	2008	10.4		–	Institute of Public Health of Serbia « Dr Milan Jovanović Batut»	During the period between the two reports, no new surveys were conducted.	

		Smoking prevalence among adults above 20 years of age, %	2006	33.6		–	Institute of Public Health of Serbia « Dr Milan Jovanović Batut»	During the period between the two reports, no new surveys were conducted.	
		Number of suicides (per 100,000 inhabitants)	2006	19.5	2009	20	SORS		
Education	Level of education	Percentage of population having university education, %	2008	11.9	2010	9.6	SORS		
	Literacy	Adult literacy ratio, %	2002	96.6	2002	96.6	SORS		
	Level of education of the population	Rate of enrolment at primary and secondary schools, %	2007/08	97.46 (primary education) 80.93 (secondary education)	2008/09	98.53 (primary education) 83.20 (secondary education)	SORS		
Population	Population	Rate of the overall population increase, %	2009	-0.21	2010	-0.38	SORS		
		Overall fertility rate, ‰	2008	1.41	2009	1.44	SORS		
		Old-age dependency ratio	2008	32.5	2009	25.2	SORS		
		Indicators of internal migrations of the population	2008	3,056	2009	5,433	SORS	Total migration balance in the Republic of Serbia	
	Tourism	Tourism density in major tourist regions and destinations, %	2009	Belgrade 576,540 Vrnjačka Banja 147,611 Zlatibor 93,093	2010	Belgrade 589,456 Vrnjačka Banja 146,246 Zlatibor 104,824	SORS	Number of tourist arrivals	
Economic development	Macroeconomic performances	GDP per capita, EUR	2008	4,500	2010	3,901	SORS		
		Share of investments in GDP, %	2009	18.2	2010	21.7	SORS, NBS		
		Internal and external debt in GDP, %	2009	4.1internal 77.9 external	2010	4.6 internal 82.5 external	NBS		

		Trends in retail price index, %	2009	10.4	2010	10.3	SORS		
	Employment	Unemployment rate, %	2009	17.4	2010	19.2	SORS		
		Employment rate, %	2009	50.0	2010	37.9	SORS		
		Unemployment rate among women, %	2009	19.1	2010	20.2	SORS		
		Unemployment rate among persons aged 15-24, %	2009	42.5	2010	45.1	SORS		
		Unemployment per regions, %	2009	17.2 Central Serbia 18.3 AP Vojvodina 13.4 Belgrade	2010	– Central Serbia 20.4 AP Vojvodina 14.9 Belgrade	SORS		
	Information and communication technologies	Number of active Internet users per 100 inhabitants, %	2009	38	2010	39	SORS		
		Number of active mobile phone subscribers per 100 inhabitants %	2009	119.7	2010	119.7	SORS		
	Research and development	Share of research and development costs in GDP, %	2009	0.5	2010	0.48	SORS		
Global economic partnership	Trade	Trade deficit, mill. €	2009	5,200	2010	4,768	SORS		
	External financing	ODA as a share of GDP, %	2008	2.05	2009	1.44	The World Bank		
Consumption and production	Establishing balance between current production and consumption	Ratio of current production and consumption		–		–		Data not available	

	Energy consumption	Final energy consumption per capita, toe /inhabitant	2008	1.054	2009	1.20	MME		
		Energy intensity, toe/USD GDP	2007	1.20	2008	1.16	IEA	There are no official data	
		Share of energy from renewable sources in total energy consumption, %	2008	5.86	2009	8.5	MME		
	Waste generation and waste management	Waste generation, t/inhabitant	2008	0.347	2009	0.36	SEPA		
		Hazardous waste generation, t/year.	2008	100,000	2009	652,792	SEPA	Estimation	
		Quantity of waste being processed, %	2010	–		–	SEPA		
	Transport	Energy intensity of traffic, toe /1000USD GDP		–		–		Data not available	
Natural disasters	Sensitivity to natural disasters	Number of deaths caused by natural or technological disasters, %	2007	1.038 persons (by technological disasters)	2009	1.823 persons (by accidents)	SORS	There are no available information on the number of deaths caused by natural disasters	
		Percentage of population living in naturally risky areas, %		–		–		Data not available	
Atmosphere	Climate changes	Emission of CO_2 per capita, t CO_2 /inhabitant	2007	6.73		6.69	IEA		

		Emission of greenhouse gasses, Gg/inhabitant	1998	CO_2 0.0086 CH_4 0.00006 N_2O 0.000004 NO_2 0.00028 CO 0.0009 VOC 0.00037 SO_2 0.00067			First Communication of the Republic of Serbia on Framework Convention on Climate Change	Basic plan: total emission of GHG in Serbia will go up by 12.2% in 2012, i.e. by 20.4% in 2015 compared to the emissions from 1990 (reference year), alternative plan: the emissions in 2012 would be increased by 10.6% and in 2015 by 11.7%.	
	Ozone layer depletion	Consumption of substances depleting the ozone layer, ODP tonnes	2008	88	2009	29.7	MESP	Prohibition of CFC use entered into force on 1st January 2010	
	Air quality	Concentration of air pollutants in urban areas, µg/m^3	2008	SO_2-127 Bor Soot-86 Užice	2009	SO_2-111 Bor, Smederevo 69, Kostolac 53 NOx – not exceeded	SEPA		
Land	Land use and status	Changes in land use, %		–	2009	Slight increase in the agricultural areas	SEPA	Uniform number does not exist, but SEPA is monitoring the change of purpose	
		Degradation of soil, ha		122,100	2009	320,100	SORS		
	Desertification	Soil degraded through draught, %		–		–		Data not available	
	Agriculture	Share of standing crops in the structure of total arable land, %	2008	7.1	2009	7.05	SEPA		

		Use of mineral fertilizers, kg/ha	2009	579,078 t produced	2010	905,842 t produced	SORS		
		Use of pesticides, t active substances /10 km^2	2009	5,229 t	2010	4,040 t	SORS	Production reduction compared to 2007	
	Forests	Share of forest land in the total territory, %	2008	35.33	2009	35.33	SEPA		
	Fishing	Annual fish catch for 5 most common species of fish, t	2008	856	2009	3,845	SEPA		
Waters	Quantity of water	Annual quantity of drained ground and surface water, expressed as both the absolute value and the share in total renewable quantity of water, m^3	2008	674,301,000	2009	667,552,000	SORS	485,612,000 m^3 of collected ground water, and 188,689,000 m^3 of drained surface water	
		Water consumption by sectors, m^3	2008	Households 348,052,000 Industry 175,557 mill. Agriculture 83,993,000	2009	Households 339,005,000 Industry 187,647 mill. Agriculture 78,368,000	SORS		
	Quality of water	Presence of faecal bacteria in drinking water, %	2008	5.42	2009	4.9	„Dr Milan Jovanović Batut"		
		BOD in watercourses, mg/l	2008	2.51	2009	2.3	SEPA	Median of average annual values from RHSS observations	
		Percentage of treated waste waters, %	2007	13.78	2009	16.5 settlements 5.29 industries	SORS		

Biodiversity	Ecosystems	Share of protected areas compared to total territory, %	2008	5.86	2009	5.86	SEPA		
		Areas under selected key ecosystems, mill. ha	2008	2.3 mill. ha under forest; population growth in 5 species of meadow birds	2009	2.3 mill. ha under forest; population growth in 5 species of meadow birds	SEPA		
	Species	Changes in the status of endangered species, number of adult species	2008	Population growth in 4 species of forest birds	2009	Population growth in 4 species of forest birds	SEPA		
		Share of endangered species in the total number of species, %	2008	plants 1 mammals 8 birds 34 fish 12.5 amphibians 56	2009	plants 1 mammals 8 birds 34 fish 12.5 amphibians 56	SEPA		
		Index of endangered species - ENDAN	2008	0.21	2009	0.21	SEPA		

APPENDIX 2: Sustainable development indicators – definitions and units of measurement

KEY INDICATORS	INDICASTOR DEFINITIONS AND UNITS OF MEASUREMENT
Percentage of population below the national poverty line	**Definition**: share of the population with living standards below the national poverty line **Unit:** % of the poor compared to the total population
Gender wage ratio	**Definition:** ratio between the average salaries of employed women and men paid for their regular work **Unit:** % of average salary of women compared to average salary of men
GINI coefficient	**Definition:** a collective measurement of the scope to which actual distribution of income, costs of production or the variable, differ from the hypothetical distribution in which each person has an identical share **Unit:** non-dimensional index ranging from 0 to 100 (0 indicating total equality, in which income and property are equally distributed to all members of society, and 100 showing absolute inequality in which all income and property belong to one person only
HDI – Human development index	**Definition:** a standardized derived indicator including indicators of life expectancy at birth, adult literacy rates, level of education and GDP **Unit**: non-dimensional coefficient from 0 to 1
Index of regional inequality in human development	**Definition:** ratio between the highest municipal HDI and the lowest municipal HDI **Unit**: HDI of the municipality with highest HDI/HDI of the municipality with lowest HDI
Population covered by state aid and support programs	**Definition:** structure and coverage of the population with social aid in the system of social protection **Unit:** % of beneficiaries compared to the number of the poor or to the total population
Percentage of built social housing units compared to the total number of finished housing units	**Definition:** number of housing units built with the support of the state budget funds for households which cannot solve their housing problem in the market, compared to the total number of the housing units built **Unit: %**
CPI – Corruption percentage index	**Definition:** index of corruption of public servants and politicians, calculated by the methodology of Transparency International **Unit**: Non-dimensional index ranging from 1 to 10; 1 indicating the greatest corruption, 10 indicating that there is no corruption
Degree of general trust of citizens	**Definition:** index of generalized trust of citizens according to WVS methodology, five-year monitoring **Unit**: %
Number of recorded criminal acts of violence per 100,000 inhabitants	**Definition:** total number of criminal acts recorded in the police statistics, irrespective of type **Unit:** number of cases recorded in the police/100,000 inhabitants per year

Degree of e-government	**Definition:** establishing e-government as a modern way of public administration **Unit:** number of public authorities who have introduced e-government systems
Mortality rate of children under the age of 5	**Definition:** mortality of children under the age of 5 per 1,000 newborns **Unit:** per 1,000 newborns
Healthy life expectancy	**Definition:** average number of years that a person is expected to live, if there is a known rate of mortality of women and men in a specific period **Unit:** years of life
Life expectancy of people with disability (DALY indicator)	**Definition**: the sum of lost years due to premature death and life with disability caused by a health disorder **Unit:** years
Percentage of population having access to primary health care	**Definition:** share of population who have access to primary health care **Unit:** %
Percentage of women using any of the modern birth control methods	**Definition:** share of women of reproductive age using any form of birth control **Unit:** %
Prevalence of smoking among children between 13 and 15 years of age	**Definition**: prevalence of tobacco consumers (including smoking, chewing and sniffing) on one or more occasions in 30 days before the survey, among adolescents aged 13-15 **Unit**: %
Prevalence of smoking among adults above 20 years of age	**Definition**: prevalence of smokers (including cigarettes, cigars, pipe, or other tobacco product). Smokers are those who regularly, irregularly or occasionally use **Unit:** %
Number of suicides	**Definition:** number of registered cases of suicide resulting in death per 100,000 inhabitants **Unit**: number of cases registered by police/100,000 inhabitants, annually
Percentage of the population having university education	**Definition:** share of working age population (aged 25-64) with university education **Unit: %**
Adult literacy ratio	**Definition:** share of the population aged above 15 that is literate **Unit: %**
Rate of enrollment at primary and secondary schools	**Definition:** systematic rate of enrollment at primary and secondary schools **Unit:** % of enrolled compared to the total potential number of pupils
Rate of increase of the total population	**Definition:** average annual rate of the population change in a given period **Unit:** %
Total fertility rate	**Definition:** the average number of children that would be born if all women lived till the end of their reproductive years and gave birth according to the birth rate for a specific region and period **Unit:** %
Old-age dependency ratio	**Definition:** the share of dependent population aged 0-14 and over 65 relative to the total population **Unit:** %

Indicators of internal migrations of the population	**Definition:** regional distribution of population and movement between censuses, so that regions with the greatest outflow or inflow of population could be identified **Unit:** population balance between the population censuses
Tourism density in major tourist regions and destinations	**Definition:** ratio between the number of tourists and population **Unit:** %
GDP per capita	**Definition:** levels of GDP per capita as the ratio between annual or periodical GDP measured by purchasing power parity and the number of inhabitants **Unit:** USD
Share of investments in GDP	**Definition:** share of gross and net investments relative to GDP, expressed as a ratio between gross productive investments (depreciation and accumulation) and GDP measured by purchasing power parity **Unit:** %
Internal and external debt	**Definition:** annually monitored data on tends of internal and foreign national debt in order to evaluate the sustainability of future trends **Unit:** internal and foreign debt as a percentage of GDP
Trends in retail price index	**Definition**: monthly retail price indexes used for analyzing sustainability of the present state or taking measures for stabilization of macroeconomic trends **Unit:** monthly consumer price index
Unemployment rate	**Definition:** share of actually unemployed compared to the total active population **Unit** %
Employment rate	**Definition:** share of the employed individuals in the overall working age population **Unit:** %
Unemployment rate among women	**Definition:** share of actually unemployed women relative to the total active population **Unit:** %
Unemployment rate among young population under 28 years of age	**Definition:** share of the young unemployed persons under 28 years of age relative to the total labor force (active population) **Unit:** %
Unemployment trend per regions	**Definition:** A special problem is the extremely high unemployment rate in the most undeveloped regions of the country. The issues of employment in these regions will be a subject of special attention**.** **Unit:** trends of the unemployment rate, especially of the young and highly educated persons in undeveloped regions**.**
Number of active Internet users per 100 inhabitants	**Definition:** the share of active Internet subscribers and the total population. Subscribers are individuals or organizations. **Unit:** number of subscribers per 100 inhabitants
Number of mobile phone subscribers per 100 inhabitants	**Definition:** ratio between the number of operative telephone numbers and the overall population **Unit:** %
Share of research and development costs in GDP	**Definition:** total national expenditures for scientific research and experimental development, expressed as a share of GDP **Unit:** %

Trade deficit	**Definition:** the difference between the value of exported goods and services and the value of imported goods an services **Unit:** USD
ODA as a share of GDP	**Definition:** total ODA provided, as a share of GDP **Unit:** %
Ratio of current production and consumption	**Definition:** there is a need for continuous annual monitoring of the trends of current consumption and its harmonization with the achieved results in production **Unit:** balance of current production and consumption (ratio between generated GDP and total consumption, increase in consumption only in accordance with, and on the basis of, the achieved growth of labor productivity)
Energy consumption per capita	**Definition**: quantity of energy (oil, coal, gas and electricity) per capita available for the respective year **Unit:** GJ/per capita or toe (tonne of equivalent oil) per capita
Energy intensity (energy used per unit of GDP measured in purchasing power parity)	**Definition:** relation of the value of total consumed energy per unit of GDP **Unit:** MJ/USD GDP
Share of energy from renewable sources in total energy consumption	**Definition:** share of energy generated from renewable sources in total generation of energy **Unit:** %
Waste generation	**Definition:** annual quantity of industrial and municipal solid waste generated in production and consumption **Unit:** t/per capita, t/1000$ GDP
Generation of hazardous waste	**Definition:** total annual quantity of hazardous waste from industrial and other activities, according to the definition of hazardous waste **Unit:** t/unit of GDP
Quantity of waste being processed	**Definition:** share of waste undergoing recycling, composting, incineration **Unit:** %
Energy intensity of traffic	**Definition:** consumption of energy for transport relative to quantity of cargo or number of passengers and distance covered, value of energy used per monetary unit generated in transport **Unit**: MJ/t/km for cargo, MJ/passenger/km for passengers, USD/1000$ GDP
Number of death cases from natural or technological disasters	**Definition:** the death toll from natural (floods, droughts, earthquakes, landslides) and technological disasters (traffic accidents, chemical incidents, fires) **Unit:** %
Percentage of population living in naturally risky areas	**Definition:** share of population living in regions with a risk of floods, earthquakes, landslides, etc**.** **Unit:** %
Emission of CO_2 per capita	**Definition**: total quantity of CO_2 emitted into the atmosphere on the Serbian territory, resulting from human activity (production and consumption), relative to the overall population **Unit**: t CO_2 per capita

Emission of greenhouse gases	**Definition:** anthropogenic emissions of greenhouse gases (CO_2, CH_4, N_2O, HFC, PFC, SF_6, CFC and HCFC), reduced by losses, together with indirect greenhouse gases (NO_x, CO and VOC excluding methane). **Unit:** annual emission of greenhouse gases in G_g or G_g/per capita and G_g/1000$ GDP. Emissions of CH_4, N_2O, HFC_s, PFC and SF_6 can be converted into CO_2 equivalent, using the 100 year potential of global heating
Consumption of substances depleting the ozone layer	**Definition:** quantity of ozone layer depleting substances, prohibited according to the Montreal protocol **Unit**: t/per capita, t/1000$ GDP
Concentration of air pollutants in urban areas	**Definition:** Concentration of air pollution by ozone, CO, suspended matter, SO_2, NO_x, VOC including benzene and lead **Unit**: µg/m³, ppm or ppb; or the number of days when limits are exceeded
Changes in land use	**Definition:** share of changes of land use over a period of time **Unit:** %
Degradation of soil	**Definition:** changes in the nature of soil resources depending on the type and geographical location, including: physical state of soil; diversity and density of vegetation coverage; depth of surface layer, salinity and alkalinity, etc. **Unit:** ha (the size of the area and intensity of changes with deterioration or improvement of the situation)
Soil degraded through drought	**Definition:** the size of land affected by drought and its share in the national territory **Unit**: area (ha) or % of land affected by drought
Share of standing crops in the structure of total arable land	**Definition:** land under standing crops is land under crops that occupy the land over a long period of time and do not need to be planted every time after every harvest **Unit:** 1000 ha
Use of mineral fertilizers	**Definition:** the degree of the use of fertilizers in farming per unit of area of agricultural land **Unit:** kg/ha
Use of pesticides	**Definition:** use of pesticides per unit of agricultural land **Unit:** t active pesticide substances per 10 km² of agricultural land
Share of forest land in the total territory	**Definition:** share of natural and planted forest land cultivated over a period of time, in the overall land fund **Unit:** %
Annual fish catch for 5 most common species of fish	**Definition:** annual fish catch for 5 most common species of fish relative to annual maximum quantity **Unit**: t
Annual quantity of drained ground and surface water, expressed as both the absolute value and the share in total renewable quantity of water	**Definition:** total annual quantity of drained ground or surface water as a share of total annual renewable drinking water **Unit:** m³, %
Water consumption by sectors	**Definition:** share of drained water used by sectors (households, industry, agriculture) **Unit:** % of total drained water

Presence of faecal bacteria in drinking water	**Definition:** share of drinking water resources intended for household use containing concentrations of coliform bacteria exceeding those recommended by WHO for drinking water quality **Unit:** %
BOD in watercourses	**Definition:** quantity of oxygen needed or used for microbial degradation (oxidation) of organic substances in water **Unit:** mg/l oxygen used in 5 days at constant temperature of 20ºC
Percentage of treated waste waters	**Definition**: share of waste water undergoing some sort of treatment **Unit:** %
Share of protected areas compared to total territory	**Definition**: the areas of protected eco-systems on land or in inland waters, expressed as a share of total eco-system area **Unit**: %
Areas under selected key eco-systems	**Definition:** assessment of trends in existing areas of identified key eco-systems, for the purposes of assessing the relative effectiveness of measures for protection of biodiversity at the level of eco-systems, and as a tool for assessing the needs for special measures of protection, related to biodiversity preservation **Unit:** area (km² or ha) of selected types of eco-systems
Changes in the status of endangered species	**Definition:** assessment of trends of numbers of certain species, for the purposes of evaluating changes in biodiversity and relative effectiveness of measures for preservation of biodiversity **Unit:** number of grown representatives of species per area
Share of endangered species in the total number of species	**Definition:** share of endangered species in the total number of species of plants, mammals, birds, fish and amphibians **Unit**: %
Index of endangered species ENDAN	**Definition:** the index is calculated as follows ENDAN =$(M^2/3 + B^2/3 + F^2/3)^{0.5}$ where: M is % of endangered species of mammals, B is % of endangered species of birds and F is % of endangered species of fish **Unit:** non-dimensional index ranging from 0 to 1; 0 indicating no endangerment and 1 is the maximum possible level of endangerment of living species

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