



NATIONAL SUSTAINABLE DEVELOPMENT STRATEGY



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**THE GOVERNMENT OF THE REPUBLIC OF SERBIA
Belgrade, 2008**

Pursuant to Article 17 paragraph 1 and Article 45 paragraph 1 of the Law on Government ("Official Gazette RS" Nr. 55/05, No. 71/05-amendment and No. 101/07),

The Government hereby issues the

NATIONAL SUSTAINABLE DEVELOPMENT STRATEGY

I. INTRODUCTION

1. Basic postulates of sustainable development

The modern world is faced with common responsibility and the necessity of harmonizing its development with the needs of people and nature and with the awareness that the earth must be preserved for both present and the future generations. The obligation of the present generation to leave at least as many opportunities to posterity as it has enjoyed itself ensues from the fundamental principle of moral justice which is that all people have equal rights to the broadest basic freedoms provided they do not infringe upon the freedom of others. The present generation has the right to resources and to a healthy environment, but it must not compromise the same right of following generations.

The National Sustainable Development Strategy (hereinafter: the Strategy) defines sustainable development as a target-oriented, long-term (continuous), comprehensive and synergetic process affecting on all aspects of life (economic, social, environmental and institutional) at all levels. Sustainable development requires the development of models which provide a quality response to the socio-economic needs and interests of the people, while at the same time eliminating or significantly reducing threats or damage to the environment and natural resources. The long-term concept of sustainable development implies continued economic growth; growth, however, seen as increments in economic efficiency, technological progress, wider use of cleaner technologies, greater corporate social responsibility, poverty reduction and general social innovation. Growth should also imply the long-term rational use of resources, improvement of health conditions and quality of life, levels of pollution within the carrying capacity of the environment and the preservation of bio-diversity. Sustainable development must also generate new employment, reduce gender and other social inequalities faced by marginalized groups and promote the employment of the young and persons with disabilities and other vulnerable groups.

Sustainable development implies the need to harmonize different aspects of development and the contradictory elements included in the programmes of individual sectors. Effective resolution of such conflicts requires a high level of political will and dedication. Key pre-requisites for the acceptance and adoption of the concepts of sustainable economic and social development and their successful implementation include adequate leadership, broad political, social and media support, and a social consensus on the need to accept the concept. In this context, strong political will, the dedication of the government and public support are the most direct prerequisites for success. One feature of sustainable development is greater public participation in decision-making on the resolution of environmental problems. Declarative will expressed by the government is not enough, and special incentives are necessary, above all timely information and education, so that the public is in a position objectively to influence the outcomes that it is interested in achieving.

The objective of the Strategy of the Republic is to establish a balance between the three key factors, or three pillars of sustainable development: sustainable development of the economy and technology, sustainable social development based on social balance and environmental protection accompanied by rational use of natural resources. At the same time, the goal of the strategy is to join the three pillars into one whole, supported by appropriate institutions.

The Strategy makes a significant contribution to harmonizing possible conflict in the objectives of different aspects of social-economic development, bridging the gap between the processes of establishing sectoral policies, and establishing a system of mutual advantages. This has been achieved in the joint work on the development of the Strategy through the broad participation of all key stakeholders.

2. The Content of the Strategy

The Strategy consists of eight sections.

The first section shows the methodology used in developing the Strategy and the basic information on the adopted strategic documents of the Republic of Serbia on which the Strategy is based. The charts demonstrate the functional links between the three elements of the Strategy (economy, society and environment), and show how they interact.

The second section of the Strategy defines the strategic orientation towards sustainable development and includes the vision of development, national priorities and the principles of the Strategy. This section includes the initial SWOT analysis.

The third section deals with the economy, one of the three pillars of sustainable development. It contains the basis of a knowledge-based economy in Serbia, and offers specific objectives and priorities over the following areas; microeconomic management, the choice of an appropriate economic policy, transitional trends, sustainable production and consumption, education for sustainable development, IC technologies and a knowledge-based economy, the sustainability of the scientific and technological policy and protection of intellectual property.

The fourth section of the Strategy deals with socio-economic conditions and the prospects created by sustainable development in the Republic of Serbia. This section details objectives, measures and priorities in different areas of social development and their connections and effects on economic development and environmental protection – social values, quality of life and social welfare, population policy, social security, poverty and social inclusion, policy on equal opportunities, gender equality, public healthcare, housing and housing policy, regional and local aspects of sustainable development and information provision and public participation in decision-making.

The fifth section is dedicated to the issues of environmental protection and preservation of natural resources, and to the effects of economic development on the environment. The section shows objectives, measures and priorities regarding the protection of natural resources (air, water, soil, biodiversity, forests, mineral resources and renewable energy), protection from various environmental risk factors (climate change, damage to the ozone layer, waste, chemicals, accidents, ionizing and non-ionizing radiation, noise and natural disasters), protection from various environmental risk factors in different sectors of the economy (industry, mining, the energy sector, agriculture, forestry, hunting and fishing, transport and tourism), and the introduction of cleaner manufacturing.

The sixth section of the Strategy outlines the institutional framework and mechanisms for implementation, particularly emphasizing the establishment of new and the strengthening of existing institutions for the implementation of the Strategy, as well as clear mechanisms for the allocation of responsibility and jurisdiction in implementing and monitoring implementation.

The seventh section sets out the sources of funding for the Strategy.

The eighth section provides the methodology used in monitoring the implementation of the Strategy with clearly defined indicators of sustainable development in the individual areas with which the Strategy deals. It also gives a list of institutions in charge of monitoring these indicators.

Figure 1. Presents a plan of the National Sustainable Development Strategy, while Figure 2. Illustrates the functional links between Strategy components.

Figure 1. Chart of the Strategy

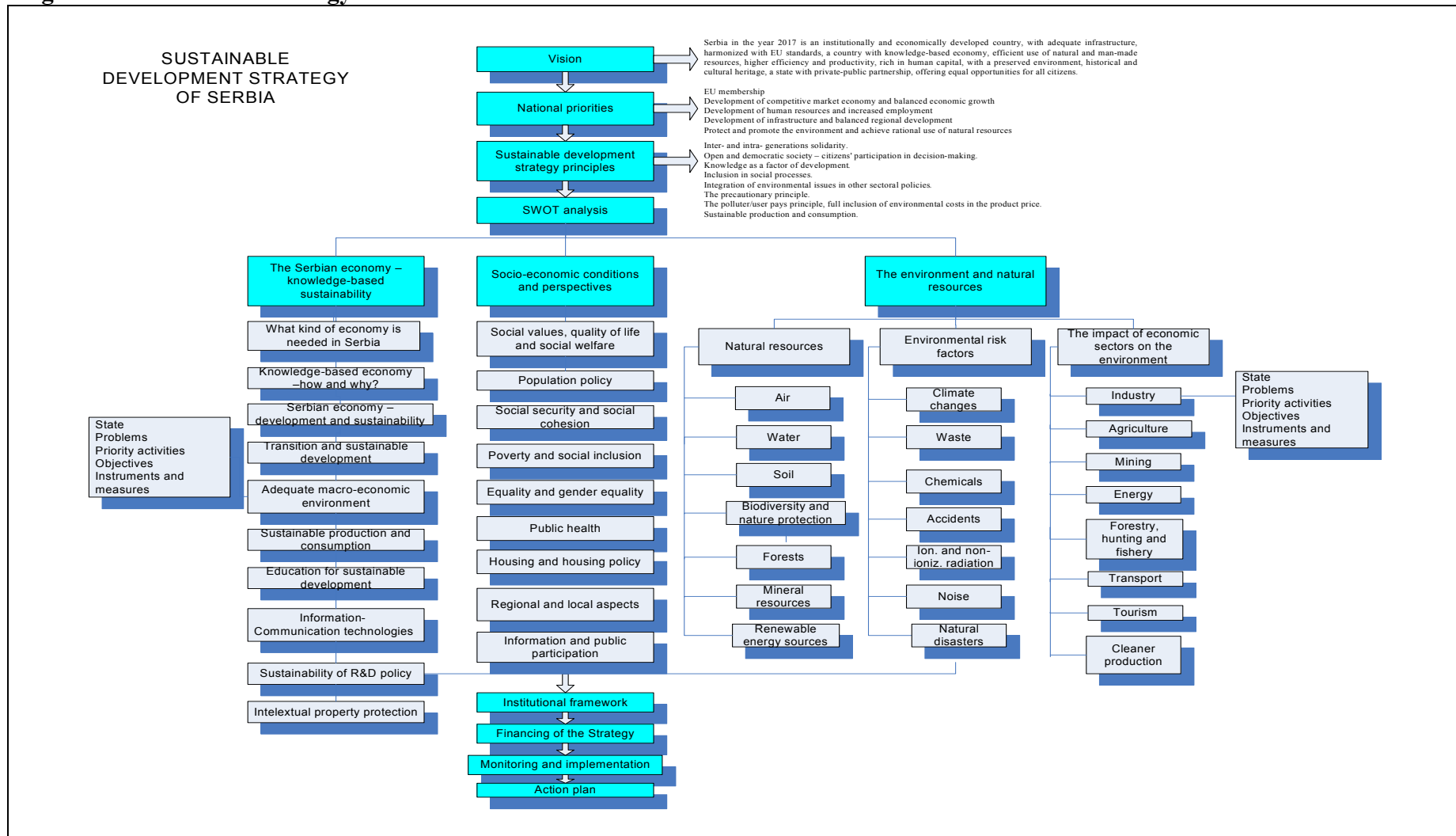
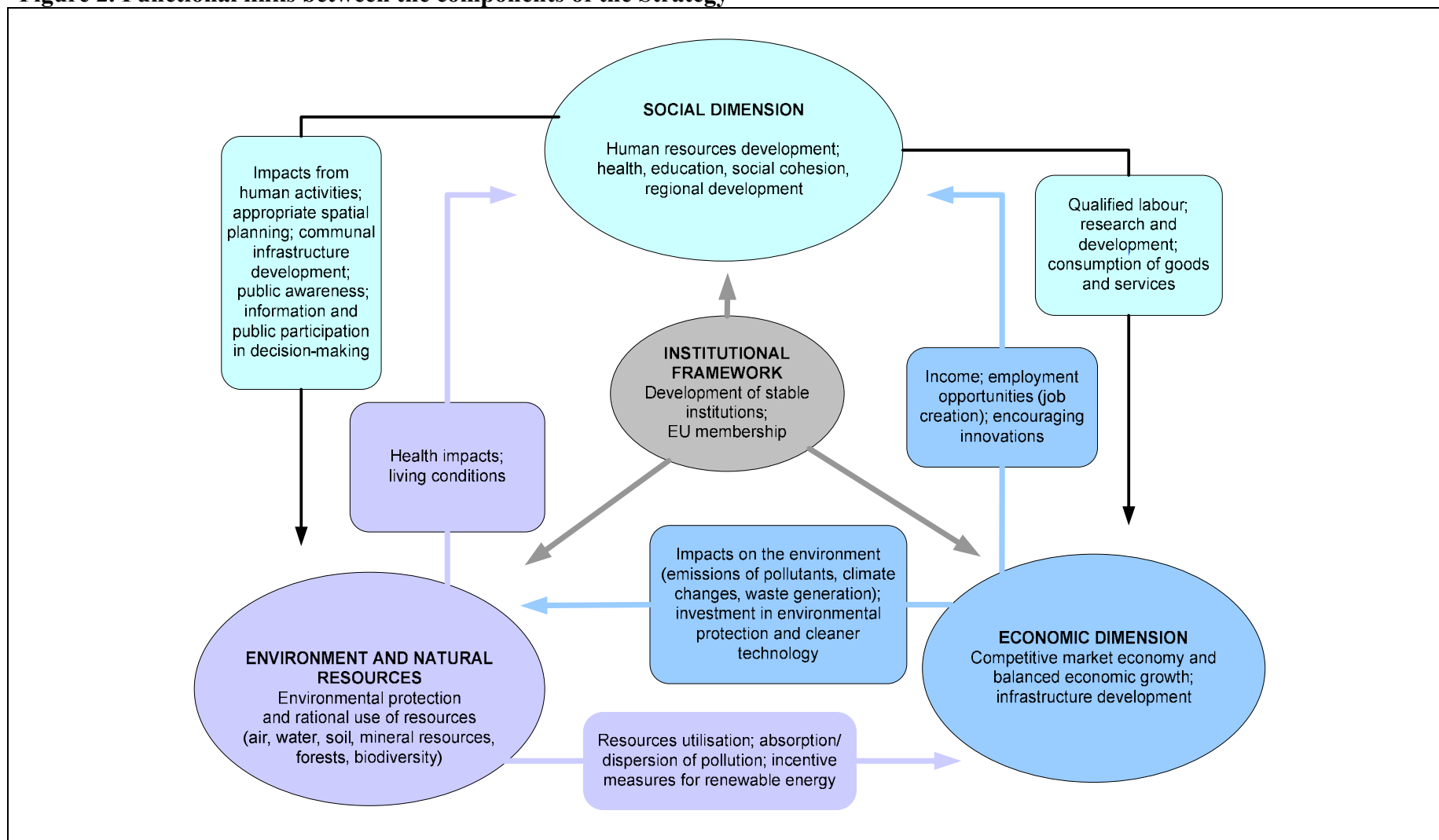


Figure 2. Functional links between the components of the Strategy



The abbreviations and acronyms used in the Strategy have the following meaning:

ASEAN – Association of South European and Asian countries;
BAT – Best Available Technology;
BATNEEC – Best Available Technologies Not Entailing Excessive Costs;
BEP – Best Environmental Practice;
CEDAW – Convention on the Elimination of All Forms of Discrimination Against Women;
CITES – Convention on International Trade in Endangered Species of Wild Fauna and Flora;
CPI – Corruption Perceptions Index;
EEA – European Environmental Agency;
EIA – Environmental Impact Assessment;
EIONET – European Information and Observation Network;
EMS – Environmental Management System;
EMAS – Environmental Management and Audit Scheme;
ESCO – Energy Service Company;
HACCP – Hazard Analysis Critical Control Points;
HDI – Human Development Index;
IBA – International Bird Area;
IESCR – International Covenant on Economic, Social and Cultural Rights;
IPA – Important Plant Areas;
IPPC – Integrated Prevention and Pollution Control;
LCA – Life Cycle Analysis;
MOP – material provisioning for the family;
NAFTA – North American Free Trade Agreement;
OECD – Organization for Economic Cooperation and Development;
RES – renewable energy sources;
ODA – Official Development Assistance;
PPP – Purchasing Power Parity;
PPP – Public Private Partnership;
SIDA – Swedish International Development Agency;
SWOT – Strengths, Weaknesses, Opportunities, Threats;
toe – tons of oil equivalent;
UNDP – United Nations Development Programme;
UNFCCC – United Nations Framework Convention on Climate Change;
USD – US dollar;

GDP – Gross Domestic Product;
EU – European Union;
GMO – Genetically Modified Organisms;
MOP – material provisioning for the family;
IWO – International Work Organization;
SME – Small and Medium Enterprises;
SHP – Small Hydro Plants;

NGO – Non-Governmental Organization;
NIP – National Investment Plan;
RES – Renewable Energy Sources;
WHO – World Health Organization;
UN – United Nations;

3. The methodology of strategy development

The preparation of the Strategy was initiated as a direct response to the World Summit on Sustainable Development at the proposal of the Ambassador of the Kingdom of Sweden in Belgrade. Work began in July 2005 through the cooperation of the Office of the Deputy Prime-Minister of the Republic of Serbia, the UNDP and SIDA. The fundamental aim of the project was to produce the Strategy through a broadly participatory process, as a comprehensive strategic framework document for government, harmonized with the existing strategic framework.

The methodology applied in developing the Strategy has been presented to and verified by the professional international public.

In compliance with international practice, the Strategy was developed through a participatory process with the engagement of a great number of stakeholders from across Serbian society. In other words, confirming the earlier experience of the concept of sustainable development as a process based on mutual learning and linking of numerous experiences and expertise into one synergy aimed at enhancing all aspects of life, the task of developing the Strategy was undertaken through the cooperation and interaction of numerous institutions and stakeholders, with the government taking the leading role.

One of the major strong-points in the process of Strategy development was reliance on the academic community, in order to avoid possible politicization and the association of the successful development (and implementation) of the Strategy with any individual political option. Successful management of the Strategy development process required, from the outset, a high level of political sensitivity while searching for generally acceptable solutions in situations where numerous stakeholders had different, and often contradictory attitudes on key components of the Strategy. It was also necessary to provide for continuity under complex social-political relations and circumstances and to impose the process of strategy development as one of the priorities not only of the current government, but also of future governments, bearing in mind the fact that sustainable development is a long process, longer than the term of office of any government.

During the inception stage of strategy development, numerous stakeholders, individuals and institutions were acquainted with the original concept of the Strategy. The starting point was to take the existing adopted strategic documents and build on them a concept of sustainable development which would bring together all three pillars – economy, society and environment – in a way that will create synergy. This required analysis of the existing sectoral and inter-sectoral strategies which in turn generated guidelines for further strategy development. Two more working documents resulted from this process: the links between economic development and environmental protection and the links between the environment and certain social issues.

Three working groups were established with representatives from relevant institutions, based on invitations from the Office of the Deputy Prime-Minister to participate in the strategy development process. The working groups, the three pillars of the project, correspond to the three components of sustainable development – a

knowledge-based economy, social issues and the environment. The development process was open to all stakeholders. In cooperation with the biggest NGO networks, a group of nine NGOs most active in the area of sustainable development were chosen and took part in developing, promoting and evaluating the operative drafts of the Strategy.

Before the strategy development process started, a National Conference on Sustainable Development was held in March 2006, with the task of defining the vision of Serbia in 2017 and presenting the priority topics of the individual pillars of the Strategy through public participation and consultations with stakeholders and institutions. The Conference was attended by 130 participants – representatives of numerous government institutions, the academic community, business and the NGO sector. Working together and exchanging ideas, experiences and knowledge, the key national priorities and principles were identified on which the Strategy is based.

Each working group analyzed the current status of achievement for sustainable development for each priority topic and identified the key challenges and the desired status. The working groups also contributed by identifying the priorities and strategic objectives of sustainable development, and the means needed in order to support the achievement of the objectives. Special attention was paid to the institutional framework needed for the implementation of the Strategy. The financial plan for the implementation of the Strategy determines rough estimates of the funding needed to implement priority measures. This will enable the identified activities to be included in long-term budget planning and will be the basis for loans and donor activities. Detailed action plans for the implementation of the Strategy will give structure to activities designed to achieve the identified objectives.

Numerous experts participated in the preparation of the thematic components of the Strategy. The joint development i.e. the participation of a great number of stakeholders, the general public and the authorities, was a major challenge in the strategy development process. A great number of stakeholders participated in developing the Strategy: experts, representatives of institutions, relevant ministries, civil society, local government, the private sector, NGOs, etc. and it was necessary to create the feeling that it belonged equally to everyone. From September 2006 to February 2007 the working groups held several meetings in order to identify the elements and framework for the building of the Strategy and provide a platform for a broad participatory process.

As already stated, the process required political support because the government is the major agent of change and factor of development in the country. In May 2007, the newly elected government, or more specifically, the Office of the Deputy Prime-Minister, continued cooperation with the UNDP and SIDA in order to finalize the Elements for the Sustainable Development Strategy. Under the political leadership of the Office of the Deputy Prime-Minister and after the confirmation of national priorities, the first draft of the Strategy was completed, and a public debate was initiated in many towns and cities. This contributed to building consensus regarding the principal vision and priorities of the future development in the Republic of Serbia.

By doing this, Serbia has come closer to achieving one of the important conditions for accession to the European Union. However, it must not be overlooked that sustainable development is a long and continued process which will only be successful if accompanied by continued monitoring of the realisation of the Strategy and its timely review.

4. Links with other relevant strategies

The solutions contained in the Strategy are based on EU integrations: the EU Sustainable Development Strategy (adopted in 2001 and reviewed in 2006), and the Lisbon Strategy (adopted by the Council of Europe in March 2000). The Strategy is harmonized with the UN Millennium Development Goals and the National Millennium Development Goals for Serbia as adopted by the government of the Republic of Serbia in 2006.

The Strategy is being adopted at a time when the Republic of Serbia is implementing or adopting different strategies and/or development action plans – both those with multi-sectoral character and different individual sectoral development documents.

The Strategy starts from the reform objectives identified in strategies adopted by the Government of the Republic of Serbia. The present Strategy is fully harmonized with the objectives adopted in the National Strategy of Serbia for the Accession of Serbia and Montenegro to the European Union (adopted by the government in June 2005), the Poverty Reduction Strategy (adopted by the government in 2003), and in the strategies regulating the economic development of the Republic of Serbia and in programs for environmental protection.

The National Strategy for the Accession of Serbia and Montenegro to the European Union is among the strategic documents with an impact on overall national policy in the future, and is of major importance for the policy of sustainable development. The Poverty Reduction Strategy is a mid-term development framework aimed at reducing key forms of poverty. It includes analysis of samples, characteristics and profiles of poverty in Serbia, and sets out the major strategic directions for social development and reduction of the number of the poor in the years ahead. The Poverty Reduction Strategy is aimed at economic development and growth, prevention of new poverty due to the restructuring of the economy and the care of traditionally poor groups. The Strategy for the Economic Development of the Republic of Serbia identifies basic development priorities and the means of achieving them offering solutions based on an efficient market economy and increased competitiveness. The programs for environmental protection define the general short-term policy objectives (2007-2011), on-going policy objectives (2007–2016) and mid-term policies and instruments (2012-2016) for the achievement of the identified policy objectives.

The Strategy is also harmonized with the following strategic documents:

- National Employment Strategy for the period 2005-2010 (adopted by the government in 2005);
- Serbian Strategy of Agricultural Development (“The Official Gazette RS” Nr. 78/05);
- Serbian Tourism Development Strategy (“The Official Gazette RS” Nr. 91/06);
- Strategy of Promoting and Developing Foreign Investments (“The Official Gazette RS” Nr. 22/06);
- Serbian Strategy of IT Society Development (“The Official Gazette RS” Nr. 87/06);
- National Strategy for Refugees and Internally Displaced Persons (adopted by the government in May 2002) ;
- The Public Administration Reform Strategy (adopted by the government in November 2004);

- The Social Protection Development Strategy (“The Official Gazette RS” Nr. 108/05);
- The Local Sustainable Development Strategy (adopted by the General Assembly of the Standing Conference of Cities and Municipalities in December 2005);
- Strategy for the development of small and medium enterprises and entrepreneurship of the Republic of Serbia for the period 2003-2008 (adopted by the government in 2003);
- The Forestry Development Strategy of the Republic of Serbia (“The Official Gazette RS” Nr. 59/06);
- The National Waste Management Strategy, with a program of harmonization with the EU (adopted by the government in 2003);
- National Strategy Against HIV/AIDS (adopted by the government on February 17, 2005);
- Vocational Education Development Strategy (“The Official Gazette RS” Nr. 1/07);
- Adult Education Development Strategy (“The Official Gazette RS” Nr. 1/07);
- Regional Development Strategy of the Republic of Serbia for the period 2007 – 2012 and Action Plan (“The Official Gazette RS” Nr. 21/07);
- Strategy for Empowerment of Persons with Disabilities in the Republic of Serbia (“The Official Gazette RS” Nr. 1/07).
- Serbian Strategy of Energy Sector Development until 2015 (established by the government by Decision - “The Official Gazette RS” Nr. 44/05) ;
- National Anti-Corruption Strategy (established by the government in the Regulation - “The Official Gazette RS” Nr. 109/05);
- Water Management Policy of Serbia 2002-2012.(established by the government in the Regulation - “The Official Gazette RS” Nr.11/02);
- National Action Plan for Children (adopted by the government in 2004).

The strategy also considers the objectives and principles defined in the Draft of the strategy for Integration and Empowerment of Roma and in the Draft of the Healthcare System Reform Strategy – “Better health for all in the third millennium”.

II. STRATEGIC COMMITMENT TO SUSTAINABLE DEVELOPMENT

1. The Vision of Sustainable Development of the Republic of Serbia

In the year 2017 Serbia is an institutionally and economically developed country, with adequate infrastructure and harmonized with EU standards. It is a country with a knowledge-based economy, using natural and man-made resources rationally and with greater efficiency and productivity. It is rich in human capital, its environment, historical and cultural heritage are protected and the state, using private-public partnership, offers equal opportunities to all its citizens.

Such a vision resulted from the strategic objectives of sustainable development based on a thorough analysis of Serbia’s potential, as well as the conditions and limitations within which the development objectives must be achieved. The achievement of such a vision is possible through the consistent implementation of fundamental, strategic and consistent objectives based on the needs of the people to achieve a higher quality of life and standard of living. The social consensus implies that all levels of government recognize their respective roles in the achievement of the

vision for 2017, and that together they will exert influence on state institutions in order to achieve the strategic goals of sustainable development.

In line with the vision, the process identified the national priorities of the Strategy as well as the strategic and sectoral objectives of sustainable development and the development instruments and actions required to achieve them. The strategic and sectoral objectives, priority actions and development instruments are presented in the chapters that follow.

2. National priorities of the sustainable development of the Republic of Serbia

The Strategy has been created at a time when the following strategies have been adopted: The National Strategy of Serbia for the Accession of Serbia and Montenegro to the European Union, The Poverty Reduction Strategy and sectoral strategies, and after certain national development strategies and programs relevant to it have been prepared (the Draft of the Serbian Strategy of Economic Development for the period from 2006 to 2012 with the Action Plan and the Draft of the National Environmental Strategy).

The prospects for the achievement of sustainable development in Serbia lie in the introduction, adjustment and implementation of principles dominant in the EU, specifically in increasing knowledge-based competitiveness, innovation and entrepreneurship, as set out in the Lisbon strategy.

The key national priorities, the achievement of which shall contribute most to achieving the vision for 2017, are the following:

- 1) EU membership. In order to achieve its fundamental strategic-political aspiration – EU integration, accession and then membership of the EU – Serbia has to fulfil numerous, complex and inter-related conditions that the EU formulated more than a decade ago, which requires:
 - Developing stable institutions guaranteeing democracy, the rule of law and respect and protection of human and minority rights;
 - Developing a market economy capable of withstanding the pressure of competition within the EU;
 - Harmonization with the EU *acquis* and undertaking obligations resulting from membership.
- 2) Development of a competitive market economy and balanced economic growth, promoting innovations, establishing better links between science, technology and entrepreneurship, increasing capacities for research and development, including new information and communication technologies, which requires:
 - Improving conditions to attract foreign direct investment;
 - Macroeconomic stability and increased exports;
 - Development of small and medium sized enterprises;
 - Finalizing privatization;
 - Providing for a safe energy supply with increased energy efficiency of actors in the energy sector and improving the energy efficiency of the economy;

- Promoting innovations and entrepreneurship;
 - Promoting an IT society.
- 3) Development of human resources, increased employment and social inclusion, generating increased new employment, attracting experts, enhancing the quality and adjustability of the labour force, increasing investment in human resources, which requires:
- Preventing the expert-drain by providing better working conditions;
 - Enhancing the adjustability of labour and achieving greater flexibility of the labour market;
 - Investing in knowledge and development of human resources through high-quality, efficient and practical education and continual education of all social groups based on the principle of equal opportunities;
 - Social inclusion of the young, women and marginalized groups and measures to promote their employment;
 - Investing in public health, especially in primary healthcare and prevention in particular.
- 4) Development of infrastructure and balanced regional development, enhancing the attractiveness of the country, providing adequate quality and levels of services, which requires:
- Increasing and enhancing the transport infrastructure;
 - Developing public utilities infrastructure (water supply, waste water treatment, waste management);
 - Reducing regional dis-balances and poverty and increasing regional competitiveness;
 - Promoting balanced regional development and local development initiatives by opening up different possibilities for cooperation between the private and the public sector, while integrating gender issues in the development perspective;
 - Adequate use of space, as a critical resource for regional development;
 - Sustainable development of energy infrastructure in line with the expected dynamic economic growth.
 - Rural development.
- 5) Protect and promote the environment and achieve rational use of natural resources, preserve and enhance the system of environmental protection, reduce pollution and environmental pressure, use natural resources in a manner ensuring their availability for the future generations, which requires:
- Establishing a system of protection and sustainable use of natural values or resources (air, water, mineral resources, forests, fish, wild flora and fauna);
 - Strengthening the inter-relations and achieving significant effects between environmental protection and economic growth, integrating environmental policy in other sectoral development policies;

- Investing in reduced pollution of the environment and development of cleaner technologies;
- Reducing the high energy intensiveness of the Serbian economy and providing for a more efficient use of fossil fuels;
- Promoting the use of renewable energy sources;
- Planning sustainable production and consumption and reducing waste generation by unit of product;
- Protection and preservation of biodiversity.

3. The principles of the Strategy

The Strategy is based on the globally accepted principles identified in the Declaration on Sustainable Development from Johannesburg, the Millennium Development Goals and the EU Sustainable Development Strategy. These principles are the following:

- 1) **Inter- and intra- generational solidarity.** Meet the needs of the present generation without compromising the rights of future generations to meet their needs. Solidarity within generations to be achieved through a democratically agreed distribution of the available natural and man-made assets in a manner that provides for the basic human needs for all social groups.
- 2) **Open and democratic society – public participation in decision-making.** Guarantee civil rights, provide access to information and ensure access to justice. Provide adequate consultations with the citizens in decision-making. Protect the stability of democratic institutions based on peace, security and freedom.
- 3) **Knowledge as a factor of development.** Promote a prosperous, innovative, competitive and environmentally efficient knowledge-based economy, which will provide a high standard of living and full and quality employment. Promote education and raising public awareness regarding sustainable development.
- 4) **Inclusion in social processes.** Promote full inclusion of citizens in society, promote equal opportunities for all, by promoting fundamental rights, fighting any form of discrimination and reducing poverty. Minimize differences and polarizations among members of society and fight social exclusion and poverty.
- 5) **Integration of environmental issues in other sectoral policies.** Promote the integration of economic, social and environmental approaches and analyses and support the use of instruments such as strategic environmental assessment. Promote social dialogues, corporate social responsibility and PPP.
- 6) **The precautionary principle.** Require the preservation of the natural balance in cases lacking reliable information about a specific problem. Each activity must be planned and implemented so as to cause the least possible change to the environment. In case of possible and significant environmental impacts, undertake preventive activities, particularly in cases when the welfare of people and animals are at risk.

- 7) **The polluter/user pays principle, full inclusion of environmental costs in the product price.** Internalize environmental costs, meaning include the costs of environmental degradation in the economic costs of the polluter/user by implementing the polluter/user pays principle. This provides for full coverage of costs including costs of production, use and disposal of a product throughout its life cycle.
- 8) **Sustainable production and consumption.** Respect the balances of natural resources and provide for a high level of protection and improvement of the environment. Reduce environmental pollution and promote sustainable consumption and production, but in such a manner that economic growth should not cause a proportional increase in environmental degradation.

4. SWOT Analysis

The SWOT analysis presents the strengths, weaknesses, opportunities and threats for the sustainable development of the Republic of Serbia. It makes it possible to recognize the positive and negative factors influencing the achievement of objectives and establishing a balance between internal capacities and external possibilities.

Strengths	Weaknesses
<ul style="list-style-type: none"> ▪ Good geographic location of the country; ▪ Potentially high quality of human resources; ▪ Established legal bases of a democratic and open society; ▪ Reform processes are underway in most sectors; ▪ Growth of the private sector; ▪ Establishment of trust at regional level and increased reputation of Serbia in the region; ▪ Increased awareness of the need to plan sustainable development at local level; ▪ Reduced current dis-balances in financing the funds for social and pension-disability insurance; ▪ High level of biodiversity; ▪ Diversified natural resources; ▪ High level of cultural infrastructure and cultural values; ▪ Existence of Diaspora significant in terms of expertise and financial terms; ▪ Preserved quality of the environment in areas that are not industrialized. 	<ul style="list-style-type: none"> ▪ Insufficient level of public trust in institutions; ▪ Strong differences in regional development; ▪ Slow privatization; ▪ Insufficient level of green-field investments; ▪ Insufficient investment in economic development; ▪ Lack of transport and municipal infrastructure; ▪ Continual brain drain even after 2001; ▪ Very low share of GDP invested in education and science; ▪ Very low share of GDP invested in social protection; ▪ Lack of consensus regarding future regionalization and decentralization; ▪ Ethno-centrism among the ruling elite; ▪ Unfavourable social-economic position of the young; ▪ Low level of citizens participation; ▪ Lack of planning approach to the use of natural resources; ▪ Excessive pollution of the water, air and soil; ▪ Inadequate waste management practice; ▪ Lack of incentive measures to reduce pollution.

Opportunities	Threats
<ul style="list-style-type: none"> ▪ Integration in the EU; ▪ Integration in EU funds; ▪ Cooperation with the Diaspora; ▪ Introducing EU standards and norms to provide quality of the environment; ▪ Finalization of privatization process; ▪ Further development and strengthening of democratic institutions in the area of social development; ▪ Reduced corruption and increased level of transparency; ▪ Strong political will to implement legal reforms; ▪ Increasing PPP; ▪ Introducing the concept of cleaner production; ▪ Increasing energy efficiency and rational use of raw materials, and decreased transport intensity. 	<ul style="list-style-type: none"> ▪ Increasing level of intolerance and social division; ▪ Increased unemployment, poverty, indebtedness and slowed economic growth; ▪ Lagging behind the region due to unresolved political issues; ▪ Possibility of a new isolation (open or discreet); ▪ Unresolved issues in fight against corruption and organized crime; ▪ Unfavourable demographic trends; ▪ Possible lack of political will to implement legal reforms; ▪ Insufficient public information and insufficient public awareness; ▪ The principle “not in my back yard”; ▪ Lack of investments to build infrastructure; ▪ Starting industrial production with obsolete technologies (creating a «heaven for polluters»); ▪ Increased level of transport using bad quality fuels.

III. THE SERBIAN ECONOMY – KNOWLEDGE-BASED SUSTAINABILITY

1. Introductory remarks

The current Serbian economy functions on the basis of an economic structure and given natural and financial resources, technology and the human capital, and it is still unfavourable. All of these resources are relatively weak. In part the limitations result from the weak natural, technological and financial basis. Serbia, with a population of 7,397,651 (estimate as of 1 January 2007) and a gross domestic product of about USD 29.5 billion (estimate for 2007) is not a country of significant market or major economic potential at the global or European level.

However, there are strong indications that with the implementation of adequate strategies of economic and other (environmental, technological, social) development it could significantly improve its relatively weak position compared to other reference transition countries, especially those of SE Europe. Such progress in the development of Serbian society, the state and economy should not be short-lived, nor should its consequences be unpredictable. This means that present-day Serbia is in great need of sustainable economic development based on improvement over a group of key economic indicators (increase of GDP, employment, foreign trade, competitiveness and exports, investments and living standards) accompanied by a reduced burden of foreign debt and lasting macroeconomic stability, a better quality of life, and better environmental and general social welfare.

In general terms, sustainable economic development should enable continued long-term economic growth which is not based on the excessive use of natural resources or on unacceptable environmental impact which could threaten sustainability or compromise the economic prospects of future generations. Specifically, this means that the development of the Serbian economy in the direction of sustainability may be seen only through generating economic growth based primarily on knowledge, information, human capital, education and the quality of the links between the people and their institutions.

2. Assumptions

After the year 2000, the fundamental rules applicable in the world of market economy, the rule of law and political democracy were established in Serbia. These rules, however, are still not predominant in real economic, social and political life. Many economic trends related to current excessive consumption, insufficient investment, increasing imports, increasing national and foreign debt, unemployment and the lack of financial discipline, indicate that the necessary pre-requisites of lasting and quality economic growth (and sustainable development) have not yet been achieved.

The behaviour of business entities and citizens on the market, and in the process of economic reforms (before the authorities, judiciary and law-enforcement) is not always in line with the needs of the community. The economic system that was established after the first stage of institutional economic reforms is not sufficiently stable or sustainable. There are worrying signals about the local economic environment in terms of lack of implementation of laws, inadequate respect for property rights and contractual obligations, avoidance of taxes and contributions payments, lack of financial discipline, the absence of social dialogue and the unfavourable response of the labour force and trade unions to economic reforms, violation of labour regulations, problems regarding bad privatization, mass corruption and the organized economic crime which still exists.

3. What kind of economy does Serbia need?

The issue of the development of the national economy today, at the beginning of the 21st century, has gone far beyond the theoretical considerations prevailing during the second half of the preceding century. Earlier development theories were based on «natural» limitations on growth rates over a long period of time. At the beginning of the 1990s, however, the currently prevailing concept of development – the concept of sustainable development appeared. The concept is based on a new theory of growth, with materialized knowledge and a complex of scientific-technological development at the core of modern development. Instead of the old concept of natural comparative advantages, the modern understanding of development is dominated by used comparative advantages; instead of natural resources as the decisive factor determining the speed of growth and the development of a national economy, the focus is on the speed of innovation and the ability of an economy to translate acquired theoretical knowledge into inventions and new technologies. The old notion of wealth was measured in physical terms and by financial capital (tons of goods produced and millions earned), whereas today the key indicator of national wealth is the ability to generate new knowledge, ideas, innovations and technologies, which is to say to create and utilise human capital.

Accelerated development on the global scale is accompanied by building global alliances and linking whole regions for the purpose of strengthening the position in the global economy and on the financial scene. Those who do not join these processes will certainly be marginalized in the long-term, excluded from the flows of information and knowledge, and with the lapse of time the missed opportunities will become increasingly difficult to make up.

The major features of the world economy at the beginning of the 21st century include:

- The globalization of total movement of goods and financial flows in the world accompanied by concentration of power of decision-making in a few world centres;
- The liberalization of movement of goods and capital globally under the pressure of the most powerful world economies, maintaining at the same time restrictions on the free movement of labour;
- The harmonization, coordination and regionalization of the economic policies of countries as members of different economic-political groups, such as the EU, ASEAN, NAFTA, etc.

Such development of the global economy has been made possible primarily through the materialization of basic inventions from the so-called third technological revolution, which took place predominantly during the last three decades of the 20th century, primarily in the technologically and economically most developed countries and regions of the world. Developments in IT technologies, production and the use of new materials, micro-electronics, robotics, the expansion of bio-technologies, genetic engineering and other most propulsive sectors of the economy, have resulted in unprecedented possibilities for networking and building links between the movements of goods and especially capital, which, until recently, were unimaginable. Instead of natural resources, arable land, mineral resources and available capital, the dominant development resources of a modern economy, practically all over the world, are applied knowledge, education and science.

Serbia today cannot choose whether it wants to join the world of globalized economies and new technologies and continue with the initiated market and political reforms. Serbia has already decided that it is dedicated to EU membership, with all the economic-legal, political, administrative and environmental implications of such a choice.

Serbia, however, can and should choose, and carefully set the strategic coordinates of its economic, technological, and social-cultural development, adjusted to the currently prevailing situation and to the needs of future generations. Since global changes in the structure of factors of production indicate an increasing dominance and superiority of the so-called non-material factors of economic growth, such as knowledge, information, organization, culture, education, the legal system, Serbia has no other choice but to accept the strategy of relying on the development of human capital. It is this that, in the experience of the economically-technologically most developed countries, brings the greatest yield of added value by unit of labour and capital input invested.

Therefore the choice of Serbia today is to opt for a knowledge-based economy which will dominate its economic activity in the near future. Serbia needs a broad use of knowledge in all aspects of life. This knowledge should come primarily from the market economy, meaning financing from private funds and especially from the competitive service sector, but it also needs incentives from the state.

Knowledge can contribute to the development of the economy and society in Serbia based on the progress made in communications, better system information and development of e-government. That is the kind of economy that Serbia can envisage and implement as its strategic goal, by identifying the following areas and directions of change in order to achieve sustainable development of the society:

- A knowledge-based economy, as the dominant quality of the strategic development process;
- The structure and quality of a sustainable economy and economic system;
- The manner of achieving and finalizing sustainable economic reforms;
- An adequate macro-economic environment and the choice of economic policy;
- The system of sustainable production and consumption;
- Improvement of the system of education;
- Development and enhancement of IC technologies;
- Sustainable scientific-technological policy and system;
- Protection and enhancement of intellectual property.

4. A knowledge-based economy – how and why?

The terms “knowledge-based economy” and “knowledge society” have become recognized and very popular globally. Not only in theory, but within most relevant international organizations, numerous studies have been implemented confirming the significance of these concepts. There is practically not a single economically developed country in the world today which does not have a specific policy or strategy to promote the knowledge-based economy.

After mentioning the significance of the knowledge-based economy several times, in the “Lisbon Strategy” in 2000, the EU made projections that the Union, “by the year 2010 should become the most competitive and the most dynamic knowledge-based economy in the world, capable of sustainable economic growth and new employment and better paid employment”. At the same time, the EU designed about 50 specific measures and policies whose implementation would lead to the achievement of the said target.

The economic history of most known civilizations was based first of all on the concept of the agrarian society in which the role of natural factors and physical labour was dominant. During the expansion of industrial societies, whether dominated by processing or trading activity, the dominant factor of production was real and financial capital (money, industrial plant, energy). Technological development resulted in the declining role of physical labour, material technology, and natural and financial resources. During the 20th century this gave birth to the concept of the “post-industrial society”, the “information society” or the so-called “weightless economy” dominated by non-material factors. In a society with a knowledge-based economy, in which knowledge is the dominant anchor and the dominant comparative advantage, the main factor of production moves to a complex of non-material factors (such as information, knowledge, skills, labour culture) generating increasing economic yields and increasing market value.

The evolution in the structure and use of production factors based on technological changes has led to changes in the type of dominant economic activities: from agriculture, industry, services and the third sector of the economy – the services sector, which became the key sector both in terms of employment and in terms of income generation.

The expansion of the service sector brings about major changes in the generation, collection, creation, processing and use of information. Since mass supply and increasing availability of services based on information lead to a rapid drop in their price with time, this opens up possibilities for their use by a practically unlimited number of users around the world. Namely, agriculture and industry in the modern world depend increasingly on research, use of information and knowledge in product development, and commodity and financial markets.

The move of structures of economic activity from that dominated by the primary sector, made up mostly of agriculture and extraction industries, over the secondary sector (dominated by the processing industry) towards the tertiary sector (dominated by services) brings about increased production, employment and standards of living, or welfare. Due to the increase of productivity in industry and agriculture, caused by technological progress and increased quality of human capital, the greatest employment in a knowledge-based economy is exactly in the tertiary sector. In this, it is important to note that the tertiary sector is more productive than other sectors, especially since it makes more effective use of information and knowledge. On the other hand, a strong tertiary sector enhances productivity in agriculture and industry, in which employment decreases so that they become more profitable and competitive.

Since market valuation is the decisive factor of economic performance, there is a huge increase in the number of agencies collecting, analyzing and selling certain information pertinent to the market. Thanks to such information, and impact of new technologies and knowledge, there are organizational and institutional changes in the form, size, structure and functioning of companies. As a result of this process, the companies of the tertiary sector are mostly small and flexible, often interconnected only electronically, with better qualified staff, better connected in the research and development sector.

The increase in the number of economic entities, thanks to the expansion of the tertiary sector and the impact of information and knowledge, is accompanied by the increasing general level of competition in economy and society.

A knowledge based society and knowledge based economy, however, do not imply rigid, fact-based, theoretical or textbook knowledge, but rather a set of skills, competences and interests which help create innovations, solve problems, cooperate with others and act towards the general welfare. In this respect, there are different forms of knowledge, which answer not only the questions “what” or “who” but also “why” and “how”. Knowledge, actually, can be more or less economically efficient, depending on the relation between knowledge seen as public knowledge and knowledge which is private.

What is important in this, from the economic point of view, are the following:

- It is good for the society and economy that knowledge as a public resource be used broadly and easily in the interest of general progress, and to be more broadly and easily accessible to all potential users;
- Knowledge as a private resource should be efficiently protected as intellectual property in order to achieve its advantage on the market and generate profit for its owner.

The use of knowledge is conditional on adequate payment for its use. Without this, investors would have no reason to invest in generating new knowledge and inventions.

To make efficient economic use of knowledge requires subjective and organizational capacities of the user (individual or company) and an adequate institutional environment, such as laws and their implementation, state institutions and associations. The quality of this environment is decisive in how efficient the use of these resources will be at national and regional level.

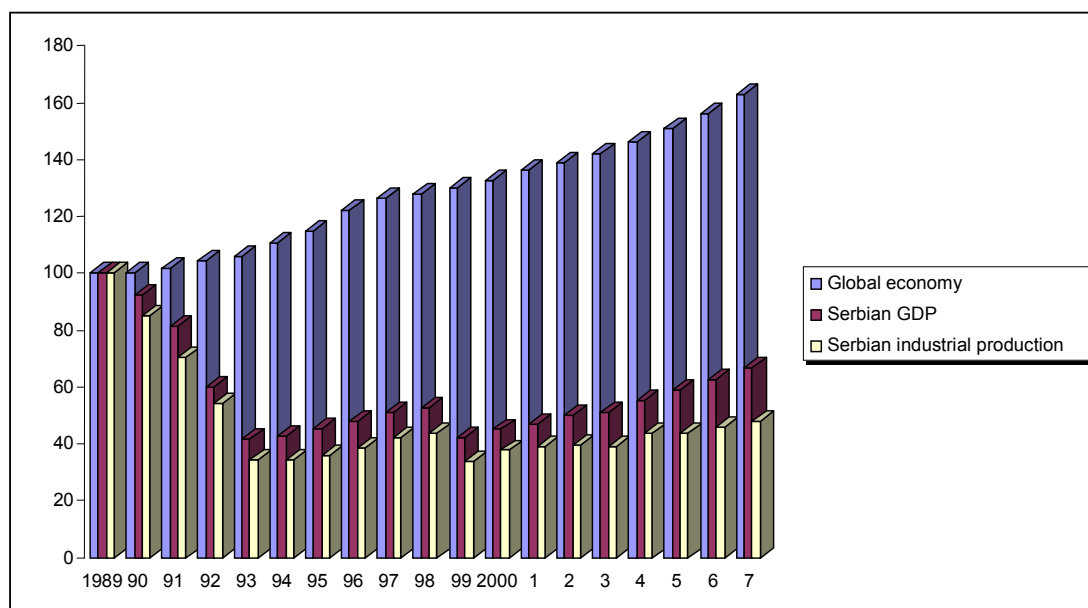
To make use of the advantages of the concept of a knowledge-based economy at the national level, it is not sufficient simply to improve the position of the new production areas on the market then await the spontaneous restructuring of the economy in the direction of the greater domination of the sectors with greatest share of knowledge. To achieve this concept, based on the experiences of the most highly developed world economies, the following are the most significant factors:

- Modern education and continued learning;
- Funds for research and development, especially investments in modern industries (computers, bio-technologies, pharmacology, etc.);
- Adequate scientific-technological and cultural national policy;
- Adequate management of economic changes in line with the changes in the world and the direct neighbourhood;
- Selection of a macroeconomic policy, system and structural economic solutions;
- Telecommunications, massive use of computers and other modern technical devices;
- sectors of high technologies and identification of incentive measures to attract foreign investments in these sectors;
- Protection of property rights and especially intellectual property rights;
- Social corporate responsibility.

Special attention will be paid to each of these factors and pre-requisites of a knowledge-based economy in the following chapters of this Strategy.

5. The economy of the Republic of Serbia– development and sustainability

The economic development of Serbia during the last decade of the preceding century was strongly influenced by non-economic factors, devastating hyper-inflation, and a *de facto* war economy. This further aggravated the otherwise weak position of the country in the international setting. There were major disturbances in the structure of generating and appropriating the gross domestic product (GDP), with increased domination of the primary sector, neglect and devastation of industry and stagnation in the service sector. A significant portion of economic activity moved into the “grey zone”. The period from 2001-2006 saw an accelerated recovery of the economy and achievement of relatively high GDP growth rates, accompanied, however, with slower changes in structure and appropriation than expected after the democratic changes in the country. This points to the need to identify different development strategies for Serbia in the forthcoming period which would be oriented towards the country joining the countries which generate their development primarily through knowledge, science, innovation and modern technologies.



Source: The Republic Statistical Office, 2007.

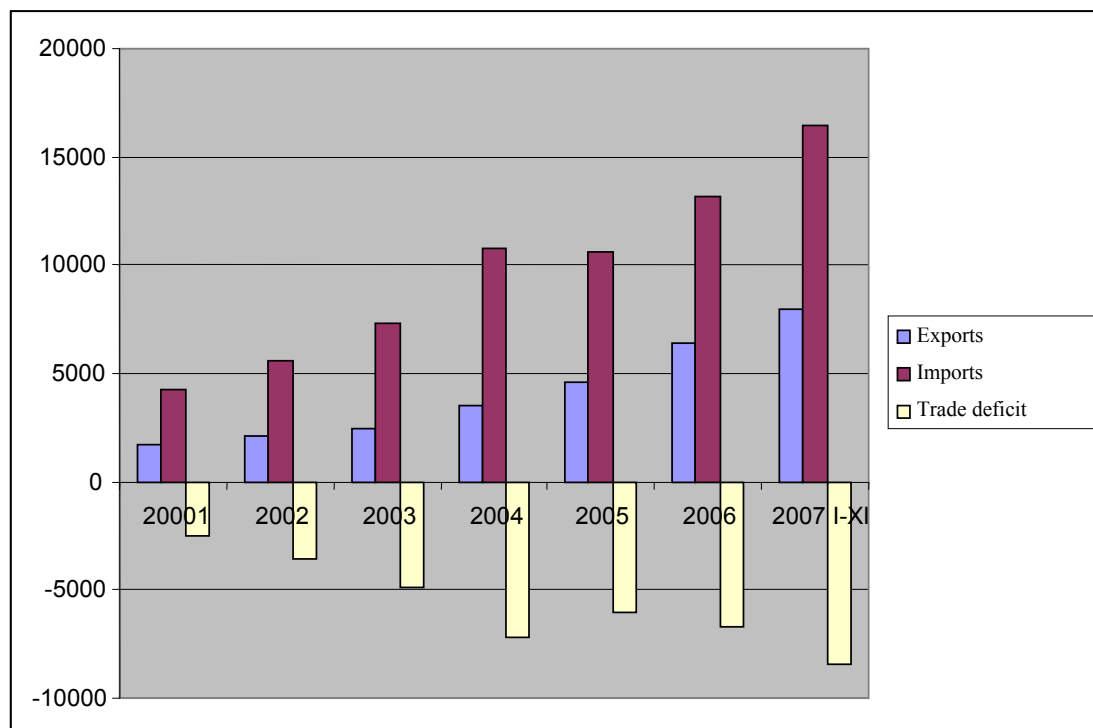
Figure 3. Unsustainable macroeconomic trends in the Republic of Serbia – comparison to the global situation 1989-2007

Despite improvements compared to previous practice, there are still trends towards the domination of personal and collective consumption in the manner in which the GDP has been used since 2001, and insufficient investment in the needs of the society. This has led to an inadequate distribution of GDP and is slowing down economic growth and technological development, and limiting the share of investments in the appropriation of GDP. Although the official data regarding the share of investments in GDP is not sufficiently reliable (primarily due to incomplete recording of changes in the private sector), it is estimated to range between 16% and 18%. At the current level of development of Serbia and in order to maintain long-term high growth rates and implement the needed structural reforms, it is necessary to increase the GDP share of investments to 22-25%.

At the same time, national reserves are sufficient only for a smaller share of investments and the major part is covered through foreign accumulation through foreign loans. This means an additional burden to future generations in Serbia to pay back foreign loans and the interest accruing on them.

The balance of exports to imports remains constantly in major deficit, and is only covered by uncertain and temporary sources (foreign transfers and the proceeds of privatization), or through additional foreign loans, which constitutes a burden in terms of future economic activities. Unless there is a significant increase in *greenfield* foreign investments, the Serbian economy will remain under threat of a crisis of foreign liquidity.

An additional problem in the current stage of economic development of Serbia is the insufficient integration of the national economy in the economic-financial movements of the European and world economy. The necessary GDP share of imports and exports at the present level of the economy should be at least 50% on both the export and the import side. Together these factors have resulted in serious technological obsolescence in domestic companies, and low productivity which make Serbian products less competitive, especially on foreign markets.



Source: The Republic Statistical Office, 2007.

Figure 4. Unsustainable macroeconomic trends — insufficient exports and constant trade deficit 2001-2007

Additionally, the rate of investments in research and development, and also in education, is very low, and insufficient to meet national needs, low even in respect to the GDP share of these investments undertaken as obligations under adopted development documents.

The building of an open market economy integrated into its environment is stated as the goal of all reforms undertaken in Serbia since the democratic changes in the country in 2000. Although the goals of sustainable development are to a high degree compatible with the open market economy, the experiences of other countries that have undergone transition indicate that there are also certain “faults” (dis-functionalities) in market mechanisms that have to be removed through the active involvement of a modern state. Judging by the modern development strategies implemented internationally, the role of the state is measured not simply by the scope of state intervention, but rather by the structure and quality of the way in which the state performs the functions required by the modern development process.

In order to identify accurately the place and the role of a modern state in development processes, it is necessary to analyze whether the state performs its basic functions in terms of: macroeconomic stability, remedying market failures, redistribution of income, removing great regional disparities, and facilitating the attempt to catch up with modern economies.

Catching up with modern market economies is more difficult in the present day world than it was in the past. However, at least in theory, it is believed that it is possible thanks to the following circumstances:

- The IT revolution has made knowledge available at a much lower price than in the past;
- Structural changes that have happened over the past twenty years have resulted in the fact that physical capital is a less significant factor of economic

development, especially for the most developed production sectors (based on knowledge);

- The concept of economies of scale now is far less significant than before the IT revolution.

In such a new system of values the roles of the state are as follows:

1. achieving a dynamic economy based on knowledge and educated individuals, with equal opportunities for success, an economy in which the state does issue orders, but facilitates and promotes, and in which the market is the moving force serving both the private and the public sector;

2. development of the system of social corporate responsibility of the business sector, companies and institutions, primarily through promotion of socially responsible business activity, both in terms of environmental protection and in terms of humanizing labour and building a labour culture;

3. promoting the development of civil society in which the state acts as a partner to voluntary associations and citizens organizations;

4. building a modern public administration based on cooperation, decentralization, human rights and especially equal opportunities for all.

With this in mind, Serbia must follow the following fundamental principles of sustainable development based on a knowledge-based economy:

- A substantive transformation of the national economy in the direction of strengthening the place and role of the most successful sectors, meaning the dominant sector of services and industry based on the innovative activities of entrepreneurs;
- Ensuring a high DGP share of investments, primarily on the basis of increased national savings, as a function of the complete restructuring of the economy;
- Building a modern and efficient education system that will be the pillar of a future efficient and competitive knowledge-based economy;
- Implement the Program of promoting innovative and entrepreneurial behaviour and development of an entrepreneurial culture among the general public.

Such objectives for the development of the national economy can be achieved only by integrating the broadest layers of the population in the development process. In this way, a greater number of citizens would participate in decision-making processes ensuring the needed consensus on important development issues.

The Serbian economy, with low income, must identify funds for the said purpose, primarily from the following sources:

- Through mobilizing the unused personal funds of the citizens, including funds from foreign transfers into legal money flows, through programs stimulating investment in knowledge, education and the self-employment of entrepreneurial individuals.
- Through using foreign sources of financing, mostly through joint-ventures with interested partners;
- Through re-distribution and more efficient use of the existing level of public revenues;

6. Transition and the sustainable development of the Serbian economy

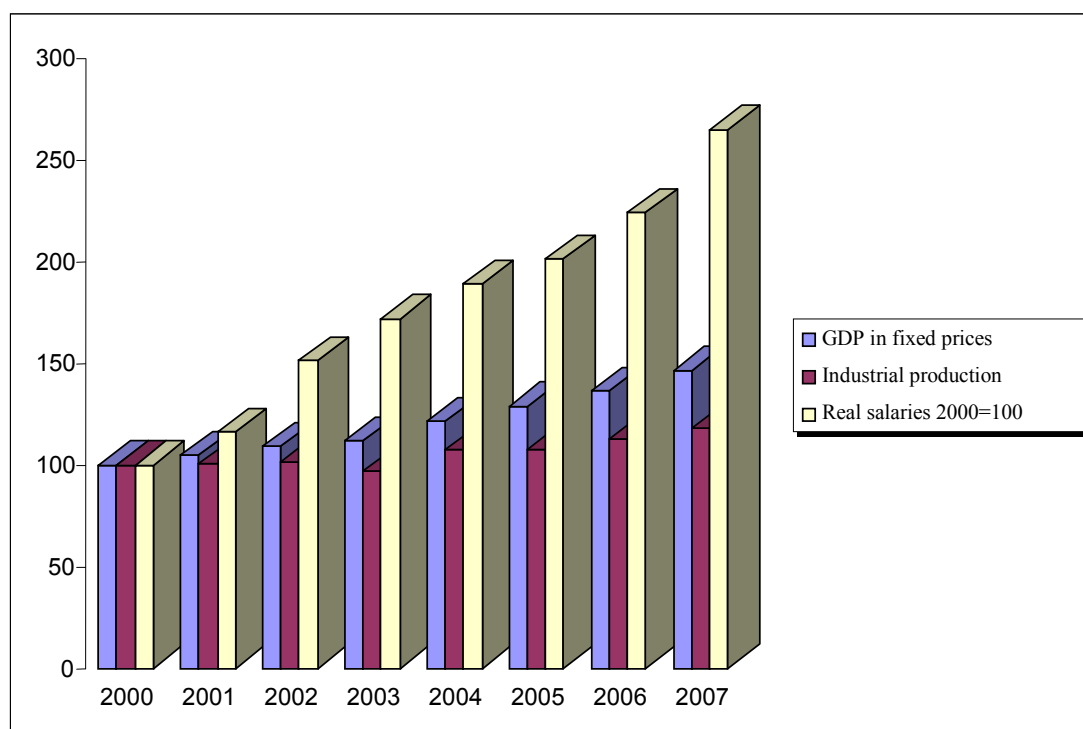
The reforms of the Serbian economy, especially after the year 2001 have resulted in the beginning of the rule of institutions. However, they are still not functional enough. A new Constitution has been adopted, as have dozens of reform laws, the budget has been balanced, VAT has been introduced, and social policy reformed. But, the market economy is still not functioning in Serbia in a sustainable manner, not even at the level of the more advanced countries in transition, since political arbitration is still, to a great extent, the decisive factor for the economic position of enterprises, especially those of the public sector.

The level of collection of debts is very low, especially in the public and socially-owned sector, and this is not due only to inadequate legislation, but also to inefficient work and lack of capacity of the judiciary, law enforcement and clients. A very fragile macroeconomic stability has been achieved, primarily based on high inflow of foreign transfers and the policy of a “strong” local currency, or restrictive monetary policy, but not on the basis of long-term and sustainable solutions in the economic system, and not on equal opportunity for economic entities and their market behaviour.

The privatization of social property resulted from its un-sustainability and the need to change the structure of the economy. The privatization sale of a portion of national assets in transition has so far been performed to a large extent in order to meet planned high budget expenditures and has created only the illusion of a balanced budget. The major problem is the issue of the sustainability of such a situation, as these are one-shot proceeds that cannot be repeated, and which have been used mainly to cover consumption.

One of the reasons of the insufficient competitiveness of the economy is slow deregulation and the inefficiency of the privatization of socially and state owned capital, and continuing significant economic interventions especially in form of subsidies for the so-called big enterprises which generate the greatest losses. Another important fact reflecting the problem of insufficient openness and competitiveness is the relatively high monopolization of the national market. Another reason for weak competitiveness is the continued existence of state monopolies, especially among public enterprises at national and local level and enterprises with special and exclusive rights, the building of private monopolies, and strong links between the political and economic spheres of public life. Monopolistic structures in Serbia to a great extent prevent efficient and sustainable implementation of economic transition.

This means that the current reform model is to a great extent insufficient and unsustainable and that fundamental changes in the economic system, legislation and even behaviour are yet to be performed in order for Serbia to gradually build a sustainable knowledge-based economy. The results of the implemented reforms and growth between 2000-2006 as indicated by relevant national analyses and empirical surveys show that what was implemented was a “strategy of frontal attack against all obstacles” to growth which resulted in “confusion in economic policy and lack of a clear growth strategy”.



Source: The Republic Statistical Office, 2007.

Figure 5. Unstable economic growth and very rapid increase of average real salaries 2000-2007

The analysis of “growth diagnosis” after 2000 points to very weak results of “yield to *social capital*”. Namely, surveys indicate a very low level of qualifications among average employed labour and the population, or very low quality of human capital. The most important indicators of insufficient yield on social capital (people, their knowledge, skills and links) are: a tendency to increase salaries beyond the increase of productivity of labour, weak flexibility and territorial mobility of labour, problems with the socialist legacy in establishing and treatment of posts and obligations, the “soft” approach by employers and politicians to the broad social groups in reforms and to “victims of transition”, or to those who were privileged in the past economic and social model of the society until 2000. Another just as important additional reason for poor yield on social capital is the obsolete infrastructure and inadequately developed telecommunications.

Among the factors that have had a negative impact on the results of transition are many “micro risks“, primarily corruption. According to surveys for the years 2004 and 2005, of the total of 145 countries, Serbia was ranked 97, which is the worst ranking in the region. An improvement in this respect was noted in 2006, when Serbia was ranked 90, and in 2007 Serbia ranked equal with Croatia, which in 2006 was ranked 69.

Property rights are far from being implemented fully, not only in the context of lagging behind and actual effects of privatizations, but especially due to lack of legislation on the restitution of property and lack of solutions for land ownership.

A general overview of such a reality indicates the following problems or risks to sustainability of the present reform processes:

(1) The structure of budget revenues, or the fact that a great part of the budget is based on single proceeds from privatization of existing enterprises.

(2) The proceeds of privatization are near to depletion. Although the privatization process is not yet complete, the more difficult part of the work remains to be done in overly indebted enterprises and enterprises without market prospects, and a portion of the state owned sector with a somewhat greater value.

(3) Public expenditure and the budget balance of Serbia, bearing in mind that public expenditure continually exceeds 45% of GDP and the total public expenditure was 38.4% for 2006 and 37.5% as planned for 2007. It is important to note here that current expenditures for education are only 4.2% of GDP, and for environmental protection only 0.3% of GDP and that this is far below equivalent expenditures for these purposes in other transition countries.

(4) Unsustainable expansion of imports and the increasing trade *deficit*, which can be interpreted as a reflection of the disproportional level of national non-productive consumption, but also of insufficient competitiveness of the Serbian economy.

(5) Insufficient investment, especially from national sources of accumulation. The share of *green-field* investments is negligible compared to investment through privatization of existing companies. Investments from the budget which are appropriated from the proceeds of privatization, through the National Investment Plan, are not a long-term and sustainable solution for the growth and development of the Serbian economy.

(6) Insufficient development of capital markets having in mind that the total market capitalization of the Belgrade Stock Exchange in December 2006 was only EUR 1.2 billion, and its share in GDP is much lower than in more advanced transition countries, including those of SE Europe.

(7) Lack of a legal basis for acquisition of rights (ownership) over building land under market conditions is a major obstacle to improving conditions for investments in Serbia.

All the above risks indicate the need for strategic management of economic reforms. The objectives of sustainable development of the Serbian economy, in the context of finalization of sustainable economic reforms, include:

(1) Economic growth – the right of citizens to a better quality of life. Irrespective of the past, the current situation and the prospects of the future generations, the fundamental economic starting point of a realistic strategy of sustainable development is: the Serbian economy must and should grow, and the population has the right to use the economic and technological development based on increased production, employment and standards of living. In order to achieve sustainable growth based on a knowledge-based economy, Serbia will, over the coming decades, have to rely much more heavily on the private sector which should generate economic growth of better quality, and quality development effects: technological progress, structural changes, productive employment and stronger competition. This will call into question many privileges and monopolies that resulted from past practice or from linked interests of the private and public sectors during transition.

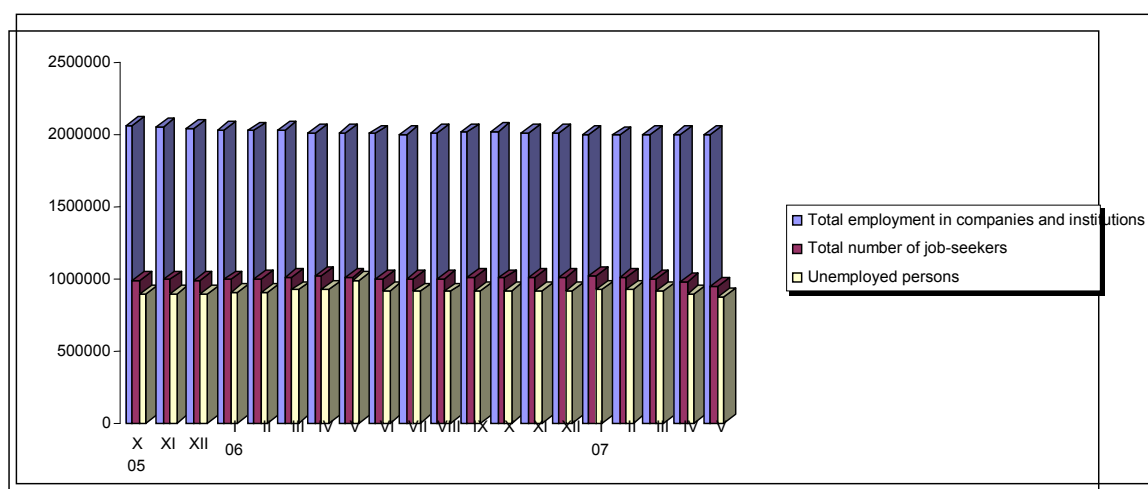
Measures for achieving this goal need to be oriented to promoting national and foreign investments, accelerated privatization and restructuring of the public sector in a consistent and socially responsible manner. This implies:

- The adoption of the law on restitution;
- Monitoring of implementation of measures of financial incentives and institutional enhancement of entrepreneurship;
- Further development of competition based on relevant amendments of legislation in line with EU practice, and based on strengthening the capacities of the relevant regulatory body;
- Promotion of scientific-research activities in the field of entrepreneurship and competition.

(2) Increased employment and reduced unemployment – the ability of citizens to live by their work. People in Serbia have the right to live in an economic system which will enable them easier access to employment and a decent living based on their work, and also based on their entrepreneurship, knowledge, expertise, art and other creative ideas. The fundamental pre-requisite for increased employment and reduced rate of unemployment is the growth of the economy, especially in the services sector, but also based on applied knowledge and new technologies, meaning an economy which is competitive also in an international arena.

To promote employment, the following *measures* are needed:

- A well-designed promotion of development of small and medium enterprises;
- Further relief of the tax burden on the economy;
- Tax and administrative incentives for foreign investments with special incentives for investment by the Serbian Diaspora, not only through simplified procedures, but also through special promotion on the international level;
- Incentive measures for employers to employ the poor and members of vulnerable groups, as measures of active social policy oriented to reducing poverty;
- Further reforms of the labour market and its increased flexibility;
- More efficient protection of labour rights and promotion of social corporate responsibility;
- Gender mainstreaming of the necessary measures in order to enable equal participation of both genders and equal participation of marginalized social groups.



Source: The Republic Statistical Office, 2007.

Figure 6. The number of employed and unemployed in the Republic of Serbia by months, 2005-2007

(3) A stable and reformed economy - a sustainable economic structure.

The citizens of Serbia want to work under stable economic conditions in an economy with a restructured, modern and rational economic structure. Serbia will, in the short-term, have to design a model to finalize privatization of socially-owned assets and a good portion of the state-owned assets. The new Constitution of Serbia, adopted on 9 November 2006, removed the category of social property, yet in a way it still exists in practice. Serbia is faced with the challenge of putting an end to social property by finalizing privatization and the remaining restructuring at all levels in the near future.

Measures needed to achieve this goal imply:

- A consistent implementation of the principle of tight budget restrictions (spend only what is earned), both for the private and for the public sector, as well as for households, as the principle applicable to disposing of public and private assets at all levels of consumption;
- Urgent adoption of a strategy to finalize privatization and reorganize the public sector, in this a highly qualified team of international and national experts together with representatives of trade unions should design a concept for the restructuring of public enterprises;
- Implementation of bankruptcies according to the law;
- Creating the necessary legal framework for the possibility of acquisition (ownership) of building land under market conditions which requires adopting of new and revising the existing regulation;
- Accelerated removal of the remaining price disparities and moving on to economic prices of energy, as well as harmonization with the European electricity market.

(4) Balanced regional development - reducing the influence of the “damnation of territorial origin”. Regional disparities in Serbia are increasing, as a result of market and political, demographic and other factors. The south and the east of Serbia are worst off. All citizens of Serbia, irrespective on their geographical, national, religious, and socio-cultural origin and structure are entitled to live in a Serbia which promotes sustainable development and knowledge-based economy over its entire territory. This requires a separate policy of incentives for the sustainable development of the regions. These incentives should primarily take the form of improving the infrastructure, education, communications and information. Additional training and qualification for the unemployed needs to be organized according to priorities of the highest rates of real unemployment, which is to say, according to the situation in the formal and the informal (grey) economy. In this respect it is necessary to establish an advisory, in line with the adopted Strategy of Regional Development, which would monitor and promote the balancing of regional development in Serbia.

In order to achieve this goal it is of the utmost importance to implement the following:

- Analyze the situation concerning development, employment and relative development of Serbia by functional regions;
- Undertake a comparative analysis of regional comparative advantages, renewable and non-renewable resources by regions, assess the possibilities of changing the current economic structure and sustainability of development projects;
- Analyze the relative costs of operations, the status of infrastructure, the market, labour and present the results to foreign investors and potential partners from the Serbian Diaspora;

- Introduce incentives for the regional development of underdeveloped districts by financing sustainable projects based on using relative economic advantages;
- Implement special projects to increase the qualification of labour and adjust it to the needs of the labour market, especially in districts and municipalities with the highest unemployment, for the purpose of productive employment and attraction of younger and qualified labour;
- Introduce incentives relevant to the education and culture of the underdeveloped regions and municipalities in Serbia;
- Promote further development of a decentralized system of support to economic development as a whole, and to integrated rural development, especially in the marginalized and most underdeveloped regions.

(5) Social responsibility, social balance and higher social cohesion. Serbia should make a realistic assessment of its potential, the material, financial, natural and technological resources that it has available, and its potential in terms of the human capital that it may rely on. The future economic development of Serbia must be based on the principles of social justice and the social responsibility of communities for each individual. In transition, when social transfers are drastically reduced, this is not at all easy to do, but the overall social situation could be significantly improved and social cohesion improved to a high degree through better legislation, through mechanisms of consistent and efficient social protection and by going through transition in a socially more equitable manner.

This goal will have to be pursued continually, in parallel with economic reforms and the forthcoming development and social controversies, especially through the following measures:

- Serbia must design the remaining and future reforms in accordance with the potential of the economy and the population to absorb the those made redundant;
- The unemployed will partly receive institutional financial support and temporary subsistence from the employed;
- Another portion of such assistance to the unemployed should consist of financing different programs aimed at enabling the unemployed to become employed as quickly as possible;
- Social responsibility in a society undergoing transition implies a consistent control of minimum wages, or in the targeted measurement and control of household income;
- Special attention is needed to help the “losers of transition” to adjust to the market economy, and in terms of identifying funds for support programs;
- Building partnerships between the public and private sectors through horizontal and vertical networking of all actors of economic development in order that they all share responsibility for sustainable development;
- Analyzing the labour market in terms of gender equality, and the promoting employment of women, or men.

For the purpose of achieving the goal of a socially responsible economy, Serbia must improve its overall economic environment and provide better opportunities for the unemployed, the poor and the socially vulnerable categories of population, especially those who are really willing to work so that they have an opportunity to fulfil their capabilities.

(6) Living in a society and economy with lower risks at macro and micro levels. Citizens of Serbia and the Serbian economy are entitled and should live in a

country in which the overall risks are lower and the opportunities for economic, technological and cultural development are greater. In this respect it is necessary for Serbia to approach economic development without any ideological prejudices, developing a market economy and a society of equal opportunities, for the purpose of establishing a stable order and prospective economy. To achieve this, Serbia should build a social consensus for further reforms. In a system with more acceptable and sustainable macro and micro risks it is necessary to provide a lasting development orientation towards international and European economic and technological cooperation, especially for the purpose of EU integration. Of special importance is a higher level of political stability, faster and more efficient reduction of crime and corruption, and a better functioning legal system.

To achieve this, the following measures will be needed:

- Increased government efforts to reduce crime by qualifying and modernizing the police, the judiciary, citizens and the economy;
- Technological improvement of the state of security and control of social balance;
- Amendments in the criminal code, especially in the part relevant to corporate crime and efficient implementation of the code;
- In further privatization, especially of the public sector, it is necessary to amend legislation and ensure that sold capital funds be made available to compensate former owners whose property was seized on different bases (except for criminal acts);
- Strengthen social dialogue in legislation and in practice, primarily through improving the legislative framework, and through continued cooperation between state authorities, the trade unions, the non-governmental sector, consumer associations and pensioners;
- Develop education and disseminate knowledge on change in the spirit of social and personal tolerance and union in differences;
- Improve public information and education on social conflicts and social pathology, and mechanisms of social cooperation, social dialogue and tolerance.

7. Adequate macroeconomic environment and the choice of economic policy

A successful entry into a new competitive era of economic relations at the global, regional, national and local levels requires a knowledge-based economy. It is very important for Serbia that its economic policy and its business and macroeconomic environment for the ongoing reforms and for future economic development are based on an sound economics and other knowledge.

The macroeconomic performance of a knowledge-based economy is a cumulative stock of benefits, skills and information achieved through their use by the recipients or by all users. Such performance cannot be limited only to the sector of IC technologies. A knowledge-based economy implies the positive and stimulating influence of knowledge on the overall network of economic and development factors and processes, from generation of knowledge, through its transfer to its adequate use.

According to the new theory of economic growth, the knowledge-based economy model differs from the traditional economy in the following:

- Economy is no longer characterized by scarcity, but by abundance because, in contrast to tangible resources which are limited, information and knowledge are used jointly and are enlarged by distribution;

- In the globalized world, knowledge is not under the tyranny of place, but it spreads in an accelerated manner;
- Laws, barriers and taxes in the field of knowledge-based economy are difficult to implement on the national level, because knowledge is attracted to economic locations where the demand is greatest and barriers to its transfer are lowest;
- Products with great performance of materialized knowledge generate exceptional profits as they have added value for users exceeding those in products made with tangible resources;
- Valuation and assessment of knowledge to a great degree depend on context because in different institutional environments and at different levels of development they bring different yields;
- Human capital and competence are the most important basis of the knowledge-based economy.

The implementation of a knowledge-based economy model requires certain structural macroeconomic changes. They are reflected in the following major trends and processes:

- Increased demand for highly qualified labour with a high level of cognitive and social skills, readiness for change, development and introduction of new ideas, and inclined to life long learning;
- Greater reliance on IC technologies enabling new working arrangements (working from home, working with shorter or flexible working hours), increased use and performance of codified knowledge, and reduced costs for dissemination of knowledge;
- Increasing opening to the global economy bringing enormous growth of international trade in goods and services and trading in knowledge, relying increasingly on foreign direct investments;
- Internationalization of production which implies the use of new forms of knowledge in order to control and integrate the operating units of companies;
- Changed structure of production implying a reduced share of the primary and secondary sectors of the economy and an increasing share of the tertiary sector (especially the education sector) as well as sectors with increasing added value;
- Increasing importance of international economic and technological networks, alliances and partnerships among companies and other actors;
- Increasing the role of investment in R & D, innovation and education.
- Serbia will have to accept the rule of institutions which need to provide for the establishment of the macro/economic environment needed for the development of a knowledge-based economy. This means that there will be need for institutions which:
 - Establish and disseminate property rights in the society;
 - Limit the expropriation of someone's income or property; and
 - To the greatest extent provide equal opportunities for the broadest population in the field of employment, social security and human rights.

According to their fundamental functions, the institutions of the knowledge-based economy fall within the following groups:

- Market made institutions which establish and protect property rights without which there is no market;
- Market regulating institutions dealing with regulation, externalities, economies of scale, imperfect information;

- Market stabilizing institutions which reduce economic instability and the effects of financial crises; and
- Market legitimizing institutions which provide social security, health and pension insurance.

Serbia will have to develop and operate all forms of institutions in its macro and international economic environment. A knowledge-based economy in international economic relations is characterized by “compression of time and space“. For this reason, Serbia will have at present and in the future to adopt a strategic orientation which implies:

- Searching for a niche which could maximize the potential for economic and political exploitation;
- Timely flexible response to the challenges of technological and economic changes happening in the environment, relying on tangible and non-material resources;
- Broadening, multiplying and compressing the links between society and a knowledge-based economy;
- Deepening the levels of inter-relations and connections among economic and social actors in the development of a knowledge-based economy;
- Compressing space and time in which the space of economic activity becomes global and universal and the response time is much shorter;
- Moving the knowledge-based economy from its local environment and its restructuring.

The prospects of the sustainable development of the macroeconomic environment in Serbia can doubtless be considered through the model of a small open economy which needs to build its position and competitiveness on the international scene by accepting the theoretical principles of macro-economy and the experiences of successful small and efficient knowledge-based economies. These are countries with a population up to 10 million and with a national income of about USD 5,000 per capita, who export at least 50% of their GDP and in which the major resource is knowledge.

The sustainable development of Serbia in the given macroeconomic and global environment is not possible without two strategy components - a gradual approach to reforms and a process of continued harmonization with global economic and technological changes.

Stability and growth as the most important indicators of the performance of any economy are priorities for Serbia. In this it is important to differentiate between short-term results and long-term welfare, with the major impact of growth, employment, structural adjustments and creation of non-material resources and adequate management of material and non-renewable resources. The starting principles in identifying economic policy should be the following:

- Because it has different effects on different social groups, there is no one superior policy which provides a solution that is better for all individuals relative to an alternative situation;
- Different groups have to withstand risks, especially those linked with losses and gains;
- With respect to the different effects of a knowledge-based economy, the focus of a sustainable macroeconomic policy has to be parliamentary responsibility.

8. Sustainable production and consumption

Since the last three decades of the 20th century the world has been trying in different ways to build a system of sustainable production and consumption patterns. This concept is based on producing maximum added value with minimum use of materials, energy and minimum environmental impacts, in order to leave the best possible opportunities for future generations. The focus at the beginning was on the consequences (resolving the issues related to waste, reducing the effects of harmful emissions, “green” packaging, recycling of by-products) and later the focus shifted to clean production, saving materials and energy.

The present globally usable concept refers to sustainable production and consumption including environmental, material and energy efficiency at each stage of production of goods and services - starting from design and production, to primary and secondary use and recycling and disposal. The cycle is known as the product life cycle, and it is an approach central to designers, engineers and technologists, but also economists, lawyers and cultural workers. At each moment of the life cycle of a product, its producers, distributors and consumers must be aware of all its environmental, social-cultural and other impacts and be responsible for them. A major role in this process in terms of its sustainability is the transparency of the product's environmental characteristics and its manner of consumption, as well as broad public participation.

The situation in Serbia with respect to sustainable production and consumption is very unfavourable. The goods and services on the Serbian market are produced and used in a manner generating excessive and hazardous waste (unregulated landfills and big suburban waste disposal sites). Energy efficiency is very low, although the country as a whole has an energy deficit, so it could be said that energy in Serbia is wasted, due partly to economic and technological factors. The material intensity of production is high, since products and services made in Serbia have excessive material inputs, while the scope of recycling is negligible. This has negative impacts in terms of depletion of resources and costs related to waste management.

There is an urgent need for Serbia to undertake very severe measures to restrict “dirty” production and to limit the wastage of energy and materials in production and consumption, especially with respect to non-renewable resources. Some of these measures are multi-faceted, such as a full, cost-recovery price of electricity with internalization of environmental and natural costs. Others refer to curbing the increase of PET (*polyethylene terephthalate*) packaging and reducing and phasing out PE (*polyethylene*) and non-degradable PVC (*polyvinyl chloride*) packaging, as well as leaded fuel and other environmentally unacceptable fuels. In parallel with these, there is a need for state imposed tax and other incentive measures for “green packaging”, biodegradable materials, reduction and separation of waste, increasing energy and environmental efficiency of production and energy saving programs, all of which should primarily be designed as stimulating (and when necessary also restrictive) measures, producer and consumer oriented. This systematically implies:

- Economic interventions – paying the full cost recovery prices for energy (including externalities), and also for natural, especially non-renewable, resources, goods and services, primarily through changes in the legislation, according to the “polluter pays” and “user pays” principle;
- Stimulating measures – promoting production, maximizing the use of “green” and environmentally friendly (recyclable) materials and renewable energy;

- Adoption of relevant legislation regulating environmentally unacceptable production and consumption and import and export of environmentally unfit products and services;
- A broad campaign of education and raising of awareness regarding sustainable production and consumption;
- Standardization of products and services which are environmentally acceptable and other forms of consumer protection;
- A broad media campaign for sustainable production and consumption;
- Demonstration of healthy life styles and systems of sustainable production by using more efficient, cost-effective and cleaner transport (public transport and bicycling instead of private automobiles);
- Promoting acceptable consumption patterns in consuming energy, water, food, protection of nature and preservation of bio-diversity, cultural and other lasting values;
- Adequate consumer protection and participation in identifying measures and activities aimed at implementing the concept of sustainable production and consumption.

9. Education for sustainable development

Knowledge, which is the basis of the economy and society, is generated by people who, through their education, are rendered capable of creative and critical thinking, resolving problems and cooperating and who will be capable of creating a new economy, a stable social system and sustainable development. A new economic system and a modern structure of economic factors require educated people who learn fast, who are innovative and creative, and adjust their capacities in line with technological progress and global development trends.

Such high demands require fundamental reforms in education which, in terms of standards, lag behind those of Europe and also require a response to the immediate needs of the current Serbian economy.

The education policy of Serbia is not sufficiently focused on creating human resources, and it does not reflect the objectives of the Lisbon Strategy set for 2010 in education and training: greater quality and effectiveness, access for all, open to the wider world. The education system in Serbia is not sufficiently supported in terms of financing. Expenditures for education in Serbia in the year 2006 were 4.2% of GDP, while the recommendation in OECD countries is 6-8%.

The educational structure of the population is very unfavourable, as more than one fifth of the total population over the age of 15 does not have full primary education, and almost one half of the total population does not have a (formal school) qualification.

There is much to be desired in what the current educational system in Serbia currently has to offer. A significant share of the population still remains outside the educational system, which refers especially to a high share of children from socially vulnerable groups and to the rural population, where there is a strong need for adult education. The advantages of early education are not used sufficiently (the system of pre-school education is not sufficiently developed), primary education does not equip the pupils with the intellectual skills needed for self-regulated learning, critical thinking and problem solving, the education does not rely sufficiently on modern knowledge of the nature of learning and does not stimulate the relevant thinking activities of pupils, nor does it foster research and innovation. Thus, the results of

primary education in Serbia, measured in the 2006 PISA (*Programme for International Student Assessment*) research through linguistic, mathematical and scientific literacy, are far below the European average.

The ratio between general and vocational education in secondary schools is very unfavourable to the detriment of general education, and it is therefore necessary to increase the share of general education from 26% to at least 40%. There is also an enormous and unsustainable number of failed grades in secondary school, even in primary schools in Serbia. Many unsuccessful secondary school pupils end up on the labour market as non-qualified workers. One out of 13 generations of young people (on average) leaves the education system without a qualification.

The system of higher education in Serbia has a relatively high number of young people who embark on university study. However, a very low and insufficient number of them (8-10% of the total number of enrolled students) complete their studies in the time that may be considered useful or acceptable for the society. The number of students repeating the first year of studies is almost 30%.

In total, the education system is unsustainable, lacks efficiency, does not include all children and young people and does not yield quality results at any level. As a consequence, the general level of education is low, there is a high percentage of student drop-outs at all levels of education, a substantial drain of qualified professionals to other countries, lack of standards for ensuring quality, a rigid and obsolete programme, lack of the complex and modern skills needed in the education process both among teachers and pupils/students.

In that sense, this strategy when speaking of education for sustainable development means not only the incorporation of contents on sustainable development in the formal system of education, but also such a (new) system of education which supports a knowledge-based economy and is a necessary pre-requisite for sustainable development of the economy and society as a whole.

More strictly, education on sustainable development is a pre-condition and an important tool for good governance, decision-making and promotion of democracy, strengthening the capacity of individuals, groups, communities, organizations and states in their deliberations and when making choices in favour of sustainable development. That is why education for sustainable development implies the integration of knowledge from all relevant sectors (environment, economy, society) with special emphasis on the application of such knowledge for the purpose of providing higher quality of life for all citizens. It needs to strengthen basic and applied knowledge as a pre-requisite of flexibility in the labour market, to ensure that quality education is accessible to all, to strengthen early education and develop a system of permanent education for environmental protection, and to provide broad competences of educated people in line with changes in technology and changes in the economic environment. Education needs to integrate knowledge and the manner of finding best techniques and methods in all spheres of human life, provide conditions needed to implement the concept of inter-disciplinary education for sustainable development, and to be fully participatory and provide for a greater inclusion of all civil sectors. It must therefore enable the participation and enhanced cooperation of all stakeholders (schools, business, decision-makers, civil society, etc.), and intensive strengthening of international cooperation with relevant scientific-educational institutions.

In order to establish a sustainable system and method of education for the 21st century, Serbia has, while keeping under control the rational use of public funds and implementing a reform of the manner of using public funds, to increase its investment

in education to at least 6% of its GDP, to increase the level of general literacy of the population, reduce the number of citizens without a qualification, and to harmonize its educational system to the needs of the labour market and reforms on the one side and the needs of future generations based on new technologies and communications on the other, and improve the efficiency of the system of education.

Concrete objectives include changes in the manner of financing, equal status of public and private systems of education, modernization of programs and curricula, introducing a quality assurance system, creating modern staff who will contribute to developing education, building a social partnership for education, and implement licensing, certification and accreditation.

In view of the above, this Strategy proposes sustainable education in Serbia which will be:

- Competitive in line with the scientific, economic and technological potential of the country;
- Accessible to all, especially to children and members of socially vulnerable groups;
- Flexible and adjusted to the needs of the labour market;
- Attractive enough and in line with the social-economic changes;
- Integrated into the European system of education;
- Financed in a modern manner, based on the model of European system of financing;
- Based on modern management, certification, licensing and accreditation.

In order to achieve the pre-requisites for a new system of sustainable education, the existing system of education needs urgently to be improved. To that end, it is necessary to motivate and support all stakeholders to contribute to the development of education for sustainable development and to integrate contents concerning sustainable development in the formal education system, through all relevant subjects and courses, as well as through informal types of education.

Objectives and direct measures that should contribute to achieving the main goal of the system of sustainable education include:

- Providing more favourable general conditions for economic-financial, institutional and technical support to the process of reform of the system of education and education for sustainable development;
- Promoting the concept and practice of sustainable development and the system of sustainable education through formal and informal ways of learning;
- Providing adequate training on sustainable development for teachers at all levels of education;
- Work systematically to develop research in the field of sustainable development and education for sustainable development;
- Implementing the reform of education by continually promoting cooperation at the national, regional and international level.

10. IC technologies and knowledge-based economy

A special challenge in developing a knowledge-based economy is in creating conditions in which the contemporary IC technologies make it possible to acquire, create, disseminate and use information and knowledge. For ICT to enable the acquisition, creation, dissemination and use of knowledge for the needs of the national knowledge-based economy, ICT has to be perceived primarily as infrastructure for development of information and knowledge which enables the identification and

acquisition of new comparative advantages. It is necessary that the national business practices innovative and adopt adaptive operations.

ICT should not be perceived only as a tool (an instrument for automation and technological modernization of operations, increasing productivity, simplified and cheaper archiving of data, quicker processing and transfer of data) as such tools may bring certain progress in operations, but not development. A necessary pre-requisite for the development effects of ICT to be felt is that it is perceived as an infrastructure for development of information and knowledge which should enable the national knowledge-based economy as a part of the global economy. In this respect, it is necessary to harmonize the Serbian Strategy of IT Society with the experiences and institutional solutions practiced in EU countries.

Sustainable development and a knowledge-based economy require a strong role of IC technologies. However, the technologies in themselves are only infrastructure for the knowledge-based economy. Data does not mean knowledge as such. It is important how data is retrieved, created and used.

The government and the relevant ministries must initiate the building of the necessary national infrastructure to support the dissemination of and strengthen the role of ICT in the future development of Serbia. This refers primarily to building a broadband network as a necessary pre-requisite for strengthening the role of ICT in everyday life and work. In order to efficiently promote the role of ICT it is necessary to adopt and complete the institutional infrastructure in this field, fully compliant with EU regulations.

In considering the role of ICT in the future economic development of Serbia, special attention will be paid to the system of education and preparing younger generations for broad and creative use of ICT, so that they can be competitive in the international market of knowledge and information.

In order to establish a knowledge-based economy as the general goal of sustainable development it is necessary to identify a list of strategic information systems to be developed in Serbia, to define clearly the link between strategic information systems with other elements and processes of the information society, for instance e-government.

The development of ICT in Serbia should improve the efficiency of economic activities and the competitiveness of the national economy by improving the exchange and accessibility of information, and especially electronic commerce, and economic-technological communication in general.

The level of IC literacy in Serbia is still insufficient, even in case of university or secondary education. Data indicates that ICT and the Internet are used in Serbia at a low level and with low efficiency; to many citizens of Serbia ICT and the Internet are not accessible and, when they are, the use is mostly passive and not creative use of ICT. In order to promote ICT, it is necessary:

- To identify a list of strategic information systems to be developed;
- To clearly define the link between strategic information systems and other elements and processes in the information society, for instance e-government.
- To increase ICT literacy within the development of key competences and in this context to promote creative and systemic thinking, and to promote the concept of life-long learning in the field of ICT;
- To increase the efficiency and effectiveness of IT education;
- To provide a systemic approach to the use of public data of national practical

and theoretical significance.

This process is possible only if a national policy for building a national ICT infrastructure that would be adjusted to the needs of business, citizens and the establishment of e-government is provided. In this respect Serbia needs broad campaigns, such as creative networks “learn to succeed with National Information Infrastructure” and “ICT for sustainable development” etc.

In order to be integrated into the global information system which enables greater efficiency and development of a knowledge-based economy, it is up to Serbia to ensure as the following priority long-term goals:

- An improved level of general IC literacy;
- Consistent implementation of e-government;
- Promote broader use and greater access at work, school and in households;
- Promote broadband providers;
- Local, business, national and global networking;
- Development and research in the field of information systems, e-commerce and ICT in general.

The principal short-term goals and tasks in the field of developing of ICT in Serbia include:

- Establishing an open and competitive market of modern telecommunications;
- Building of a modern telecommunications infrastructure for public administration and local self-government;
- Implementing the Universal service of telecommunications services according to the Law on Telecommunications (“Official Gazette RS” Nr. 44/03);
- Increase the number of Internet users;
- Introducing electronic government and promoting e-commerce in all fields (development of e-commerce, e-education, e-health, e-banking, electronic payments, etc.);
- Promote the development of public services and other contents accessible on the Internet intended for citizens and business;
- Broaden the market for information products and services in an information society;
- Develop legislation regulating all business and other electronic documents, procedures, processes, and data and their harmonization with EU regulations, and acceptance of internationally harmonized ICT standards;
- Establish an electronic system of public procurements;
- Promote the information society, protection of intellectual property rights and use of licensed software in information systems and on the Internet.

11. Sustainability of scientific-technological policy

The economic and overall development of the Republic of Serbia will have to be based increasingly on organized R&D activities which should enable continued technological development in the form of improving the existing and creating new technologies, but also new products, processes and services. In order to achieve this, Serbia needs to increase its investments in science from the present 0.35% to at least 1% of its GDP, which according to the guidelines of the EU is the minimum GDP share that enables positive effects on economic development. These funds should be invested in both fundamental, applied and development research. However, the pre-condition for this is first to establish systematic and market-based links between science and the economy.

Serbia has inherited a highly centralized, bureaucratic system of financing of scientific-research units, not according to their scientific-research efficiency and results on the market, but according to social and other criteria.

The Serbian economy oriented towards a knowledge-based economy will have to change completely its attitude towards scientific-research and development work. The previous practice of development of mostly fundamental and insufficiently applicable research will have to change in order to establish a different scientific-research and development system. Such a system needs to be based much more on market principles and the needs of contemporary technological changes.

Besides a reformed and enhanced system of R&D, special attention needs too be paid to monitoring and measuring the progress made in building a knowledge-based economy. In doing this, Serbia can rely on the experiences and methodologies applied in OECD countries. KBE indicators can be categorized in *three groups*:

(1) indicators of structural change - the share of knowledge-based production and services in the overall economy, increase of knowledge-based added value, structure and rate of economic growth by technological intensity, imports by technological intensity, export by technological intensity, investment in knowledge (as a % of GDP) and comparison with total investments, increase of IKT intensity, investments in equipment, software and patents, increase of employment by degree of qualification of labour.

(2) indicators of generation of knowledge - implying indicators of human capital: percentages of secondary and higher education (by relevant age groups), share in current additional education and training which is strictly professional, average expenditures for technical training per employee in industries, public expenditures for education (per capita), relative earnings in comparison to level of qualification, and scientific and technological indicators: expenditures on R&D as a share of total expenditures from GDP, growth rate in the number of research staff, the inflow of graduates from scientific and engineering professions relative to the total number of employed, number of scientific publications relative to the total population, rate of application of patents per inhabitant.

(3) indicators of knowledge dissemination - spreading of knowledge networks and organizational changes: share of business in financing research and development, number of national and international technological associations of companies, international associations, purpose of business associations, use of business practice, etc.

In parallel with developing a knowledge-based economy and sustainable development, Serbia will have to significantly reconstruct its research and development system. Such changes should lead to establishing better functional links between research and development units, their rationalization and restructuring into a much greater number of units throughout the economy, and a somewhat smaller number in faculties and state institutions oriented towards fundamental research.

In order to ensure competitiveness and a modern research and development system, Serbia will have to:

- Provide for a technological rationalization of research and development units;
- Provide equal access to public funds for private and public research and development units;
- Improve their international competitiveness and promote international linking and cooperation with prominent international institutes;
- Reduce the brain drain of the best researchers through special programs for the most talented young scholars;
- establish uniform IT systems for all scientific-research institutions and improve the potential for use of ICT;
- Introduce systems of e-government
- Provide special stimulation for research and development in propulsive sectors of the knowledge-based economy;
- Promote knowledge dissemination and exchange of scientific information as a public good (scientific events and international exchange of knowledge),
- Provide (in line with the needs of the Serbian economy) the establishment of scientific-technological parks, incubators and development-innovation centres,
- Establish links with the academic Diaspora, both for the purpose of return of its scientists and in order to increase the mobility of its researchers within the country and abroad.

12. Protection of intellectual property rights and sustainable development

Intellectual property rights are a major pre-requisite of a knowledge-based economy. They constitute a set of legislative acts authorizing someone to acquire subjective rights on the basis of an objective asset, including industrial property and copyright. Countries which have not provided for protection of intellectual property rights cannot count on accession to the EU nor on practical use or productivity of intellectual capital which in modern times represents numerous protected elements such as: literary, artistic and scientific work, interpretations and performances by artists, phonograms and broadcasting programs, inventions in all fields of human activity, factory, trade and service trademarks, as well as registered trade names and trademarks, protection against disloyal competition etc.

The current situation in Serbia regarding the protection of intellectual property rights is very unsatisfactory. Although Serbia has adopted the Law on special rights for efficient protection of intellectual property rights (“Official Gazette RS” Nr. 47/06), its implementation is lagging behind, and the level of qualification and equipment of authorities in charge of its implementation is far from satisfactory. The major problem is lack of understanding, and lack of theoretical and practical consequences of intellectual property. Among those who violate intellectual property rights there is a dominant perception that stealing or abuse of others' intellectual property rights is not actually stealing, and that ethically it is much more acceptable than violation of conventional property rights.

With respect to protection and valuation of intellectual property, Serbia today has to strive towards achieving three main goals:

- Adequate legislation harmonized with international instruments;
- Efficient mechanisms for implementation of such legislation;
- Continued monitoring of economic, technological and social transformations which may require adjustments and amendments to the existing legislative framework.

In this context, protection of intellectual property should enable: promoting, providing and protecting foreign investments through a predictable, efficient and transparent system of protection of intellectual property rights; enabling national legal entities to achieve legal advantage over the competition through an efficient protection of their intellectual property rights. Additional effects would include market expansion of national business entities without significant financial investment. This would mean attracting additional capital for development and market expansion of national companies which have significant capital in form of intellectual property rights and would increase the total market value of companies.

Key strategic measures that Serbia needs to undertake right away in order to protect intellectual property rights include:

- Adopting a national strategy for the protection of intellectual property rights, establishing a Committee for Intellectual Property within the national parliament, or assigning this competence to one of the already existing parliamentary committees;
- Promoting intellectual property for the purpose of membership in the EU, WTO, European Patent Organization;
- Developing a program of permanent education of staff in public administration in charge of implementing legislation relevant to intellectual property rights;
- Implementing a long-term media plan which would raise awareness among businesses, inventors and the general public about the numerous and long-term benefits to be gained through adequate protection and valuation of intellectual property.

IV. THE SOCIO-ECONOMIC CONDITIONS AND PERSPECTIVES

The social dimension of sustainability is based on the principle that equality and understanding of interdependencies of people within communities are a precondition for quality of life, which in fact is the first goal of development. For development to be sustainable in the long-run, wealth, resources and opportunities must be distributed in a way that all citizens may enjoy the basic standards of safety and human rights and social privileges such as food, health, education, housing and the ability to develop their personalities. Social equity means ensuring access for all to education and the ability through their work to contribute to the development of society. The inter-relations in society are such that any social inequality affects its stability. The inter-relations in society also have an impact on the acceptance of the fact that living standards in a society very much depend on the size of the population and its ability to be in harmony with planetary environmental resources and the existing infrastructure. It is, therefore, necessary in order to achieve the social aspects of sustainability to keep in mind the following:

- The protection and development of social values and enlargement of social capital;

- Equal rights, equality and security before the law for all, with special emphasis on equal rights of men and women, children and the young, equal rights and protection of minority and human rights;
- Guaranteeing and promoting comprehensive health protection and security;
- Quality education creating conditions for individual development and preservation of identity;
- Solidarity within and between generations and solidarity with marginalized groups, the poor and the under-privileged.

1. Social values, quality of life and social welfare

For the purpose of this Strategy, social welfare implies those aspects of peoples' lives on which there is full consensus in society that they represent the major preconditions for a personal feeling of happiness, quality of life and welfare of an individual. Quality of life, although it essentially represents the feeling of satisfaction with one's way of life, in a broader sense may also be defined as the relation between the individual and his living environment – physical, health, social and economic.

Achieving the desired level of social welfare in Serbia depends primarily on adopting sustainable life styles in society, values and increasing of social capital, social and cultural identity, and on the achieved level of economic development.

Sustainability means that the lifestyle of each individual in a society should be environmentally aware, healthy, safe, in solidarity, participatory and diversified.

The level of environmental awareness in Serbia is very low. Average citizens do not have a developed positive awareness of the need to reduce pollution or establish rational use of energy and non-renewable resources. Many Serbian citizens lead health-risky life styles (smoking, consuming alcohol and psychotropic substances) which are often tolerated by the community due to traditional behaviour patterns. According to the data derived from the population health survey for the year 2000, almost one in two men (48%) and one in three women (33.6%) smokes, while the share of smokers is even higher among younger smokers. The same survey indicated that half of the students in Serbia smoke, while among those of the age 15 a share of 27% smokes on a daily basis. The total prevalence of smoking among adolescents, according to the survey for 2000 is as high as 69.8%! The survey of young people carried out in 2003 indicates that 51% are smokers, and a majority of young people start smoking at the age of 15. The 2000 survey indicates that almost a half of the adult population consumes alcohol, and 3.3% do so every day (6.6% men and 0.3% women). According to the same source, the prevalence of the use of alcohol among adolescents is 32.8% (intermittent consumption of alcohol). Abuse of narcotics and psychotropic substances is increasing among the young. They start with marihuana at a very early age (around 13). Marijuana is the most widely used drug – about one third of all young people try it. The prevalence of use (regular consumption) of drugs among adolescents, according to the 2003 survey was 1.8%. Survey data from June 2006 indicates that 11% of the population have tried drugs, 3.7% have used them over the last 12 months, while 19.2% of the younger population (from 15 to 34 years) have used drugs, 7.4% of which have done so in the last 12 months. The predominant drug in use is marihuana, but the abuse of amphetamines, cocaine and ecstasy is increasing.

Certain forms of violence have an increasing trend (family violence, peer violence, violence against animals), and it is accompanied by tolerance to different forms of verbal and non-verbal aggressive and violent behaviours. Data on the prevalence of family violence from 2001 is alarming: 30.6% of the interviewed

women stated that they have been victims of physical violence, 46.1% were victims of psychological violence, while 8.7% stated that they have been sexually abused. It is supposed that the so-called «dark number of violence» is even higher. Peer violence is also very widespread: 65% of primary school pupils have at least once in the last three months been victims of violence, while 24% have been victims of violence more than once in the same period of time, and 28% in some way took part in violence. According to a youth survey, 24% of young men have had a fight during the last year, and the same goes for 4% of young girls.

There is a social distance towards members of other national, ethnic or religious communities and a visible increase of this among the young. Ethnocentrism is present as well as the risk of its radicalization. About 20% of the Serbian population is ready to accept ethnocentric attitudes expressing lack of trust towards others and a feeling of one's own superiority. The greatest level of ethnocentrism is present among those who declare themselves religious and who accept all that the church teaches, while the category of the population with completed college or university degree show a lower level of ethnocentrism. Although among the young the level of ethnocentrism decreases with age, it is strongest at the age of 20 to 23. Since the youngest age group in its attitude to ethnic minorities is no longer different from other age groups (it used to be more tolerant than the older age groups), this may be interpreted as an increase of radicalization among the young.

The culture of social participation is very low: a low percentage of people take an active part in the work of political parties, social organizations or interest associations of citizens, and this percentage is even lower among the young. The ability of young people to meet their need for a certain self-selected individualized life style is low due to significant structural barriers.

Social values are a symbolic framework of individual and group actions which at a macro level take the form of certain development or stagnation processes. With respect to social values, Serbia at present has two major problems. One is the excessive differences within the political and economic elite in terms of the normative framework of the new social order, enabling the co-existence of three models of social reproduction; the command, the market and the informal model. This further aggravates the process that transition countries undergo, which is the process of harmonizing the value patterns of the population with the prevailing normative framework. Such disharmony in Serbia exists also on the macro level and at the level of major social classes. The second problem is that about the same percentage of the population in Serbia believe that environmental protection should have the priority, even at the price of slower economic development and lower employment, as those believing that economic development should have priority, even at the price of certain environmental pollution. Therefore, Serbia is faced with two tasks: the first is to remove the internal normative-value controversies which stand in the way of stable social reforms, and the second to avoid such controversies at the global level and integrate into the global trend of sustainable development. The inherited economic difficulties and the still present poverty in Serbia result in widespread materialism and a feeling of insecurity and exposure to risk. It is particularly emphasized that alienation of the rural population is alienated from the natural resources in their direct environment which is paradoxical and is to a great degree the consequence of emphasized poverty which, in Serbia, is a predominantly a rural phenomenon.

Social capital as the basis of recovery of the wider society in Serbia is very weak. The citizens are very untrusting among themselves and towards institutions. More trust is placed in traditional than in modern institutions. On the other hand, since

the year 2000 there is a visible trend of changing intensity which is leading to stabilization of a democratic, market based society and integrations into European and international institutions. Also, the rhetoric of tolerance to minority and vulnerable groups is much more present, and their rights are increasingly determined by special legislative solutions.

Apart from the above risks, the achievement of the desired social welfare in the republic of Serbia is burdened by different security risks. This has become especially acute since, as a consequence of contemporary security challenges and threats (interethnic conflicts and rivalry, organized crime, environmental risks, etc.), the concept of security has shifted from national and state security to individual security and security of social groups which, as the reference objects of security are primarily under risk. Security is no longer an issue only of territorial integrity and state sovereignty, but also a “freedom from fear” of criminals and other threats (social, economic) which burden individuals or social groups in the face of states or social communities powerless to provide effective protection. Security is therefore increasingly seen as the *ability* of the state through its mechanisms to protect the rights and freedoms of individuals and social groups and *threats* targeting them. The issue of social security or safety is primarily an issue of the sustainability of the social entities with different *identities* which more powerfully shape the behaviour of social groups or individuals within them than do the borders of a state territory. In terms of crises that affect the Republic of Serbia, the organizational and human weaknesses at the national level reflect the situation at the local level. Irrespective of the adopted policy of decentralization, there are no effective plans in place to respond to emergencies nor is there a clear responsibility of authorities at the level of local communities. It is expected that the negative trend of the occurrence and consequences of crises will continue with increased vulnerability of the population and infrastructure, due to urbanization and economic and social development in vulnerable regions.

The fundamental constituents of the Serbian society have in a very short time been questioned several times, and it is therefore clear that the collective and individual identity of the citizens of Serbia has undergone serious frustrations. Serbia, like all modern societies, is internally pluralized (heterogenic) on several grounds and its citizens belong to different groups. Apart from gender identity, there is also ethnic identity which, along with cultural, religious and regional identity, is the basis for pluralization of identities in all contemporary societies. To add to this there is also professional identity, as this – like other forms of identity – is a basis for links between individuals and groups through belonging to the same professional (class) associations. These, however, are among the most important basis for the development of a civil society. Finally, there is also another wider identity framework whose development lies in the future and is covered by European identity. Relying too heavily on collective identities, primarily ethnic ones, brings with it the risk of exclusion which is established in a form of ethnocentrism which, along with underestimating others, focuses on the members of one's own ethnic group or nation. This is a threat not only to the functioning but also to the very existence of complex communities made up of members of different nations or ethnic groups. Over recent years there developed a concept of cultural diversity, of cultural differences which, in contrast to the exclusive understanding of one's identity also has a dimension of inclusiveness or openness to the identities of others. This concept needs to be promoted further and integrated in specific programs, primarily programs of cultural development in Serbia.

Cultural identity should be perceived as a set of relatively persistent identifiers, not as a coherent and stable whole. The national religion thus becomes a part of the cultural map which is a consensus agreed image of society, an image on which there is general consensus. The media record and report among the headline news (including commentaries) on that which fits on such a map, while information which challenges the consensus agreed cultural map is silenced, marginalized or interpreted so that it can fit the matrix of meaning that is pre-determined, thereby minimizing disagreements. It is highly unlikely, for instance, for a humanitarian action by any religious community (with the exception of the Serbian Orthodox Church) to receive adequate coverage in the media, as such an action does not fit in the negative stereotype on sects, which is already established.

Mass media are of great significance for forming, promoting and maintaining social and cultural identity. This was demonstrated during the 1990s, when the state electronic media were used systematically to promote nationalistic policies. After the year 2000 their role changed significantly. The result of the privatization of electronic media which is underway – and which is required by the Law on Public Information (“Official Gazette RS” Nr. 43/03 and 61/05) – is a profit orientation and marginalisation of program contents which refer to culture, both contemporary and cultural heritage. This implies an even stronger role of the public national broadcaster whose financing (subscription, and revenues from advertising) and program scope - two national TV and two radio channels and one TV and radio channel in the Autonomous Province of Vojvodina - was initially established so as to have a positive function in terms of both national identity and the identities of minority communities.

Table 1. The structure of HDI* in the Republic of Serbia

	2000	2001	2002	2003	2004
Average life	71.4	72.1	72.5	72.4	72.4
Literacy rate	96.5	96.5	96.5	96.5	96.5
Combined enrollment ratio (%)**	78	77	80	79.5	82.6
GDP according to PPP ***	3,833	4,040	4,760	6,305	7,640
Life expectancy index	0.77	0.79	0.79	0.79	0.79
Education index	0.90	0.90	0.91	0.91	0.92
GDP index	0.61	0.62	0.64	0.69	0.72
Human Development Index	0.762	0.768	0.782	0.797	0.811
Global HDI ranking	70	75	65	59	H.A.

*Human Development Index (HDI), ** (PPP US\$, per capita; Source: RSO (2005)

Finally, social welfare in Serbia is directly related to indicators of economic development. Although it is common in global terms to contrast directly dynamic economic growth with achieving sustainability, the conditions in which the Serbian economy developed in the past imply the need for the *strategic orientation of Serbia to continued accelerated economic growth*. The average growth rate of 5.2% from 2000-2006 ranks Serbia among European countries with fastest growth and would enable the country in 13.5 years to double its average living standard in real terms, meaning without inflation. There are, however, a series of significant socio-economic problems (inflation, a high rate and increasing unemployment, high foreign debt, high trade and current account deficit, overestimated local currency, a high level of state control over prices, slow privatization of public and utility companies, postponed restitution, delay in bankruptcy of companies employing about half a million people, tolerance of monopolies, high corruption, etc.).

Strategic objectives in achieving social welfare in Serbia include:

- Creating favourable economic conditions at the macro level through increasing the growth rate, and the share of investments and *green-field* investments in GDP;
- Promoting and developing sustainable life styles;
- Promoting values based on political liberalism, civic participation, market economy and social equity as dominant values in public and political life
- Increasing the generalized trust of citizens to 40% and achieve over half majority trust of citizens in modern institutions;
- Developing identity policies as a part of a long-term cultural development strategy;
- Increasing cultural capital through preservation, promotion and presentation of Serbian cultural heritage,
- Developing risk management policy at the national level.

The priority in creating conditions for a gradual change to sustainable life styles in Serbia is to resolve the unfavourable socio-economic position of the young, who are at present and in the future the main actors of sustainable development. A comprehensive, operationalized and coordinated program based on the National Strategy for the Young (adopted by the government on May 9, 2008) also needs to include the issue of raising awareness and promoting life styles for sustainable development.

In terms of increasing the social capital and achieving social values characteristic of modern democratic societies, the **priority** is to achieve a prevailing social consensus regarding the basic elements of the direction of social and economic development and integration into European and global institutions. It is necessary to agree a visible and formalized consensus among all leading political parties, NGO-s and other stakeholders in defining the specific national objectives of sustainable development and build mechanisms of monitoring, evaluation, review and harmonization with the European sustainable development strategy. It is also imperative to achieve consensus among the major political parties regarding the desired form of state organization (political liberalism, civic participation, market economy, social equity) and values supported by the majority of the population regarding such a normative framework.

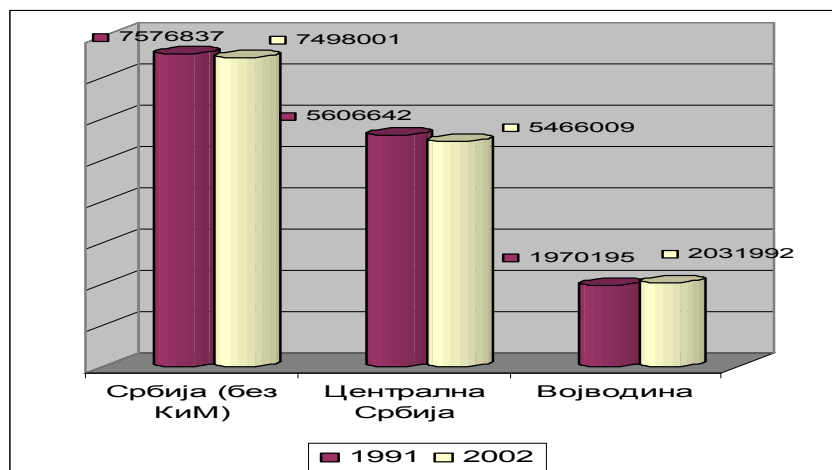
The priority of Serbia in promoting social and cultural identity is to create and promote the concept of cultural diversity, seen as an aspect of the European dimension of identity which, starting from the local and the regional includes also the national, but does not stop at its limits.

The priority in respect to economic development is strong economic growth accompanied with attracting foreign direct investments, enhanced the business environment in Serbia and an increased level of economic freedoms (full protection of property rights, including intellectual property rights, freedom of contract, relieving the national market of state control, privatization, denationalization, reducing customs duties and non-customs barriers, reducing state spending and taxation, moderate regulation, removing administrative barriers for business start-up, operation and closure, liberalizing capital and current transactions, free regulation of the exchange rate, suppress non-economic rents, corruption, the grey economy and tax evasion). In respect to regulatory measures, it is necessary to promote measures related to further reduction of state spending, giving priority to economic development and economically-motivated employment, giving equal regulatory and political status to entrepreneurs and other employees, unions of employers and trade unions. In the

domain of regulatory measures, there is a need to further promote the reduction in public expenditures, assigning priority to accelerated economic development and increased employment, protection of the interests of employers and rights of employees, development and strengthening of social dialogue at all levels.

2. Population policy

The phenomenon of low birth rate is currently a major problem in the demographic development in Serbia. It is characterised by a number of new-born babies lower than needed for simple reproduction of the population. The total population reduced from 1991 to 2002 by 78,800 or at an average annual rate of -1.0‰. The fall in population has, for the first time, been recorded in Central Serbia as well. The population fell by 140,600 at an average rate of -2.3‰ annually. AP Vojvodina experienced an increase in total population in the period between the two censuses (1981-1991), in contrast with the period before that census, which witnessed a population drop. The population of AP Vojvodina increased by 61,800 or at an average annual rate of 3.1 per 1,000 inhabitants per year.



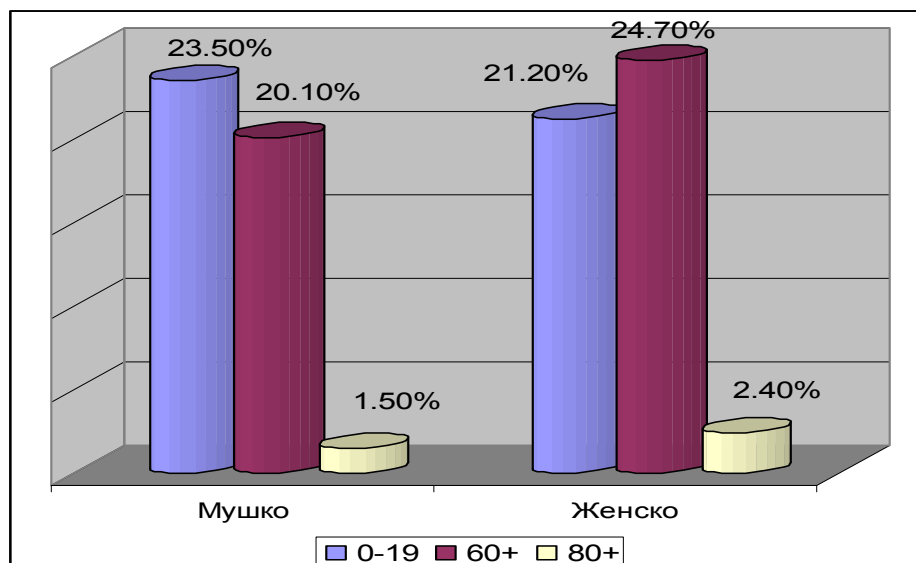
Source: Population 1-4 (2004 :160)

Figure 7. The population of the Republic of Serbia (without AP Kosovo and Metohia) in 1991 and in 2002

The scale of depopulation is obvious at municipal level. Of the total number of 161 municipalities at the time of the last census in 2002, only one in four municipalities (40 in total) had a positive population growth rate. Among them, most municipalities (32) with a moderate growth rate, up to 10‰. The greatest population growth rate has been recorded in the municipality Nova Pazova (17.2‰). Among the municipalities with reduced population from 1991 to 2002, most have a rate of up to -10.1‰ (57% of the total number of municipalities), while others (with one exception) had rates ranging between -20.1‰ to -10.0‰. The population was reduced the most in the municipality Crna Trava, with a population reduction rate of -34.8‰ annually.

The natural increase of population in central Serbia and AP Vojvodina was decreasing in both absolute and relative terms. In contrast with this, the natural increase in the Autonomous Province Kosovo and Metohia increased constantly, and the rate also increased until the mid 1970s, after which it began to drop. The low reproduction present in most areas reached critical values causing open depopulation and accelerated demographic aging. A major influence on natural increase was the

birth rate. In 2004, the total fertility rate was 1.57 live-births per woman, and net reproduction rate was 0.74.



Source: Population statistics 2002, 2003, Statement Nr. 306/2005

Figure 8. Population of the Republic of Serbia by gender and by age groups (2002)

The changes in the total population of Serbia 1991-2002 were the result of intensive migration during the 1990s, which may now be a significant obstacle to sustainable development. Immigrants contributed most to mitigating the depopulation of Serbia in the last decade of the 20th century. The effects of migrations are obvious in the individual macro-units of the Republic of Serbia, but with varying effects in terms of totals. In Central Serbia, the natural depopulation (at the level of 89,100 from 1991 to 2002) was increased by the negative sum of migrations to a total of 51,500. In AP Vojvodina, the positive migration sum at the level of 144,400 neutralized the negative effects of new births (at the level of 82,600 for the whole period), and it even led to a population increase. Therefore, the total population of Serbia at the time of the census was under the major impact of the inflow of a significant number of refugees (5.1% of the total population of Serbia, excluding AP Kosovo and Metohia).

The population of Serbia (excluding AP Kosovo and Metohia) can be categorized as a group of extremely aged populations. The share of the young is low and decreasing, while the share of the old is high and increasing. The population census from 2002 registered 1,177,000 persons under the age of 15, while the number of those in the age group over 65 was 1,241,000. This was the first time that the registered number of old persons in Serbia exceeded the number of the young. The situation differs among some ethnic groups (Roma, ethnic Albanians in the south) and forced migrants (refugees, displaced persons) with a much younger population.

If the indicator of demographic age is the mean age in that case the population of Serbia (excluding AP Kosovo and Metohia) with the age of 40.7 years at the time of the 2002 population census is among the oldest populations in the world. According to data from 2000, only four countries in the world (Japan, Italy, Switzerland and Germany) have a mean population age exceeding 40.

The aging and the emigration of population affects especially the rural areas of Serbia, in which the reduced share of the working population means the loss of the

ability for sustainable management and use of natural resources over almost 85% of the national territory. The rate of economic dependence in Serbia is increasing because the active population has increased more slowly than the number of supported persons and persons with their own income added together.

Strategic objectives of population policy include:

- Stopping and/or slowing down the unfavourable demographic trends, by stimulating childbirth and creating conditions to stabilize the population.
- Creating adequate policy, birth promoting policy, and policy for the young
- Respecting the aging of the population in all aspects of development policy;
- Increasing life expectancy and the number of lives lived in good health;
- Reducing infant mortality in terms of approaching the levels achieved in European countries;
- Promoting internal migrations leading to a more balanced spatial distribution of the population and eliminating the “brain drain” by creating favourable conditions for return and/or investment by the Diaspora in the Republic of Serbia,

The priorities of the demographic development of Serbia are to build an adequate *institutional framework* and regulatory mechanisms for population policy. This implies the adoption of a national strategy of demographic development, establishing special bodies (at all government levels) to monitor and implement strategy objectives, continually improve legislative solutions and better sectoral harmonization, monitoring the work of family planning centres and developing counselling for biological reproduction and aging.

In order to achieve the identified goals, it is of major significance to strengthen financial assistance to families, to develop education and adequate public information. This requires implementation of measures aimed at: direct financial support to family and children, assistance to single parent families, introducing special incentives (including tax incentives) for the most vulnerable categories of population (unemployed, old, sick), developing a network for providing services of daily childcare, increasing financial benefits for parents and children. Special attention needs to be paid to the specific features of rural areas and the development of the needed infrastructure. In order to remove the identified problems in further development and in achieving the basis for improving the population policy and demographic development of Serbia, it is of the utmost importance that the topics relevant to population policy are adequately present in education (at all levels), and promoted by the media in order to motivate the public and stimulate reproduction (with the respect of basic human rights).

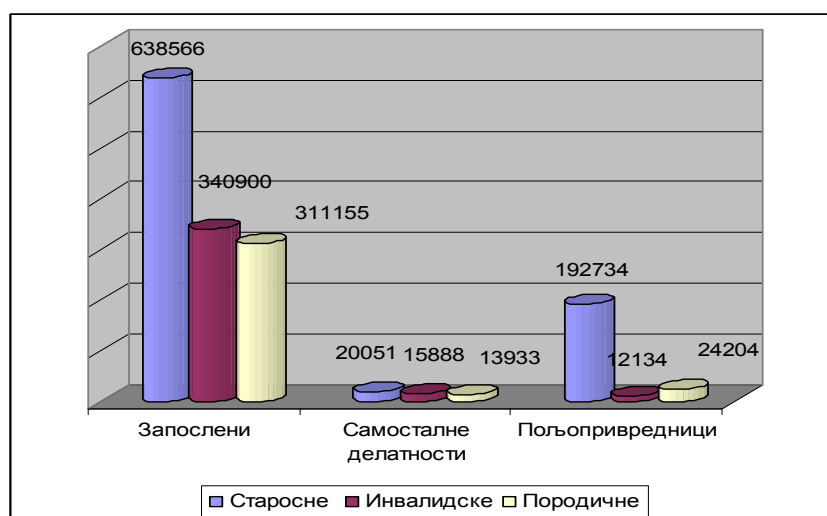
3. Social security

The social security system in Serbia covers social insurance, (pensions and disability, health and unemployment), and social and child protection. In view of EU integrations and in the context of national macroeconomic trends, the fundamental pre-requisites of this system are the subject of a broad scope of reforms. These issues are also required by the current demographic trends, changes in the sphere of work and family, and the maturity of the system itself. Political, economic and socially specific features make it more difficult to arrive at a social consensus regarding the desired objectives and directions of reforms, which in turn delays the modernization of the system and has negative impacts on the social security of beneficiaries.

Pension and disability insurance is organized predominantly according to the principle of current financing and inter-generation solidarity. For quite some time the amount of funds collected through contributions is not sufficient to cover legally prescribed rights. At the end of 2001, a reform was initiated aimed at restructuring the mandatory pension insurance (I pillar) and the limited introduction of voluntary pension insurance (III pillar).

Measures aimed at the I pillar included the increasing of the age limit for retirement, longer calculation period for pension benefits, a changed formula for calculation of amount of pension, and adjustments of pension payments. Further changes will be directed at gradual increase of the age limit for retirement until 2011 (to 65 for men and 60 for women), the introduction of a mechanism of more efficient collection and control of contributions is planned, and inclusion of military beneficiaries in a single pension fund and introducing an optimal formula for pension adjustments.

Although the World Bank advocates its introduction, mandatory private insurance (II pillar) has not been implemented. The high risks associated with its introduction (unfavourable macroeconomic trends and stability, lack of information, lack of financial instruments in private ownership, lack of trust in private funds) support the belief that the necessary pre-conditions for a changed role of the state do not exist, which also applies to the lack of values required for such a system component.



Source: The Republic Pension Insurance Fund ПИО, (2008)

Figure 9. Structure of pension beneficiaries (December 2007)

Voluntary private pension insurance (III pillar) has been introduced, but with a low number of beneficiaries, coupled with the lack of funds for investment in this form of insurance, which with time will further develop. It can be expected in the long-term that the share of the state in the system of pension and disability insurance will be reduced in favour of capitalized funds.

Health insurance is characterized by a high rate of coverage of the population with healthcare, a disparity between broadly defined rights and available funds to meet them, the dominant state ownership of buildings and assets, centralized management systems at the Republic level, a dominant role of secondary and tertiary protection over primary healthcare, and lack of integration of the private sector in the system. Despite the fact that many problems are manifest, the reform of the health

care system and healthcare rights and health insurance have long not been treated as a priority. As a result of this, the gap between the real health-related needs of the population and the scarce funds for their efficient fulfilment has been increasing continually. The privatization of the healthcare system and private healthcare services has not significantly contributed to improving the position of beneficiaries nor has it resolved the existing controversies.

Simultaneously, apart from mandatory health insurance, provisions exist to enable voluntary health insurance, but they must be further elaborated. The documents adopted set out the objectives of healthcare policy and fundamental reform principles, and in addition to developing strategic documents, activities have been initiated to rationalize and standardize the healthcare system and services, and decentralize the management and financing of healthcare institutions.

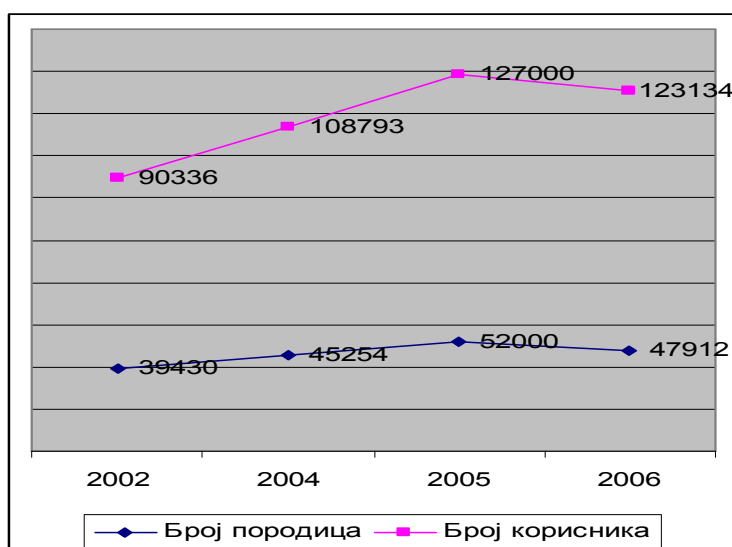
Unemployment insurance is mandatory for all employees in Serbia. The replacement rate is 55.7% and the amount of financial benefit is set relatively high. The number of beneficiaries of this benefit is not high, compared to the total number of the unemployed. Irrespective of this, there are difficulties in providing financing for them as well.

Apart for passive measures, conditions have also been provided for active labour market policies for employment. They include, primarily, incentive measures to generating new employment, as well as the employment of certain vulnerable social groups: refugees and internally displaced persons, the long-term unemployed, persons above the age of 50, members of ethnic minorities, persons with disabilities, etc. employment on public works, and the like.

The National Employment Strategy for 2005-2010 identifies priority actions needed to increase employment, enhance the quality and productivity of labour, and to provide social cohesion in a highly segmented labour market.

The number of beneficiaries of financial unemployment benefit (MOP) increased from 1999 to 2005. Although MOP is the best targeted social transfer in Serbia, the coverage of the population is low (only 3% of poor households enjoy this right). The criteria for entitlement to this right are very strict, while the amount of MOP is insufficient to meet the basic needs of the beneficiaries, which leads to social exclusion and marginalization. Despite the legislative changes, most beneficiaries are unemployed, able bodied persons. This requires the re-direction of passive benefits into measures which would contribute to their quicker employment.

The existing network of social protection institutions does not correspond to the actual needs of beneficiaries and does not provide adequate services. Despite numerous changes in the legislation, the substantive reform progress that started in 2000 in the context of decentralization and de-institutionalization of the previously highly centralized system is still incomplete. The most significant measures are directed at improving the position of the most vulnerable categories of the population: individuals and households who do not have basic social security, persons with disabilities, the old, children without parental care, victims of family violence, etc.



Source: The Ministry of Labour and Social Policy (2007)

Figure 10. Beneficiaries of material benefits (2002-2006)

Changes in the system of social protection are directed towards creating mechanisms for prompt, efficient and adequate implementation of established social protection rights. In that respect, reforms are aimed at activation of the beneficiaries of social protection, development of a network of social services, and the inclusion of the NGO sector in the provision of services which are to contribute to improving the position of beneficiaries and stimulating their social inclusion.

Certain rights in the system of social protection of children (parents' allowances) are actually measures of population policy, while others (children's allowances) are designed to be an instrument of social policy or a form of support and assistance to poor families and children. The parents allowance is a one-shot allowance at the time of childbirth of the first child, while for the second, third, or fourth child it is paid out in 24 monthly instalments, replacing the previously used different monthly or one-shot allowances. The amount of children's allowance is now equal for all children and the universal right to children's allowance has been abolished.

Social cohesion is one of the issues to which the EU assigns great attention, since economic policy which disregards social factors cannot lead to the increased competitiveness and productivity of the economy of EU. This was reinforced in the Lisbon Strategy which puts emphasis on an integral approach to economic, social and employment policy. Sustainable economic development accompanied by investments in people is the focus of activities of the European Committee for Social Cohesion and is the main component of the ratified Social Cohesion Strategy ("Official Gazette SCG" Nr. 18/05). Social rights, as stated in the European Social Charter, are rights in the field of housing, social protection, employment, health and education.

Better access to social rights and to the social security system is a pre-requisite for social cohesion, together with enhancement towards establishing and improving mechanisms and institutes promoting social equity. Although the principal way of providing social cohesion is through adequate employment, crucial roles are also played by the components of policies for the protection of households with children, care of the old, and promotion of social inclusion (through programs for housing, employment, education and training, healthcare, financial benefits and social services). Apart from the state authorities a great role to be played in this context is

the role of the civil society, primarily non-governmental organizations and trade unions.

From the point of view of social security and social cohesion, priority actions should be directed towards resolving the problems identified above while balancing the existing strengths and advantages with the weaknesses and threats.

The strategic objectives include:

- Strengthening social stability and solidarity;
- Preventing extreme inequalities in the distribution of income;
- Promoting efficiency components in the system of social security;
- Increasing the level of social security for beneficiaries of the social security system, social and children's welfare,
- Promoting social inclusion.

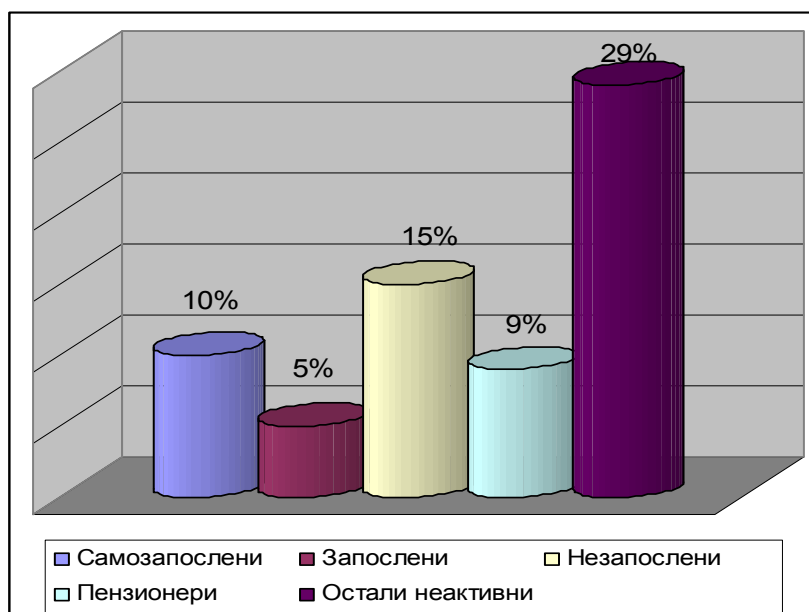
The priorities of Serbia in the area of social security and social cohesion are modernization of the social security system, along with building a social consensus regarding the objectives of its development and the basis of paradigmatic changes; providing the minimum social security for all members of society, while strengthening the responsibility of the individual; creating the pre-conditions for a financially sustainable system of social security and building a complementary model of private insurance.

4. Poverty and social inclusion

The current data regarding the number and structure of the poor in Serbia rank poverty and social exclusion among the greatest social problems and challenges, whose resolution to a great extent depends on the sustainability of its future development. Poverty and social exclusion have an extremely negative impact and cause huge losses of human resources. At the same time, they annihilate all efforts and innovations implemented in the society as its progress does not belong equally to all its members.

There are different criteria for identifying poverty, just as there are different categories of poverty (absolute poverty, relative poverty, new poverty, pauperization, etc.). The Poverty Reduction Strategy defines poverty as a "multi-dimensional phenomenon which, apart from insufficient income to meet basic living needs, implies also other aspects related to human rights, such as inability to become employed, inadequate housing, inadequate access to social protection, healthcare, education, and utility services, and lack of the right to a healthy environment and natural values, primarily clean water and clean air.

With respect to poverty, since the beginning of the 1980s, the concept of social exclusion has been used increasingly, especially in the EU. In the most general sense, social exclusion is a wider phenomenon also including aspects of poverty which may be both the cause and the consequence of social exclusion. At the same time, poverty refers more strongly to distribution and re-distribution of resources, or lack of them, while social exclusions refers also to the reduced participation of individuals and households in society and their inadequate integration due to an inability to achieve certain social rights. The result of social exclusion is a breaking of the links between the individual and society.



Source: Poverty Reduction Strategy Second implementation report (2007)

Figure 11. Poverty according to socio-economic status (2006)

Poverty in Serbia is caused by the position on the labour market and economic activity, degree of education and qualification, age, gender, household size, type of settlement and regional location, and membership of certain social groups which, generally, are more exposed to poverty.

Persons exposed to above-average risk of poverty are those aged over 65 (especially those without pension benefits) and children. The old make up almost one fourth of the total number of the poor, and 12.7% of children are poor. Among children, exposed risk of poverty refers to children in the age group 7 to 14 (12.71%) and 15 to 18 (10.72%).

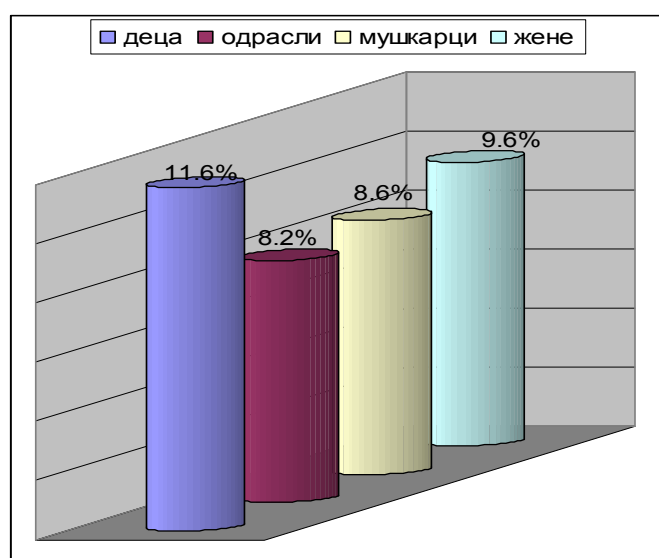
Women make up more than a half of the total unemployed (54.7%) and, according to the data provided by the National Employment Service (2006) they have a less favourable qualification structure, and are employed in economically non-productive sectors and generate lower income. Persons exposed especially to poverty risks include older women in rural areas, single mothers, housewives, Roma and refugee women, uneducated and unemployed women, women with disabilities and women victims of violence. In terms of the household structure, poverty is strongest in households with five or more household members, but also in one or two member old households.

The greatest percentage of the poor in the year 2003 (Poverty Reduction Strategy) lived in south-east Serbia (23.5%), which also scored the strongest increase of poverty (41.6%) relative to the year 2002. In western Serbia, the percentage of the poor was above average at 13.2% of the population, as in eastern Serbia, with 11.4% of the population being poor. In contrast with this, the population of Šumadija (9.7%) and Vojvodina (7.9%) have a below average exposure to poverty risk. The lowest percentage of the poor is in Belgrade (4.2%).

The Roma, the refugees and the internally displaced persons and persons with disabilities are especially vulnerable to poverty, as a result of accumulation of risks, primarily derived from lack of employment. The unemployment rate of the Roma is twice that of the rest of the population (of which 67% have never been employed), and through their education and qualifications they are predisposed to a lower rate of poverty. A low percentage of Roma have pension rights, which is a consequence of

the rate of employment and work in the grey informal economy. About 67% of the Roma living in Roma settlements are poor, while 11.2% are extremely poor (Standing Conference of Cities and Municipalities, 2004). One fourth of the internally displaced persons and refugees live below the poverty line, which is a total of 120,000. At the same time, 49% of the refugee and IDP population have never been employed (UNDP, 2006), which is an extremely high risk of long-term unemployment. The employment rate of persons with disabilities is low (only 13%). Causes of poverty among persons with disabilities are, primarily, unemployment and lack of access to education (Standing Conference of Cities and Municipalities, 2004).

Apart from the factor of income, poverty and social exclusion also include non-revenue based aspects, meaning lack of access or difficult access to healthcare, education, housing, social and other public services and sectors of society. This refers also to guaranteed human rights, including the right to a healthy environment, clean air, clean drinking water, public utilities, etc. Therefore, the enhancement of the environment and natural resources should continue to be one of the aims in fighting poverty, which is also important for sustainable development. A degraded environment has negative impacts on human health and quality of life, and the poor are most exposed to this. As a rule, they lack access to utilities, and live in worse housing conditions. There is, however, lack of data that could document, in an integrative or direct way, the link between environmental degradation and poverty in Serbia.



Source: PRSP Second implementation report (2007)

Figure 12. Poverty in the Republic of Serbia by age and by gender (2006)

In 2006, 8.8% of the Serbian population was classified as poor, as their consumption per consumer was on the average below the poverty line. The 2006 Household Expenditures Survey indicated that the poverty line was CSD 6,221 per month per consumer unit. The rural population is two and a half times poorer than the urban population. The population poverty index for rural areas is by about 50% higher than that of the overall population, at 13.3%.

Numerous reasons indicate that it is not sustainable to resolve problems of poverty within the system of social protection. The principal aim of fighting poverty should be dynamic economic development and growth. In line with this, the objectives of the Sustainable Development Strategy, from the point of view of

fighting poverty and social exclusion, cannot be isolated from the objectives of economic and social development. It is necessary, however, to integrate the objectives of social inclusion policy into all national policies, primarily into the employment policy, education, housing and healthcare policies.

Strategic objectives in the area of poverty and social exclusion include:

- Improving equal access for all to benefits of social and economic progress and development
- Providing the pre-conditions for building a socially inclusive society;
- Removing obstacles to developing the skills of the extremely poor and poor;
- Implementing special social inclusion programs and providing greater support to those with higher exposure to poverty.

The priority of Serbia in creating economic pre-conditions for resolving the problems of massive poverty is in pro-active employment policies and designing a separate segment of employment policy to promote greater inclusion of the poor into the formal labour market and reduce their involvement in the grey economy; investing in and improving the material and non-material status of the poor and providing financial benefits for persons not capable to work. The success of social inclusion policies depends on promoting the objectives of sustainable development in Serbia in order to sensitize and attract the participation of all actors of civil society in the fight against poverty. This requires respect of the principle of timely provision of public information about the risks of social changes that produce increased numbers of “losers” and measures to prevent new poverty. To achieve this, it is necessary to remove the obstacles in access to information and improve statistics in order to monitor the changes and to promote examples of best practice.

5. Policy of equal opportunities

The issues of equality in the context of the general idea of the sustainable development of Serbia should be viewed within the set of general issues of political, legislative, economic and cultural development, for the purpose of improving the issues relevant to education, information, culture, social care, but also through changes to the electoral system, the attitude to integration of minorities, and any form of citizen participation in public life.

The period since the democratic changes in Serbia in 2000 has been characterized by enhancement of the protection of human rights, achieved through legislative changes and in practice. With the exception of problems in implementing the Law on Responsibility for Violation of Human Rights in the Republic of Serbia (“The Law on Lustration”) (“Official Gazette RS” Nr. 58/03), it can generally be said that the legislative framework for the protection of human and minority rights is harmonized with the practice of the EU and the Council of Europe. On the other hand, there are still problems in implementing the rights to free access to public information, despite the fact that the Law on Public Access to Information of Public Interest (“Official Gazette RS” Nr. 120/04 and 54/07) has been adopted. The media, generally speaking, function in an open and pluralistic environment, with certain problems in institutional organization, which applies mostly to electronic media. Minority rights are guaranteed by positive laws and are institutionally established through the National Councils of Minority and Ethnic Communities. Progress has been made in respect to the use of the languages of minorities, including southern Serbia where the Albanian language is in official use. The European Convention on the Use of Regional and Minority Languages (“Official Gazette SCG” Nr. 18/05) has

been ratified. Work is continuing on the integration of the Roma, including measures in the system of education, and in 2006 modest progress was made in institutionalizing the Roma Decade as an obligation undertaken by Serbia in February 2005. Additional stimulation for more active participation in political life by members of the minorities (from the point of view of collective rights) relies on Article 32 of the ratified Charter on Human and Minority Rights ("Official Gazette SCG" Nr. 6/03), as it sets out the right to political association, and on the decision by the National Assembly of the Republic of Serbia to abolish the census of five percent for minority election lists at the Republic level. It is a fact, however, that the said rights and possibilities have not yet been systemically accommodated and that there are still isolated ethnically motivated incidents, as well as racist and chauvinist incidents at sporting events.

The position of Roma communities still remains uncertain as there is no institution charged with the adoption and implementation of the Strategy of Roma Integration and action plans from the Roma Decade.

Table 2. Refugees and internally displaced persons in the Republic of Serbia (2005)

0-4 / (%)	5-17/ (%)	18-59/(%)	60 + (%)	Total
<i>Refugees</i>				
1,232/ 0.89%	16,402 /11.78%	81,154/ 58.30%	40,407/29.03%	139,195/100%
<i>Internally displaced persons</i>				
3,009/1.45%	50,693/ 24.42%	120,842/58.22	33,010/15.90	207,554/100%

Source: UNHCR (2005)

The great number of internally displaced persons additionally aggravates the difficult socio-economic conditions. The authorities continue to pursue repatriation and local integration on the basis of the National Strategy for Refugees and Internally Displaced Persons and in cooperation with partners in the region. The policy of resolving the problems of displaced persons is founded on return to AP Kosovo and Metohia. As no realistic conditions exist for their return, the majority of the displaced do not have their own property and face a number of difficulties. The persons returning to the Republic of Serbia under the Agreement on readmission are in a delicate situation. The establishment of the Office for Re-Admission and Returnees is one step forward to improve the treatment and acceptance of those persons, and the first step towards their integration.

A special problem related to the practice of human rights in the Republic of Serbia refers to the situation of persons with disabilities. A contemporary approach to this issue is based on the fact that the policy related to improving the situation of persons with disabilities should no longer be seen as an issue of social policy but as a human rights issue. Activities aimed at greater inclusion of persons with disabilities into the mainstreams of society contribute directly not only to improving the position of PwD but of other vulnerable groups as well (for instance, the old, children, national minorities, rural population, talented pupils/students, etc.).

In the Republic of Serbia, there is no consent on the definition of persons with disabilities (PwD) nor is there accurate data regarding their number (there is no single database on PwD). According to the estimates of the World Health Organization, at least 10% of every population are persons with disabilities (which, in the case of Serbia, would be about 800,000), whereas the EuroStat data indicate that persons with disabilities make up 12% of the population. The position of persons with disabilities is

still unsatisfactory although certain steps have been taken to improve it. Only one out of five persons with disabilities is employed. The percentage of the poor among this population is several times greater than among the total population of Serbia.

From 2000 to 2006 there was an increase in interest regarding the problems faced by persons with disabilities in Serbia, primarily thanks to opening up cooperation with the international community in all areas, but also thanks to intensified activities undertaken by organizations of persons with disabilities, which resulted in rejection of the previously dominant medical approach to persons with disabilities and adopting the social model. The Law Preventing Discrimination against Persons with Disabilities ("Official Gazette RS" Nr. 33/06) has been adopted, and work is in progress on drafting the Law on Professional Rehabilitation and Employment of Persons with Disabilities. The Government of the Republic of Serbia has adopted the National Strategy to Improve the Position of Persons with Disabilities as a mid-term plan of action by all stakeholders in the Republic of Serbia for the period from 2007 to 2015, proclaiming as its strategic objective the enhancement of the position of PwD to the level of equal citizens enjoying all rights and responsibilities. The government has recognized the need to develop a multi-sectoral and multi-disciplinary approach in the policy measures relevant to the position of PwD. In order to change the long-term dependency and passive role of persons with disabilities, it is necessary to create conditions under which PwD can become active and productive members of society.

Strategic objectives of Serbia in the field of human and minority rights and gender equality are the following:

- To finalize the initiated harmonization of the national legislation with European standards in the field of human rights and to establish institutional mechanisms for the practice of guaranteed rights;
- To balance and make equal the socio-economic standard of living for certain minority communities (primarily the Roma community) with the standard of living of the majority Serbian population;
- A proportional share of members of minorities in the judiciary, prosecutors offices, police, army, local self-government;
- To reduce social distance;
- To improve the position of persons with disabilities to that of equal citizens enjoying all rights and obligations.

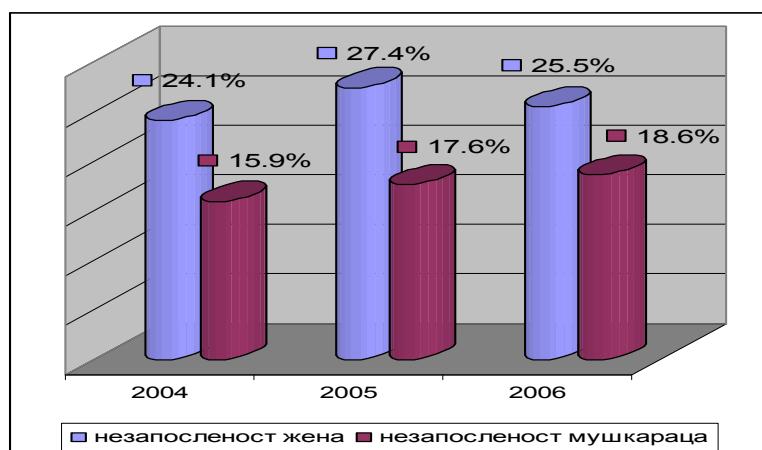
Priorities in achieving human rights are to continue the initiated reform processes, eliminate structural deficits, especially in terms of coordinating tasks which at the same time are divided between the competences of several authorities and clearly define competences for the implementation of obligations resulting from international conventions and relevant standards for practices in Serbia. It is also necessary to develop a system of efficient reporting and supervision over implementation of measures in the domain of respect of human and minority rights.

Priorities of Serbia in implementing minority rights are related, primarily, to continuing the initiated process of legislative regulation of the rights and position of minorities and ethnic communities, further strengthening the socio-economic position of members of minority communities and reducing the ethnic distance between the majority Serbian population and the members of minority communities.

6. Gender equity

The share of women in government and political life in Serbia, and the share of women in executive power is still at an unsatisfactory level. The position of women on the labour market has changed compared to that of the socialist period in which women had a high share in labour – around 70%, which in recent years is reduced to about 58%. The rates of activity and employment of women are much lower than rates of activity and employment of men. The unemployment rates for women in Serbia are among the highest female unemployment rates in Europe. Among the unemployed, there is a higher share of long-term unemployed women than men (61.4% of women have been unemployed for two years or more, while 57% of unemployed men have the status of long-term unemployment). Women have lower rates in total employment, too. In 2005, women made up 44.9% of the total number of persons who became employed during that year, while data for 2002-2005 indicate a continued fall in the employment rate of women (from 50.1% in 2002, to 44.9% in 2005). Women earn on a monthly basis on the average 17% less than men and are much less in evidence among the self-employed and entrepreneurs.

At the level of primary and secondary education, gender inequality has practically been eliminated among the majority population and is still present only among the marginalized social groups. The share of women in university education is even somewhat higher than that of men: in 2002 women made up 52.9% of the total number of students compared to 47.1% men. However, the share of women among holders of MA or Ph.D. degrees is 30-32%. Gender inequality in education is reflected more in the segregation by education profiles, which is indicative of the preservation of the patriarchal patterns on “appropriate female and male professions”. In that respect, women have a higher share among students in humanities and arts. Despite the improving trends, the share of women at the different levels of education, the educational structure of the female population at different levels according to the population census from 2002 was less favourable than the structure of the male population. Illiteracy is also more present among the female population than the male population and according to the census of 2002, the illiteracy rate among men was 2.2%, while among women it was 10.1%. Illiteracy is highest among the old population, and in the age group above 65 it is 36%. In that respect, the qualification structure of the female population still reflects the unfavourable position of women in the past, whereas the more recent trends of equal participation in education at all levels have not yet resulted in equalizing the educational structure of men and women.



Source: The Republic Statistical Office (Labour Force Survey, 2007)

Figure 13 Unemployment rates for women and men

Women from marginalized social groups (The Roma, refugees, IDPs, women with disabilities) show a strongly unfavourable social position. Their discrimination is double, meaning that it results simultaneously from their gender and from being a member of a marginalized group with more difficult access to key institutions and resources of the society. According to the data and surveys of the UNDP from 2004, unemployment rates in marginalized groups are considerably higher compared to the unemployment rates of the general population. In the Roma population, out of four employed Roma, only one is a woman. The economic activity of Roma women refers mostly to the informal sector of the grey economy (home help, cleaners, coffee making, reselling goods, etc.). Apart from the low level of economic activity and high unemployment rate, the position of Roma women is also characterized by: a high rate of illiteracy, dropping out of school, poverty and bad living conditions in isolated settlements, early marriage, lack of personal documents, etc. According to the data from registers of refugees for the year 2001, women have a higher share among the unemployed and a significantly higher share among supported persons than men. There are also strong differences between refugees from Croatia and Bosnia and Herzegovina. The refugee women from Bosnia and Herzegovina are more frequently unemployed and supported household members than those from Croatia.

Inadequate access to major resources of a society results in lack of important resources (financial, knowledge, skills, social capital) and drives the following categories of women towards poverty: single mothers (especially with young children and children with special needs), housewives, old women, sick women and women with disabilities, rural women (especially when old and without property), women refugees, women who are helping household members, Roma women, uneducated women, unemployed women and women victims of violence.

Gender relations within partner relations and within the family are still strongly dominated by the patriarchal system of values. The preservation of the patriarchal patterns within the household and in the family leads to unequal division of labour in which women perform most of the unpaid household chores, and very often have limited access to money.

Despite the progress that has been made in formulating and implementing gender equity policies in the Republic of Serbia, there remain problems that need to be resolved, primarily:

- the presence of social and cultural barriers, accompanied by the traditional social structure which is not open to change the conventional power sharing between men and women;
- lack of political will of the government to finalize the process of adopting a set of laws on gender equality and the obligation to eliminate all forms of discrimination against women;
- lack of implementation of gender specific policies, or lack of harmonization of the programs and indicators for monitoring in different programs and strategies which the gender aspect is missing.

The policy of equal opportunities for men and women that this Strategy is to promote should adopt a two-direction approach based on EU standards, combining the principle of gender mainstreaming across the institutional framework and undertaking specific measures to gap the negative differences and gender sensitive deficits in all areas of public and private life of women and men in the Republic of Serbia.

The strategic objectives of the Republic of Serbia in the area of gender equity include:

- to establish an institutional framework for measures which will provide for the gender mainstreaming of all activities of public authorities and institutions;
- equal participation of women and men in government and decision-making on public policy;
- Improving the position of women on the labour market and at work while providing for equal opportunities with men;
- social integration of women and men from marginalized social groups through education, the labour market and participation in decision-making on public policy;
- increase employment rates and the self-employment of women in urban and rural areas;
- prevention, suppression and protection from violence against women;
- remove gender stereotypes in the public domain.

The priorities of Serbia in the field of gender equality are to harmonize and implement the gender related programs, strategies and legislation that have already been adopted (The Poverty Reduction Strategy, Nationalized Millennium Development Goals, The National Employment Strategy 2005-2020, Integral programs of social protection, etc.) and adopt the National Action Plan to Empower Women, adopt the Law Prohibiting Discrimination, and The Law on Gender Equality. The said institutional framework should consistently monitor European and international standards on gender equity and the right to development (UN Convention to Eliminate all Forms of Discrimination Against Women - CEDAW, the Beijing Platform, the MOP principles). It is necessary through active measures to strengthen the economic capacities of women by increasing employment rates and increase the number of women from vulnerable groups who get education and employment. Access by women to different resources in agricultural production must be improved in order to diversify the rural economy and preserve the environment.

7. Public health

The health of the population of Serbia has been exposed to unfavourable impacts resulting from conflicts in the former Yugoslavia, sanctions imposed by the international community, a large number of refugees and internally displaced persons, economic crises (with record inflation). Such a situation was inevitably reflected not only in the health of the population, but also in the ability of the health services and the society generally to preserve and promote public health. During the 1990s, investments in the health care system and public health were very low (up until the year 2000), which resulted in dilapidation of buildings, outdated equipment and problems in acquisition of new knowledge among health professionals.

Chronic non-infectious diseases still have a dominant share, and under circumstances of dramatic demographic change and the accelerated aging of the population, there are increases in mortality and disability rates. The lack of preventive measures and adopted life styles are a risk factor also for chronic non-infectious diseases (smoking, inadequate nutrition, lack of physical activity). Injuries, infectious diseases and psychosomatic diseases (depression) contribute to deterioration of health, increase of the number of those incapable of work and cause considerable losses for the community and the society as a whole.

Inequality in access to health services, differences in the quality of services, crisis in financing health insurance and privatization of the healthcare system are reflected negatively especially on the poor and other vulnerable population groups.

There is no complete information providing insight in the state of public health in Serbia with respect to the impact of environmental factors. The reasons given for this fact are lack of systematic collection of data concerning diseases that, directly or indirectly, can be linked to the quality of the environment and the lack of research and studies dealing with environmental impact on health. Data for 2005 indicates that in central Serbia there are 6719 persons registered as suffering from chronic obstructive respiratory diseases (CORD), for which a risk factor in the course of the disease includes (also) air pollution. Of the total number of patients suffering from CORD in central Serbia, the share of Belgrade is 36.06% of cases. Analysis of the period 1996-2005 indicates that there has been an increase in CORD sufferers, especially between 2001 and 2005. The mortality rate ranged from 29.6 in 2001 to 38.2 in 2005, with a strong increasing trend.

Table 3. Mortality rates per 100,000 inhabitants

Groups of diseases	2001	2003	2005
Cardiovascular diseases	110.2	106.1	104.5
Malignant diseases	92.1	94.1	97.3
Injuries, poisoning and external factors	36.9	32.0	30.8

Source: Nationalized Millennium Development Goals in the Republic of Serbia (2006)

There is also a lack of systematic information regarding the number of patients suffering from methemoglobinemia, arsenosis, fluorosis and diseases resulting from chemical contamination of drinking water. In 2005 there were 4 registered cases of water-borne epidemics in Serbia caused by the microbiological inadequacy of drinking water, and the number of such registered cases in the period 2001-2005 was 16 epidemics. Over the past five years, the number of these epidemics has dropped.

Since the year 2000, visible progress has been made in the field of integral planning of healthcare. A new healthcare policy has been defined and adopted by the government, the Poverty Reduction Strategy has been developed and adopted and its implementation has begun, and a series of other documents and laws were adopted whereby healthcare reform was initiated. The Vision of the Healthcare System and healthcare policy adopted through the documents, both emphasize as their priorities the enhancement of public health, reduction of inequalities in healthcare and the role of preventive and primary healthcare. In respect to specific diseases and the greatest risk factors for sustainable development, the following documents have been adopted: the National Strategy against HIV/AIDS, and the Tobacco Control Strategy ("Official Gazette RS" Nr. 8/07). The program of protection against TBC was adopted in 2005. Within the project for enhancement of preventive health services which aims at strengthening the capacities of primary and secondary healthcare to implement prevention against cardiovascular diseases, diabetes and malign diseases, as well as an *ante-natal screening program*, an activity was initiated to establish centres for preventive services within primary healthcare centres throughout Serbia. The National Strategy of Mental Health ("Official Gazette RS" Nr. 8/07) has been adopted as well.

The children and the young are particularly exposed to the negative effects of the environment. During certain periods in their development, they have so-called "sensitivity windows" which enable the detrimental environment effects to penetrate and negatively affect their delicate young bodies. At the Fourth Ministerial

Conference on Environment and Health in 2004, the Republic of Serbia assumed the obligation ensuing from the Budapest Declaration to adopt a national Children's and Environment Health Action Plan (CEHAP). The Poverty Reduction Strategy also emphasises the importance of improving the health of the vulnerable groups by improving the quality of healthcare (particularly the care provided to these groups), as well as the importance of improving the prevention services. The need for better mechanisms for public health funding has been mentioned but not elaborated. The mechanisms to provide adequate funding of activities regarding public health are to be formulated within the Public health Strategy and the Law on Public Health, which are under preparation.

Strategic objectives in the area of public health include:

- Strengthening preventive healthcare
- Reducing morbidity, incapacitation and premature death caused by the predominant chronic non-infectious diseases (vascular and malignant diseases and diabetes);
- Reducing morbidity, incapacitation and premature death caused by injuries;
- Reducing negative effects of infectious diseases, especially AIDS and TBC on public health;
- Reducing the burden of diseases due to depression and other mental health disorders;
- Reducing inequality in health between population groups through improving the health of vulnerable groups

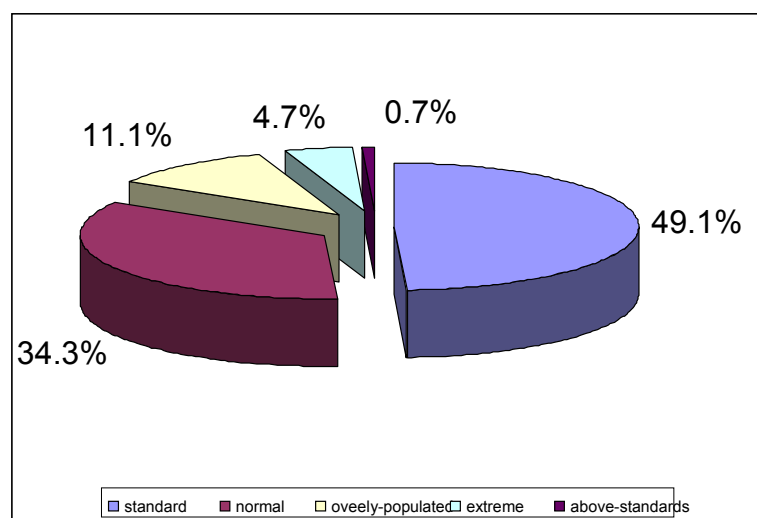
The priorities of Serbia in the area of public health include the development of an adequate IT system, monitoring the basic indicators and establishing a data base at national, regional and local levels. Measures for improvement of public health also include: developing the capacity of research and academic institutions to research risk factors, diseases, mortality, and the burden of disease; develop primary healthcare institutions and preventive programs; raise education in public health; develop a system of response in emergencies including control and supervision of infectious diseases. Sectoral strategies need to be developed and adopted, first of all the National Public Health Strategy, as the basis for the adoption of the Law on Public Health.

8. Housing and housing policy

Serbia introduced a significant deregulation of the housing sector, decrease of public subsidies and privatization of socially-owned flats (sale to residence permit holders) without having previously defined the necessary elements of the legislative and institutional framework, also including a financial system and a system of property registration which is necessary for adequate functioning of the housing system. Practically all of the Serbian housing stock is privately owned (98%).

A major problem in Serbia is affordability of housing, as the ratio of average household income and prices of housing would mean that an average household needs to invest 17 total annual incomes to buy a flat. The high price of flats compared to household income (both for new development and the existing housing in the secondary market) is one of the major motives for illegal building, and buying of illegally developed housing (with a price lower by 50%), and massive reliance on this mechanism of resolving in this staged approach the problem of affordability of housing. Renting a flat in private ownership in major cities and towns is also unaffordable to households with average incomes and below average incomes as the rent (without the additional expenditures for utilities) requires more than 50% of

monthly income, or 27% of the average monthly income of all urban households in Serbia.



Source: The Republic Statistical Office (2004)

Figure 14. The standards of flats occupancy in the Republic of Serbia (2002)

In terms of quality, scarcity is still substantial in Serbia although most of the housing stock, compared to many EU countries, is relatively new. There is an obvious gap between the average household size (2.9 household members) and the average number of rooms per housing unit (2.6 rooms in used flats). The predominance of flats in private ownership and major regional differences with respect to the quality/value of flats is an obstacle to adequate mobility in terms of the expected increased mobility on the Serbian labour market.

The Law on Maintenance of Apartment Buildings (“Official Gazette RS” Nr. 44/95, 46/98, 1/01 and 101/05) is not adequate as it defines mandatory maintenance only in terms of security and protection of human life, but not in terms of adequate quality of housing and living. Another major problem is the maintenance of about 30% of the housing stock in Serbia which is in collective housing units that previously were in state and/or social ownership.

It has been estimated that the total number of informal (illegal) housing units in Serbia may be as high as one million housing units. These settlements are a hygiene risk (if they lack or have inadequate sanitation infrastructure) and they do not support the sustainability of the socio-economic development of the population (through lack of social infrastructure).

The most vulnerable social group in terms of rights to housing and housing in general are the Roma, refugees and internally displaced persons.

One half of all Roma in Serbia do not have access to safe or quality housing (they live in unhygienic settlements or slums). 15% of households of refugees and internally displaced persons do not have access to safe housing, 35% do not have adequate sanitation, and 10% does not even have access to drinking water in homes or front yards. The strong wave of illegal construction in informal settlements during the 1990s is directly linked with the need of these households to provide housing for themselves.

The strategic objectives of Serbia in the field of housing and housing policy are:

- To provide access to adequate housing for persons/households without such housing, along with increasing the action potential of all actors in the process;
- To prevent the degeneration of certain settlements into slums, and remove the existing slums with minimum disruption to settlers;
- To increase housing safety – put a stop to illegal building, implement the process of legalization and in the process avoid as much as possible the unnecessary pulling down or removal of housing and introduce regulation into the housing rental market;
- To prevent the degradation of the housing stock and approximate the average housing conditions with those of the EU
- To remove the great disparities in the quality of housing between settlements while at the same time maintaining the specific regional features;
- To take into consideration the specific housing needs of marginalized groups, displaced persons and refugees;
- Improve housing conditions in rural settlements.

The priorities of Serbia in the field of housing policy include the development of legislation and a financing framework for housing policy, primarily through the adoption of the national housing strategy and introducing legislation to improve the housing situation (adopt the new Law on housing and the relevant by-laws, adopt the Law on Social Housing). Within the housing policy, there is need to develop the necessary elements of the institutional and financing frameworks for the funding of new housing development and initiate programs of affordable housing in the public/non-profit sector, programs for rehabilitation of slums and other informal settlements and a program of revitalizing uninhabited housing units.

9. Regional and local aspects of sustainable development

The current development trends in Serbia are such that there is a need to put a stop to the long-term trend of depopulation and to create policies supporting balanced regional development, in order to stop the decline of the very low level of economic and other development activities. In this, it is necessary to keep in mind that regionalization at present is the major trend in local government and the territorial organization in the EU. This may evolve on the basis of the existing institutions, or it may initiate a new territorial organization which will more effectively and efficiently meet these objectives. This of course always depends on the political and institutional set-up of a country, which may be vulnerable to certain limiting factors. Regionalization implies interests related to regional promotion of socio-economic development and also, where applicable, of cultural and political development.

The Constitution of the Republic of Serbia adopted in 2006 did not establish clear foundations for the regionalization of Serbia according to the principles prevailing in the EU. Likewise, the adopted Strategy of regional Development of Serbia for 2007–2012 did not sufficiently take into account the need for substantive regionalization, based on socio-economic principles.

Local government in Serbia shares the fate of other institutions and is still undergoing the process of reform. Since the year 2000, the position of units of local self-government has been improved significantly through the adoption of the Law on Local Self-Government (“Official Gazette RS” Nr. 9/02, 33/04, 135/04, 62/06 and

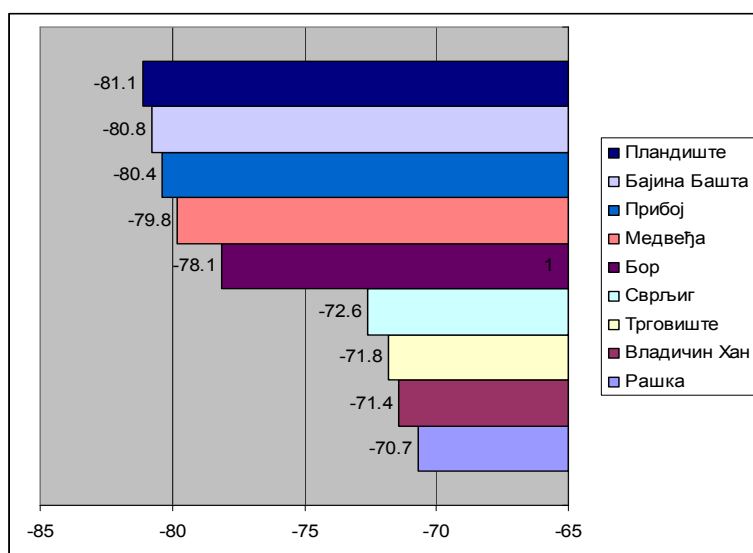
129/07), through the changes in attitude of the national level authorities to cities and municipalities, and through the higher level of decentralization achieved.

On the other hand, expectations of full decentralization have not fully materialized and the reform of local self-government has not been implemented consistently and fully, which raises questions as to the functional and financial autonomy of units of local self-government. One of the major reasons for this is that the reforms in this field depend directly on progress made in reforms in other areas (the adoption of the new Constitution, reforms of institutions at the central level and public administration reform, fighting corruption, regionalization of the Republic of Serbia, etc.). Another reason is in the internal weakness of the administration at local level and its insufficient capacity to implement reform measures.

The system of financing units of local self-government is one of the major aspects of establishing a successful development planning system, and it is important to provide the necessary funds and their timely appropriation.

The new Law on Financing Local Self-Government ("Official Gazette RS" Nr. 62/06) certainly introduced improvements in the position of local communities and it provided a more predictable and transparent framework for their financing thus facilitating the further transfer of competences to cities and municipalities. Apart from the Law on Financing Local Self-Government, the Law on Public Debt ("Official Gazette RS" Nr. 61/05) and the Law on Securities and Other Financial Instruments ("Official Gazette RS" Nr.47/06), conditions have been created for successful implementation of certain measures and activities set out in the Strategy of Sustainable Local Development and the Declaration of Sustainable Development, (adopted by the Standing Conference of Cities and Municipalities in 2005).

The intensified urbanization and industrialization evolved to the detriment of rural areas due to the intensive migration of the population from rural to urban areas, the loss of major tracts of arable land and lagging behind in socio-economic and cultural development. The lack of systematic state support to integrated rural development led to overall underdevelopment in terms of socio-economic and cultural development, which in turn led to intensive migration from rural to urban areas and the abandonment of vast areas of fertile farming land and other natural resources. Rural areas in present day Serbia are characterized by a high degree of differentiation in terms of natural, infrastructure and other conditions for agriculture and the development of other economic activities, also in terms of vicinity to the market and conditions for marketing of products, and in terms of the size and composition of settlements. This diversification is also visible in terms of social development, demographic characteristics, cultural features, relation to tradition, modernization, environment, etc. The degree of urbanization according to the population census of 1948 was 20.7% while in 2002 it had reached 56.4%, and is expected to continue to grow in the future (for the sake of comparison, urbanisation in Romania is 55%, in Hungary 65%, in Greece 60% and in Croatia 58%).



*Decrease of national income above 70%;

Source: Republic Bureau for Development

Figure 15. Impoverishment of municipalities* 1990-2005.

There are major disparities in the development of urban and rural areas, and a concentration of population, economic activities and social infrastructure in Belgrade, Novi Sad and Niš. There is no clearly expressed political will to implement a hierarchy network of towns according to the model offered by the Spatial Plan of Serbia, which would be a pre-condition for decentralization. There are major differences in terms of population density in towns. The structure of towns is dispersive with fragmentation of undeveloped land. Rural areas are depopulated and marginalized, especially in mountainous regions, with poor transport connections and insufficient municipal infrastructure. In terms of physical and social infrastructure, the rural population is in a much less favourable position than the urban population, primarily because the per capita cost of infrastructure is much greater in areas with lower population density, especially in rural areas with “mahala” type settlements. For instance, in rural areas only 14.4% children attend pre-schools, and in urban areas this percentage is 45.2%. The situation is somewhat better at the level of primary schools, as the percentage of school attendance in rural areas is practically the same as in urban areas (98.4%). The distance to secondary schools has a significant impact on the fact that children from rural areas attend secondary school less (79.5%) than in urban areas (87.3%). According to the UNDP survey, a high percentage of the rural population is not satisfied with the quality of life (50% of respondents) which is caused primarily by insufficient access to various services, and the lack of satisfactory quality of the services available (healthcare and public utilities, culture, etc).

Strategic objectives in the field of regional and local sustainable development include:

- Decentralization accompanied by the implementation of modern concepts of regionalization and socio-economic approach
- Building and strengthening a new system of distribution of competences between different vertical levels of government;
- Strengthening the concept of regional competitiveness and linking;
- Reducing disparities in regional development inside regions and between rural and urban areas;

- Development, in terms of quality and continuation, of public utilities infrastructure;
- Protection and utilization of natural resources managed by units of local self-government in line with the principles of sustainable development and through use of economic incentives;
- Establishing better organized and coordinated local government, local administration and public utility companies, ongoing promotion, and public participation in the planning process and adoption of principles of best practice and sustainable development in urban-spatial planning documents;
- Development of the local economy on the basis of available natural resources and measures to support the promotion of sustainable use of resources;
- Strengthening the institutional capacity of local self-government and increased capacity of staff in appointed and elected positions in municipal administrations;
- Promoting the development of local management for sustainable development through the development of local strategic and development plans
- Develop a poly-centric network of settlements and establish urban areas with a network of medium and small size towns and villages.

The priority of Serbia in the field of local sustainable development includes establishing a system of rights of citizens to practice local self-government owned by the citizens and compatible with the relevant EU legislation and with the system of local self-government prevailing in the EU and in the region; re-introduction of the legal right of units of local self-government to own property. The priority also includes providing conditions for units of local self-government to generate their own sustainable sources of finance. Such sources are to be used to finance public works needed to meet fundamental communal needs, serve the interests of citizens and build the capacity of units of local government, with full citizen participation, to develop their own strategic sustainable development plans and implement them successfully. Having their own sources of financing will enable units of local self-government to enter into concession and other financial arrangements for the purpose of building and maintaining communal infrastructure.

The priority for resolving the problems of urban and rural development include the **reform** of the existing national legislation in line with the new generation of European policies on sustainable spatial development, legislation and practice in the EU, and its implementation in the field of planning and construction; a consistent and improved implementation of the Law on Strategic Environmental Impact Assessment ("Official Gazette RS Nr. 135/04); strengthening institutions in charge of planning and environmental protection at national and local level. It is necessary to establish a system of monitoring and reporting on spatial changes, implement urban and spatial plans and increase the level of investment in IC technologies within authorities in charge of urban and spatial planning at national and local level, also including rural areas which are currently very isolated. There is also a need to design an efficient system of financing for the development of spatial and urban plans, especially in poorer municipalities. As the problem of legalization has not yet been resolved, it is necessary to reconsider the model to be used to finance the legalization of illegally developed buildings.

10. Information and public participation in decision-making

Public participation in decision-making consists of the following components: public participation in planning, decision-making, implementation and control; creative and active cooperation of the public, private and civil sector; broad social and political cooperation and consensus; public access to data and documents with the active participation of the public service, national, regional and local media in public information, for the purpose of raising awareness regarding sustainable development and the environment.

The state has a very important role in establishing the basis for public participation in decision-making concerning sustainable development. Its role is to promote and initiate public participation, to support and stimulate, and to provide to the public not only technical and organizational support, but also financial assistance. The government, as the executive power, exerts a positive force on authorities of local government to establish a system of mutual responsibility. The role of the state and of the public administration in the process of establishing and improving public participation in decision-making is determined by international conventions and national legislation. In December 2007, the government identified the *Proposed Law on Ratification of the Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters* (the Aarhus Convention) as one of the important European standards of public participation in procedures related to protection. Furthermore, even though the *Law on Free Access to Information of Public Interest* has been adopted and the Ombudsman for Information of Public Interest has been appointed, it seems that certain actors in public decision-making (at all levels of government and public administration) are still resisting implementation of this law and refusing to act on the orders of the Ombudsman.

The civil sector in Serbia is faced with serious problems of financing. The state does not provide sufficient support to the organization of the civil society, and does not treat them as equal participants in the political process. The national NGOs in Serbia are not active enough themselves and there are few environmental initiatives coming from civil society. On the other hand, there is increasing interest from NGOs and civil society generally in environmental protection and improvement issues, and an increasing interest at the level of local self-government to build links with the NGO sector.

The role of the media in informing the public is to provide clear, credible and valid information regarding all processes of sustainable growth and the condition of the environment in Serbia, and to encourage the public to partake in planning, applying and controlling the implementation of national and local plans. The role of the media is determined by the Law on Public Information, International Principles of Professional Journalistic Ethics (principles 1, 2 and 5), and by the ethical code of the Journalist Association of Serbia (UNS), the Independent Journalist Association of Serbia (NUNS) and by the ethical code of electronic media.

Sustainable development processes and environmental matters are not adequately covered in the media, which results from insufficient interest of the media, lack of technical knowledge and awareness of the significance of reporting on strategic topics and relevant problems. Reports and special programs are not broadcast at primetime, they are not regular segments of programs and contents of electronic and printed media. In most cases, strategically important development issues are not even clearly defined in the editorial policies of these media. Very often, the terminology used is too technical for the general public. The reasons for such a

situation lie in insufficient environmental awareness among journalists and editors in the media, lack of cooperation with the civil society, and inadequate readiness of the authorities to speak publicly on environmental issues. With the exception of isolated attempts by some NGOs, there is a visible lack of adequate forms of informal education of journalists (seminars, workshops, training sessions) in the field of environmental protection and sustainable development and the broader engagement of public authorities in such activities is required. Nonetheless, it seems that there is increasing interest from the media to report on environmental matters, and also on more general issues related to sustainable development. This is related, on the one hand, to increased reporting on topics relevant to climate change in the international media and, on the other, to increased media freedoms in the country.

Public participation in decision-making in general, and especially in the field of environment protection, is negatively affected by the lack of experience and knowledge among citizens about the techniques and methods of public participation in decision-making, and the lack of sufficiently developed mechanisms and procedures for public participation in decision-making (for instance, the public has a very short time to become informed about proposals for new legislation, documents and plans; certain plans, measures, or procedures are not published and presented to the public, or are not accessible which in turn also reduces the level of public participation in decision-making). On the other hand, the citizens of Serbia believe that they exercise their rights in the field of decision-making through the forms of political democracy, or through political parties at elections, which in a way inhibits them from participating in the decision-making process in other ways, primarily at national level. Since the year 2000, there has been an increased interest among citizens to resolve problems related to utilities and the environment, and problems caused by construction (turning green areas into housing).

Strategic objectives in the field of information and public participation include:

- Promoting pro-environmental thinking and awareness of sustainable development among citizens, civil society organizations and media;
- Promoting dialogue among environmental oriented NGOs and environmental projects and civil society initiatives;
- Building institutions of public administration and local government to support citizens, NGOs, environmental movements and other civic initiatives; cooperation with local authorities in access to information, public participation in environmental matters;
- Building a network of pro-environmental and other NGOs and civic initiatives;
- Motivating citizens to participate in decision-making and exercising their right to access to environmental information at local level;
- Engaging the media to take an active role in issues relevant to sustainable development and environmental protection, build capacities of journalists and identify clear editorial concepts both at the level of the public broadcasting service and among other media outlets to report on strategically significant aspects of sustainable development and the environment aimed at general progress.

The priority in the field of information and participation in decision-making is to create a space for dialogue and joint decision-making, in line with the Aarhus Convention. Sustainable development requires a system which would be aimed at increasing public environmental awareness, knowledge about the environment and the environmental responsibility of every citizen and social group. Responsibility must be

established irrespective of whether it refers to direct or indirect participation in sustainable development and in design and implementation of the sustainable development strategy. Such a system can be built through different programs in the field of culture and education which promote sustainable development and environmental protection; through strengthening the system of information and access to information regarding the significance of certain measures, plans and actions; through strengthening responsibility for sustainable development (learning about alternative sources of energy, methods of saving energy in households, the role of recycling, etc.) and through building the capacities of non-institutional actors in public life (NGOs, environmental organizations, civic initiatives and the citizens themselves). As far as the state is concerned, it must be open, equipped with the technical and human resources to embrace all forms of a wider public participation in this process of dialogue. A system needs to be built which will consist of four components: participation in planning, decision-making, implementation and control; creative and pro-active cooperation of the public, private and civil society sector; broad social and political cooperation and consensus accompanied by the pro-active and vital role and responsibility of the media; public access to data and documents.

V. THE ENVIRONMENT AND NATURAL RESOURCES

One of the national priorities for achieving sustainable development in Serbia refers to the protection and enhancement of the environment and rational use of natural resources. This implies integration and harmonization of policy objectives and measures of all sectoral policies, harmonization of national legislation with that of the EU, and its full implementation. It is a priority to adopt and implement the National Environmental Strategy and the accompanying action plans, and to adopt and implement the National Strategy for Sustainable Use of Natural Resources and Goods (an inter-sectoral strategic document which is implemented through plans and programs and which is the basis for all individual resources and values) adopted by the Government of the Republic of Serbia. The adoption and implementation of the National Strategy for the Sustainable Use of Natural Resources and Goods will have an impact on reducing the pressures on natural resources. In order to integrate the environmental policies into other sectoral policies, especially in the sector of spatial and urban planning, it is necessary to build capacities to implement the strategic environmental assessment of policies, plans and programs, according to the law. The adoption of the Strategy of Spatial Development of the Republic of Serbia is one of the priorities. There is a need to further strengthen the capacities of the ministry in charge of environmental protection, the Environmental Protection Agency and the Environmental Protection Fund, as well as of other institutions relevant to environmental protection and the use of natural resources.

It is also necessary to develop action plans to accompany policy documents of all sectors of the economy, especially of agriculture, forestry, water management, fishery, mining and others, whose functioning and development has a direct impact on the use of natural resources. Specialised programs should be adopted which will enable individual ministries to take a more active role of in the sustainable development of their specific sector (for instance, eco-agricultural programs).

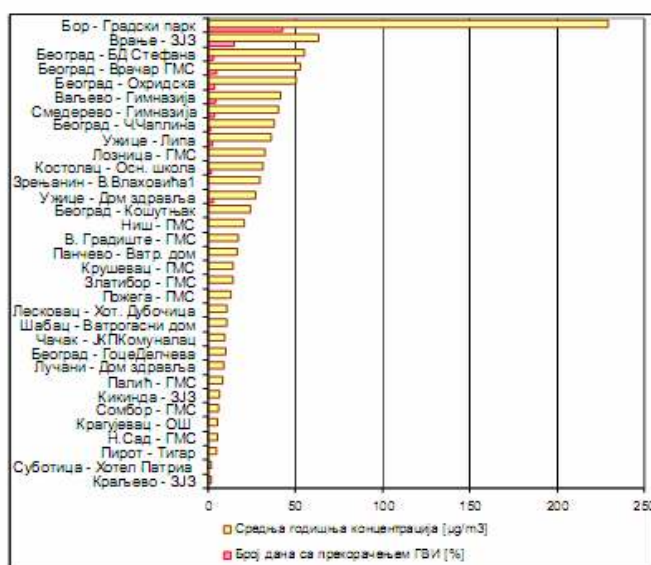
The development of cleaner technologies, increased energy efficiency and the use of renewable energy sources will certainly lead to reduced environmental pollution. The greatest potential for increasing energy efficiency lies in reducing the

consumption of heat energy (estimated at more than 50%), through improved thermal insulation in buildings and reducing the number of households using electricity for heating. There is great potential for improved energy efficiency in the industrial sector. Energy efficiency in industry is three times lower than the global average, and there is at disproportionately high level of industrial waste generated by unit of product, and also excessive use of raw materials. With about 138 kg of generated industrial waste per \$ 1,000 of GDP Serbia is among the countries with a high intensity of waste generation. Serbia is one of the last countries in Europe to still use leaded petrol. Along with this, the modal structure of transport in Serbia is very inadequate, with a marked increase in road transport, and neglect of railroads, especially the secondary railroad network. Promotion of renewable energy sources requires incentives, which would encourage private investment in the energy sector and generally strengthen competition.

1. Natural resources

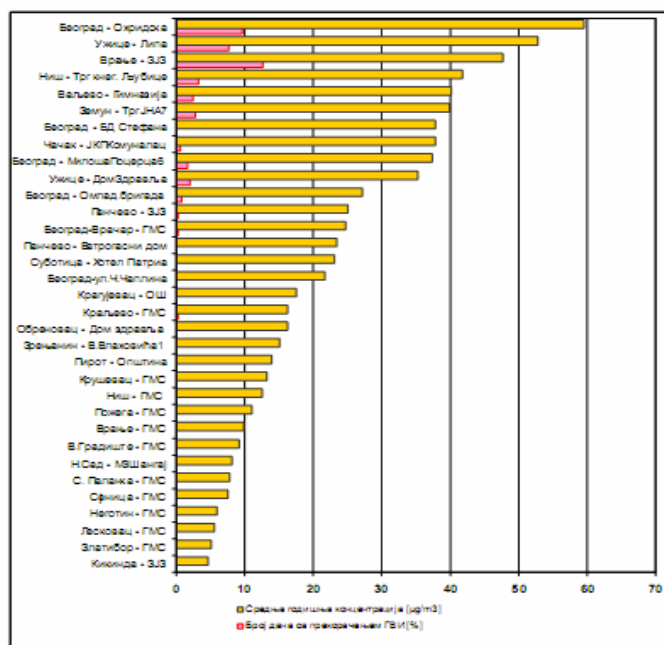
1.1. Air

The quality of ambient air in urban areas is affected by emissions of SO₂, NO_x, CO, soot, solid, organic and inorganic substances originating from energy generation and industrial plants, transport and combustion in individual heating plants, etc. Major polluters include the power stations in Obrenovac, Kolubara and Kostolac, the oil refineries in Pančevo and Novi Sad, and the chemical industry and metallurgical complexes located in Pančevo, Kruševac, Šabac, Bor and Smederevo. As a result of the concentration of the petrochemical and refinery complexes and the fertilizer plants, there is cumulative air pollution in Pančevo. The quality of the ambient air in urban areas is also degraded by the increasing number of motor vehicles and industrial production, as well as a number of other sources of pollution. A major contribution to air pollution comes from the use of leaded petrol and diesel with high sulphur content. The measured average annual values of lead in the ambient air in Belgrade and Niš are two to nine times higher than the permitted average annual emissions for settlements (1,0 µg/m³). In Bor and Belgrade over the past ten years the annual limit of ambient air concentrations of SO₂ was permanently above the allowed limit.



Source: Environmental Protection Agency, 2007.

Figure 16. Average annual concentrations ($\mu\text{g}/\text{m}^3$) of CO_2 and the number of days with exceeded MAC in 2006



Source: Environmental Protection Agency, 2007.

Figure 17. Average annual concentrations ($\mu\text{g}/\text{m}^3$) of NO_2 and the number of days with exceeded MAC in 2006

The causes of these problems include: lack of harmonization of emissions regulations with EU directives; lack of air pollution abatement technologies and low efficiency of abatement technologies in the industrial and energy sectors; the use of outdated technologies with low energy efficiency; lack of incentives to reduce emissions into the air; lack of rational management in transport systems; inadequate vehicle maintenance and inspection and poor quality fuel.

The main goal is to preserve and, where possible, to enhance the air quality (especially in urban areas and in the vicinity of major power and industrial plants). In line with this, the following **sectoral policy objectives** are identified

- To harmonize national legislation relevant to air quality and air emissions with that of the EU and to adopt and implement international agreements relevant to protection of air quality;
- To reduce air pollution from the energy and industry sectors;
- To improve fuel quality and gradually phase out leaded petrol and diesel with high sulphur content;
- To modernize the air quality monitoring system in urban areas and enhance the capacity of laboratories to test air quality;
- To improve public access to information regarding air quality and raise public awareness.

It is necessary to adopt a Law on Air Protection which would set out the basic principles of air quality management and sub-legal regulations which would prescribe limit values on emissions and air quality. An inventory of polluters should also be opened and it is necessary to establish a national network for automatic monitoring of air quality, in line with the requirements of EU Directives in terms of air quality indicators and measurement methods. It is necessary to adopt a National Program for Climate Change and an action plan for air protection as a support to the National Environmental Strategy after its adoption. It is necessary to ratify key

international agreements related to cross-border air pollution and to introduce differentiated charges for leaded and unleaded fuel and gradually phase out leaded petrol by the year 2010 in accordance with environment protection programmes. The revenues generated through the charge would be used in an earmarked manner to support faster movement to unleaded fuel. It is necessary to establish a National Laboratory for Air and Water.

1.2. Water

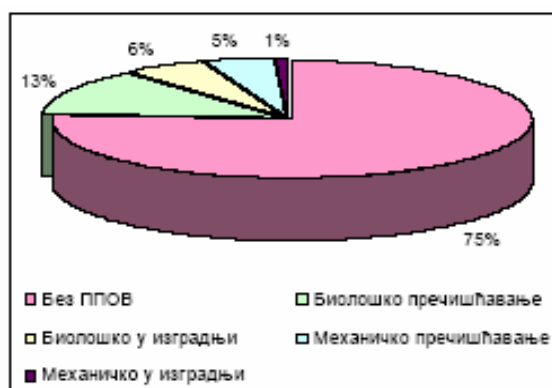
Serbia has access to sufficient quantities of water to meet its needs, but only provided it uses them in a rational manner and protects them from accidental or intentional pollution. The complex geology and favourable hydro-geological conditions have created a significant abundance in mineral and thermal-mineral springs. In terms of the density of their occurrence and the physical and chemical properties of such water sources, Serbia is among the wealthiest regions in the European continent. There are almost 1,200 registered sources; in AP Vojvodina these take the form of drilled wells and south of the Sava and the Danube Rivers, predominantly in form of springs.

The sites that are characterized with especially high temperature features include Vranjska Banja (94.1°C at the springs, 111°C at the mouth of the borehole), Jošanička Banja 77.2°C (free-flow), the borehole at Bogatić 75.5°C, Sijerinska Banja 72.2°C, and over 10 sites in AP Vojvodina with water temperatures at exit from the borehole between 60-82°C.

It is estimated that of the registered potential of this kind only a minor part is being utilized (about 1% of renewable reserves). So far, the use of these resources has been limited only to spa and bottling purposes (for drinking water), and very little for heating, although it is well known that this heat source has many advantages (environmental and economic) over conventional energy sources.

Water supply is the priority activity in the water sector, and this is demonstrated by the fact that investments in this segment have been the highest. Currently, in the Republic of Serbia, without AP Kosovo and Metohia, 63% of the population is connected to the public water supply system, which is insufficient, while local water supply systems cover an additional share of 14% of the population in Serbia. Further development of the public water supply system is a priority. Public water supply systems intake from ground water sources a volume of about 500 million m³/annually, and from surface water sources about 200 million m³/annually, of which the population used about 55%, and the industry and public consumption make up for about 20%. Other uses make up for 25% including consumption within the treatment process and network losses. The average specific per capita water consumption in Serbia is about 350 l/capita per day (for cities about 400, and for rural areas about 80 l/capita per day). Industry is supplied mostly through industries own systems of intake and transport built by users and owner themselves.

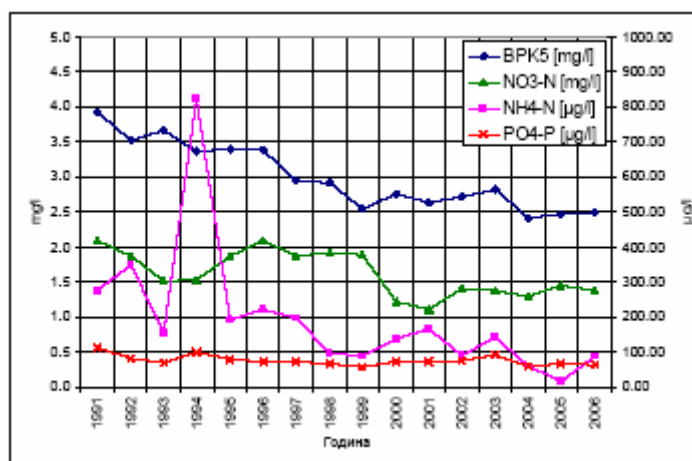
The development of the sewerage system is significantly behind in comparison to the development of water supply system. About 46% of the population is connected to sewerage systems. Waste water treatment plants for municipal waste waters with a capacity of about 1,000,000 people have been built in 28 settlements, of which, in 2006 only five were operating. Of the total volume of communal waste water, only 5.3% is discharged into recipients with adequate treatment. It is estimated that non-point sources of pollution contribute by more than 50% to total water pollution.



Source: Environmental Protection Agency, 2007.

Figure 18. Municipalities that have waste water treatment plants (WWTP)

In the past, there has not been sufficient attention to and investment in waste water treatment, which contributed to the deterioration of the quality of water courses and recipients. Uncontrolled discharge of untreated waste water into local streams and ditches or inadequate septic tanks also poses a threat to ground water resources. Water quality protection measures are seldom used. The perpetrators of accidental discharges are difficult to identify and the fines are insignificant. Due to this attitude to water, most water courses in the summer months are in a state that is adequate only for irrigation purposes, and even this is not always the case, while in some the flora and fauna are also at risk. Recently, a series of measures have been undertaken and sanctions against polluters introduced.



Source: Environmental Protection Agency, 2007.

Figure 19. Trends of water quality in the republic of Serbia 1991-2006

Key problems related to water are: the national legislation is still in a transitional stage with respect to contemporary standards, which further aggravates the difficulties related to promoting investments in the economy, including investments in the water sector; the legislation is still not fully harmonized with contemporary EU trends and standards; insufficient institutional and other capacities, inadequate funding of water management, the low price of water and services and lack of economic incentives; low percentage of connection to public systems of water supply, lack of rational use of water and bad quality of water in certain areas, bad

quality of water in certain water courses, insufficient protection of water quality and insufficient protection from water (flood protection).

Sustainable development requires optimal management, preservation and enhancement of water quality and rational use of water. The **sectoral policy objectives** for sustainable use of water resources are:

- To harmonize national water legislation with the EU legislation, especially to implement the EU Water Framework Directive;
- To increase access to quality water by connecting the population to public water supply systems;
- To reduce losses in water supply systems;
- To increase water quality in reservoirs intended for water supply;
- To improve the quality of water in water courses, primarily by building new WWTP and more efficient operation of existing waste water treatment plants; and through controlled use of fertilizers and pesticides;
- Rehabilitation and clean up of polluter water courses;
- Introducing full-cost recovery prices for water and services through the “polluter/user pays” principle;
- Adequate institutional and territorial organization of the water sector;
- defining the legal status and property transformation of water management enterprises;
- Resolving the problems of municipal waste water through PPP for bigger towns and through public investments for smaller settlements;
- Introducing the regulatory function;
- Providing for public participation and participation of users in all stages of decision-making in the water sector.

The adoption of a new Law on Water and other laws and regulations to ensure harmonization with the EU Water Framework Directive, as well as creating economic conditions for its implementation, are a priority. The need to introduce a regulatory function in the water sector is greatest in the field of public water supply and sewerage services, and it should be provided through: setting standards and prices for provision of public services, measurements and control of company performance and fines, primarily the control of reducing network losses and through investing revenues generated through increased prices into the rehabilitation of infrastructure. A separate action plan needs to be developed for the construction of waste water treatment plants, after establishing an inventory (register) of polluters and after adopting regulations and standards for their consistent implementation.

The protection of water resources is adequately covered in the environment protection programs. The following planning documents significant for the protection of water resources include: the Water Policy of the Republic of Serbia (this Policy, in terms of harmonization with the mandatory laws and practice of the EU and in line with our national needs, will be transformed into the National Water Plan, with all the relevant strategic and planning elements in the area of water, including the plan for implementation of the Framework EU Directive on Water), plans for regulating waters in water areas, the Strategy for development and use of the geological resources of Serbia (which will also regulate hydrologic surveying of ground waters). The existing economic instruments or water use charges need to be harmonized with the level of charges in the region. It is also necessary to introduce differentiated and selective charges for discharge of waste water from settlements and industry, and to establish the National Laboratory for Air and Water.

Since the alluvial sources have the greatest capacity for public water supply (representing about 70% of the total assessed ground water potential), it is necessary to protect and preserve them in order to retain the supplying conditions. This can be achieved by introducing measures based on the relevant legislation, by restricting and banning activities in the area of the alluvium which may have a negative impact on the ground-water regime (exploitation of gravel and sand, construction, storage of hazardous substances, excessive use of fertilizers and pesticides, etc.). Adequate measures are also needed in other areas significant to public water supply.

The expected increase of industrial production in Serbia will be accompanied by a certain increase in water consumption. This increase must be controlled, by measures of reducing specific water consumption by unit of production through introducing modern technologies, recycling, and reduced the environmental impact. As this would require a higher level of economic development, a more massive replacement of technologies and implementation of water saving measures can only realistically be expected after 2015. Rational water consumption in industry is also achieved through adequate regulation, through the introduction of emission standards for polluters and other administrative measures which, in the long-term, slow down or even reduce water consumption. Considering the significance of such measures, activities in this area need to be intensified.

Apart from the above-mentioned measures, it is important in view of providing water for use by industry to focus whenever possible on surface water, accompanied by exercising control over water intake and the quantity and quality of water discharge.

The urban, economic and infrastructure systems in Serbia are located in river valleys. Therefore, the protection of the existing and planned facilities for flood protection and protection against other negative impacts of water courses is a precondition for sustainable water use (supply of water to the public and to industry, irrigation, hydro-power generation and fisheries). This implies the need, wherever possible, to avoid the construction of new facilities and systems in flood zones.

The role of the state in achieving the identified objectives in the use and protection of water is key, and it will have to be achieved through legislation and through providing conditions for long-term macroeconomic stability and the safety of invested private capital.

10.1.3. Soil

Agricultural land in Central Serbia is 60.2% of area, and in AP Vojvodina this figure rises to 82%. The structure of agricultural land, by category of use, has a high share of arable land (83%). Over the past fifteen years, the share of agricultural land has fallen by 10.6%, and the share of arable land has declined by 10%. In terms of agricultural land use, the disappearance was greatest for vineyards 20.7%, and least for fisheries, reeds and marshes with 2.5%. In terms of area, the reductions were greatest for pastures with 179,036 hectares or 18% over the past fifteen years. It is important to note that the area under fields and gardens in Serbia is 3,355,000 hectares which makes up 79% of the total arable land. This is complemented by an additional 312,000 hectares under orchards and vineyards and about 587,000 hectares of meadows. The area that is not worked is about 855,000 hectares (pastures, reeds, marshes and fisheries).

The factors of reduction and degradation of soil in Serbia include: the spreading of settlements, industry, mining, power generation and transport developments, water erosion, wind erosion, salination of soil, loss of nutrients, chemical pollution from bio-industrial sources, mechanical compaction of soil under the impact of heavy machinery, turning of soil into marshes, floods, loss of fertility, etc.).

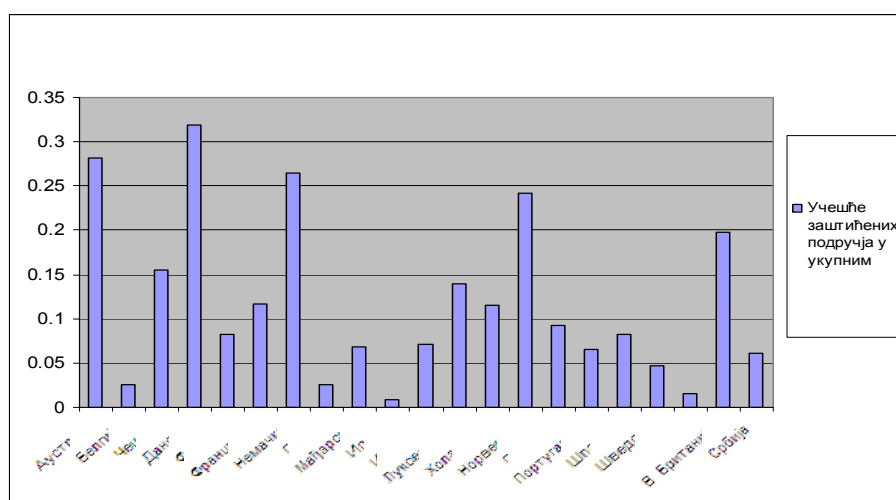
Strategic objectives of the sustainable use of soil include:

- Harmonization with the EU legislation of legislation related to soil use and protection;
- Prevention of further loss of soil and preservation and enhancement of its quality, especially in respect to industry, mining, power generation, transport, and other activities;
- Protection against degradation and changes in use and development of agricultural soil.

In order to achieve these objectives it is necessary to: harmonize the existing legislation with the EU and UN legislation on the use of land and environmental protection; identify and select groups of parameters of soil quality to be used in monitoring and control of fertility; establish a network for control of soil fertility; establish institutions which will deal with protection, development and use of agricultural land, and a national laboratory which would deal with soil and mineral resources. It is necessary to establish a soil and land plots data base, which would be a result of earlier research in this field but also of continued monitoring by certain, already existing, technical institutions dealing with the issues of land use and control of soil quality.

1.4. Biodiversity and nature protection

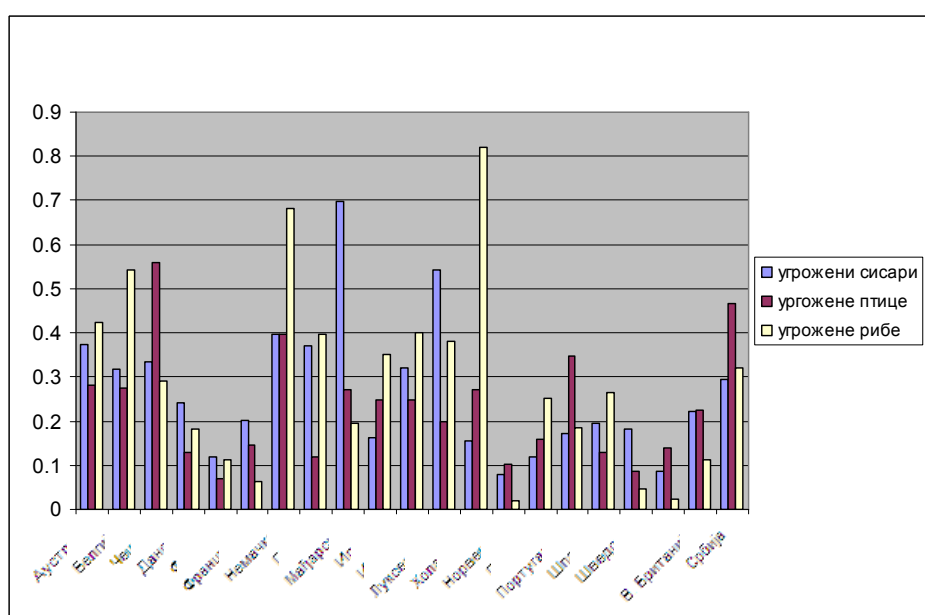
A general characteristic of biodiversity in Serbia is its great genetic, species and ecosystem diversity, while the biological resources, both potential, and those used to a greater or lower level, are of a relatively limited capacity. The total territory covered by nature conservation areas is about 5,427 km², which is about 6.14% of the total territory of Serbia. In terms of the share of protected areas, Serbia is among countries with a mid-lower level of protection. Currently, there are five national parks in Serbia, 14 nature parks, 17 scenic sites of extraordinary features, 72 nature reserves, 313 natural monuments (of botanical, geological and hydrological character) and 43 sites of cultural-historical significance (areas around immovable cultural assets and sites of significance).



Source: EUROSTAT and Republic Statistical Office, 2007

Figure 20. Protected areas overview

There are also 35 identified bird habitats of international significance (IBA), 59 areas of international significance for plants (IPA) and 13 internationally significant areas for butterflies.



Source: EUROSTAT and P. Simonović, 2007.

Figure 21. Endangered living species in the total number of species in Europe

A general feature of biological diversity in Serbia is that it is rich in quality and poor in quantity, meaning that it has a relatively high genetic, species and ecosystem diversity, while the biological resources, both potential, and those to a greater or lower level in use, are of relatively limited capacity.

The genetic fund in Serbia is very abundant and includes a great number of sorts and breeds of endogenous (autochthonic) species of plant and animal. Over the past decade, Serbia has been actively implementing a program of agro-diversity preservation, involving in-situ preservation, in live or frozen form, of plant and animal material, seeds, tissue cultures, etc. (the program of establishing a National Gene Bank in cooperation with scientific and technical institutions in the sector of agriculture) and also the in-situ preservation of living species of plants and animals that are endangered or rare. The major problems include: lack of implementation of regimes and measures for protection of plant and animal life, scenery and geologic heritage, primarily through excessive use of natural resources, low coverage by urban and spatial planning documents and very prevalent illegal building; insufficient investment by the state in the preservation and sustainable development of the most important areas and key species of biodiversity in Serbia; drastic changes in habitat conditions, fragmentation and/or destruction of natural eco-systems due to different anthropogenic influences; change of use of forests and agricultural land; illegal and/or damaging practices of collection of certain commercial species (mushrooms, medicinal herbs, etc.); inadequate law enforcement by competent inspection authorities; insufficient support for raising unprofitable primitive breeds, species, sorts and kinds of domesticated animals and plants in the context of continued modernization of the breed and sort composition, resulting in reduced diversity of genetic material in agriculture under market pressures.

Sectoral policy objectives are:

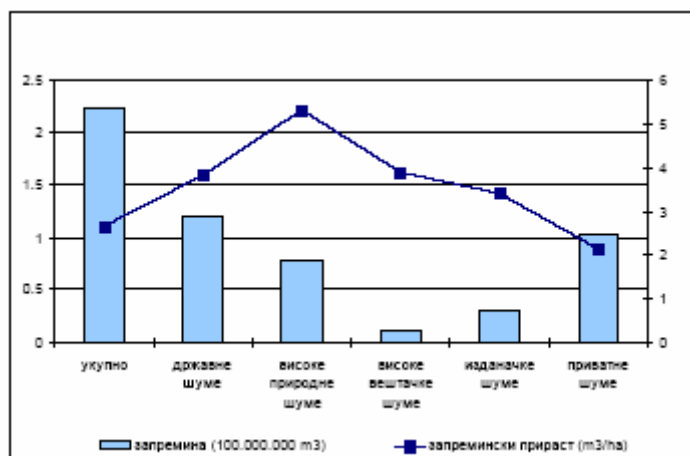
- To adopt the law on nature protection and ratify international agreements;
- To adopt the national strategy for sustainable use of natural resources and assets;
- To develop a national strategy for the preservation of the biodiversity of Serbia and accompanying action plan;
- To increase the area under protection up to 10% of the territory of Serbia, and to broaden the network of protected areas, establish eco-corridors and a network of environmentally significant areas;
- To establish an efficient system of bio-monitoring;
- To establish an IT system of the living world and other natural assets of the Republic of Serbia;
- To develop a register of biodiversity in Serbia;
- To establish components of monitoring biodiversity;
- To implement effective measures of control of genetically modified organisms (GMO) in compliance with EU practice;
- To enhance methods for sustainable use of the genetic fund and establish a Bank for the preservation of the genetic material, accompanied by greater support for preservation of genetic resources and increasing the number of subjects and areas under preservation regimes.

It is necessary to further improve protected area management plans in line with contemporary international standards and EU directives. Monitoring of biodiversity needs to be further developed. It is very important to enhance capacities in the management of protected areas and increase the efficiency of the competent

authorities in preventing and sanctioning undesirable and illegal activities in protected areas and areas of environmental significance.

1.5. Forests

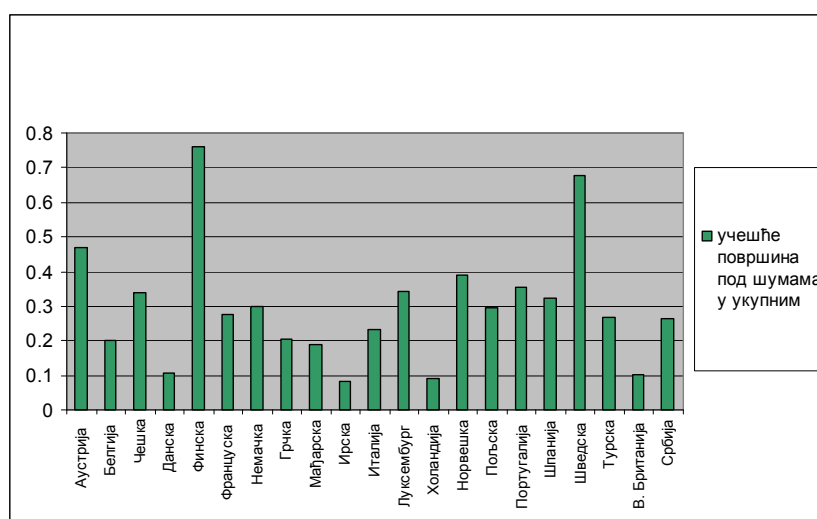
The share of territory covered by forests in Serbia is currently 26.6% of total territory, which is 2,349,720 hectares of forests. State owned forests in Serbia cover 50.2%, and privately owned forests 49.8%; forests of high origin cover 44.1%, young forests represent 45.5%, plantations 1.6 %, and scrub and bush 8.8 %. The average volume is 110 m³/ha, and average current volume increment is 3.05 m³/ha.



Source: Republic Statistical Office, 2007.

Figure 22. The structure of volume and increment of forests in the Republic of Serbia

AP Vojvodina is the least forested region in Europe, with only 6.4%. Of 45 municipalities in AP Vojvodina, there are 12 municipalities in which forests represent less than 1%, and there are only five municipalities exceeding 15%. Optimal forestation in AP Vojvodina should be around 14.3% which indicates the need to raise new forests and protective green belts over an area of about 160,000 hectares.



Source: EUROSTAT, 2007.

Figure 23. Areas under forests in certain countries of Europe

The major problems include: insufficient forestation, illegal felling, inadequate monitoring, forest fires, etc. Priority activities refer to: implementation of the National Strategy for Development of Forestry in Serbia; reducing the risk of excessive felling of forests and existing risk factors to forest eco-systems; education and raising public awareness regarding the importance of forests in order to preserve and increase the quality of the environment.

Strategic objectives regarding the management and use of forests and forest land include:

- Harmonization of national legislation in the area of sustainable forest management with EU legislation;
- Enhancing the situation of forests: by transferring low forests into high forests, melioration of degraded forests and low forests of bad quality, supporting natural recovery and protection of forests;
- Improving sustainable management in forests and protected natural areas;
- Increase the territory under forest to 29% of the territory of Serbia by 2015.

In order to achieve the main objectives of the National Strategy for Development of Forestry in Serbia it is necessary to design the optimal form of forest management, irrespective of ownership type, and design special economic incentives. It is necessary to provide the legislative and institutional frameworks to support protective functions, by regulating and limiting past practices in forest management in order to protect against erosion, protect water resources and infrastructure. When developing national, regional and local spatial planning documents it is necessary to provide inter-sectoral cooperation which would take into account the functions of forests. Tax incentives are needed to encourage activities which will increase the territory under forests, and to encourage private investment in forestry and wood processing, and also to stimulate forestation of degraded land and establish energy plantations, by linking with the existing markets of fuels based on biomass (for instance palettes, bricks, etc.). Within the forestry sector, it is necessary to establish a Forestry Council. The government shall support and protect the strengthening of sustainable management of forest resources which implies their rational use, increase, enhancement and protection which would all be based on respecting the principle of multi-functionality and preservation of environmental balance.

1.6. Mineral resources

Serbia possesses diversified mineral resources, but they are not abundant. In terms of diversity, mineral energy resources have a significant place, primarily coal, oil, and gas. Then there are metallic mineral resources such as copper, lead, zinc, antimony, nickel, and also gold, silver, bismuth, cadmium, platinum, selenium, molybdenum, titanium, radium, palladium and other rare and precious metals. Mention should be made also of non-metallic mineral resources with a wide use in industry and construction, agriculture and environmental protection (zeolites, etc.)

1.6.1. Metallic mineral resources and industrial minerals

Most metallic mineral resources in Serbia are not very rich but could be utilised for the purpose of the country's economic development. Copper is among the mineral resources with the greatest economic potential and it occurs in sites concentrated mostly around the Karpathian-Balkanide massifs in Eastern Serbia (the Bor mining zone). Copper is exploited from deposits with a low concentration of

metal (0.3-0.4% copper): Majdanpek, Veliki Krivelj, Cerovo, etc. The forecasting potential of the Bor metallogenetic zone is estimated at 8 million tons of copper ore and 350 tons of gold ore in porphyric mineralization and 1.5 Mt copper and about 100 tons of gold in the mineralizations of sulphidic massifs. The most important region in Serbia for lead and zinc is the Kopaonik metallogenetic zone, where deposits form the backbone of the metallurgical complex of Trepča: Stari trg, Belo brdo, Novo brdo, Ajvalija, etc. The geologic reserves lead and zinc ore are estimated at 45 Mt with a metal content of 6.3% or 140 Mt with metal content of 3.0-4.5% of lead and zinc. Antimony deposits are present in the regions Podrinje, around the Drina River, in Western Serbia, along the border with Bosnia and Herzegovina, the most important areas being Zajača, Rujevac and Stolice. High concentrations of nickel in deposits at Rudinci and Veluča on the upper course of the river Morava with reserves estimated at 17 Mt and nickel content of 1.15-1.20%. In Western Serbia, there is the deposit Mokra Gora with a large deposit of ferro-nickel (1 billion tons with content of 26.5% iron and 0.7% nickel). Tin can be found in the north-west of Serbia, at locations such as Cigankulja and Iverak.. Gold is present in many deposits in Serbia. It is extracted as a by-product from deposits in the Timočka krajina region where it is extracted with copper. This zone also includes epithermal streams in which there is gold either in free form, in quartz or bound with pyrite (Lece). There are also limited reserves of bauxite, in the limestone regions of Dinaride province.

Deposits of industrial minerals in Serbia are numerous and diversified. The fifty types present and about 700 deposits under exploitation, offer significant economic potential as follows: raw materials that have been or are in exploitation (barite, dolomite, caoline, brick clay, feldspar, white bauxite, zeolite, bentonite, ceramic and fire-proof clays, building stone, natural mineral pigments, expanding clay, lime, gypsum, diatomites, rocks for petrolurgic production, magnesite, silicium raw materials – quartz sand, quartzite, opal silicium); raw materials for which reserves and quality have been determined, but have not been exploited (fluorite and borium minerals); raw materials with conditional-balance reserves (phosphates, volastonite, alunite, aluminium-silicates, vermiculite, granites, pyrofilite) and raw materials deposits of which can be expected in Serbia (rock salt and mica).

Magnesite is present at Liska in Western Serbia, with horizontally longitudinal deposits of several hundred meters at depths usually exceeding 100 m. Magnesite is related to small quantities of dolomites, quartz and calcite. Near Bela stena, new extensions dominated by borates have recently been discovered at the locations Piskanja and Pobrđski potok (7 Mt with borate content of 35-39%). Worth mentioning is also the new project of exploitation of basalt in the location Vrelo, near Kuršumlja. Basalt fibers will replace asbestos, which is known to have negative effects on health. The designed annual production is 2700 t of continued basalt fibres. Serbia has three active cement factories – Beočin (1.2 Mt/annually), Popovac (0.8 Mt/annually), Kosjerić (0.5 Mt/annually). Mineral raw materials marl and limestone are exploited in the vicinity of the cement plants. The deposit Lipnica (gypsum) is also exploited for the needs of the cement industry. Feldspar, mica, and quartz are extracted from deposits of pigmatites at Vidovački krš near Prokuplje. Annual production is 50,000 t of feldspar concentrate, 36,000 t of quartz and 14,000 t mica concentrate. Deposits of quartz sand at Rgotina are exploited in two opencast mines. The tuff and opal silicium from Katalenac are mostly used in the cement industry. The deposit of volastonite, Jaram (also called Duboka) is located on the eastern side of the Kopaonik massive. The ore contains 60-70% volastonite, 2-16% carbonate and 4-12% quartz. Although there is still no commercial production, tests indicate that the volastonite concentrate is of good quality.

Problems include lack of planning and unsustainable use of resources, lack of analysis of the current state and past research of natural resources and resources by types, by spatial distribution, by diversity, volume and quality, and lack of balance categories.

Sectoral objectives include:

- Harmonization of resource management legislation with EU legislation;
- Adoption and implementation of strategies relevant to sustainable use of resources and assets;
- Identifying new deposits and rational use of existing natural resources accompanied by the use of cleaner technologies and integrated pollution prevention and control;
- Investigating from the economic and environmental point of view the feasibility of the use of the remaining mineral resources in tailings and landfills of active and closed mines.

A project is currently underway to identify, forecast and assess the reserves of minerals in the Republic of Serbia, and to develop a mineral-genetic map of non-metallic mineral resources. It is necessary to undertake studies of minerals, identify appropriate locations for investment, undertake seismic assessments, and risk assessments for extraction processes and establish databases, maps and reports. A Serbian geological information system has been established to enable digital archiving of geological data and provide a modern and efficient IT basis for planning, design and decision-making in the field of geology, and for the purpose of objective evaluation of the mineral resources and preparation of documents according to international standards. There is an Institute for Soil, coordinating soil management and the National Institute of Geology is responsible for mineral resources. It is necessary to establish a national laboratory for soil and mineral resources, as a reference and accredited source of information regarding the quality of domestic and imported resources.

1.6.2. Fossil fuels

Lignite makes up almost 90% of the energy resources of the country, while oil and gas account for less than 10%. Serbia has insufficient reserves of coal, consisting primarily of low quality lignite. The lack of these resources may be a limiting factor to the development of the energy generation sector relying on national resources, since the economic lignite reserves in coal mines are Kolubara (2.2 billion tons) and Kostolac (700 Mt), and the annual exploitation capacity is 37 million tons of lignite. At current rates of exploitation the reserves in the Kolubara and Kostolac basin guarantee another 55 years of exploitation. It is worthwhile mentioning that in only one surface mine in Kolubara the coal which is mined represents 32% of the coal used in power generation in Serbia. Serbia does not have significant reserves of oil or gas. The existing deposits are in the Pannonian basin. Annual production is about 0.7 Mt of crude oil, which is about 17% of annual demand in Serbia which uses about 4.13 Mt. Further development in the sector of oil and gas depend on the results of geological research aimed at identifying new deposits and rehabilitating the existing ones. Mineral resources of oil shale are not balanced due to economic uncertainties and environmentally unsound technologies. The most important concentrations of uranium are in the granitoid complexes of Cer, Bukulja, and other locations.

Key problems are the following: excessive exploitation of fossil fuels, disproportion between geologic and exploitation reserves of coal, oil and natural gas,

which indicates potential uncertainties related to the availability of these resources in the future.

Sectoral objectives include:

- Exploitation of non-renewable natural resources in a manner that provides optimal long-term energy security and causes the least degradation of the environment and public health;
- Identification of new deposits and sustainable use of non-renewable natural resources in the most efficient and rational way;
- Implementation of modern methods of oil and gas research in national surveying with the use of best available technologies (BAT) for disposal of waste material; modernization of refineries in order to meet the current and projected demands in terms of quality of products, distribution and marketing of oil derivatives with the implementation of all environmental regulations relevant to processing, distribution and trade in oil derivatives;
- Substitution of fossil fuels with renewable energy sources wherever economically feasible.

It is necessary to develop long-term strategies to meet energy needs, or the exploitation of energy mineral resources, environmental impact assessment, cleaning of existing tailings ponds (work is currently underway to build an inventory of tailings ponds and technogenic mineral resources), the decontamination of water, reconstruction of damaged dams and reservoirs, and reclamation of polluted soil. For future exploitation and processing of oil and gas it is necessary to undertake technological modernization of existing energy sources/facilities and build new ones, including the introduction of energy efficient and environmentally friendly technologies, the building of new transit infrastructure facilities/sources of supply, building of pipelines for oil derivate products, the introduction of systems and measures for monitoring and environmental protection.

1.7. Renewable energy sources

Biomass energy is currently the predominant national energy potential from renewable sources, and as such is emphasized in the National Strategy of Development of the Energy Sector until 2015. The degree of utilization of renewable energy sources is very low, with the exception of using the major water courses in hydro-power plants (HPP), as costs associated with the use of renewable energy sources are significantly higher than those associated with conventional energy sources. The energy potential of renewable sources of energy in Serbia is more than 3 Mtoe annually, which is about 25% of annual consumption of primary energy. The biomass potential is about 2.4 to 2.6 Mtoe annually (or about 63 – 80 percent of total potential), of which about 1.0 Mtoe is the potential of wood biomass (felling of trees and wood mass residues in primary and/or industrial processing), and more than 1.4 Mtoe comes from agricultural biomass (residues of agriculture and horticulture, including liquid manure). Production of bio-diesel from oil beat, soya beans and sunflower seeds has started in Serbia. The potential of minor water courses as a source of renewable energy is about 0.4 Mtoe annually . Only about thirty small hydroelectric power plants (SHP) are in operation currently with a total capacity of 35 MW. It is possible to rehabilitate the abandoned SHP, build new SHP by reconstructing water mills and revitalize existing SHP including the increase of installed capacity. There is a capacity of approximately 0.2 Mtoe annually in existing geothermal springs located in Vojvodina, Posavina, Mačva, Podunavlje and Central

Serbia, and also in existing spas. Previous research indicates that wind energy potential is about 0.19 Mtoe annually. Analysis indicates that the existing potential in Serbia would enable the building of a capacity of 1,300 MW in wind energy generation, if it is decided to use zones with average wind velocities exceeding 5 m/s. No specific assessment has been made so far regarding the potential for installation of sun collectors and systems, but it can be said with a relative degree of certainty that solar energy would produce about 0.64 Mtoe annually.

The problems are the following: bad spatial distribution of water, inadequate infrastructure for the use of renewable energy sources, incomplete legislative framework for promotion of the use of renewable energy sources, lack of reliable data regarding the potential of renewable energy sources, lack of an efficient system of financial incentive instruments aimed at massive use of renewable energy sources.

Sectoral objectives include:

- Intensify the research on the potential of renewable energy sources for verification and identification of realistic balance
- Identify technologies that would justify the implementation of incentives and undertake a comparative analysis of possible incentive measures
- Adopt regulations for the promotion of renewable energy use (tax incentives, stimulative prices of energy from renewable sources);
- To increase the level of use of renewable energy sources;
- To strengthen education and raise public awareness in order to encourage wide use of energy from renewable sources.

The new legislative framework for the energy sector, meaning also for renewable energy sources, was established by the adoption of the Law on the Energy Sector ("Official Gazette RS" Nr.84/04), but the relevant sub legal regulations have not yet been adopted. In order to promote the use of renewable energy sources, the Law on the Energy Sector enables the producers who use energy generated from renewable sources or waste and who permanently generate electrical or heat energy to acquire the status of "privileged producers of electrical energy" (Article 84,.) or "privileged producers of heat energy" (Article 139,). According to the Law on Energy Sector, they will be able to use economic incentives consisting of monetary subsidies, tax and customs relief and the like, in line with the law regulations relevant to taxes, customs and other duties, subsidies and incentives. However, the Law on the Energy Sector has not created a legal framework to establish an organized system of incentives for energy generation from renewable sources such as exist across Europe, for instance the "feed-in-tariff", which will be made possible through the amendments of the Law on Energy. At present, producers of energy from renewable sources are exempt from payment of taxes for connection to the national grid, and it is foreseen that they will be granted the status of privileged energy producers in the organized energy market in comparison to other generators who offer energy under the same conditions. However, the system promoting production of energy from renewable sources has still not been introduced. Such unclear conditions do not contribute to creating market conditions nor do they encourage investment in projects concerning renewable energy sources. Moreover, the licensing procedures for installation of facilities for energy generation from renewable sources are very complex and time consuming.

Incentive instruments are needed for the production and use of energy from renewable sources. In order to increase the production of bio-fuel from renewable sources it is necessary to introduce changes in agricultural policies consisting of adequate financial support for production of crops for energy generation.

The ratification of the Kyoto protocol (“Official Gazette RS” Nr. 88/07) and the implementation of the EU Directives according to the SE Europe Energy Community Agreement (the Law on Ratification of the SE Europe Energy Community Agreement, “Official Gazette RS” Nr. 62/06), impose certain obligations on the Republic of Serbia, but also enable access to the flexible mechanisms of the Kyoto protocol. Under the said agreement, the signatories undertake to establish a legislative and regulatory framework, according to EU models, for introduction of market mechanisms in energy generation and gas sectors where possible, and where not possible to ensure non-discriminatory access to the grid. The main goals of the agreement are to promote investment in the energy sector, to protect the environment and provide a reliable supply, and Serbia has made major steps towards fulfilling the obligations under the agreement. A significant role in the new legislative framework of the energy sector is to be played by the Energy Efficiency Agency, and the Energy Sector Agency, whose capacities need to be further strengthened. There is a need to support the participation of the private sector and the development of public-private partnerships in this field

2. Environmental risk factors

2.1. Climate change and ozone layer depletion

The greatest part of the territory of the Republic of Serbia has a moderate continental climate with more or less expressed local characteristics. The Republic of Serbia is a successor to the ratification of the Montreal protocol (“Official Gazette SFRY” Nr. 16/90), the UN Framework Convention on Climate Change, and the Vienna Convention. The Republic of Serbia has also ratified all four amendments to the Montreal protocol (“Official Gazette RS” Nr. 24/04) and the Kyoto protocol. There is no production in Serbia of substances which damage the ozone layer. The Ministry of Environmental Protection has, since the middle of 2004, been monitoring and keeping records on import and export of substances which damage the ozone layer, as well as “alternative substances” which do not damage the ozone layer, but do contribute to global warming, even as much as one thousand times more than carbon dioxide.

On the basis of the degree of industrial activities over the past ten years or so, Serbia is not considered a significant emitter of carbon dioxide. In the territory of Serbia, this gas is primarily generated through combustion of fossil fuels in power plants and heating plants, in transport and partly by households which are heated in this manner. The available statistics are estimates and cannot be treated as relevant. Valid data will be collected for the needs of the initial national communication, within the obligations resulting from membership of Serbia in the UN Framework Convention on Climate Change. The identified problems include: lack of a national inventory of greenhouse gasses, lack of strategic documents on climate change (a Strategy for implementation of clean development and national strategy for climate protection), legislation on emissions not harmonized with that of the EU.

Sectoral objectives include:

- Harmonization of national legislation in the area of climate change and ozone layer depletion with EU regulations;
- Adjusting the existing institutions to the needs of active implementation of climate protection policy and obligations resulting from international agreements (UNFCCC, Kyoto Protocols, etc.);

- Adjusting the practices of economic entities in the sectors of energy generation, industry, transport, agriculture and forestry, utilities-housing to the climate protection policy and obligations resulting from international agreements;
- Developing an action plan for the adjustment of economic sectors to climate change;
- Design, elaborate and implement an adequate response of the healthcare system to the effects of global climate change.

By the ratification of the Kyoto Protocol, as a country non-member of Annex I of the UN framework Convention on Climate Change and non-member of Annex B group of the Kyoto Protocol, there are opportunities opening up for Serbia to participate in the clean development mechanisms. Serbia is obliged to respect the obligations under the Framework Convention on Climate Change and the Kyoto Protocol also on the basis of the signed agreement on the energy community of SE Europe. This requires a national needs analysis and an institutional structure for the implementation of the Kyoto protocol (for calculation of emissions and for establishing an inventory of greenhouse gases, participation in flexible mechanisms under the Kyoto protocol, policy implementation and information). It is also necessary to identify priorities in the implementation of flexible mechanisms of the Protocol. Serbia has not yet established an inventory of greenhouse gases, the first national communication with the UN Framework Convention on Climate Change, in which it significantly lags behind the region. The national strategy for climate protection which will not deal only with measures of suppression but also measures of adaptation to climate changes, it is necessary to determine clearly the dimension and purpose of “warm air”. Also, all projects aimed at suppressing emission of greenhouse gases must be treated as valuable national resources by which Serbia will meet its future obligations in reducing emissions of greenhouse gases. These effects are tradable on international stock exchanges of *carbon*-credits when conditions are created for it after Serbia accedes to the list of countries listed in Annex I of the Convention, or Annex B of the Kyoto protocol. The moment of accession to Annex I group is a matter of strategic assessment and harmonization to international factors.

2.2. Waste

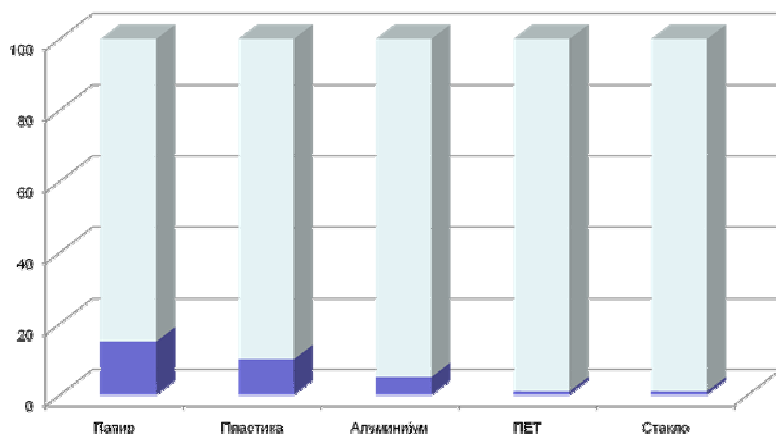
Inadequate waste management is one of the most serious environmental problems. About 60% of municipal waste is collected in an organized way, only in urban areas. Landfill at sites that do not comply with standards and which are actually little more than dumps, is the only organized manner of waste management. There are a considerable number of “illegal” disposal sites. The main challenges in the field of waste management in Serbia still refer to providing a good coverage and capacity for the provision of basic services such as collection, transport and hygienic disposal of waste. Several regional landfills are expected to be built in the near future in line with the National Waste Management Strategy (2003) as the EU accession process intensifies.

Table 4. Share of certain types of waste in the total quantity of municipal waste

Фракција	Минимални удео (%)	Максимални удео (%)	Средња вредност (%) ⁴⁸
Папир	0	54.0	16.4
Стакло	0	20.0	5.2
Пластика	0	50.0	12.9
Гума	0	23.1	3.4
Fe метали	0	19.5	4.8
Al метали	0	12.8	2.5
Органски отпад	5	73.1	29.6
Грађевински отпад	0	50.4	11.6
Текстил	0	15.0	3.6
Остало	0	42.2	14.4

Source: The Environmental Protection Agency, 2007.

There are no plans for management of biodegradable waste and packaging waste, whose quantities are increasing all the time due to the increasing share of non-refund packaging, especially PET packaging and cans. There is no organized separate collection, sorting and recycling of waste. The existing level of recycling or re-use of waste is insufficient.



Source: UNDP, IFC (International Financial Corporation, The World Bank)

Figure 24. Recycling of packaging waste in the Republic of Serbia

There is no reliable data on the quantity of hazardous waste generated by industry. In Serbia there are no facilities for treatment or disposal of hazardous industrial waste. Hazardous waste is stored temporarily in inadequate storage, some of which is decades old. Also, there is a lack of management of special waste streams: collection of used oil, old automobiles, old tires, batteries and accumulators, electric and electronic waste, etc.

The problems include: lack of adequate infrastructure which results in pollution of soil, surface and ground water by waste, often joint disposal of municipal and hazardous waste, lack of data on waste composition and waste streams, lack of a permit system for waste management, lack of facilities for storage, treatment and disposal of hazardous waste, inadequate management of medical waste, PCB (*polychlorinated biphenyl*)-containing waste and waste from slaughter houses, etc.

Sectoral objectives for waste management include:

- Harmonization of legislation regarding waste management with relevant EU directives;
- Adoption of regional and local waste management plans;

- Establishing an organized system of recycling and incentives for utilization of waste;
- Building infrastructure for management of municipal and hazardous waste (regional landfills, recycling plants, composting plants and plants for anaerobic digestion, facilities for treatment of hazardous waste, energy generation, etc.);
- Rehabilitation of existing dump sites of municipal and sites of hazardous waste;
- Education and raising public awareness to resolve waste management problems.

The National Waste Management Strategy including a program of harmonization with the EU envisages the construction of 29 regional landfills (for the needs of several municipalities) with recycling centres, and closing of existing disposal sites in all municipalities. There are also plans for construction of other plants for treatment of waste in order to establish an integrated waste management system in the Republic of Serbia. Re-use and recycling of waste and using waste for energy generation is in line with the principles of sustainable development. A draft Law on Waste Management has been prepared and is in the procedure of adoption, and this law should be the basis for the establishment of a waste management system in compliance with international standards. It is necessary to strengthen institutions and authorities in charge of planning, permitting, controlling and monitoring as well as to encourage competition and the participation of the private sector in waste management. This requires a gradual introduction of the principle of full cost recovery based on the quantity of waste generated, and not on the basis of the size of real estate. Introducing landfill charges will provide incentives to reduce the quantity of waste which is landfilled and to cover costs of investing in a network of sanitary landfills according to EU standards. The National Waste Management Strategy sets out clearly the need to raise public awareness among waste generators. It is necessary to develop a feeling of responsibility for waste management at all levels, to ensure that the problems are recognized, to provide accurate and full information, to promote the principles, incentives and partnerships in waste management. The initiatives are aimed at stimulating the population to adopt a more responsible attitude to waste and waste management in a sustainable manner, such as reducing waste at source, re-use of waste recycling or safe disposal.

2.3. Chemicals

The chemical industry represents a very significant part of the overall industrial production and foreign trade of Serbia (18%). Currently, the chemical industry meets the national demand for a wide spectrum of products, starting from basic chemicals such as oil and gas products, industrial chemical (inorganic and organic), intermediary products, to final chemical products whose number is constantly increasing (fertilizers, polymers, fibres, pesticides, medicinal products, detergents, cosmetics, dyes, adhesives, explosives, etc.). The legislative framework relevant to chemicals in Serbia is not harmonized with EU regulations and does not cover all the aspects set out in European regulations. The following problems have been identified: lack of a database and systematic monitoring of chemicals, or the impact that certain chemicals may have on public health and the environment; insufficient technical equipment of laboratories for quality and quantity testing of chemicals and lack of a system for monitoring the harmonization of laboratories with

good laboratory practice; the poor state of infrastructure in the chemical industry and insufficient financial resources for investment in cleaner technologies; insufficient inter-sectoral cooperation between the authorities in charge of different stages in the life cycle of chemicals management; inadequate storage of chemicals.

Sectoral objectives include:

- Harmonization of national legislation in the field of chemicals management with that of the EU and building administrative and other capacities for implementation;
- Reduction of chemical risk to public health and the environment, and replacement of hazardous chemicals with less hazardous ones, especially persistent, bio-accumulative and toxic (PBT) chemicals;
- Establishing and development of an information system for management of chemicals;
- Implementation of educational activities and raising public awareness of chemical risks to human health and the environment;
- Introducing measures supporting good agricultural practices.

In order to achieve a more efficient implementation of new legislation in the field of management of chemicals it is necessary to strengthen the administrative and professional capacities of staff. It is necessary to develop a program for the monitoring of chemicals, including risk reduction measures, to establish a system of authorization of certain hazardous chemicals (system of permits) in order for these to be replaced with less hazardous ones, and to undertake socio-economic studies including the calculation of the costs associated with the replacement of hazardous chemicals with less hazardous ones. In order to establish and develop an information system for management of chemicals, it is necessary to establish and update databases of chemicals on the market, their properties and impact on human health and the environment. It is also necessary to strengthen the capacities of NGOs, including consumer protection organizations for the purpose of informing the public of risks associated with chemicals.

2.4. Accidents

Serbia is suffering from a burden of poor safety in many chemical plants, their transformation processes, unplanned urbanization, inadequate measures for prevention and alert, and inadequate response to accidents at all levels (from individual companies to the Republic level), and for all of these reasons it is faced with an increased safety risk in terms of public health and the environment.

Sectoral objectives include:

- Harmonization of national legislation with international regulations in this field;
- Implementation of measures of prevention, alertness and response to accidents at all levels (from companies to the Republic level);
- Building a system of information and management in cases of chemical accidents in the territory of Serbia as a part of a national integrated system of protection and response in case of natural disasters, elementary disasters and other major accidents;
- Institutional, organizational and HR strengthening of authorities, organizations and institutions in implementing legal obligations in this field;

- Designing and implementing activities in order to integrate the national response system with the regional and broader international response system in cases of accidents with cross-border effects.

Regulatory measures refer to ratification of international conventions and adoption of new legislation harmonized with the EU. Institutional measures include the establishment of a comprehensive system for management of chemicals through an inter-sectoral approach, strengthening of existing institutions participating in prevention, alertness, response to and mitigation of consequences of accidents. Economic-financial measures refer to implementing the “polluter pays” principle, providing budget resources for equipment and building capacities of relevant institutions to respond to accidents and mitigate the consequences.

2.5. Ionizing and non-ionizing radiation

Of the total number of sources of ionizing radiation in the Republic of Serbia, about 80% are used for healthcare purposes, about 15% in industry and about 5% in other activities. There is no facility for treatment and storage of radioactive waste. Inadequate storage of radioactive waste in the Institute for Nuclear Sciences “Vinča” is a risk to public health and the environment. Ionizing radiation is monitored in accordance with the Decision on Systematic Testing of Content of Radionuclides in the Environment (“Official Gazette FRY” Nr. 45/97), whereas non-ionizing radiation is not monitored. The four locations in the territory of the Republic of Serbia (excluding AP Kosovo and Metohia) which were contaminated by depleted uranium after the NATO bombing during 1999 were decontaminated in 2007. With respect to protection from non-ionizing radiation, there is no national legislation. The following problems have been identified: national legislation is not harmonized with EU legislation, the network for monitoring of radioactivity and non-ionizing radiation is inadequate, there is a lack of a database on sources of ionizing and non-ionizing radiation, use of sources of ionizing and non-ionizing radiation is contrary to regulations; there are abandoned sources of ionizing radiation in industry and sources out of regulatory control, lack of early warning system for emergencies and lack of a plan of response in case of emergency, and lack of infrastructure for adequate storage of radioactive waste.

Sectoral objectives include:

- Harmonization of national legislation in the field of protection against ionizing and non-ionizing radiation with EU legislation and regulation of the International Atomic Energy Agency (IAEA);
- Resolving the issue of storing radioactive waste;
- Build and modernize the system of monitoring radioactivity and non-ionizing radiation, IT system, database and response system in emergencies;
- HR, technical and organizational strengthening at all levels to implement measures of protection against ionizing and non-ionizing radiation.

It is necessary to adopt the law on protection against ionizing radiation and nuclear safety, and the law on protection against non-ionizing radiation, with the relevant by-laws. It is necessary to establish a regulatory body for ionizing and non-ionizing radiation and provide technical capacity for institutions in relevant bodies and organizations. In order to achieve efficient implementation of new regulations in the field of protection against ionizing and non-ionizing radiation it is necessary to strengthen the administrative and professional capacities of the staff. It is also

necessary to provide full information to the public concerning the issues of protection against ionizing and non-ionizing radiation.

2.6. Noise

The problem of noise exists in settlements in Serbia and is a risk to public health. The main causes of noise in the environment are all forms of transport and different industrial facilities. A special problem is the noise of local sources (catering/tourism and trades, etc.). The identified problems are the following: national legislation is not harmonized with that of the EU, there is a lack of contemporary regulation for measurement of noise, lack of regular monitoring of noise except in a few major cities, lack of plans to resolve the issues of noise at any level, and lack of implementation of regulation regarding noise insulation in construction.

Sectoral objectives include:

- Harmonization of the national legislation in the field of noise with EU legislation;
- Establishing standards for noise monitoring in settlements along major transport routes – in stages, according to EU regulation and according to the available financing;
- Identification of vulnerable zones and measures needed to reduce noise in them, and silence zones and measures for their preservation;
- Developing strategic noise maps that would be used as the basis for action plans;
- Establish an adequate system of monitoring and public information.

In order to achieve these goals, it is necessary to harmonize the national legislation on noise with that of the EU. It is necessary, first of all, to adopt the law on noise in the environment, a new by-law on measuring noise in the environment, and other by-laws needed for harmonization with EU regulation and it is of great importance to harmonize national noise standards with ISO standards. It is also necessary to provide professional capacity and giving authorization to a sufficient number of accredited institutions for noise measurement and to establish a reference laboratory.

2.7. Natural disasters – floods, landslides, fires, earthquakes

Flood protection is the most important aspect of protection against negative impacts of water. The potential flooding area in the Republic of Serbia covers about 1.6 million hectares, with about 500 major settlements and 515 industrial facilities. Flood risks exist for about 680 km of railroads and about 400 km of roads. The existing flood control system consists of 3,460 km of protective river embankments, 820 km of regulated water courses, 930 km canals and 39 reservoirs and retentions to hold flood waters. The maintenance of these facilities during the recent past was minimal, causing dilapidation of the system and increasing the risk of flooding. Almost 80% of the territory prone to floods is agricultural land. About 56,000 km² of the territory of the Republic is suffering from erosion processes of different intensities, with a forecasted average annual volume of sediments of about 40 million m³, which is an indication of the significance of this phenomenon. Major floods occurred in February 1999, April 2000, 2002, 2005 and 2006. The flood of 2006 was the biggest ever recorded flood (material damage estimated at EUR 35.7 million), with a period of recurrence of greater than 100 years. It has been estimated that

225,000 ha were flooded, which is 5% of the total arable land in Serbia. The flood of April 2005 in central Banat caused damage to private property, agriculture and infrastructure of EUR 12.6 million. About EUR 3 million has been invested in flood protection works.

The risk of landslides involve damage to material assets that may be at risk and potential damage resulting from activation of landslides. Previous knowledge and experience indicate that about 25% of the territory of Serbia is exposed to landslides and rockslides. In April 2006, due to great floods and many years of uncontrolled forest felling, there were rock slides in several municipalities in Serbia. Damage from landslides in 2006 is estimated at EUR 25 million. A great number of civil defence centres took part in rescue activities on the ground in cooperation with local governments.

Major forest fires which occurred in 2007 on the mountain Stara planina, in the Deliblatska peščara, in Mačvanski district and elsewhere in Serbia, covered an area of 17,500 ha of forests. It will take decades for the burnt forest to recover.

Serbia is a seismically active region. In recent years there have been a series of minor earthquakes, but without major damage.

The identified problems are: inadequately developed organization of civil defence to provide assistance at times of natural disaster and catastrophes; lack of early warning systems; insufficient awareness of the need to use insurance against damage caused by natural disasters and fires; lack of a system of state insurance against emergencies.

Strategic objectives include:

- Institutionalization of the civil defence system;
- Increase the level of flood protection;
- Promote insurance against damage caused by natural disasters.

Risks of floods are directly related to the environmental sector and all socio-economic sectors, due to the negative impact of flooding and damage to persons and property during and after floods. Mitigation measures should include detailed mapping of areas exposed to flooding, and measures of support to early warning systems about the risk of flooding. The existence of such maps would be useful for potential investors investing in economic development. Another priority activity refers to works for regulation of watersheds and regulation of water courses, reconstruction of embankments along the rivers Tisa and Tamiš and other rivers. It is necessary to implement a program of risk assessment for the territory of Serbia which should include a risk map, increase the database of landslides and evaluation of risk mitigation measures. Work is currently underway for building an inventory of landslides and unstable inclinations in Serbia which will become an integral part of the geologic IT system. The inventory of landslides and unstable inclinations in Serbia will make it possible to:

- register all landslides (active ones, temporarily dormant ones and fossil ones) and similar phenomenon – torrents, etc;
- evaluate conditions and circumstances for their activation, the size and volume of mass that would be involved in the phenomenon;
- assess potential damage that would be caused by activation;
- identify priorities for detailed research, design and undertaking preventive or rehabilitation measures;
- propose preventive measures that would mitigate the risk associated with the threat;

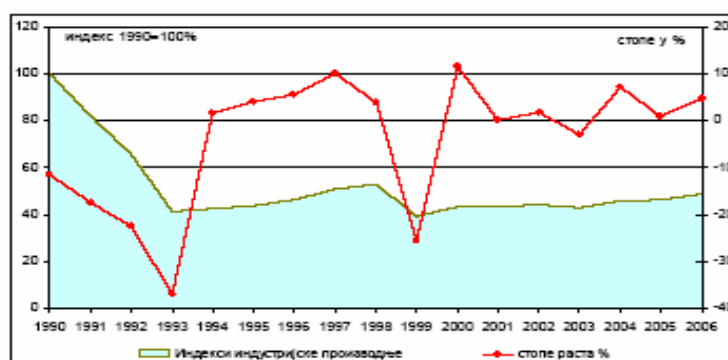
- identify measures needed for continued monitoring and control of the process in order to be able to respond promptly in order to protect lives and property.

A good organization of civil defence systems for providing help during natural disasters puts emphasis on the importance of identification, assessment, planning and handling crises at local level. Since there have been no changes over the past ten years in terms of developing a structure of civil defence in Serbia, it is necessary to organize civil defence as a complex inter-sectoral activity and build capacity of units and institutions for response and execution of tasks in this domain. It is also necessary to raise public awareness of the need for insurance against natural disasters and fires. Experience of the countries in the region indicates that it is necessary to initiate the introduction of state insurance against emergencies by creating a fund for emergencies which would be established by participation of all insurance companies and by a symbolic annual participation of all households in Serbia.

3. Economic sectors and their impact on the environment

3.1. Industry

For a long period of time the economic development of Serbia relied heavily on industrial production, based primarily on huge production systems financed by expensive foreign loans, protected by high customs and other barriers, managed in a socialist-state commanded manner, oriented to the domestic rather than foreign markets, with an excessive number of employees. The industry was ill-prepared for the technological and structural changes in the world economy, and during the 90s, together with the rest of the economy, it experienced a serious crisis accompanied with major decline in production and employment. In comparison to other production activities, industry remains the biggest contributor to generating GDP. The Strategy for Attracting and Promoting Foreign Investments ("Official Gazette RS" Nr. 22/06) and The Strategy of Economic Development of Serbia for the period until 2012 which is in preparation are important for future development of industry. There is, however, an evident lack of other sectoral strategies for the development of individual fields of industry.



Source: The Environmental Protection Agency, 2007.

Figure 25. The level of industrial production compared to 1990.

Although recent years have seen significant measures in the field of environmental protection, the situation in industry is unsatisfactory. Industrial production contributes to environmental pollution for several reasons, especially the following: obsolete technological processes, low use of secondary raw materials, low energy efficiency, high levels of past waste not handled properly, especially in terms

of hazardous waste, low technological discipline, lack of incentives to reduce pollution, high volumes of waste by unit of production, inadequate handling of industrial waste. Lack of pollution abatement technologies and equipment (especially waste water treatment plants, exhaust gases and hazardous waste) is a general problem. In this context, almost 90% of industrial waste water is discharged without prior treatment. Most industries do not have temporary storage for hazardous waste.

Sectoral environmental objectives of sustainable development include:

- Harmonization of national legislation on protection of air, water and soil; waste management and chemicals, with the legislation of the EU;
- Building and/or reconstructing environmental infrastructure in industry (waste water treatment plants, exhaust gas treatment, waste treatment);
- Reconstruction or innovation of technological processes, establishing a system for integral permits for industrial plants in accordance with the Law on Integral Pollution Prevention and Control (“Official Gazette RS” Nr. 135/04), introduction of BAT and BEP;
- Rehabilitation of polluted industrial sites;
- Introduction of cleaner technologies and increase of energy efficiency and raw material efficiency accompanied by reduced waste generation;
- Implementation of environmental management systems, ISO 14000, system EMAS;
- Establishing an integral inventory of polluters, establishing monitoring and self-monitoring.

In order to achieve the above objectives, it is necessary to review the existing legislation in this field. The cooperation of ministries in charge of industry with the ministry in charge of environmental protection is of the utmost importance. Also of utmost importance is the strengthening of the Environmental Protection Agency. It is necessary to establish an integral inventory of polluters and set standards for environmental databases according to EEA and EIONET directives. Building an integral inventory of polluters is at the very initial stage. It is necessary to strengthen the Centre for Cleaner Production as the focal point for all activities related to the introduction of cleaner production systems in industry and for education of all stakeholders, and to set monitoring criteria through accredited national laboratories. In this respect, it is also necessary to set standards for industrial products and for work in individual fields of industry, and to accredit national laboratories to supervise the implementation of those standards.

The still unresolved issue of liability for past pollution is a significant risk for serious investors, and this may result in their lack of interest for privatization or in very low price for privatized enterprises. It is necessary to include a mandatory comprehensive analysis of the state of the environment by independent experts in the privatization process and include the findings in the prospectus for privatization - *environmental due diligence*.

It is also necessary to continue to upgrade the existing system of economic instruments by introducing flexibility and stimulation with maximum implementation of the “polluter pays” principle.

3.2. Mining

There are about 200 operating mines in Serbia. Over the past decades there has been a significant decrease in mining production. The reasons for this are multiple, including: insufficient investment in developing new technologies for exploitation, preparation and processing of minerals which could be the basis for valuation of raw materials of lower quality, significantly reduced geological research, and the related insufficient preparation of new reserves due to intensive exploitation of resources, with the excessive exploitation of deposits which has resulted in reduced quality and quantity of mineral resources as a basis for production.

The major problems in mining are: outdated and incomplete legislation in the field of mining and geological research; problems from the past related to the kind of organization, legal status of mining operations and lack of market orientation in mining; obsolete and outdated technologies and equipment in mines; inadequate tailings management, insufficient and inadequate monitoring, and degradation of land in the vicinity of mines.

The analysis of the existing state of the mining sector in Serbia indicates that sustainable development in this field will be reflected in the following **sectoral objectives**:

- Harmonization of the national mining legislation with EU legislation;
- Finalizing successfully the transition process in the mining sector resulting in a greater share of the private sector and increased profitability of mining operations;
- Rational management of non-renewable resources and prevention of illegal exploitation;
- Overall restructuring in the production of minerals including the coal industry and oil and gas industry, which implies a successful finalization of the transition in the mining sector with a higher share of private capital;
- Implementation of technological solutions for the reduction and integrated prevention and control of adverse environmental impacts of exploitation of mineral resources;
- Sustainable supply of the market with mineral raw materials;
- Economic development at local level and increase of employment with greater participation of all stakeholders in decision-making as long as a mine exists and operates, and also afterwards.

The strategy for the development of the mining sector in Serbia, which is in the process of being developed, will identify more closely the instruments and activities needed to achieve long-term sustainable development in the mining sector, attracting the private sector, implementing modern environmental management and monitoring standards, and strengthening cooperation between mining enterprises and local communities.

3.3. Energy

The energy resources of the Republic of Serbia are relatively poor, dominated by low-quality lignite, and are geographically unevenly distributed. Unless serious measures are undertaken to ensure sustainable development of the energy sector (primarily in terms of adequate infrastructure, increasingly rational and economically feasible use of sources of energy, reducing energy intensity and optimal use of

national renewable energy sources), and having in mind the limited ability to import certain types of energy and energy sources, the reliable supply of energy may become endangered to a level which could become the limiting factor to the sustainable development of this sector.

Bearing in mind the need to build new and revitalize the existing infrastructure, and the fact that the production and consumption of energy are the main sources of environmental pressure in Serbia, it is in this sector that major investments are expected which may have stimulating effects on overall economic development. The development of energy sector infrastructure, including environmental protection in the energy sector, is among the major challenges in developing a knowledge-based economy, leading to increased employment and creating a wide scope of positive external effects. It is, at the same time, a pre-condition for the integration of the national energy sector in the regional and European energy market. Serbia remains dedicated to the signed Agreement on the Establishment of the Energy Community, which is an instrument of achieving the objectives of sustainable development in this sector.

Environmental problems in the energy sector include: limited quantity and poor quality of national energy sources, high dependency on imported fossil fuels, of about 32%, obsolete technical systems for energy generation which are inadequately equipped with devices for environment protection, long-term inadequate maintenance of infrastructure, obsolete and inadequately maintained system of environmental protection in the energy sector, inadequate and unsustainable price policy, especially in electricity, low efficiency in energy production and consumption, incomplete legal framework for incentives in renewable energy sources, insufficient preparedness of institutions for the liberalization of this sector and introduction of competition.

The objectives of sustainable development in the energy sector include:

- Significantly increase energy efficiency in order to reduce energy consumption, which would also reduce import dependency and the negative environmental effects of the energy sector and would increase the living standards of citizens (in this respect, Serbia lags behind the region, and especially behind the EU);
- Achieving safe and reliable supply, achieving economically feasible generation of sufficient quantities of energy, in line with EU standards, in a manner and in quantities needed to accompany dynamic economic growth;
- Promoting the use of renewable energy sources;
- Harmonization of national legislation in the field of natural resources, waste management, air quality management, with the relevant EU legislation;
- Adoption and implementation of international agreements relevant to air pollution, climate change and the ozone layer;
- Promotion of rational use of natural resources, increasing energy efficiency in industry and construction, reducing pollution emissions to the air, reducing the generation and the level of re-use of waste;
- Reduction of the pollution risk and risk of damage to the ozone layer;
- Resolving the issues of waste management in the energy sector;
- Education and raising public awareness and improving access to environmental information related to the energy sector.

It is estimated that the potential to reduce energy consumption in households is more than 50%. The energy efficiency of industry is three times lower than in OECD countries, meaning that industry in Serbia, supposing that the price of energy is set at 7 Cents per kWh, could achieve annual savings exceeding EUR 70 million, by

increasing energy efficiency by 10%. It is also estimated that, at that price level, investment in increased energy efficiency in the industrial sector pays back in four years.

The competitiveness of the Serbian economy should not be based on low prices of energy, but on energy efficiency. As long as electricity is under-priced, measures to increase energy efficiency in Serbia will not yield true effects. In order to stimulate enterprises to increase energy efficiency and to introduce energy management systems, it would be good in the future to introduce adequate regulatory and incentive measures. Incentive measures can take the form of reducing certain environmental or other taxes, or priority in obtaining soft loans and subsidies for the introduction of energy efficiency measures, and so on. The Energy Efficiency Fund, which is expected to be established on the basis of the amendments of the Law on Energy, but also other development funds in the country, could have a similar role, as could the National Investment Plan, donors, etc. Another instrument to increase energy efficiency, both in industry and in the public sector, is the mechanism of funding energy savings by third parties, primarily by the Energy Service Companies, whose investments are paid off through energy savings. There are no legal obstacles to implement this instrument, but it is necessary to improve the institutional-legislative conditions for its implementation. It is important in the near future to provide for the implementation of a number of pilot projects, and further activities of the Energy Efficiency Agency towards raising public awareness of energy consumers, but it is also necessary to further strengthen and build capacities of institutions designing and implementing energy policy in the context of energy efficiency, such as the Ministry of Mining and Energy, the Energy Efficiency Agency, regional centres for energy efficiency, etc.

Social problems should no longer be resolved through low prices of energy, but rather through differentiated and selective social policy, so that energy is widely accessible, but at a full-cost recovery price. The objective is that energy should be as accessible as possible for the society and economy, with a maximum level of internalization of external effects of its generation, transmission and consumption

The development and promotion of the use of renewable energy sources to reduce the consumption of fossil fuels, to reduce import dependency and produce electrical and heat energy with reduced adverse environmental effects will remain a challenge.

Strategic objectives in the energy sector are stated in detail in the National Strategy of Development of the Energy Sector up to 2015, and also in the Program for the Implementation of the Strategy as adopted by the government in 2007. Despite this, and despite the fact that great efforts have been made to improve the situation in public utilities, primarily in the Power Utility of Serbia (EPS), the energy sector in Serbia remains the key area for investment in environmental improvements and a main goal in sustainable development.

3.4. Agriculture

Agriculture, together with food and other related industries, provides more than 20% of the Serbian GDP. Agricultural products are a considerable share of total exports (20-25%). A broad assortment of products and livestock is exported, including as major products sugar, soft fruits, cereals (corn and wheat) and processed foods. There is significant potential to increase the export of many products.

The serious economic crisis during the 1990s resulted in decreased pressure on natural resources due to the reduced chemical intensity of agricultural production, which, however, at the same time contributed to depletion of natural resources, primarily depletion of agricultural soil due to the lack of replenishment of nutrients. With the beginning of transition, there was a trend towards re-intensifying agriculture. Since the development of agriculture is still happening in an inadequately regulated environment in terms of environmental protection, intensified agriculture may easily lead to serious problems. On the other hand, the process of depopulation in remote rural areas is becoming increasingly serious. The ageing demographic in villages leads to degradation of pastures and meadows due to lack of mowing. At the same time, areas closer to settlements show the effects of excessive pasturing and excessive felling, resulting in soil erosion on inclinations. In certain rural areas there is a noticeable degradation of water quality, in others there is soil degradation or reduced biodiversity due to intensified farming. Such an unfavourable situation is a result of bad regional planning, and lack of implementation of good agricultural practice.

According to data for the year 2004, Serbia has about 51,120 km² of agricultural land, which represents about 66% of its territory. Of this, standing cultures account for 35,360 km², or about 46% of the total territory, not including AP Kosovo and Metohia. In this respect, Serbia is close to Austria with 41.2%, Belgium with 46.1% and Germany with 48.7%. The holdings have an unfavourable property structure and are highly fragmented, leading to extensive farming practices.

Table 5. Property structure of farm holdings

	Number of estates (000)	Area (000 ha)
up to 2 ha	360	347
2 - 5 ha	244	854
5 – 10 ha	131	958
10 - 20 ha	37	503
over 20 ha	6	206
Total	779	2869

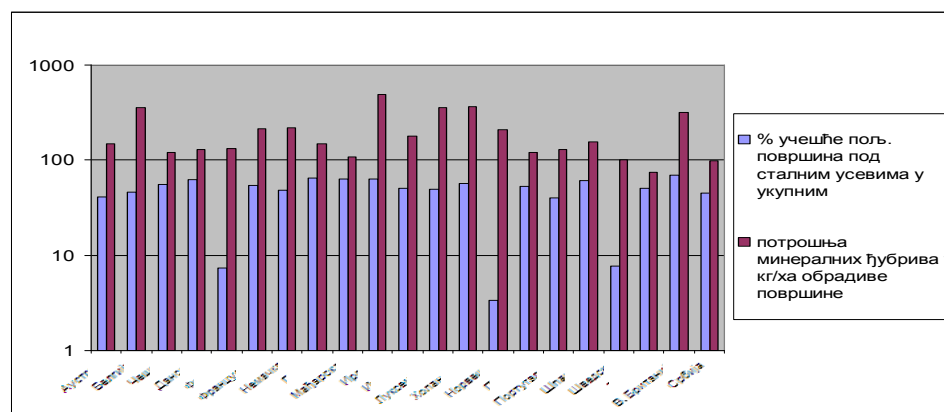
Source: Ministry of Agriculture, Water Management and Forestry, 2008.

The presence of livestock breeding differs by region. Lowland regions have the greatest number of big pig, poultry and cattle farms. Farms in other parts of the country are smaller, but greater in number, as all farm holdings have livestock. Combined farming with semi-intensive production systems is the dominant form on most holdings. In terms of the number of livestock, the first is poultry (17.7 million), pigs (3.6 million), sheep (1.5 million), cattle (1.1 million), goats (169 thousand) and horses (24 thousand).

The size of farms is a serious obstacle to further development of agriculture. The average size of a farm holding in Serbia is somewhat over 2.5 hectares. The average size in Central Serbia is 2.1 ha, and if this includes leased land then the average size is 2.11 ha, while the average for AP Vojvodina is 3.38 ha, or 3.59 ha if lease is included. In EU countries this average is 18.7 hectares. Of the total population of the Republic of Serbia, 10.87% is agricultural population (11.01% in central Serbia and 10.58% in AP Vojvodina). Apart from this problem, there is also a very unfavourable age structure in the agricultural population (about 45% of members of farming households are over 50 years of age), and this is further aggravated by inadequate mechanization and poor access to markets. Conventional agricultural

production in Serbia does not demonstrate sufficient concern for environmental protection or animal welfare.

In Serbia in general there is a wrong perception that the national agriculture is safe and strong, that it produces healthy products and that the environment is clean and well preserved. Although phyto-sanitary and veterinary services have been significantly strengthened over recent years, agriculture remains a potential environmental risk.



Source: FAOSTAT and RSO

Figure 26. Indicators of intensity of agricultural production in Europe in 2005

The Ministry of Agriculture, Forestry and Water Management has, as part of its international cooperation, initiated work on introducing integral production and good agricultural practice in order to reduce pollution from livestock farms, slaughterhouses and horticulture. These activities are harmonized with the National Strategy of Agriculture and the Draft National Environmental Strategy. The loss of traditional agricultural systems in Serbia has been very visible over the past 15 years, which creates conditions for intensified loss of biodiversity.

It is possible to conclude that, despite the evident natural advantages, the main problems in Serbian agriculture are related to the strongly unfavourable property and age structure on individual holdings and inadequate transfer of knowledge in the field of bio-technology, marketing, economics and the environment. A great deal of the technology in the food processing industry is outdated and requires significant investment in order to be harmonized with export standards and be accredited under ISO 9001 and HACCP, which is a requirement for export to more profitable markets.

The objectives of sustainable development related to agriculture are the development of an economically cost-effective and environmentally friendly agricultural production which would be the basis for rural development and the basis for revenue generation of rural households and would achieve the competitiveness needed for access to European and other markets.

Sectoral objectives in the field of agriculture include:

- Harmonization of the national legislation and actions in the field of agriculture with the legislation and practice in the EU;
- Promoting investments in reducing pollution originating from agriculture, maintaining agro-diversity and traditional (combined) farming systems, with the aim to preserve the scenic and species biodiversity in sensitive agro-

environmental conditions, reduction of erosion and preservation and enhancement of the environment in general;

- Increasing areas under organic farming and other environmentally friendly farming production systems;
- Raising environmental awareness of agricultural producers, accompanied by the respect of principles of biodiversity and animal welfare,
- Introducing codes of good agricultural practice.

The achievement of these objectives through an adequate action plan opens up the scope for dynamic knowledge-based economic development. Agriculture is among the most appropriate fields of development and implementation of high technologies in Serbia, specifically the area of resolving the environmental issues in agriculture. It is necessary to establish a National Food Safety Laboratory which would not only contribute to resolving environmental problems in national agriculture and thereby improving the quality of national products and public health, promoting exports of agricultural products, and improving quality control of imported food, which would all lead to establishing an even playing field for competition. Such an institution would also contribute to the stronger development of agriculture and to the implementation of state-of-the-art technologies in agriculture and food processing. The achievement of positive social effects through the implementation of the concept of integral rural development would create multiple positive effects in political, demographic, cultural and security context.

3.5. Forestry, hunting and fishery

The problems relevant to management or economic utilization of renewable natural resources are presented through the analysis of forestry, hunting and fisheries. The specific features of forestry as an economic activity depend on the naturally determined quantity and quality of resources, but also on social-historical circumstances, which have resulted in a series of problems that this activity and the related wood processing industry are currently faced with. Sustainable forest management and development of forestry as an economic sector can be achieved only if there is continued monitoring and identification of the existing forest fund, professional long-term and short-term planning, and efficient implementation of plans.

The share of the wood processing industry in generating GDP, employment and foreign trade of Serbia is at present below its actual potential. The privatization of big socially-owned enterprises dealing with wood processing has not been finalized. The capacities are utilized to a low degree, and the organization of the whole sector is also low, so that the protection of interests and building of relations with local communities is left to individual enterprises. Generally, the sector is characterized by low economic efficiency. Exports of the wood processing industry in 2005 were characterized by an increased share of finished products and a reduced share of primary wood processing products. Specifically, the export of final products was increased by USD 7 million compared to 2004 and exceeded the record high exports in 1989 by USD 4 million. It is worthwhile mentioning that only furniture exports are increasing (USD 8.5 million), while other export products have increased export levels on 2004. The export of primary wood products is lower by USD 9 million than in 2004. It is a positive indication that products of a higher degree of processing are increasing their share of exports, while the export of raw materials is decreasing.

The total area of hunting grounds in Serbia is about 7 million hectares. According to the data provided by the Hunting Association, the number of registered hunters in Serbia in 2007 was about 96,000 and the number of registered hunting firearms was 447,343. The users of hunting grounds every year make estimates and monitor the quantity of wildlife in hunting grounds.

The major problems in forestry and hunting include: a low level of technical-technological and institutional development, lack of strategic planning documents, insufficient system of monitoring of forests and inadequate management of certain species of wildlife.

In terms of the diversity of natural and man-made eco-systems in fishing and in terms of the diversity of significant fish species, Serbia does not lag behind other countries in the region. In contrast to the favourable natural potential, the share of registered fishermen in the total population and productivity in facilities for fish production are the lowest in Europe, and there is no reliable data on the level of fish stocks in open waters, the number and structure of facilities for fish farming and their productivity. Serious problems result from illegal fishing, and the use of forbidden methods and equipment. Apart from the unfavourable social conditions which have caused the present situation, it is evident that the position of fisheries generally over the past decades was never addressed systematically. Leaving fishing only to sport-fishing associations leaves great unused natural potential and potential for development of many accompanying services. Despite this, the fishing burden approximates the existing natural production, or presents a risk to it only in the vicinity of big urban centres with the biggest markets for sale. A significant risk to the fund of sturgeon below the dam of the hydro power plant „Đerdap II“ and of the strategically important production of white sturgeon caviar is caused by reduced fishing periods and reduced quotas for sturgeon fishing.

Although this is potentially a highly profitable activity, most fish ponds have very low production with low productivity due to obsolete technology and outdated production facilities. The spreading and intensifying production of salmon species is limited by the quantity and quality of water resources. Therefore a necessary precondition for sustainable development of aqua-culture is the requirement of the prescribed environmental assessment and the assessment of impact on already pressured water resources, especially in artificial reservoirs when using cage farming systems. It is also necessary to resolve the issue of providing adequate quantities and types of young fish, and to stimulate the producers of feed and feed components to find strategic partners in order to improve the technology of production of fish feed.

The problems in fishing include: still low capacity of the fishing sector within the relevant administrative authority (in terms of HR and material-technical resources), which is an obstacle to administrative management of fishing as an economic activity; low level of professional capacity of users of fishing areas; lack of harmonization of legislation on fishery and legislation on nature protection; lack of discipline among professional and amateur fishermen; lack of a clear institutional definition of fishermen who engage in fishing as an economic activity and difficulties in generating revenue; lack of technological discipline on the side of users of water resources, primarily from industry and agriculture, inadequate operational organization and an excessive number of employees in fisheries, lack of capital and expensive loans for credit arrangements, weak protection of national production against strong competition in the region and inadequate judicial practice in terms of procedures for fines and violations of regulations.

The objectives of sustainable development related to forestry, hunting and fisheries include:

- Reorganization of the public forestry sector and support to the private sector;
- Sustainable management of forests and enhancing forestry while in parallel achieving sustainable management of wildlife populations;
- Improving fishing by improved management of fish resources in order to develop fishing and promote fishing tourism;
- Increasing the economic effects that can be achieved through rational use of forestry, hunting and fishing resources.

According to the Strategy for Forestry Development, the support to the private forestry sector will be implemented by: promoting agglomeration of forest properties in private ownership and preventing further fragmentations of forests; providing funding for support to private forest owners to protect and enhance forests; professional and financial stimulation to establish and develop associations of private forest owners; support to establishing and development of small and medium enterprises in the field of forestry; through the development of an inventory of forests and an integral IT system (including criteria and indicators of sustainable forests management). Sustainable forests management and enhancement of forestry along with sustainable management of wildlife populations includes: creating optimal conditions in forests for enhancement of the state of native species of wildlife; developing a strategy for the development of hunting and providing regulatory, institutional and economic frameworks for its implementation.

The first step in the enhancement of the fishing sector is expected to be achieved through the adoption of a law on protection and sustainable use of fish stocks. It is necessary to protect natural spawning sites, revitalize the existing flood zones and through the eco-system approach ensure maximum natural regeneration of stocks. It is of the utmost importance to increase the management and administrative capacity and the capacity of users by educating professionals to manage fishing activities and also training staff for fish production and processing. In order to develop recreational fishing it is necessary to introduce a unified national fishing permit and a flexible regulation system of coordinating users to provide for a balanced development of recreational fishing as a pre-condition for the development of fishing tourism throughout Serbia. It is necessary through economic instruments (e.g. by introducing individual transferable quotas) for vulnerable fish species (e.g. sturgeon) and in areas of high fishing pressure, and also by incentives to marketing and improved procedures for processing the caught fish in zones of underdeveloped market to provide for sustainable economic fishing, limited by conservation requirements and limited natural production. The state should resolve the issue of the institutional status of fishermen entrepreneurs in order to enable social protection. It is necessary through initial state regulation and market mechanisms to increase the productivity of aqua-culture in order to achieve competitiveness in fish production in the region.

The achievement of the desired sectoral objectives would have positive social effects, as these activities at present do not employ nearly as many people as would be optimal in terms of sustainable use of resources. Support to rural and regional development on the basis of well-designed investment programs in these activities would soon yield positive economic, social and other effects. Special emphasis needs to be placed on the potential of forestry in terms of the implementation of the flexible mechanisms of the Kyoto Protocol.

3.6. Transport

Despite the doubtless advantages of the geographical position of Serbia, transport, as an activity, is characterized more by weaknesses and problems than by positive economic effects and comparative advantages in comparison to the region.



Source: Environmental Protection Agency, 2007.

Figure 27. Development of transport

The data regarding the length of the road network in Serbia is conflicting: according to the information from the Reference Road System of the Republic of Serbia and the official statistics, the length of the road network is 38,300 km of roads; according to the information from the Public Company “Serbian Roads” (Transport Directorate) the length of the road network ranges from 40,700 to 42,900 km; and according to the information from the World Bank document the length of the road network in Serbia is 49,800 km. The data varies mainly due to unclear regulations in defining the road network, inconsistent categorization of roads and weaknesses in legalization of road construction, and should be changed by more accurate regulation, new categorization of the road network resulting from the Law on Public Roads (“Official Gazette RS” Nr. 111/05) and updating the new inventory of roads which also needs to be done as soon as possible.

The network of railroads in the Republic of Serbia is more than a century old (the first railroad in Serbia started operation in 1884), and more than 55% of all railroads were constructed in the 19th century. The total length of the railroads in Serbia is 3,809 km, and of that number 1,768 km are main lines. Electric drive railroads represent 1,247 km (32.7%), and 7% of railroads or 276 km are two-track railroads. About 25% of main railroads in the rail network of Serbia are within the Basic Network of Corridor X and its branches Xb and Xc.

The basic components of the inland waterways in Serbia consist of the Danube, Sava and Tisa rivers, and the network of inland canals of the hydro-system Danube-Tisa-Danube, with a total length of navigable inland waterways of about 1,677 km. The conditions of navigation differ, and vessels of a bearing capacity of up to 1,500 t can navigate a total length of 993 km, while vessels with a capacity up to 650 t can navigate 1,360 km.

Serbia has four registered civilian airports: Belgrade, Niš, Vršac and Bor, but due to technical conditions and equipment, only the Belgrade and Niš airports are open for international flights. The number of passengers at Belgrade Airport in 2004 was 2,05 million (its capacity is 5.6 million passengers annually) and it served about 16,000 aircraft. The same year, Niš airport served 18,350 passengers and 175 aircraft.

The state of transport infrastructure was aggravated during the last ten years due to lack of maintenance. The main problems are: the transport infrastructure on EU corridors is not harmonized and is not finalized or equipped with modern technical systems; lack of bypass roads around cities in Serbia, and especially around Belgrade; lack of funding for the development of infrastructure; centralized management of the transport infrastructure; inadequate systems of public transport of passengers and goods; lack of a strategy of development of the transport sector; an inadequate legislative framework in road transport; inadequate maintenance and control of technical features of vehicles in transport and bad quality of fuel; excessive air pollution originating from transport.

The existing practice of transport safety does not enable adequate collection, processing and access to data that could be the basis for evaluation of socio-economic costs resulting from traffic accidents. Instead, such statistics are estimated using models developed for other countries. Research indicates that the Republic of Serbia has annual losses equal to 1.71% of its GDP as a result of traffic accidents. According to the Report on capacities for traffic safety management in Serbia, and according to the methodology used in the WB document, these costs are estimated at as high as 2.3% of GDP.

Priority includes the development of a comprehensive transport IT system, institutional strengthening of transport systems management in line with EU guidelines, providing stable sources of financing for reconstruction, rehabilitation, maintenance and building of infrastructure, and modernization of the technical basis of all forms of transport.

Sectoral objectives of sustainable development in the transport sector include:

- Reducing the share of transport in air pollution and noise emission by improving quality of fuel and vehicles and by reducing the use of fossil fuels;
- Including Serbia in the trans-European network with increased transport safety;
- Increasing the quality of transport services and services by transport infrastructure;
- Increasing the share of intra-modal transport in the total transport of goods by increased use of inland waterways and railroad transport by 25% in comparison to 2005;
- Establishing a unified system of passenger transport adjusted to passenger needs at regional level in the Republic of Serbia;
- Strengthening external aspects of the market – transit transport, export and import of goods and services;
- Elaborate in more detail the above objectives through Transport Development Strategy of the Republic of Serbia

A thorough restructuring of public enterprises is of special significance for further development of the transport sector in Serbia; primarily this refers to railroad and air transport. At present, these companies, burdened by an extremely bad financial situation and many years of operating with losses, are not capable with their own resources of achieving much needed modernization, nor of achieving environmental standards in compliance with EU standards. It is also necessary to finalize the transformation of the inland waterways transport through continued privatization and modernization. In terms of road transport, it is necessary to continue modernization and reconstruction of infrastructure, and also to create institutional and legislative frameworks for opening up this sector to international competition in all modes.

It is necessary to develop intra-modal transport and stimulate more intensive use of railroads and especially inland waterways. It is also necessary to attract international transport flows and use the navigation potential of the Danube. The achievement of such measures would have positive effects on the development and implementation of local IT technologies, increased employment and improved international economic competitiveness. It would also have positive effects on other service sectors.

3.7. Tourism

According to the existing statistics, the tourism sector has a share of 2.5% in GDP and a share of 5-6% in total employment in the Republic of Serbia. Surveys indicate that the average hotel in Serbia is 42 years old, has 105 rooms and was last partly renovated 13 years ago. During 2004, the average Serbian hotel generated about EUR 8,000 total revenue per room, while the international standard for the same average category is 2.5 times higher. Bearing in mind the actual economic potential for the development of tourism in Serbia, by 2015, the number of overnight stays should be close to 20 million (half of this by foreign tourists) and total revenues from tourism should be up to EUR 1.5 billion. The Strategy of Tourism Development in the Republic of Serbia until 2015 has identified the structure of future tourism clusters which would make the tourism offer more recognizable. These include: Belgrade, Vojvodina, western Serbia and eastern Serbia. This structure is based on the experiences of economic development and characteristic potentials for tourism development, and not on administrative division. The tourism sector has a great interest in preserving and enhancing the quality of the environment as a healthy environment is a very important factor for successful tourism development.

The main tourism activities in Serbia include tourism in major cities, spa tourism, the cultural and natural heritage, hunting, fishing, village tourism and river tourism. Negative environmental impacts of tourism include pressure on natural resources, biodiversity and habitats, waste generation and pollution. Unsustainable tourism development could lead to the same forms of pollution as any other industry: emissions in the air, noise, waste, waste water discharge, discharge of oil and chemicals, even architectural/scenic pollution. Timely planning of tourism may prevent damage and expensive mistakes and avoid gradual degradation of natural assets significant for tourism. The current negative environmental impact of tourism activities is caused by weak implementation of planning and construction regulations, lack of infrastructure for waste water treatment and uncontrolled waste disposal, and inefficient management of protected natural assets.

The **objectives** of sustainable development in tourism include:

- Improving accommodation capacities; develop the quality assurance system in tourism and consumer protection systems;
- Develop an IT system for tourism (tourist information centres, leaflets, image, positioning, etc.);
- Develop additional tourism supply with cost-effective operation and potential for local development (trade, gastronomy, hospitality services, travel agencies, etc.), generating new employment accompanied by maximum preservation of cultural heritage and natural diversity;
- Identify and remove current and potential conflicts between tourism and other activities related to the use of resources.

The tourism sector is widely recognized as a sector that has potential, and this is reflected in the fact that there is a vertical institutional structure for tourism development. Apart from the Ministry of the Economy and Regional Development, which is in charge of tourism development, there is the Tourist Organization of Serbia and a network of tourist organizations in municipalities. The Law on Tourism sets out the establishment of the Tourism Development Agency, which should provide an adequate framework for the implementation of the Tourism Development Strategy. The Ministry of Agriculture, Water Management and Forestry also has a role to play in developing tourism, as within its competences for rural development it has programs supporting diversification of the rural economy through the development of the agro and rural tourism farm holdings. This is basically the development of the national market, but virtually it is a form of export of agro products and is of special importance for rural areas where, due to natural and scenic limitations, agriculture can not be the only factor of rural development without endangering the environment.

The achievement of objectives and the implementation of planned activities will be an impulse to the development of areas outside the major cities and towns, better spatial distribution of population and an improved social situation generally.

3.8. Introducing cleaner production

One of the activities which is related to all economic sectors and activities and which brings together the sectoral objectives and priority actions is the introduction of cleaner production, in compliance with internationally recognized instruments, namely IPPC, BAT, BEP, BATNEEC, EIA, LCA. This activity is closely linked to more efficient use of production factors, reduced energy intensity and raw materials intensity, development and implementation of industrial waste management systems, especially in terms of hazardous waste. It is clear that Serbia cannot ensure competitive advantages in the international market either through cheap labour or through the abundance of natural resources. Natural resources, both in terms of their structure and in terms of quality, cannot meet the growing needs of dynamic development. There is not, nor can there be an abundance of cheap labour. It is therefore necessary to identify new generators of economic growth and social progress. One of these generators refers to materialized knowledge and the high quality of human capital, another is doubtless the selection and use of efficient technology which minimizes the pressures on natural resources and the environment. Other problems include: lack of the identified strategic goal of introducing cleaner production; non-harmonized legislation and lack of implementation of existing environmental management regulation; lack of regulation setting out in more detail the status issues relevant to the introduction of cleaner production (subsidies, tax, customs and other incentives); unsatisfactory control of efficiency in using raw materials, production and products; lack of an inventory of polluters; lack of national BREF-s (BAT Reference Documents); lack of elaborated mechanisms to resolve the issues of past pollution during privatization; inefficient system of financing and stimulating the economy to introduce cleaner production and environmental management systems (EMS); lack of investments for infrastructure; lack of adequate statistical monitoring of polluters; technologic inferiority of industry; lack of adequate accredited laboratories for full plant parameters testing; lack of information and low awareness among polluters of environmental protection issues.

General priority programs and activities in the field of introducing cleaner production include:

- Amending the existing and adopting new regulation to promote cleaner production and harmonization with EU legislation;
- Introducing and/or enhancing efficient, sustainable and cleaner production and more efficient use of energy;
- Building a cleaner production infrastructure – implementing investment projects in research (studies and development research and building of industrial plants), development of industrial-technological parks, clusters, innovation centres and incubators;
- Establishing waste management systems, with special emphasis on minimizing waste generation and use of waste as secondary raw materials and an energy source;
- Accelerating the process of restructuring and privatization;
- Reconstructing and improving the existing technological processes accompanied by harmonization with relevant BAT-s;
- Improving environmental management systems in enterprises (EMS);
- Education in the field of environmental protection, implementation of cleaner technologies, energy efficiency.

The priority should be assigned to the adoption of regulations on the basis of the Law on Environmental Protection (“Official Gazette RS”, Nr. 606/91, 83/92, 53/93, 67/93, 48/94, 53/95, and 135/04) relevant to: environmental quality standards and emission standards; environmental protection management systems; environmental labels; import and export of ozone depleting substances; import, export and transit of waste; hazardous waste management; monitoring, IT systems and an integral inventory of polluters, introducing economic incentives (charges for the use of natural resources, pollution charges).

It is necessary to strengthen the Centre for Cleaner Production to implement cleaner production projects and provide assistance to industry. It is necessary to accredit a laboratory in compliance with JUS ISO/IEC 17025. Economic instruments needed for promotion of cleaner production are: charges for pollution and emissions by polluters; subsidies for research and development, subsidies for research-development projects aimed at the use of renewable energy and raw material sources, financial support for transfer of knowledge and technology already existing in the region, tax incentives for equipment manufacturers, subsidies for equipment of and accreditation of the laboratory and creating conditions for implementation of control measures, long-term loans under favourable conditions for organization and improvement of production, introducing EMS, the existing customs incentives relevant to the import of needed equipment and materials, tax incentives for potential foreign investors; promoting through soft loans the producers of energy and energy sources from renewable sources, a privileged position of small energy generators from renewable sources, accelerated and simplified procedures for construction and commissioning of this type of plant; incentives to enterprises to use cleaner production; establishing tax incentives, subsidized prices of products produced in companies with documented cleaner production and those who meet the criteria for environmental labelling, subsidies for energy sources originating from renewable sources, introducing green and white certificates in the generation and use of energy, subsidizing the costs of vehicle registration, road tolls and parking for those who use fuels from renewable energy sources, subsidizing producers who have introduced EMS.

The achievement of the objectives of introducing cleaner production will improve the competitiveness of the economy, promote the development of a “knowledge based economy” and increase the overall welfare of the society.

VI. THE INSTITUTIONAL FRAMEWORK

Institutional mechanisms for the implementation of the National Sustainable Development Strategy depend very much on the specific features of the constitutional set-up of each individual country. Mechanisms for implementation may differ, but the dedication of the government and political support are always imperative. It is necessary that the responsibility for the coordination and implementation of the Strategy should rest with the Office for Sustainable Development. Implementation also depends on all the stakeholders, and their participation in the preparation and implementation of the Strategy.

The major challenges recognized in other countries were connected to steering the process in the right direction. Namely, excessive institutional and procedural arrangements may also have an impact on the success in implementation of the Strategy, just as may their absence. Many countries have been creative in establishing new institutions, but the barriers that occurred lessened their effectiveness. That is why a high level participation of key ministries and strong political support for the necessary strategic reforms is much needed although in practice it is often lacking.

The ministries do not always have a complete or identical understanding of the process of sustainable development. It is therefore the task of the Office for Sustainable Development to look at all issues broadly and comprehensively. It is very important that all costs/benefits for the society resulting from the implementation of the process of sustainable development be clearly expressed and citizens properly informed about them, which would enable decision-makers to make adequate decisions to the benefit of the society as a whole.

To achieve the said objectives it is necessary to build a modern and efficient public administration, or a system of institutions which together lead to sustainable development. Improved cooperation, coordination and consultations among the sectors, as well as among public administration and the private and civil society sectors is a pre-requisite for the achievement of sustainable development. Without strong, qualified and stable institutions it will not be possible to achieve the desired long-term results of sustainable development relevant to a better quality of life and living standards, and reduction of poverty. Building an efficient institutional structure at all levels is a key condition for the achievement of the objectives of sustainable development.

Coordination in the process of implementation of the National Sustainable Development Strategy through inter-sectoral cooperation is the task of the Office for Sustainable Development. The Office for Sustainable Development is in charge of preparing decisions and coordinating the work of the Council for Sustainable Development. The Office for Sustainable Development is responsible to the government for its work

The Council for Sustainable Development is an inter-ministerial body made up of ministers in charge of environmental protection, the economy and regional

development, finance, labour and social policy, telecommunications and IT society and science, and other ministers of the relevant ministries of the Republic of Serbia.

The Office for Sustainable Development, on behalf of the government, is to provide for the monitoring and coordination in implementing the Action Plan for implementation of the Strategy. A mechanism needs to be established which will improve the monitoring and assessment of Strategy implementation. The Office for Sustainable Development can monitor the achievement of national MDGs and of indicators of achievement of objectives of the Poverty Reduction Strategy.

The Office for Sustainable Development should perform the technical, administrative and operational tasks relevant to coordination between relevant ministries, special organizations and services of the government that are relevant to implementing the National Sustainable Development Strategy. The Office for Sustainable Development is responsible, on behalf of the government, to implement the Strategy, implement projects and activities stated in the Action plan and to monitor the achievement of the objectives of sustainable development, to coordinate the inter-sectoral groups and cooperation of authorities in promoting and monitoring the implementation of sustainable development, to inform the public and promote activities in the process of achieving sustainable development.

For the Agency for sustainable development to be operational, apart from the existing institutions such as the Environmental Protection Agency, the Energy Efficiency Agency, the Public Health Institute of Serbia, the Republic Hydro Meteorological Institute (RHMI), the Republic Office of Statistics, the Republic Institute for Development, the Institute for Nature Protection, the Centre for Cleaner Production and the National Centre for Climate change, recently established within the RHMI with the intention of transforming it into a sub-regional centre for climate change for SE Europe, it is necessary to establish and further support new national laboratories and centres. Primarily, these include national laboratories for water and air, for soil and mineral resources and for food safety. It is expected that other new institutions will be established which would, apart from their basic functions, be in charge of monitoring a certain group of indicators of sustainable development. For instance, it is expected that a National Housing Agency, a Tourism Development Agency and national offices and laboratories for tobacco control will be established as well.

The priority task of the new institutions would be to monitor the situation in specific areas, collect and process data regarding the status of specific natural resources, and monitor the achievement of sustainable development indicators. They would be the accredited, only authorized institutions to provide information from within their own competences. The results of their work would be universally accessible, subject to any check by the professional and general public, and their credibility and reliability would have to be beyond doubt. Only on the basis of information from such institutions is it possible to manage sustainable development policy transparently and efficiently.

Apart from the said institutions, other institutions important for the implementation of the Strategy are: The Office for EU Accession, the Agency for Privatization, the Energy Agency, the National Employment Service, the Institute for Intellectual Property, the National Institute for IT and the Internet, the Agency for SMEs, the Broadcasting Agency, the Competition Agency, the Commission for Securities, the National Education Council, representative trade unions and

representative associations of employers, consumers, pensioners and other non-governmental organizations.

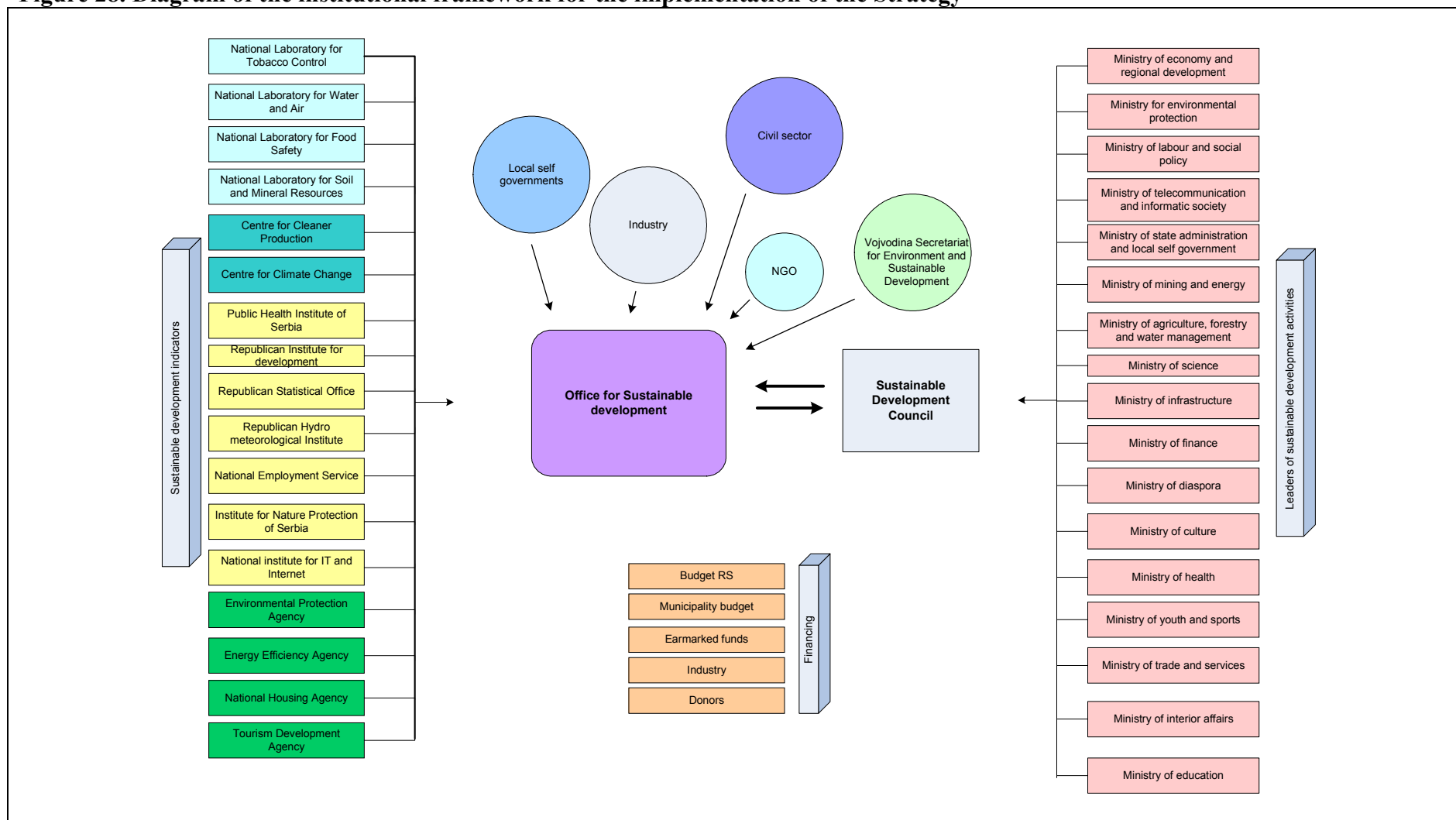
The process of sustainable development is expected to be financed using funds from the national budget of Serbia, municipal budgets, ear-marked funds, such as the Fund for Development and the Environmental Protection Fund, donations and, mostly, funds from the economy.

The government should begin to plan a budget which will support strategic development priorities, and ensure a greater level of coordination among individual sectors in implementing the Strategy, in order to ensure that budget resources are used efficiently. The government also needs to ear-mark an increasing portion of the budget for sustainable development in order to provide additional funds for the implementation of the Action Plan for the implementation of the Strategy, through mechanisms such as public-private partnerships, cooperation with the donor community and others.

The ministries of the Republic of Serbia, within their jurisdictions, the Secretariats at the provincial level, and other bodies of the public administration and local government, are key actors in sustainable development and will participate in the implementation of the Sustainable Development Strategy. The Office for Sustainable Development is to provide an efficient monitoring instrument for the process and for the achievement of priorities. A major role in achieving the Strategy objectives is the role of local communities, civil society, non-governmental organizations and citizens, who are to participate in the exchange of information and locate activities where they are most needed.

Figure 28. A schematic presentation of the institutional framework for the implementation of the Strategy

Figure 28. Diagram of the institutional framework for the implementation of the Strategy



VII. FINANCING THE STRATEGY

Of key importance for the successful implementation of the Strategy, apart from building institutional capacity, is the establishment of an efficient system of financing.

The sources of financing are:

- The Republic budget and the budgets of local governments;
- Ear-marked funds from various funds of the Republic of Serbia;
- Funds provided by the economy;
- Donor programmes of assistance and loans from international financial institutions.

The period of 2001-2005 witnessed a high level of real growth in GDP at an average annual rate of 5.4%. 2004 saw the highest GDP growth rate of 8.4% based on industrial growth, growth of agricultural production and a significant share of the service sector, especially PTT and telecommunications as well as trade and retail. GDP also continued to grow at a significant rate in 2007. In order for Serbia to achieve the goals and objectives identified by the Strategy it is necessary to work seriously towards achieving the projected GDP.

Significant progress has been made in respect of the standard of living. There has been a significant real growth of average net earnings from EUR 102 in 2001 to EUR 430 in 2007, and an increase of average pensions from EUR 69 in 2001 to EUR 185 in 2007. Total employment decreased in 2002 and 2003 as a result of privatization and restructuring of enterprises, while in 2004 and 2005 there was a moderate increase of employment by 0.5% and 0.9% respectively, primarily in small and medium sized enterprises. Further reforms are needed in the social sector to achieve the set goals.

1. Funding for 2008.

Considerable funds were invested in sustainable development even before the development of the National Sustainable Development Strategy began. Many of the investments included in the NIP (National Investment Plan) for 2008 comply with the objectives of the National Sustainable Development Strategy. The NIP for 2008 provided more than RSD 5 billion, or about 11% of the total NIP funds for 2008, for investments to procure capital assets for scientific-research activities, investments in educational institutions, different investments in healthcare, social housing, introduction of e-government, and the like.

Funds from EU IPA (instruments of pre-accession assistance) are, to a large degree, also directed to sustainable development. This refers specifically to projects intended for refugees and displaced persons, projects of regional and local development, healthcare reform, emission of gases from the power plant “Nikola Tesla”, etc. Total funds directed to sustainable development from IPA 2007 amount to EUR 71 million, which is about 40% of all funds from IPA programs.

Also, considerable funds appropriated to individual ministries are also directed to sustainable development. This refers primarily to funds made available to the Ministry for Environmental Protection, the Ministry of Education, the Ministry of Science, the Ministry of the Economy and Regional Development, the Ministry of Agriculture, Forestry and Water Management, and the Ministry of Health.

Despite the efforts that are already directed to achieving sustainable development, it is certain that the achievement of objectives identified in the Strategy requires additional funds. This is substantiated, on the one side, by assessments made by the relevant institutions regarding the quality of education, environmental protection, etc., and, on the other side, by the assessment of the current expenditures for sustainable development, which are significantly lower than in other comparable countries¹.

2. Funding for the period from 2009-2011

The assessment of funds needed for the implementation of the Strategy is divided into two parts. As a period of 10 years is too long for accurate forecasting of expenditure, and in order to make projections in line with the time frames of the existing strategic documents², the first part covers funds for the first three years of the period of implementation of the Strategy (2009 – 2011). The second part refers to the expected increase of funds for sustainable development over the ten-year period of implementation of the Strategy expressed as percentage shares of GDP. The accurate assessment of funds needed for the implementation of the Strategy will be identified in the Action Plan accompanying the Strategy.

The first assessment of funds started from the approximate value of priority projects which are expected to be implemented over the said three-year period. With certain approximations, the expenditures needed for all three pillars of sustainable development have been expressed.

Several major projects aimed at sustainable development are planned to be implemented from 2009 to 2011. Table 6 presents these projects by the three pillars of sustainable development and presents the total estimated additional funds aimed at sustainable development over the next three years. These funds will be provided from the national budget, the budgets of local self-governments, and also from donations and ear-marked funds.

¹ Countries of the EU and of the region.

² The Memorandum of the Budget and Economic and Fiscal Policy, Poverty Reduction Strategy, etc.

Table 6. Priority projects and projections of additional funds for their implementation, 2009-2011

Pillar of sustainable development	Priority programs	EUR million			% GDP		
		2009	2010	2011	2009	2010	2011
Knowledge-based sustainability	Enhance quality of education as a factor of sustainable development, modernize the education process, acquisition of competences necessary for the knowledge-based economy, improve conditions for scientific-research work ...	50	75	100	0.15	0.21	0.26
Social-economic conditions and perspectives	Develop a network of social services (for children, youth, the old, persons in need of care), ensure full coverage and easy access for all socially vulnerable groups of the population, develop regional labour markets, social marginalization of vulnerable groups (ethnic communities, refugees, IDPs, women, the old, persons with disabilities) ...	80	100	120	0.24	0.28	0.31
Environment and natural resources	Reduce pollution, desulphurization of fuel gases from PP Kostolac, PP Nikola Tesla B, removal of ash from PP Nikola Tesla A, energy efficiency (households and industry), waste management (regional landfills, packaging waste), harmonization of industrial plants with environmental standards, clean-up of contaminated sites	200	300	400	0.61	0.84	1.02
Total		330	475	620	1.01	1.33	1.59

The sustainable knowledge-based economy (the first pillar of the Strategy) requires, first of all, increased quality of education. The planned programs for increasing the quality of education are aimed at achieving higher productivity (effectiveness) of education at all levels. Such modernization of education in Serbia requires additional investments in the education system over the next three years. Some of the major items include: equipping educational institutions – schools and faculties (about EUR 60 million over the three-year period), continued teacher qualification (about EUR 12 million over the three year period), establishing an efficient system to monitor the outcomes of the educational process (about EUR 5 million over the same period), developing new programs, textbooks, teaching aids (about EUR 3 million), development of extension services in agriculture (funds planned from the World Bank loan).

A knowledge-based economy will also require investment over the next three years to increase the quality of scientific-research work, implying primarily: rationalization of the network of scientific-research organizations, harmonizing the standards of scientific-research work with the standards prevailing in the EU, increasing the applicability of the results of scientific-research work in the economy, engaging new, young researchers, and the like. To implement these programs it is necessary to provide additional funds to reform the existing system, equip the scientific-research organizations, improve the financial status of researchers, etc. Investments needed for scientific-research work over the next three years are estimated at about EUR 70 million.

Other programs directed at a sustainable knowledge-based economy include the introduction of e-government, first at national and then at local level, increasing the level of IT literacy of the working population, etc. Total estimated investments

over the next three years in order to steer the national economy towards a knowledge-based economy, including expenditures for increasing the level of education and modernization of scientific-research work, amount to about EUR 250 million (Table 6.).

In the context of investments in improving socio-economic conditions and perspectives, there are also several different aspects of investments. These include a program ensuring full coverage and easy access to education for all vulnerable population groups. This program is to include two components. The first refers to achieving full coverage of children from vulnerable population groups and the support necessary in order for them to remain in the education system, and the second refers to establishing a system for those without qualifications to complete primary education and acquire training. Investments needed over the next three years for these programs include: increasing the network of pre-school institutions (about EUR 60 million), assistance to children from vulnerable population groups in education – free meals, free textbooks, extended mentoring assistance, scholarships (total about EUR 125 million), establishing an agency for accreditation of training programs for those without qualifications (EUR 3 million), vouchers for attendance of training (about EUR 70 million), developing training programs and campaigns (about EUR 4 million).

Other programs relevant to improving the social-economic conditions and perspectives include: developing a network of social services for children, adolescents, the old, persons in need of care, etc., which are to be organized at local level with the financial assistance of the government and donors, inclusive education of persons with disabilities – creating conditions for normal education, creating conditions for free movement, access to higher education, adjusting the literature, etc., social inclusion of marginalized groups (ethnic communities, refugees, internally displaced persons, women, the old, persons with disabilities). Sources of funding of these activities include the republic budget, budgets of local self-governments, and donor funds, and the total expenditures under these programs amount to about EUR 50 million over the three-year period.

Total investments in improving socio-economic conditions and perspectives over the next three years are estimated at about EUR 300 million. As the Budget Memorandum declares the intention to reduce expenditures for social protection, it is necessary to re-appropriate the use of budget funds, and at the same time work actively towards providing donor funds. It is worthwhile noting here that the National Poverty Reduction Strategy is currently being implemented, which covers many of the objectives of sustainable development and identifies the expenditures for implementation.

In the area of environmental protection, priority projects over the next three years include: the energy sector – reducing pollution, desulphurization of fuel gases from the power plant Kostolac (about EUR 130 million), the power plant Nikola Tesla B (about EUR 250 million); ash removal from power plant Nikola Tesla A (EUR 40 million), increasing the energy efficiency of industry and households (EUR 50 million); waste management (about EUR 200 million)³, clean-up of contaminated

³ The highest investments in the area of waste management will be the construction of sanitary landfills (EUR 60 million), expenditures for operation of sanitary landfills (EUR 30 million) and rehabilitation of existing dumpsites (EUR 15 million). There are also plans for investments in plants for composting

sites and other environmental black spots such as the “Veliki Bački kanal” watercourse and the like (about EUR 250 million).

Sources of funding for the above projects include the national budget and budgets of local self-governments, the Environmental Protection Fund and donor funds. For most of the said projects, there are already plans in place, and the National Sustainable Development Strategy identifies the strategic framework within which they are to be implemented and become priorities.

3. Funding for the period from 2009-2017

The assessment of the investments needed for the implementation of the Strategy over the mid-term and the long-term is based on the future appropriation of funds for sustainable development as a share of GDP, and the difference compared to the current appropriations. These future appropriations of GDP are projected based on the recommendations of the relevant institutions and comparative experience from the countries of Central Europe, which have already successfully implemented sustainable development programmes. Additional funds will be needed to cover the implementation of the Strategy, over and above the current investment in education, road building and environmental protection. In these areas the currently appropriated funds are not sufficient to achieve the standards identified in the Strategy, and the estimated expenditure represents the shortfall between the current and the needed investments.

Current investments in many key aspects of sustainable development, as a share of GDP, are very low (education, environmental protection, research and development, etc.). This implies that the achievement of desired standards requires a very high level of investment. In projecting the time period in which the objectives identified in the Strategy will be achieved, the need to maintain macroeconomic stability was always borne in mind, as were the potential to absorb funds, and the need to prevent the investments directed to sustainable development to be reflected in actual reduction of investments for other budget beneficiaries.

Investments in environmental protection are ranked number one. On the one side, many international obligations which refer to the environment have been made and are yet to be undertaken, and on the other an inactive approach with the already high economic growth will increase future investments in environmental protection significantly.

The current level of environmental expenditure in Serbia is low (in the period 2001-2005 about 0.3% of GDP, and the projections for 2006-2008 are 0.4% of GDP; while the reviewed Memorandum of the Budget and Economic and Fiscal Policy is 0.4% of GDP in 2008), and financing by industry and the private sector is insufficient. The environmental expenditure of new EU member states from Central Europe during the period of accession was between 1.5% and 2.5% of GDP. The system of economic incentives is still insufficiently developed and does not provide sufficient incentives to reduce pollution. Such a situation is not sustainable. Economic growth must be adjusted to investment in cleaner production, energy efficiency, reduced emissions and environmental protection; in short, it is necessary to adjust to international

of organic waste. Investments in recycling and composting over the next three years are estimated at EUR 60 million, and operating costs at EUR 35 million.

environmental standards, as otherwise the degradation and the damage to the environment will lead to increasing economic losses. It is necessary to include the cost of using natural resources in the costs of production. Implementation of the well known and accepted principles “polluter pays”, “user pays” and “projected whole life cycle of products” mean that the price of a product internalizes the external costs, or costs of production, use and disposal.

It is projected that by 2014, environmental expenditure will reach 1.5% of DGP, while the targeted environmental expenditures of 2.5% of GDP are projected to be achieved in 2017. The difference between the current 0.4% of GDP and the projected expenditures over the ten-year period in fact represents the additional funds for the implementation of the Strategy, or public investment in sustainable development.

In the field of environmental protection, in parallel to the increase of environmental expenditure, the implementation of the Strategy will also bring about a multiple increase of revenues through the efficient implementation of the „user/polluter pays“ principle, and a considerable portion of expenditures for environmental protection is under the control of public companies which are to provide additional funds. It is estimated that about 70% of the expenditure for environmental protection will come from own sources (the additional budget revenues –“polluter pays” principle, and the funds of public companies).

The greatest gaps between the economy as identified in the vision of Serbia in 2017 and the current economy of Serbia are in the area of the knowledge-based economy. That is why the funds needed to achieve the standards are the highest in this area. A knowledge-based economy relies primarily on human, but also on material resources which are currently lacking in Serbia. Increasing the share of highly qualified human resources in the overall structure of the labour market, increasing the quality of education and scientific-research work, will require major appropriations from the budget. Expenditures for education need to be program oriented, and also include investment in equipment, rather than the current practice of relying on increasing salaries to employees in these activities.

In 2007, the overall investments in education in Serbia represented a share of about 4.2% of GDP⁴, which is significantly lower than the comparable investments in the countries of the region⁵. The standard share of these expenditures in OECD countries is 6%. In order to achieve sustainable education, Serbia needs to increase the GDP share of expenditure on education to at least 6% of its GDP. Apart from providing these funds, another challenge is how to apply them effectively. Several studies have indicated that higher investments in education need not necessarily correspond to the quality of education. In assessing the funds needed, and bearing in mind the current low level of investment in education, the engagement of funds from regular budget revenues (environmental protection will be funded primarily from own funds) and the somewhat lower absorption capacity of the education system, the achievement of the 6% target of share of education in the GDP is planned no sooner than 2017.

⁴ Source: Memorandum of the Budget and Economic and Fiscal Policy for 2008, with projections for 2009 and 2010.

⁵ In Bulgaria 4.5% of GDP and in Hungary 5.5%.

Investment in research and development, as the second foundation stone of a knowledge-based economy, is at an inadequately low level in Serbia. The country has inherited a highly centralized model of funding scientific units, not based on scientific-technological efficiency and market results, but rather on social and other criteria.

There are major differences in the level of expenditure on research and development among the countries in the region, countries of Eastern Europe and countries that have knowledge-based economies⁶. The share of state funds in these investments also varies. The 2000 Lisbon Strategy of the EU established a standard of expenditures for research and development at 3% of GDP, of which 2/3 are private investments, and this has been accepted as the target that Serbia will achieve in 2017.

Applying the same principle to implementing the social aspects of the Strategy, it has been noticed that in the structure of GDP and the national budget, in 2007 with the share of social protection at 15% of GDP and for healthcare at 6.4% of GDP, these shares are already at a high level, and that the Strategy objectives are to be achieved primarily through the reform of the system (pension, healthcare), and not through additional mid-term investment. This does not mean that the implementation of the Strategy will not include expenditure on a number of programs in these areas, but it implies that the funds for their implementation will be provided primarily through a more efficient use of the available funds. Expenditure on the implementation of the social aspects of the Strategy will be identified in more detail in the Action Plan.

Figure 29 represents the level of additional funds that need to be directed to sustainable development as a share of GDP in the period 2008 – 2017 in order to achieve the Strategy objectives. It presents separately the funds from own sources of funding because certain Strategy objectives also include considerable revenues.

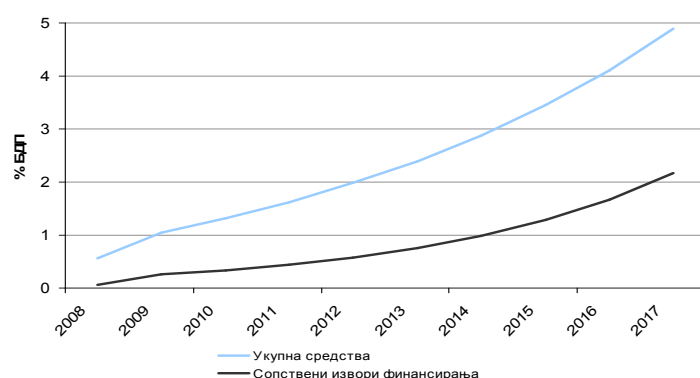


Figure 29. The time frame of increasing expenditure on sustainable development as a share of GDP, 2008-2011.

The time frame of financing the Strategy implies a gradual increase in funds, which is in line with the need to maintain macroeconomic stability, real financing potential, and the ability to absorb the funds. Figure 29 also shows that the share of expenditure on sustainable development from own sources increases (44% of funds from own sources in 2014, compared to the share of 24% in 2009.). This will ensure the

⁶ Countries like Bulgaria, Malta, and Turkey invest about 0.5% of GDP, Estonia, Croatia and Spain about 1% of GDP. In the US, the expenditures for research and development are 2.6% of GDP, in Japan 3.2%, and the leaders are Sweden and Finland with about 3.7%.

sustainability of achieving the Strategy objectives after the Strategy implementation period as well.

From 2009 until 2013 the program of support to rural development will include support to sustainable development of rural areas with a series of measures to be funded from IPARD (Instrument for pre-accession assistance for rural development). It is estimated that these funds will exceed EUR 35 million.

VIII. MONITORING THE IMPLEMENTATION OF THE STRATEGY

Implementing the Strategy is the key process which follows after the adoption of the Strategy. Of crucial significance is the development of the Action Plan for the implementation of the Strategy, political support and the dedication of the government, provided funding, monitoring and review. The National Action Plan for Sustainable Development is the key mechanism for the implementation of the Strategy. The Action Plan elaborates the activities involved.

In order to monitor the measures undertaken, a set of internationally determined indicators of sustainable development has been selected. Institutional responsibility for reporting on progress made in implementing the Strategy lies with the Office for Sustainable Development and the inter-ministerial working groups. Progress reports are made once a year and are based on sustainable development indicators.

1. Sustainable development indicators

Indicators are very important for successful evaluation of the activities undertaken to implement the Strategy. The selection of indicators reflects the link with the key proposed instruments. To be internationally comparable, the selected indicators have been harmonized with the new, reviewed list of UN sustainable development indicators also including the indicators for the Millennium Development Goals. All indicators are gender sensitive.

Table 7. Sustainable development indicators

Topics	Areas	Key indicators	Definition of indicator and unit	Institution in charge of monitoring the indicator
Poverty	Lack of income	Percentage of population under the national poverty line	Definition: share of the population with living standards below the national poverty line Unit: % of the poor compared to total population	Statistical Office of the Republic of Serbia (DEVINFO database, Living standards survey-LSS)
		Ratio of average salaries of women and men	Definition: relation of average salaries paid to employed women and men for regular work Unit: % of average salary of women compared to average salary of men	Statistical Office of the Republic of Serbia
	Inequality	Indicator of inequality (GINI ration)	Definition: a collective measure 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 absolute inequality in which all income and property belong to one person only)	Statistical Office of the Republic of Serbia
		HDI – Human development index	Definition: a standard 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	Statistical Office of the Republic of Serbia
		Index of regional inequality in human development	Definition: the 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	Statistical Office of the Republic of Serbia

	Assistance to the poor	Population covered by programs of state aid and support	Definition: structure and coverage of populations with social transfers in the system of social protection Unit: % of beneficiaries compared to the number of the poor or of the total population	Statistical Office of the Republic of Serbia Ministry of Labor and Social Policy
	Living conditions	Percentage of built social housing units relative to the total number of finished housing units	Definition: number of housing units built with the support of budget funds for households who can not resolve their housing need on the market compared to the total number of housing units built Unit: %	The National Housing Agency
Governance	Corruption	CPI – Corruption perception index	Definition: index of corruption of public servants and politicians, calculated by the methodology of Transparency International Unit: Non-dimensional index in the range from 1 to 10; 1 indicates greatest corruption, 10 indicates that there is no corruption	Transparency International
		Degree of general trust of citizens	Definition: Index of generalized trust of citizens according to WVS methodology, five-year monitoring Unit: %	Institute of Social Sciences, as an appendix to the World Value Survey (World Statistical Office)
	Crime	Number of recorded criminal acts of violence per a population of 100,000	Definition: total number of criminal acts recorded in police statistics, irrespective of type Unit: number of cases recorded in the police /100,000 inhabitants per year	Ministry of the Interior
	Efficiency of public administration	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	Institute for IT and Internet
Health	Mortality	Mortality rate of children under the age of 5	Definition: mortality of children under the age of 5 per 1,000 newly born Unit: per 1,000 newly born	Public Health Institute of Republic of Serbia

		Life expectancy in good health	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	Public Health Institute of Republic of Serbia
		Years of life 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	Public Health Institute of Republic of Serbia
	Provision of health care	Percentage of population with access to primary health care	Definition: share of population who have access to primary health care Unit: %.	Public Health Institute of Republic of Serbia
		Percentage of women who use one of the modern methods of birth control	Definition: share of women of reproductive age using any form of birth control Unit: %	Public Health Institute of Republic of Serbia
	Health status and risks	Prevalence of smoking in 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 before the survey, among adolescents aged 13-15 Unit: %	Public Health Institute of Republic of Serbia National office for Control of Tobacco
		Prevalence of smoking in adults aged above 20	Definition: prevalence of smokers (including cigarettes, cigars, pipe, or other tobacco product). Smokers include daily, irregular and intermittent users of tobacco Unit: %	Public Health Institute of Republic of Serbia National office for Control of Tobacco
		Number of suicides	Definition: number of registered cases of suicide with resulting death per 100,000 inhabitants Unit: number of cases registered by the police /100,000 inhabitants, annually	Ministry of the Interior

Education	Level of education	Percentage of the population with higher education	Definition: share of active population (aged 25-64) with university education Unit: %	Statistical Office of the Republic of Serbia
	Literacy	Adult literacy ration	Definition: share of population aged above 15 that is literate Unit: %	Statistical Office of the Republic of Serbia
	Level of education of the population	Rate of enrollment in primary and secondary schools	Definition: systematic rate of enrolment in primary and secondary schools Unit: % of enrolled compared to the total potential number of those who could enrol	Ministry of Education
Population	Population	Rate of increase of the total population	Definition: average annual rate of change in the population number in a given period Unit: %	Statistical Office of the Republic of Serbia
		Total fertility rate	Definition: the average number of children that would be born per woman if all women lived to the end of their reproductive years and give birth according to the birth rate for a specific region and period Unit: %	Statistical Office of the Republic of Serbia
		Dependency rate of old population	Definition: the share of dependent population aged 0-14 and over 65 relative to the total population Unit: %	Statistical Office of the Republic of Serbia
		Indicators of internal migrations of the population	Definition: regional distribution of population and movement between censuses in order to identify regions with greatest outflow or inflow of population Unit: population balance between two population censuses	Statistical Office of the Republic of Serbia
	Tourism	Tourism density in major tourist regions and destinations	Definition: the ration of number of tourists and population Unit: %	Statistical Office of the Republic of Serbia Tourism Development Agency

Economic development	Macro-economic performances	GDP per capita	Definition: levels of GDP per capita as the ratio of annual or periodical GDP measured by purchasing power parity and number of population Unit: USD	Statistical Office of the Republic of Serbia
		Share of investments in GDP	Definition: share of gross and net investments relative to GDP, expressed as ratio of gross productive investments (depreciation and accumulation) and GDP measured by purchasing power parity Unit: %	Statistical Office of the Republic of Serbia
		Internal and foreign debt	Definition: annually monitored data on trends 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	Statistical Office of the Republic of Serbia Ministry of Finance NBS
		Consumer prices index	Definition: monthly retail price indexes used to analyze sustainability of the present state or the need to undertake measures for stabilization of macroeconomic trends Unit: monthly consumer price index	Statistical Office of the Republic of Serbia Ministry of Trade and Services
	Employment	Unemployment rate	Definition: share of actually unemployed relative to the total active population Unit: %	Statistical Office of the Republic of Serbia The National Employment Service
		Employment rate	Definition: share of employed in the total number of active population Unit: %	Statistical Office of the Republic of Serbia The National Employment Service
		Unemployment rate for women	Definition: share of actually unemployed women relative to the total active population Unit: %	Statistical Office of the Republic of Serbia The National Employment Service

		Unemployment rate of persons below 28	Definition: share of the young aged under 28 relative to total labour force (active population) Unit: %	Statistical Office of the Republic of Serbia The National Employment Service
		Trends of unemployment by regions	Definition: A special problem is the extremely high unemployment in the most underdeveloped 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 in underdeveloped regions.	Statistical Office of the Republic of Serbia
	Information and communication technologies	Number of active users of Internet 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	Statistical Office of the Republic of Serbia The National Telecommunications Agency Ministry for telecommunications and IT
		Number of mobile telephony subscribers per 100 inhabitants	Definition: relation of the number of operative telephone numbers and the total population Unit: %	Statistical Office of the Republic of Serbia The National Telecommunications Agency
	Research and development	Expenditures for Rand D as a share of GDP	Definition: total national expenditures for scientific research and experimental development, expressed as a share of GDP Unit: %.	Statistical Office of the Republic of Serbia The Republican Institute for Development

Global economic partnership	Trade	Trade deficit	Definition: the difference between the value of exported goods and services and the value of imported goods and services Unit: USD	Statistical Office of the Republic of Serbia
	External financing	ODA as a share of GDP	Definition: total ODA provided, as a share of GDP Unit: %	Statistical Office of the Republic of Serbia
Consumption and production	Establishing a balance of current production and consumption	Ratio of current production and consumption	Definition: there is a need to monitor continually the trends of current consumption and adjust it to achieved results in production. Unit: balance of production and consumption (relation between generated GDP and total consumption, increased consumption only in line with increased productivity of labour)	Statistical Office of the Republic of Serbia The Ministry of Finance
	Energy consumption	Energy consumption per capita	Definition: quantity of energy (oil, coal, gas and electricity) per capita available for the given year Unit: GJ/per capita or ton of equivalent oil per capita	Ministry of Mining and Energy
		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	Ministry of Mining and Energy
		Share of energy from renewable sources in total energy generation	Definition: share of energy generated from renewable sources in total generation of energy Unit: %	Ministry of Mining and Energy
	Waste generation and management	Waste generation	Definition: annual quantity of industrial and municipal solid waste generated in production and consumption Unit: t/per capita, t/1000\$ GDP	The Environmental Protection Agency
		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	The Environmental Protection Agency

		Quantity of waste undergoing treatment	Definition: share of waste undergoing recycling, composting, incineration Unit: %	The Environmental Protection Agency
	Transport	Energy intensity of transport	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 generate din transport Unit: MJ/t/km for cargo, MJ/passenger/km for passengers, USD /1000\$ GDP	Statistical Office of the Republic of Serbia
Natural disasters	Sensitivity to natural disasters	Number of death cases from natural or technological disasters	Definition: share of population casualties of natural (floods, draughts, earthquakes, land slides) and technological disasters (traffic accidents, chemical incidents, fires) Unit: %	The Environmental Protection Agency
		Percentage of population living in naturally risky areas	Definition: share of population living in regions with a risk of flooding, earthquake, land slides, etc. Unit: %	The Environmental Protection Agency
Atmosphere	Climate change	Emission of CO ₂ per capita	Definition: total quantity of CO ₂ emitted to the atmosphere in the national territory, originating from human activity (production and consumption), relative to the number of population Unit: t CO ₂ per capita	National Laboratory for Air and Water Centre for Climate Change The Environmental Protection Agency
		Emission of greenhouse gases	Definition: anthropogenic emissions of greenhouse gases (CO ₂ , CH ₄ , N ₂ O, HFC, PFC, SF ₆ , CFC and HCFC), less losses, together with indirect greenhouse gases (NO _x , CO and VOC excluding methane). Unit: annual emission of greenhouse gases in Gg or Gg/per capita and Gg/1000\$ GDP. Emissions of CH ₄ , N ₂ O, HFCs, PFC and SF ₆ can be calculated into CO ₂ equivalent using the 100 year potential of global heating	National Laboratory for Air and Water Centre for Climate Change The Environmental Protection Agency

	Ozone layer depletion	Consumption of substances depleting the ozone layer	Definition: quantity of ozone layer depleting substances, eliminated according to the Montreal protocol Unit: t/per capita, t/1000\$ GDP	National Laboratory for Air and Water Centre for Climate Change The Environmental Protection Agency
	Air quality	Ambient air concentrations of pollutants in urban areas	Definition: ambient air concentrations of air pollution with ozone, CO, suspended matter, SO ₂ , NO _x , VOC including benzene and lead Unit: µg/m ³ , ppm or ppb; or share of days when limits are exceeded	National Laboratory for Air and Water The Environmental Protection Agency
Soil	Land use and status	Changes in land use	Definition: share of changes of land use over a period of time Unit: %	National Laboratory for Soil and Natural Resources The Environmental Protection Agency
		Degradation of soil	Definition: changes in the nature of resources depending on the type and geographical location, including: physical state of the soil; diversity and density of vegetation; depth of surface layer, salinity and alkalinity, etc. Unit: ha (the size of the region and intensity of changes with deterioration or improvement of the situation)	National Laboratory for Soil and Natural Resources The Environmental Protection Agency
	Desertification	Soil degraded through draught	Definition: measure of the size of land affected by draught and its share in the national territory Unit: area (ha) or % of land affected by draught	National Laboratory for Soil and Natural Resources The Environmental Protection Agency
	Agriculture	Share of standing crops in the structure of total worked and	Definition: land under standing crops is land under crops that occupy the land over a longer period and need not be planted every time after every harvest Unit: 1000 ha	National Laboratory for Soil and Natural Resources The Environmental Protection Agency

		Use of mineral fertilizers	Definition: the degree of use of fertilizers in farming per unit of area of agricultural land Unit: kg/ha	National Laboratory for Soil and Natural Resources The Environmental Protection Agency
		Use of pesticides	Definition: use of pesticides per unit of agricultural land Unit: t active substances per 10 km ² of agricultural land	National Laboratory for Soil and Natural Resources The Environmental Protection Agency
	Forests	Share of forest land in the total territory	Definition: share of natural and planted forest land cared for over a period of time in the overall land fund Unit: %	National Laboratory for Soil and Natural Resources The Environmental Protection Agency
	Fishing	Annual quantifies fished for 5 most widely present species of fish	Definition: Annual quantifies fished for 5 most widely present species of fish relative to annual maximum quantity Unit: t	Statistical Office of the Republic of Serbia The Environmental Protection Agency
Water	Quantity of water	Annual quantity of water intake from ground and surface sources, in absolute terms and as a share of total renewable quantity of water	Definition: total annual quantity taken for ground or surface sources as a share of total annual renewable drinking water Unit: m ³ , %	National Laboratory for Air and Water The Environmental Protection Agency
		Water consumption by sectors	Definition: share of used taken water by sectors (households, industry, agriculture) Unit: % of the total water taken from sources	National Laboratory for Air and Water The Environmental Protection Agency
	Quality of water	Presence of coliform 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: %	National Laboratory for Air and Water The Environmental Protection Agency

		BOD in water courses	Definition: quantity of oxygen needed or used for microbial degradation (oxidation) of organic matter in water Unit: mg/l oxygen used in 5 days at constant temperature of 20°C.	National Laboratory for Air and Water The Environmental Protection Agency
		Percentage of waste waters which undergo treatment	Definition: share of waste water undergoing some sort of treatment Unit: %	National Laboratory for Air and Water The Environmental Protection Agency
Biodiversity	Eco-systems	Share of protected areas relative to total territory	Definition: the area of protected eco-systems on land or in inland waters, expressed as a share of total area of the eco-system Unit: %.	Institute for Nature Protection of Serbia The Environmental Protection Agency
		Surfaces under selected key eco-systems	Definition: assessment of trends in existing areas of identified key eco-systems, in order to assess effectiveness of measures for protection of biodiversity at the level of eco-system and as a tool to assess the need for special measures of protection in order to preserve biodiversity Unit: area (km ² or ha) of selected types of eco-systems	Institute for Nature Protection of Serbia The Environmental Protection Agency
		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 % 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	Institute for Nature Protection of Serbia The Environmental Protection Agency

	Species	Changes in the status of endangered species	Definition: assessment of trends of numbers of certain species, in order to evaluate changes in biodiversity and relative effectiveness of measures for preservation of biodiversity Unit: number of adult units per area	Institute for Nature Protection of Serbia The Environmental Protection Agency
		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: %	Institute for Nature Protection of Serbia The Environmental Protection Agency

IX. PUBLISHING THE STRATEGY

The strategy is to be published in “The Official Gazette of the Republic of Serbia”.

Number:
Belgrade,

GOVERNMENT

VICE-PRESIDENT