
**NATIONAL SUSTAINABLE DEVELOPMENT
STRATEGY**

- second draft -

Belgrade, September 2007

LIST OF ABBREVIATIONS AND ACRONYMS

ASEAN – Association of South European and Asian countries
BAT – best available technology
BATNEEC – best available technologies not entailing excessive costs
BEP – best environmental practice
GDP – gross domestic product
CITES – Convention on International Trade in Endangered Species of Wild Fauna and Flora
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
EU – European Union
GMO – genetically modified organisms
HACCP – food safety standards: Hazard Analysis Critical Control Points
IBA - international bird area
ICT – information and communication technologies
IPA – international areas of significance for plants
IPPC – Integrated Pollution Prevention and Control
LCA – lyfe cycle analysis
MOP – material provisioning for the family
SME – small and medium enterprises
SHP – small hydro power generating plants
NAFTA – North Americal Free Trade Agreement
NGO – non-government organizations
OECD – Organization for Economic Cooperation and Development
RES – renewable energy sources
ODA – Official Development Assistance
PPP – Purchasing Power Parity
PPP – Public Private Partnership
SIDA – Sweedish International Development Agency
SWOT – strengths, weaknesses, opportunities and threats analysis
WHO – World Health Organization
toe – tons of oil equivalent
UN – United Nations
UNDP – United Nations Development Program
| UNFCCC – United Nations Framework Convention on Clim~~a~~te Change
USD – US dollar

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1. INTRODUCTION

The modern world is faced with the challenge of global, shared responsibility for development tuned to the needs of people and of nature, as well as with the understanding that the planet Earth must be adequately preserved equally for the present and for the future generations. There are strong ethical reasons for the present generation to meet own needs without compromising the development opportunities of the future generations. This reasoning is based on the fundamental principle of moral justice that all people have equal rights and broadest freedoms provided that they do not contradict the freedom of others. The right of the present generation to use resources and to enjoy a healthy environment must not compromise the same rights of future generations.

National Sustainable Development Strategy defines sustainable development as targets-oriented, long-term (continuous), comprehensive and synergetic process with impacts on all aspects of life (economic, social, environmental and institutional) at all levels. Sustainable development is focused on developing models which provide quality response to social-economic needs and interests of citizens, and at the same time eliminating or significantly reducing impacts which are a threat or damage to the environment and natural resources. The long-term concept of sustainable development implies continued economic growth, but such growth that brings with it not only economic efficiency and technological progress, but also a higher share of cleaner technologies and innovation in the society as a whole and corporate social responsibility, enabling poverty reduction, long-term better use of resources, improved health and quality of life and pollution reduced to the carrying capacity of the environment, prevention of future pollution and preservation of bio-diversity. One of the most significant objectives of sustainable development is generating new employment and reducing unemployment rates, as well as reducing gender and other inequalities, promoting employment of the young and the disabled and persons from marginalized groups.

Sustainable development implies also the need to harmonize the different aspects of development and the contradictory motifs included in individual sectoral programmes. Effective resolution of such conflicts requires a certain level of political will and dedication. Key pre-requisites for the acceptance and adoption of 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, dedication of the government and public support are the most direct factors of success. One of the features of sustainable development is greater public participation in environmental decision-making. Adequate public participation means more than declarative will expressed by the government but also special incentives, above all prompt information and education so that the public is in a position to objectively influence the outcomes that it is interested in achieving.

The objective of the National Sustainable Development Strategy of the Republic of Serbia is to establish a balance between the three key factors, or three pillars, of sustainable development: *sustainable economic growth* and *economic and technological progress*, *sustainable social development*, based on social balance, *environmental protection* accompanied with reasonable use of natural resources, embracing them in one whole supported by an adequate institutional framework. The Serbian National Sustainable Development Strategy makes a significant contribution

to harmonizing possible conflicting 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 a broad participation of all key stakeholders.

Figure 1 presents a scheme of the Serbian National Sustainable Development Strategy, while Figure 2 illustrates the functional links between Strategy components.

Figure 1. Scheme of the Serbian National Sustainable Development Strategy

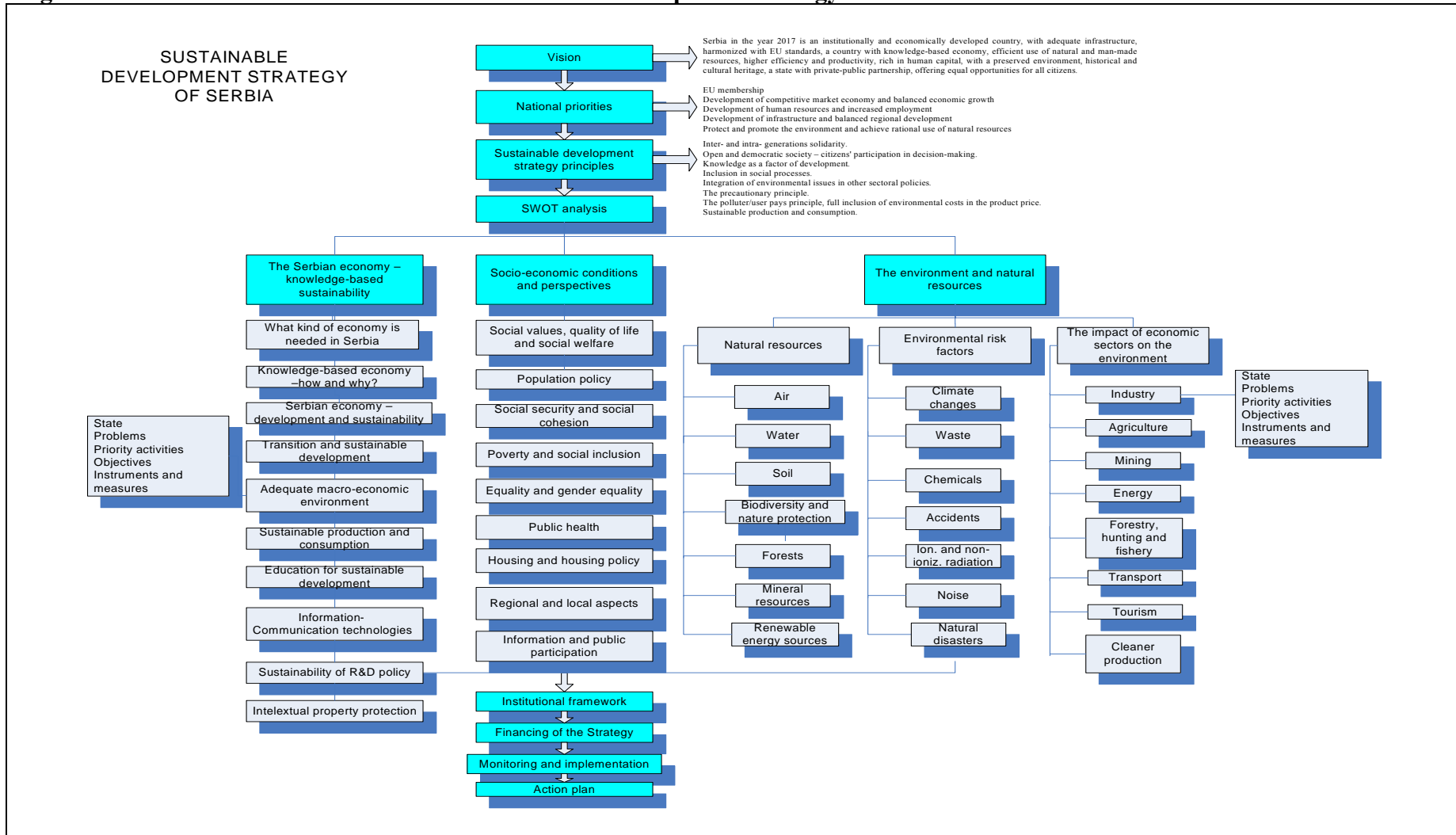
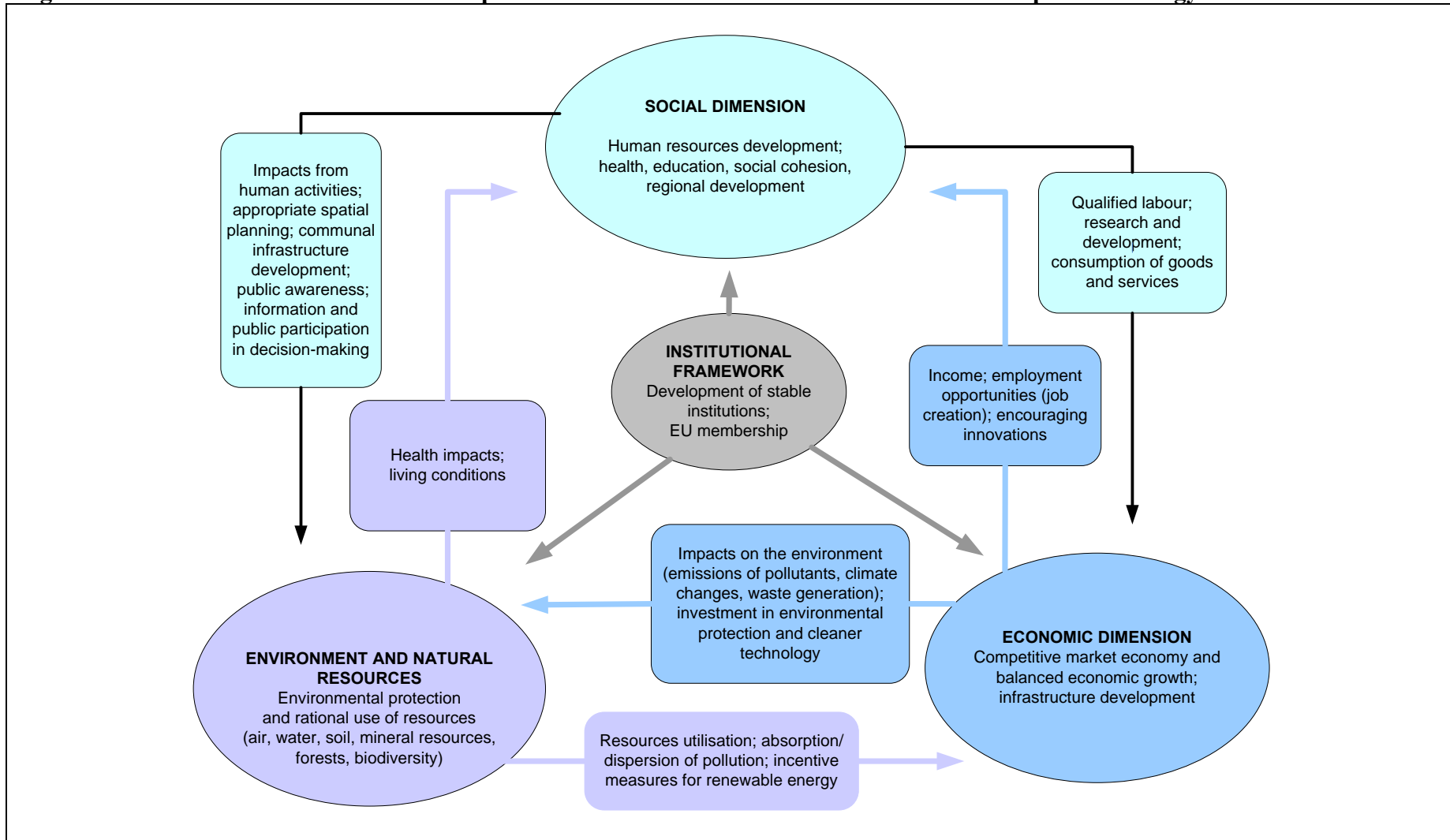


Figure 2. Functional links between the components of the Serbian National Sustainable Development Strategy



2. LINKS WITH OTHER RELEVANT STRATEGIES

The solutions contained in the Serbian National Sustainable Development Strategy are based on EU integrations: the EU Sustainable Development Strategy, adopted in 2001 and reviewed in 2006, and the EU Lisbon Strategy. The Serbian Sustainable Development Strategy is harmonized with the UN Millennium Development Goals and the National MDGs for Serbia as adopted by the Government of the Republic of Serbia in 2006.

The Serbian Sustainable Development Strategy is being adopted in a period in which 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 Serbian Sustainable Development 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*, the *Poverty Reduction Strategy*, *The Serbian Strategy of Economic Development 2006–2012* and the *Draft National Environmental Strategy*.

The National Strategy of Serbia for the Accession of Serbia and Montenegro to the European Union (adopted in 2005) is among the strategic documents with impact on the overall national policy in the future and is of major importance for the policy of sustainable development. The Poverty Reduction Strategy (adopted in 2003) is a mid-term development framework aimed at reducing key forms of poverty and it includes the analysis of samples, characteristics and profiles of poverty in Serbia, as well as major strategic directions for social development and reducing the number of the poor in the forthcoming years. The actions included in the Poverty Reduction Strategy are aimed at economic development and growth, prevention of new poverty due to the restructuring of the economy and the care for traditionally poor groups. The National Strategy of Economic Development of the Republic of Serbia 2006–2012 (adopted in 2006) identifies the basic development priorities of Serbia and the means of achieving them with solutions based on efficient market economy and increased competitiveness. The Draft National Environmental Strategy (which is in the process of adoption) is the fundamental strategic document for environmental protection in Serbia which identifies the key environmental policy objectives as short-term policy objectives (2007-2011), on-going policy objectives (2007–2016) and long-term policies and instruments (2012-2016) for the achievement of the identified policy objectives.

The Serbian Sustainable Development Strategy is also harmonized with the existing sectoral strategies:

- National Employment Strategy;
- Serbian Strategy of Energy Sector Development until 2015;
- Serbian Strategy of Agriculture Development;
- Tourism Development Strategy;
- Strategy of Promoting and Developing Foreign Investments;
- Serbian Strategy of IT Society Development;
- National Strategy for Refugees and Internally Displaced Persons;
- Public Administration Reform Strategy;
- Social Protection Development Strategy;

- National Anti-Corruption Strategy;
- Local Sustainable Development Strategy;
- Strategy for SMEs and entrepreneurship;
- Health Care System Reform Strategy – Better Health for All in the Third Millennium;
- Forestry Development Strategy;
- Water Management Policy of Serbia 2002-2012.;
- National Waste Management Strategy;
- National Action Plan for Children;
- National Strategy Against HIV/AIDS;
- Strategy for Integration and Empowerment of Roma;
- Vocational Education Development Strategy;
- Adult Education Development Strategy;
- Regional Development Strategy and Action Plan;
- Strategy for Empowerment of People with Disabilities in the Republic of Serbia.

3. THE METHODOLOGY OF THE STRATEGY DEVELOPMENT

The project of preparation of the Sustainable Development Strategy of the Republic of Serbia 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. Project implementation started in July 2005 through cooperation of the Office of the Deputy Prime-Minister of the Republic of Serbia, United Nations Development Program (UNDP) and the Swedish International Development Agency (SIDA). The fundamental aim of the project is to produce, through a broadly participatory process, the Sustainable Development Strategy of the Republic of Serbia as a comprehensive strategic framework document of the Government, harmonized with the existing strategic framework.

During the process of Strategy development, the used methodology has been presented to and verified by the professional international public.

In compliance with international practice, the Strategy development process was implemented as a participatory process with the engagement of a great number of stakeholders from across the 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 process of developing the Sustainable Development Strategy was established through cooperation and interaction of numerous relevant institutions and stakeholders from across the Serbian society, with the doubtless leading role of the Government of the Republic of Serbia.

One of the major strongholds in the process of strategy development was relying on the academic community, in order to avoid possible politization and linking the successful development (and implementation) of the Strategy to any individual political option. Successful management of the strategy development process required from the very beginning a high level of political sensitivity and skills in searching for generally acceptable solutions in situations when numerous stakeholders have different, and often contradicting, attitudes on key components of the Strategy. It was also necessary to provide for continuity under the 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, having in mind the fact that sustainable development is a long process, longer than the term in office of any government.

The inception stage in the strategy development process included, most of all, presenting to the numerous stakeholders, individuals and institutions, the original idea and concept of the Strategy. The starting point in strategy development was to start from the existing adopted strategic documents and build upon them a concept of sustainable development which would bring together in a synergetic manner all three pillars – economic, social and environmental. In order to achieve this, the first step was the analysis of the existing sectoral and inter-sectoral strategies which provided guidelines on further strategy development process. Two more working documents resulted from the 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 the invitations sent by the Office of the Deputy Prime-Minister to participate in the strategy development process. The working groups, three pillars of the project, correspond to the three components of sustainable development – knowledge-based economy, social issues and the environment. An invitation was sent to all non-government organizations to take part in the strategy development process and among them, in cooperation with the biggest NGO networks, a group of nine NGOs most active in the area of sustainable development were chosen to participate in the strategy development process.

The strategy development process started by the National Conference on Sustainable Development in March 2006, with the task, through public participation and consultations with stakeholders and institutions, to identify the vision of Serbia in 2017 and to present the priority topics of individual pillars of the Strategy. The Conference was attended by 130 participants – representatives of numerous institutions of the Government, 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 Sustainable Development Strategy is based.

Each working group analyzed the current status for the achievement of sustainable development for each of the priority topics, identified the key challenges and the desired status. At the same time, the working groups contributed by steering the priorities and identifying the strategic objectives of sustainable development, and means and instruments 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 financing plan for the implementation of the Strategy provides rough estimates of funding needed to implement the priority measures resulting from the Strategy. This will enable the identified activities to be included in the long-term budget planning in Serbia and will be the basis for loans or donor activities. Detailed action plans for the implementation of the Strategy will steer the actions and measures needed to achieve the identified objectives.

In the preparation of thematic components for the development of the Strategy numerous experts participated whose expertise corresponded to the identified topics. The participatory and interactive process, and the participation of a great number of stakeholders, the general public and the authorities, was a major challenge in the

strategy development process. It was necessary to build the feeling of ownership and dedication to the Strategy which resulted from the participation of a great number of stakeholders: experts, representatives of institutions, relevant ministries, the civil society, local government, the private sector, NGOs, etc. From September 2006 to February 2007 the working groups held several group meetings in order to identify the elements for the building of the Strategy and identify scenarios in order to provide a platform for a broad participatory process.

As already stated, the process also needed political support because the Government is the major change agent and factor of the development of the country. The newly elected Government or more specifically the Office of the Deputy Prime-Minister, in May 2007 continued the cooperation with UNDP and SIDA in order to finalize the Elements for the Sustainable Development Strategy. Through the political leadership of the process from the Office of the Deputy Prime-Minister the process, after the confirmation of national priorities, led to the first draft of the Strategy. A public debate was also initiated in many cities and towns around Serbia. The process 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 and that only if accompanied by continued monitoring of the achievement of the Strategy and its timely review will it be possible to achieve success and progress.

4. THE VISION OF SERBIA

Serbia in the year 2017 is an institutionally and economically developed country, with adequate infrastructure, harmonized with EU standards, a country with knowledge-based economy, efficient use of natural and man-made resources, higher efficiency and productivity, rich in human capital, with a preserved environment, historical and cultural heritage, a state with private-public partnership, offering equal opportunities for all citizens.

Such a vision resulted from the strategic objectives of sustainable development based on the thorough analysis of the recognized potentials of Serbia, as well as conditions and limitations within which the development objectives are to be achieved. The achievement of such a vision is possible through a consistent implementation of fundamental, strategic and consistent objectives based on the needs of citizens of Serbia to achieve a higher quality of life and living standard. The social consensus implies that all levels of government recognize their respective roles in the achievement of the vision and that all together they 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. In order to achieve them, the Strategy proposes development instruments and actions. Strategic and sectoral objectives, priority actions and development instruments are presented in the chapters that follow.

5. NATIONAL PRIORITIES

The Serbian Sustainable Development Strategy is created at the time when certain national development strategies relevant to this document are already adopted or are prepared: *National Strategy of Serbia for the Accession of Serbia and Montenegro to the European Union*, *Poverty Reduction Strategy*, *Serbian Strategy of Economic Development 2006–2012* and the *Draft National Environmental Strategy*, as well as the already adopted sectoral strategies.

The prospects for the achievement of sustainable development of 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 of the EU.

The key *national priorities* of Serbia whose achievement shall most contribute to achieving the vision of Serbia by 2017 are the following:

▪ **Priority 1: EU membership**

In order to achieve its fundamental strategic-political aspiration – EU integration, accession and then membership in the EU – Serbia has to fulfill numerous, complex and inter-related conditions that the EU formulated more than a decade ago, through:

- Developing stable institutions guaranteeing democracy, rule of law and respect and protection of human and minority rights;
- Developing market economy capable of withstanding the pressure of competition within the EU;
- Harmonization with the EU *acquis* and undertaking obligations resulting from membership.

▪ **Priority 2: Development of 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 through:

- Improving conditions to attract foreign direct investments;
- Macroeconomic stability and increased exports;
- Development of small and medium enterprises;
- Finalizing privatization;
- Providing for safe energy supply with increased energy efficiency of actors in the energy sector and improving energy efficiency of the economy;
- Promoting innovations and entrepreneurship;
- Promoting IT society.

▪ **Priority 3: Development of human resources and increased employment**

Generating increased new employment, attracting experts, enhancing the quality and adjustability of the labor force, increasing investment in human resources through:

- Preventing the expert-drain by providing better working conditions;
- Enhancing the adjustability of labor and achieving greater flexibility of the labour market;
- Investing in the development of human resources through high-quality and efficient education and continual education;
- Social inclusion and promotion of employment of the young;
- Investing in public health.

▪ **Priority 4: Development of infrastructure and balanced regional development**

Enhancing the attractiveness of the country, providing adequate quality and levels of services through:

- Increasing and enhancing transport infrastructure;
- Developing public utilities infrastructure (water supply, waste water treatment, waste management);
- Reducing regional disbalances 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;
- Adequate use of space, as a critical resource for regional development;
- Sustainable development of energy infrastructure in line with the expected dynamic economic growth.

▪ **Priority 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 through:

- 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 intensity of the Serbian economy and provide 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.

6. THE PRINCIPLES OF THE SUSTAINABLE DEVELOPMENT

STRATEGY

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

- **Inter- and intra- generations 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.
- **Open and democratic society – public participation in decision-making.** Guarantee civil rights, provide access to information and ensure access to justice. Provide adequate consultations and participation of citizens in decision-making. Protect the stability of democratic institutions based on peace, security and freedom.
- **Knowledge as a factor of development.** Promote 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.
- **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.
- **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.
- **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.
- **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.
- **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 so that economic growth does not cause a proportional increase in environmental degradation.

7. SWOT ANALYSIS

The SWOT analysis presents the strengths, weaknesses, opportunities and threats for sustainable development in 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.

<p>Strengths</p> <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; ▪ Increase of the private sector; ▪ Establishment of trust at regional level in increased reputation of Serbia in the region; ▪ Increased awareness of the need to plan sustainable development at local level; ▪ Reduced current disbalances 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. 	<p>Weaknesses</p> <ul style="list-style-type: none"> ▪ Insufficient level of public trust in institutions; ▪ Strong differences in regional development; ▪ Slow privatization; ▪ Insufficient level of „greenfield“ 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; ▪ Unfavorable 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.
<p>Opportunities</p> <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 	<p>Threats</p> <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; ▪ Unfavorable demographic trends;

reforms; ▪ Increasing PPP; ▪ Introducing the concept of cleaner production; ▪ Increasing energy efficiency and rational use of raw materials.	▪ 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 for infrastructure; ▪ Starting industrial production with obsolete technologies (creating a «heaven for polluters»); ▪ Increased level of transport using bad quality fuels.
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8. SERBIAN ECONOMY – KNOWLEDGE-BASED SUSTAINABILITY

Introductory remarks

The current Serbian economy functions on the basis of a still unfavorable economic structure with the given natural and financial resources, technology and the human capital. All of these resources are relatively weak. A part of the limitations results from the weak natural, technological and financial basis. Serbia with its population of 7.5 million and the gross domestic product of about USD 30 billion is not a country of a 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, etc.) aspects of development *it could significantly improve its relatively weak position* compared to other reference transition countries, especially those of SE Europe. Such progress in the forthcoming stage of development of the Serbian society, state and economy should not be short-lived or with unpredictable consequences. This means that present day Serbia strongly needs sustainable economic development based on the increase of the group of key economic indicators (increase of GDP, employment, foreign trade, competitiveness and exports, investments, living standard of citizens) accompanied with a reduced burden of foreign debt and accompanied by achieving lasting macroeconomic stability, better quality of life, better state of the environment and general social welfare.

In general terms, sustainable economic development should enable for Serbia a continued long-term economic growth which would not be based on excessive use of natural resources nor on unacceptable environmental impacts which would question its sustainability, and which would not 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 factors such as knowledge, information, human capital, education and quality of links between the people and the institutions.

Pre-conditions

After the year 2000, fundamental rules applicable in the world of market economy, rule of law and political democracy have been established in Serbia. These rules, however, are still not predominant in the real economic, social and political life. Many economic trends, related to the current excessive consumption, insufficient investments, increasing imports, increasing national and foreign debt, unemployment,

(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 behavior of business entities and citizens in the market, and in the process of economic reforms (before the authorities, courts of justice and police) is not always in line with the needs of the community. The economic system that has been established after the first stage of institutional economic reforms is not sufficiently stable or sustainable. There are bad signals about the local economic environment in terms of lack of implementation of laws, inadequate respect for property rights, contractual obligations, avoidance of taxes and lack of financial discipline, absence of social dialogue and the unfavorable response of labour and unions to economic reforms, problems regarding bad privatization, mass corruption and the still present organized economic crime.

8.1. 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. Namely, the earlier concept of development theories based on «natural» limitations and potentials of achieving high growth rates over a long period of time, at the beginning of the last decade of the preceding century there appeared the currently prevailing concept of development – the concept of sustainable development. The theoretical basis for the concept of sustainable development comes from the change towards the development concept based on a new theory of growth, with materialized knowledge and a complex of scientific-technological development in the centre of the impetus 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 national economy, the focus is on the speed of creating innovations and the ability of an economy to translate the acquired theoretical knowledge into inventions and new technologies. The old notion of wealth was measured in physical terms and by financial capital, 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 use the human capital.

The 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 for a very long time marginalized, excluded from the flows of information and knowledge, and with the lapse of time the missed opportunities will become increasingly difficult to make up for.

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 centers;
- *The liberalization of movement of goods and capital* in the global scene under the pressure of the most powerful world economies, maintaining at the same time the restrictions for the free movement of labors;
- *The harmonization, coordination and regionalization of economic policies* of countries members of different economic-political groups, such as the EU, ASEAN, NAFTA, etc.

Such a scenario of the development of 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 the most developed countries and regions of the world. The developments in the sectors of IT technologies, production and 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 of networking and building links between the movements of goods and especially capital, which until recently were quite beyond imagination. Instead of natural resources, arable land, mineral resources and available capital, the dominant development resources of modern economy practically all over the world are applied knowledge, education and science.

Serbia today is not in a position to choose whether it wants to join the world of globalized economies and new technologies and to 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 input invested.

Therefore the choice of Serbia today is to opt for a knowledge-based economy which will dominate its economic activity in the 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 the incentives of the state.

The promotion of the factor of knowledge as a factor contributing to the development of the economy and society in Serbia comes also from 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:

- *Knowledge-based economy, as a dominant quality of the strategic development process;*
- *The structure and quality of sustainable economy and economic system;*
- *The manner of achieving and finalizing the 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 enhancing of IC technologies;*
- *Sustainable scientific-technological policy and system;*
- *Protection and enhancement of intellectual property.*

8.2. 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 of today's world which does not have a specific policy or strategy to promote knowledge-based economy.

The European Union, after a series of sporadic mentioning of the significance of knowledge-based economy, already in 2000, in the „*Lisbon Strategy*” 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 history of economy in most known civilizations was based first of all on the concept of the agrarian society in which the role of natural factors and physical labor was strong and dominant. In industrial societies, whether dominated by processing or trading activity, the dominant factor of production was real and financial capital (money, industrial plant, energy), with a still strong role of physical and current labor and natural resources.

However, in parallel with the technological development, the share of physical labor, natural and financial resources is declining. During the 20th century this was the reason for the introduced concept of „post-industrial society“, „information society“ or the so-called „weightless economy“ dominated by non-material factors. In a society with knowledge-based economy, in which knowledge is the dominant anchor and the dominant comparative advantage, the main factor of production moves to the complex of non-material factors (such as information, knowledge, skills) 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 expansion of the third sector, both in the market and in total employment or revenue generation, contributes to the development of knowledge-based economy. Namely the expansion of the services 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 the rapid drop in their prices with time, this in its way opens up possibilities for their use by a practically unlimited number of users around the world.

However, knowledge and information today do not have the role only in the most dynamic and most productive sectors of the economy. Agriculture and industry in the modern world depend increasingly on research, use of information, 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 processing industry) towards the tertiary sector (dominated by services) brings about increased welfare, and increased production, employment and living standard. Due to the increase of productivity caused by technological progress and increased quality of

human capital, it is not acceptable for a modern knowledge-based economy to have greatest employment in agriculture and industry, but rather 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 of 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 information and knowledge there are organizational and institutional changes in the form, size, structure and functioning of companies. As a result of this, 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.

Companies today are increasingly dependant on applying science, or systematized knowledge and its interaction. 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.

Knowledge, however, can be more or less economically efficient. Problems with efficient use of knowledge occur as a consequence of the fact that a significant part of knowledge is seen as *public knowledge*. Such knowledge includes for instance the multiplication tables, almost all formulae, algorithms and classifications, different knowledge in biology, mathematics, chemistry, and physics. Other knowledge is private knowledge.

The important thing in this, from the economic point of view, is the following:

- First, it is good for the society and economy that knowledge as public good is *used as broadly and as easily* in the interest of general progress, to be more broadly and easily accessible to all potential users;
- Second, other (private) knowledge, or knowledge *as a private good* should be efficiently *protected* as intellectual property in order to achieve its comparative advantage on the market and generate profit for its owner.

The use of private knowledge is conditioned on adequate payment for its use. Without it, investors would have no interest to invest in generating new knowledge and inventions.

There are different kinds of knowledge, depending whether they answer the questions: „what”, „why”, „how” or „who”. To make efficient economic use of knowledge requires subjective and organizational capacities of the user (individual or company) and adequate institutional environment, such as laws and their implementation, state institutions and the non-government sector. The quality of such 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 knowledge-based economy at the national level, it is not sufficient to achieve the effects of market valuation of new production factors and have spontaneous restructuring of the economy in the direction of greater domination of the sector 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 (PCs, bio-technologies, pharmacology, etc.);
- Adequate scientific-technological national policy;
- Adequate management of economic changes in line with the changes in the world and the direct neighborhood;
- Selection of macroeconomic policy, system and structural economic solutions;
- Telecommunications, use of PC and other technical devices;
- Protection of property rights and especially intellectual property rights.

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

8.3. Serbian economy – development and sustainability

The economic development of Serbia during the last decade of the preceding century was under a strong influence of 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 a stagnation of the services sector. A significant portion of economic activity moved into the „grey zone“. The period between 2001-2006 saw an accelerated recovery of the economy and achievement of relatively high GDP growth rates, accompanied however with slower changes of its 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.

In the manner of using the GDP since 2001, despite the improvements compared to the previous practice, there are trends of dominating personal and collective consumption, and insufficient investment in the needs of the society. This leads to an inadequate distribution of the GDP and slows down economic growth and technological development as well as the share of investments in the appropriation of the GDP. Official data regarding the share of investments in GDP are not sufficiently reliable (primarily due to incomplete recording of changes in the private sector), and it is estimated to range between 16 and 18%. At the current level of development of Serbia and in order to maintain in the long-term the 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 savings are sufficient only for a smaller share of investments and the major part is covered through foreign accumulation through foreign loans. This is an additional burden to future generations of Serbia to pay back the due installments of principal and interest under foreign loans.

The balance of export and import of goods and services is constantly in a high deficit, which is covered through uncertain and temporary sources (foreign transfers and proceeds of privatization), but also through additional foreign loans, which is a burden in terms of future economic activities of Serbia. Unless there is a significant increase

of *greenfield* foreign investments, the Serbian economy is at threat of *crisis of foreign liquidity*.

An additional problem in the current stage of economic development of Serbia is the *insufficient integration of 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. All of this has caused a strong *technological obsolescence of national companies*, low productivity and insufficient competitiveness of products, especially for foreign markets.

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

Building of an open market economy integrated in 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, experiences of other countries that have undergone transition indicate that there are also certain „faults“ (dis-functionalities) of market mechanisms that have to be removed through an active role of a modern state. From the point of view of modern development strategies implemented internationally, the role of the state is measured not only by the *scope of state interventions*, but rather by the *structure and quality of performing functions required by a 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. Yet, at least in theory, it is believed that it is possible thanks to the following circumstances:

- First, the IT revolution has made knowledge available at a much lower price than in the past;
- Second, 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);
- Third, the concept of economies of scale now is 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, economy in which the state does not give out orders, but facilitates and promotes, and in which the market is the moving power serving both the private and the public sector;
2. promoting the development of civil society in which the state acts as a partner to voluntary associations and citizens organizations;

3. building a modern public administration based on cooperation and decentralization.

With this in mind, Serbia must follow the following *fundamental principles of sustainable development* based on 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 innovative activities of entrepreneurs;
- Ensuring a *high DGP share of investments*, primarily on the basis of increased national savings, as a function of complete restructuring of the economy;
- Building a *modern and efficient education system* that will be the pillar of future efficient and competitive knowledge-based economy;
- Implement the *Program of promoting innovative and entrepreneurial behavior* among the population.

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. That way, a greater number of citizens would participate in the decision-making processes which would ensure the needed consensus on important development issues.

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

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

8.4. Transition and 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*. Dozens of reform laws have been adopted, the budget has been balanced, the VAT introduced, the social policy reformed. However, 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 and institutions, 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 only caused by inadequate legislation, but also by inefficient work and lack of capacity of the judiciary, police and clients. A very fragile macroeconomic stability has been achieved, primarily based on high inflow of foreign transfers and the policy of 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 the equal opportunity for economic entities and their market behavior. The privatization sale of a portion of national assets in the transition so far is done to a good extent in order to meet the planned high budget expenditures and they created an illusion of a balanced budget. The major problem is the issue of sustainability of such a situation, as these are one-shot proceeds that can not be repeated, and which are used mainly to cover consumption.

One of the reasons of the insufficient competitiveness of the economy is *slow deregulation* and insufficient efficiency of privatization of socially and state owned capital, or still strong economic interventions reflected especially in the scope of subsidies for the so-called big enterprises which generate greatest losses. Another important fact reflecting the problem of insufficient openness and competitiveness is the relatively high *monopolization of the national market*. Another reason of weak competitiveness is the still present state monopolies, especially among the public enterprises at national and local level and enterprises with special and exclusive rights, but also the 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 unsustainable and that fundamental changes in the economic system, legislation and even behavior are yet to be performed in order for Serbia to gradually build a sustainable knowledge-based economy. The results of 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 a „confusion in economic policy and lack of a clear growth strategy“.

The analyses of the „growth diagnosis“ after 2000 point to very weak results of „yield to *social capital*“. Namely, surveys state a very low level of qualification of the average employed labor and the population, or a very low quality of human capital. The most important indicators of insufficient yield on social capital are: *tendency to increase salaries* beyond the increase of productivity of labor, weak flexibility and territorial mobility of labor, 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, but also to those who are privileged by the past economic and social model of the society until 2000. Another just as important additional reason of bad yield on social capital is the obsolete infrastructure and inadequately developed telecommunications.

Among the factors that may have a negative impact on the results of transition are many „*micro risks*“, primarily *corruption*, and according to surveys for years 2004 and 2005 of the total 145 countries Serbia was ranked 97, which is the worst ranking in the regions. Property rights are far from being implemented, not only in the context of lagging behind and actual effects of privatizations, but especially due to lack of legislations on restitution of property and lack of solutions for land ownership.

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

- (1) One of the risks refers to the *structure of budget revenues*, or the fact that the share of *greenfield* investments is practically negligible compared to privatization of existing enterprises.
- (2) The second risk is that 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) The third risk refers to *public expenditures and the budget balance* of Serbia. Public expenditures continually exceed 45% of GDP, and total public expenditures are 38.4% for 2006 and 37.5% as planned for 2007. It is important to note here that

current expenditures for education are only 3.5% of GDP, and for environmental protection only 0.3% of GDP and that this is by far below relevant expenditures for these purposes in other transition countries.

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

(5) The fifth risk, which is a natural result of the previous trend, is *insufficient investment*, especially from national sources of accumulation.

(6) Related to the above is *insufficient development of capital markets*. 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.

The objectives of sustainable development of the Serbian economy, in the context of finalization of sustainable economic reforms, can be summarized as follows:

(1) Economic growth – the right of citizens to 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 standard of living. In order to achieve sustainable growth based on knowledge-based economy, Serbia will in the coming decades have to rely much more strongly 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 question many privileges and monopolies that resulted from the past practice or from linked interests of the private and public sectors during transition.

Measures which should lead to achieving this goal need to be oriented to achieving 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 small and medium enterprises and the law on restitution;
- Relevant 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 the 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 on their work. People in Serbia have the right to live in a system of economy which will enable them an 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 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, as measures of active social policy oriented to reducing poverty;
- Further reforms of the labour market and its increased flexibility.

(3) 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 the 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, 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 level of consumption;
- Urgent adoption of a strategy to finalize privatization and reorganize the public sector;
- Implementation of bankruptcies according to the law; in this a highly qualified team of international and national experts, together with representatives of trade unions, should design the model for restructuring of public enterprises;
- 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 of their geographical, national, religious, and socio-cultural origin and structure are entitled to live in Serbia which promotes sustainable development and knowledge-based economy on its entire territory. This requires a policy of incentives for sustainable development of regions. These incentives should primarily have the form of improving the infrastructure, education, communications and information. Additional training and qualification of 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 formal and informal (grey) economy. In this respect it is necessary to establish an advisory body by the national parliament which would monitor and promote the balancing of regional development in Serbia.

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

- Analyze the situation concerning development, employment and relative development of Serbia by regions (districts);

- 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, the labor and present the results to foreign investors and potential partners from the Serbian Diaspora;
- Introduce incentives for 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 highest unemployment, for the purpose of productive employment and attraction of younger and qualified labour;
- Introduce incentives relevant to education and culture of the underdeveloped regions and municipalities in Serbia.

(5) Social responsibility, social balance and higher social cohesion. Serbia should make a realistic assessment of its potential, 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 social responsibility of communities for each individual. Under the circumstances of drastic transition-caused reduction of social transfers, this is not at all easy to do, but the overall social situation could be significantly improved and social cohesion improved to a good degree through better legislation, through mechanisms of consistent and efficient social protection and by going through transition in 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 redundant employment;
- A portion of assistance by those who are employed to those who are not employed must be achieved in the sense of institutional financial support and temporary subsistence;
- Another portion of such assistance should consist of financing different programs aimed at enabling the unemployed to become employed as quickly as possible;
- Social responsibility of a society undergoing transition implies a consistent control of minimum wages, or in a targeted measurement and control of household income;
- Finally, special attention is needed in order for the losers of transition to adjust to the conditions of market economy, in terms of them adjusting to the labour market, and in terms of providing funds for support programs.

In that respect, and 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 fulfill their capabilities.

(6) Living in a society and economy with lesser macro and micro risks. Citizens of Serbia 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 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 the 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 fight against 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 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 the process of continued privatization, especially of the public sector, provide through legislation that from the sold capital funds be made available to compensate former owners whose property had been 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 social cooperation between state authorities, the trade unions, the NGO 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.

8.5. 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 relevant business and macroeconomic environment for the ongoing reforms and for future economic development are based on an adequate *economics and other knowledge*.

Macroeconomic performance of 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 can not be limited only to the sector of IC technologies. Knowledge-based economy implies a positive and stimulating influence of knowledge on the overall network of economic and development factors and processes, from generation of knowledge, through its transfer and 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 with 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 national level*, because knowledge is attracted to economic locations where the demand is the greatest and barriers for 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 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 operating units of companies;
- *Changed structure of production* implying 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 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 an adequate 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 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. 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 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 knowledge-based economy;
- Deepening the levels of inter-relations and connections among economic and social actors of development of 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 restructuring.

Prospects of 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 in the international scene by accepting theoretical principles of macro-economy and experiences of successful small and efficient economies based on knowledge. These are countries with population up to 10 million and with national income about USD 5,000 per capita, who export at least 50% of their GDP and in which the major resource is knowledge.

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 most important indicators of the performance of any economy are priorities for Serbia, especially as real aggregates. 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. In this context, the starting principles of 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 different effects of knowledge-based economy, the focus of a sustainable macroeconomic policy has to be parliamentary responsibility.

8.6. Sustainable production and consumption

Since the last three decades of the 20th century the world has been trying in different ways to arrive at 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 best possible opportunities for the future generations. The focus at the beginning was on 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 in each stage of production of goods and services, starting from design, 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, 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 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 a broad public participation.

The situation in Serbia with respect to sustainable production and consumption is very unfavorable. 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, and it 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 wasting 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 packaging and reducing and phasing out PE and PVC (non-degradable) packaging, as well as leaded fuel and other environmentally unacceptable fuels. In parallel with these, there is 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, 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 – 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 “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 values in consumption.

8.7. Education for sustainable development

Knowledge, which is the basis of economy and society, is generated by people who through their education are made 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 and adjust their capacities in line with the 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. Expenditures for education in Serbia in the year 2006 were 3.5% of GDP, while the recommendation in OECD countries is 6%.

The education policy of Serbia is not sufficiently focused on creating human resources. The education system is not efficient enough does not cover all children and young people and does not generate sufficiently good performance at any level. Achievements of primary education measured either through linguistic, mathematical or scientific literacy is far below the European average.

The educational structure of the population is very unfavorable, 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) profession. One of the major objectives of sustainable development in Serbia should be to reduce the share of population without a profession. The ratio between general and vocational education in secondary schools is very unfavorable to the detriment of general education, and it is therefore necessary to increase the share of general education from 20% to at least 40%. At the same time, the number of pupils attending four-year secondary education exceeds the current demand of the country. There is, however, an enormous and unsustainable number of failed grades in secondary school, even in primary schools in Serbia. Many unsuccessful secondary school pupils end up in the labour market as non-qualified workers. One of 13 generations of young people (on the average) leaves the education system without qualification.

The system of higher education in Serbia has a relatively high number of young people who study or who have undergone a certain study stage when students. 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%.

The biggest problem of the current (unsustainable) system of education in Serbia is lack of efficient and effective education, a low educational level of the population, and the rigidity of the existing (outdated) system of education. This results in a low educational level, a high drain of educated people going abroad, a high percentage of drop outs at all levels of education, lack of standards for quality assurance, lack of certain skills needed in the educational process, both on the side of teachers and pupils/students.

A sustainable system of education implies also education on sustainable development, as a pre-condition for achieving sustainable development and as 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 favor of sustainable development. 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 knowledge-based economy and is a necessary pre-requisite for sustainable development of the economy and society as a whole. 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.

In terms of education for sustainable development, Serbia needs to achieve the following objectives: 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, and through changes in the system of education to provide complementarity of theoretical and practical knowledge, meaning 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 in order to enable consistent development of humanity for the present and future generations. To achieve this, education needs to be fully participatory and interactive and implies the participation of all stakeholders (schools, business, decision-makers, civil society, etc.). Intensive strengthening of international cooperation with relevant scientific-educational institutions is a necessary pre-requisite of the system of education for sustainable development.

In order to establish a sustainable system and method of education for the 21st century, Serbia has to increase its investment in education to at least 6% of its GDP, to harmonize it 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 make the system of education more efficient.

Concrete objectives include the 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 a system of sustainable education in Serbia which will be:

- Competitive in line with scientific, economic and technological potentials of Serbia;
- 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 in the European system of education;
- Financed in a modern way, 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 in order to be capable of introducing and implementing the concept of inter-disciplinary education for sustainable development with a greater participation of the civil society sector. 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.

Individual priority objectives and direct measures that should contribute to achieving the main goal of the system of sustainable education are the following:

- Providing more favorable general conditions for economic-financial, institutional and technical support to the process of reform of the system of education and education for sustainable development;
- Promote the concept and practice of sustainable development and the system of sustainable education through formal and informal ways of learning;
- Provide 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;
- In implementing the reform of education, continually promote cooperation at the national, regional and international level.

8.8. IC technologies and knowledge-based economy

A special challenge in developing 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 acquiring, 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 and it is necessary that the national business practices innovative and 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 adequate development effects of ICT is that it is perceived as *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 knowledge-based economy require a strong role of IC technologies. However, the technologies in themselves are only infrastructure for knowledge-based economy. Data do 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, a special aspect of this will be the system of education and enabling the young generations for a broad and creative use of ICT, so that they can be competitive in the international market of knowledge and information.

In order to establish 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 indicate that ICT and Internet are used in Serbia at a low level and with low efficiency; to many citizens of Serbia ICT and Internet are not accessible and, when they are, the use is mostly passive and not creative use of ICT.

In that respect, the pre-requisites for ICT are the following:

- To *identify a list of strategic information systems* to be developed;
- To clearly define the link between strategic information systems with other elements and processes of 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 *systemic approach to the use of public data* of national practical and theoretical significance.

This process is possible only in the context of 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. In this respect Serbia needs broad campaigns, such as

creative networks “learn to succeed with NII” and “ICT for sustainable development” etc.

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

- 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.

Principal goals and tasks in the field of developing of ICT in Serbia in the coming period should be:

- Establishing an open and competitive market of modern telecommunications;
- Building of a modern telecommunications infrastructure of the public administration and local self-government;
- Implementing the Universal service of telecommunications services according to the Law on Telecommunications;
- 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 of information society;
- Develop legislation regulating all business and other electronic documents, procedures, processes, and data and their harmonization with the EU regulation, and acceptance of internationally harmonized ICT standards;
- Establish an electronic system of public procurements;
- Promote information society, protection of intellectual property rights and use of licensed software in information systems and on the Internet.

8.9. Sustainability of scientific-technological policy

Economic and overall development of the Republic of Serbia will have to be based increasingly on organized R&D activities which should generate continued technological development in the form of improving the existing and creating new technologies, but also new products, processes and services. In contrast with most developed countries which can develop fundamental, applied and development research, Serbia has to focus its R&D activities to a greater extent on applied research and development activity. Progress in this field is not possible without improving and reforming the overall R&D system.

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. 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, which 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 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 changes - 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 % 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.- **scientific and technological indicators**: expenditures for R&D as share of total expenditures from GDP, growth rate of 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 R&D, number of national and international technological associations of companies, international associations, purpose of business associations, use of business practice, etc.

In parallel with developing knowledge-based economy and sustainable development, Serbia will have to significantly reconstruct its R&D system. Such changes should lead to establishing better functional links between R&D 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 R&D system, Serbia will have to:

- Provide for a technological rationalization of R&D units;
- Provide equal access to using public funds for private and public R&D 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;
- Improve IT systems and improve the access to use of ICT;
- Introduce systems of e-government
- Provide special stimulation for R&D in propulsive sectors of knowledge-based economy;
- Remove all obstacles to foreign knowledge and technologies;
- Promote knowledge dissemination and exchange of scientific information as a

public good (scientific events and international exchange of knowledge).

8.10. Protection of intellectual property rights and sustainable development

Intellectual property rights are a major pre-requisite of knowledge-based economy. It is 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 can not count on accession to EU nor on practical use or productivity of intellectual capital which in modern times represents a wide scope of protected elements such as: *literary, art 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*, 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 of the existing legislative framework.*

In this context, protection of intellectual property should provide for a series of economic effects such as: *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 are as follows:

- Undertake activities aimed at 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;
- Providing measures for enhancement of *intellectual property* for the purpose of membership in EU, WTO, European Patent Organization;

- Develop a *program of permanent education of staff in public administration* in charge of implementing legislation relevant to intellectual property rights;
- Implement 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.

9. 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 pre-condition for quality of life, which in fact is the first goal of development. For development to be sustainable in the long-run, the 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 ability to develop their personalities. Social equity means ensuring for all access and ability for 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 influences the stability within the society. The inter-relations in society also have impact on the acceptance of the fact that the living standard in a society very much depends on the size of the population and its ability to be in harmony with the 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 the social capital;
- Equal rights, equality and security before the law for all, with special emphasis on equal rights of men and women, children and youth, equal rights and protection of minority and human rights;
- Guaranteeing and promoting comprehensive health protection and security of people;
- Quality education creating conditions for individual development and preservation of identity;
- Solidarity within and between generations and global solidarity.

9.1. 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 of the achieved level of *economic development*.

Sustainability means that the life style of each individual in a society should be (1) environmentally aware, (2) healthy, (3) safe, (4) solidary, (5) participatory and (6) diversified¹.

The level of environmental awareness in Serbia is very low. Average citizens of Serbia do not have a developed positive awareness of the need to reduce pollution, establish rational use of energy and non-renewable resources. Health-risky life styles (smoking, consuming alcohol and psychotropic substances) are often accompanied by a tolerant attitude of those around 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 daily basis. The total prevalence of smoking among adolescents, according to the survey for 2000 is as high as 69.8%! The survey carried out in 2003 indicates 51% of smokers, and the predominant number of young people start smoking at the age of 15². The 2000 survey indicates that almost a half of the adult population consumes alcohol, and 3.3% do so every day (6.6% of men and 0.3% of 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) and it is the most widely used drug – about one third of all young people try it³. The prevalence of use (regular consumption) of drugs among adolescents, according to the 2003 survey was 1.8%. Survey data from June 2006 indicate that 11% of the population have tried drugs, 3.7% have used it over the last 12 months, while the age group from 15 to 34 years 19.2% have used drugs and 7.4% have done so in the last 12 months⁴. 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), and it is accompanied by tolerance to different forms of verbal and non-verbal aggressive and violent behaviour. Data on prevalence of family violence from 2001 are 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 abused⁵. 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 of 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 violence⁶. According to the survey of the young,

¹ As one of the goals of sustainable development is promotion of diversity also at the social-cultural level, it is necessary to include diversified life styles which a consequence of the modern way of living (by generation: young and old, living in different family types: for instance: single parents, persons with disabilities, etc).

² Jugović, 2004: 196. data refer to the representative sample of the young population aged between 17 and 35.

³ Ibidem: 202.

⁴ Survey by the SMMRI in June 2006 on a sample of over 12,000 Serbian population according to the methodology of the European Centre for Monitoring of Use and Abuse of Narcotics.

⁵ Nikolić – Ršitanović, B. *et al.* 2002; Similar results were obtained in 2003 in a study conducted in Belgrade by the Autonomous Women's Centre and SZO (AŽC, 2005)

⁶ UNICEF, 2006.

almost one fourth (24%) of young men have had a fight during the last year, and the same goes for 4% of young girls⁷.

There is a social distance towards members of other national, ethnic or religious communities and a visible increase of this distance among the young population. Ethnocentrism is present and there is a 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 23⁸. 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 young⁹.

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 the young people to meet their need for 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 get the form of certain development of nation 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 in the global trend of sustainable development. The inherited economic difficulties and the still present poverty in Serbia result in widespread materialism and feeling of insecurity and exposure to risk.

Social capital as the basis of recovery of the wider society in Serbia is very weak. The citizens are very untrusty 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 leads to stabilizing democratic, market based society and integrations in European and international institutions. Also, the rhetoric of tolerance to minority and vulnerable groups is much

⁷ Jugović, 2004: 202.

⁸ Ibidem.

⁹ Ibidem.

more present, and their rights are increasingly recognized by special legislative solutions.

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 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 the gender identity, there is also the ethnic identity which, along with the cultural, religious and regional identity, is the basis for pluralization of identities in all contemporary societies. There is also to add to this the professional identity, as it – like other forms of identities – 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 the European identity. Relying too heavily on collective identities, primarily the ethnic ones, brings with it the risk of exclusion which is established in a form of ethnocentrism which, along with underestimating other, 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 the 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 its inclusivity or openness to 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 an consensus agreed image of society, an image on which there is general consensus. The media record and report on among the headline news (including commentaries) that which fits in such a map, while the information which question the consensus agreed cultural map are silenced, marginalized or interpreted so that they can fit in the matrix of meaning that is pre-determined thereby by minimizing disagreements. It is highly unlikely, for instance, for a humanitarian action by any religious community (with the exception of the Serbian Orthodox Church, SOC) to have an 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 has been demonstrated during the 1990s, when the state electronic media were used systematically to promote nationalistic policies. After the year 2000 their role has changed significantly. The privatization of electronic media which is underway – and which resulted from the Law on Public Information – resulted in a profit orientation and marginalisation of program contents which in the field of culture, both contemporary and the cultural heritage. This implies an even stronger role of the public national broadcaster whose financing (subscription, and not revenues from advertising) and program scope (two national Tv and two radio channels and one Tv and radio channel in the Province of Vojvodina) was initially established so as to have a positive function in terms of identity both in terms of national identity and the identities of minority communities.

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 *strategic orientation of Serbia to continued accelerated economic growth*. The average growth rate of 5.2% in the period 2000-2006 ranks Serbia among European countries with fastest growth and enables 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 economic-social problems (inflation, a high rate and increasing unemployment, high foreign debt, high trade and current account deficit, overestimated local currency, high level of state control over prices, slow privatization of public and utility companies, postponed restitution, delay in bankruptcy of companies employing about one half million of people, tolerance of monopolies, high corruption, etc.).

Strategic objectives in achieving social welfare in Serbia are as follows:

- Create favorable economic conditions at the macro level through increasing the growth rate, and the share of investments and *greenfield* investments in the GDP;
- Promote and develop sustainable life styles;
- Promote values based on political liberalism, civic participation, market economy and social equity as dominant values in the public and political life
- Increase the generalized trust by citizens to 40% and achieve over half majority trust of citizens in modern institutions;
- Develop identity policies as a part of long-term cultural development strategy;
- Increase cultural capital through preservation, promotion and presentation of the Serbian cultural heritage.

The priority in creating conditions for a gradual change to sustainable life styles in Serbia is to resolve the unfavorable social-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 needs to include also 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 the integration in 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 specific national objectives of sustainable development and build mechanisms of monitoring, evaluation, review and harmonization with the EU 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.

Priority in respect to economic development is strong economic growth accompanied with attracting foreign direct investments, enhanced business environment in Serbia

and increased level of economic freedoms (full protection of property rights, including intellectual property rights, freedom of contract, relieving national market of state control, privatization, denationalization, reducing customs duties and non-customs barriers, reduce state spending, reduce taxes, moderate regulation, remove administrative barriers, for business start-up, operation and closure, liberalize capital and current transactions, free regulation of exchange rate, suppress non-economic rents, corruption, 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

9.2. Population policy

The phenomenon of low birth rate is currently the major problem in the demographic development in Serbia. It is characterised by the number of new-born babies lower than needed for simple reproduction of the population. The total population reduced from 1991 to 2002 by 78.8 thousand, or at an average annual rate of -1,0‰. The reduced number of the population has, for the first time, been recorded also in Central Serbia. Population reduced by 140.6 thousand at an average rate of -2.3‰ annually. Vojvodina has an increase in the total population in the period between two census periods (1981-1991), in contrast with the period before that census, which had a population drop. The population of Vojvodina increased by 61.8 thousand or at the average annual rate of 3.1 per 1000 inhabitants per year.

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 of 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 municipality with reduced population number in the period from 1991 to 2002, most have the 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 greatest drop was recorded in municipality Crna Trava, with a population reduction rate of -34.8‰ annually.

The natural increase of population in central Serbia and Vojvodina was decreasing in both absolute and relative terms. In contrast with this, the natural increase in Kosovo and Metohia was in constant increase, and the rate was increasing until the mid 1970s, to be followed by a reducing trend. Low reproductive standards present in most population reached critical values causing open depopulation and accelerated demographic aging. A major factor on the natural increase was the natality. In 2004, the total fertility rate was 1.57 live-births per one woman, and the net reproduction rate was 0.74.

The changes in the total population number in Serbia in the period 1991-2002 was a result of intensive migration trend during the 1990s, which at present may be a significant obstacle to sustainable development. Practically, the migrating component had a dominant impact on and contributed to mitigating depopulation of Serbia in the last decade of the 20th century. The total number of the population of Serbia at the time of the census in was under a major impact of the inflow of a significant number of refugees (5.1% of the total population of Serbia, excluding Kosovo and Metohia).

The population of Serbia (excluding Kosovo and Metohia) by all its characteristics 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. If the indicator of demographic age is the mean age in that case the population of Serbia (excluding 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 the data from 2000, only four countries in the world (Japan, Italy, Switzerland and Germany) have mean population age exceeding 40.

The rate of economic dependability in Serbia is increasing as the number of the active population increased more slowly than the number of supported persons and persons with own income added together.

Strategic objectives of population policy are as follows:

- Stop and/or slow down the unfavorable demographic trends, by stimulating childbirth and creating conditions to stabilize the population number.
- Respect the aging of the population in all aspects of development policy;
- Increase the life expectancy and the number of life lived in good health;
- Reduce infant mortality in terms of approaching the levels achieved in European countries;
- Promote internal migrations leading to a more balanced spatial distribution of the population and eliminating factors of „brain drain“.

The priorities of the demographic development of Serbia are building an adequate *institutional framework* and regulatory mechanisms of 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 biologic reproduction and aging.

In order to achieve the identified goals, it is of major significance to strengthen the financial assistance to families, to develop education and adequate public information. This requires implementation of mechanisms 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 in daily children care, increasing financial benefits for parents and children. Adequate coverage of topics relevant to population policy in education (at all levels), the promotion through the media of childbirth (along with the respect of basic human rights) have a major role to play in removing the identified problems in future development and in achieving the bases for improving the population policy and demographic development of Serbia.

9.3. Social security and social cohesion

The system of social security in Serbia covers social insurance (pension and disability, health and unemployment), social and children's protection. In view of EU integrations and in the context of national macroeconomic trends, the fundamental pre-requisites of this system are a subject of a broad scope of reforms. These issues are also emphasized in the current demographic trends, changes in the sphere of work and family, and the maturity of the system itself. Political, economic and social 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 social security of beneficiaries. The basic problems manifest themselves as a constant lack of funds to finance the rights-based benefits and as a disbalance development of services with respect to financial contributions.

Pension and disability insurance is organized dominantly 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 the legally prescribed rights. At the end of 2001, a reform was initiated aimed at restructuring the mandatory pension insurance (I pillar) and a 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, changed formula for calculation of amount of pension, and adjustments of pension payments. Further changes will be directed at introducing equal age limit for retirement for men and women, and in parallel with this, it is planned to introduce a mechanism of more efficient collection and control of contributions.

Although it is advocated in the discourse of the World bank, the introduction of the mandatory private insurance (II pillar) has not been implemented. High risks associated with its introduction (unfavorable 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 do not exist for a changed role of the state, which also applies to the lack of values required for such a system component.

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 favor of capitalized funds.

Health insurance is characterized by a high rate of coverage of the population with health care, 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 health care, 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 health care rights and health insurance for a long time have 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 fulfillment has been increasing continually. The privatization of the health care system and the private health care services have not significantly contributed to improving the position of beneficiaries nor have they resolved the existing controversies.

Simultaneously, apart from the mandatory health insurance, provisions exist enabling voluntary health insurance, but it needs to be further elaborated. The document *Serbian Health Policy* has been adopted, setting out the objectives of the health care policy and the fundamental reform principles, and apart from developing strategic documents, activities have been initiated aimed at rationalization and standardization

of the health care system and services, as well as decentralization in management and financing of health care 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 from passive measures, conditions have also been provided for active labor market policies for employment. They include, primarily incentive measures to generating new employment, as well as employment of certain vulnerable social groups: refugees and internally displaced persons, 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 identifies priority actions needed to increase employment, enhance quality and productivity of labor, and to provide social cohesion in a highly segmented labor market.

The number of beneficiaries of financial unemployment benefits (MOP) in the period 1999-2005 was increasing. 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 (labor capable) persons, which requires the re-direction of passive benefits into measures which would contribute to their quicker employment.

The currently existing network of social protection institutions does not correspond to the actual needs of beneficiaries and does not provide adequate supply of services. Despite the numerous changes in the legislation, the substantive reform progress that have started in 2000 in the context of decentralization and deinstitutionalization of the previously highly centralized system. The most significant measures directed to the most vulnerable categories of the population include measures directed to: individuals and households who do not have the basis social security, persons with disabilities, the old, children without parents care, victims of family violence, etc.

The changes in the system of social protection are directed towards creating mechanisms of prompt, efficient and adequate implementation of established social protection rights. In that respect, reforms are aimed at activation of beneficiaries of social protection, development of a network of social services, and the inclusion of the NGO sector in the provision of services which is 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 (childrens 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 installments, replacing the previously used different monthly or one-shot allowances. The amount of childrens allowance is now equal for all children and the universal right to childrens 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 can not lead to increased competitiveness and productivity of the economy of EU. This has been reinforced in the Lisbon Strategy (2000) 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 Social Cohesion Strategy. 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 their 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, health care, 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-government organizations and trade unions.

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

The strategic objectives¹⁰ are directed to:

- Strengthening social stability and solidarity;
- Preventing extreme inequalities in the distribution of income;
- Promoting the 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.

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 basic 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.

9.4. Poverty and social exclusion

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 extremely negative impacts and lead to huge human resources losses. 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 like there are different categories of poverty (absolute poverty, relative poverty, new poverty, pauperization, etc.). The Poverty Reduction Strategy of the Republic of Serbia (PRS, 2003) defines

¹⁰ They are operationalized through partial objectives

poverty as „multi-dimensional phenomenon which, apart from insufficient income to meet the basic living needs, implies also other aspects related to human rights, such as inability to become employed, inadequate housing, inadequate access to social protection, health care and utility services, and lack of exercising 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 is increasingly used, especially in the EU. In the most general sense, social exclusion is a wider phenomenon including also the aspect 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, or lack of, resources, while social exclusions refers also to inadequate participation of individuals and households in society and their inadequate integration due to inability to achieve certain social rights, and it results in breaking the links between the individual and society.

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

Persons exposed to above-average risk of poverty are persons 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 children 12.7% of the total poor. In the children population, 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 favorable 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, primarily in rural areas.

The greatest percentage of the poor in the year 2003 (PRS) live 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, like 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 as that of the rest of the population (of which 67% have never been employed), and through their education and qualification they are predisposed to a lower rate of poverty. A low percentage of the 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, SCCM, 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 (SCCM, 2004).

Apart from the above aspects, poverty and social exclusion include also non-revenue based aspects meaning lack of access or difficult access to health care, 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. Inadequate environment has negative impacts on human health and quality of life, and the poor are most exposed to degradation of the environment. 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.

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 Household expenditures survey indicated that the poverty line in 2006 was CSD 6,221 per month per consumer unit. Rural population is two and a half times poorer than urban population. Population poverty index for rural areas is by about 50% higher than for the overall population, and is 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 a dynamic economic development and growth. In line with this, the objectives of Sustainable Development Strategy, from the point of view of fighting poverty and social exclusion, can not 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. This refers primarily to the employment policy, education, housing, and health care policies.

Strategic objectives in the area of poverty and social exclusion are the following:

- Improving equal access for all to benefits of social and economic progress and development
- Provide the pre-conditions for building a socially inclusive society;
- Removing obstacles for developing competences of extremely poor and poor;
- Implement special social inclusion programs and provide 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 in the formal labour market and reduce their work in the grey economy; investing in and improving the material and non-material status of the poor and provide 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 the respect of the principle of prompt information of the public about the

risks of social changes that cause 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 better statistics in order to monitor the changes and to promote examples of best practices.

9.5. Equality and gender equality

The issues of equality in the context of the general idea of 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 of the election system, integration of minorities, and any form of citizens participation in public life.

The period since the democratic changes in Serbia in 2000 is characterized by enhancement of human rights, achieved through the 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“), it could 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 on free access to public information, despite the fact that the Law on Public Access to Information of Public Interest has been adopted. The media, generally speaking, function in an open and pluralistic environment, with certain problems in the 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 languages of minorities, including southern Serbia where the Albanian language is in official use. The Convention on the Use of Minority Languages has been ratified. Work is continuing on the integration of the Roma, including measures in the system of education, and in 2006 modest progress has been 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 Charter on Human and Minority Rights, as it sets out the right 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 still are isolated ethnically motivated incidents, as well as racist and chauvinist incidents in stadiums.

The position of the 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.

A great number of internally displaced persons additionally aggravates the difficult socio-economic conditions. Authorities in Serbia continue their efforts towards repatriation and local integration, on the basis of the National Strategy adopted in 2002 and in cooperation with partners in the region. The problem of persons and families who, on different bases are returning from EU countries still is not sufficiently regulated. The establishment of the Office for Re-Admission and returnees is one step forward to improve the treatment and acceptance of those persons.

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

kind of legislation is based on the fact that 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. Implementing activities aimed at greater inclusion of persons with disabilities into the mainstreams of society contributes directly not only to improving the position of PwD but of other vulnerable groups (for instance, the old, children, national minorities, rural population, talented pupils/students, etc.).

Although there are no accurate numbers or agreed definitions regarding persons with disabilities (PwD) in the Republic of Serbia (there is no single data base on PwD), the estimates of the World Health organization indicate that 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 inadequate although certain progress has been made in improving 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.

In the period 2000-2006 there has been an increase in interest regarding 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 rejecting the previously dominant medical approach to persons with disabilities and adopting the social model. The Law Preventing Discrimination against Persons with Disabilities 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 (2007–2015), 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, by shifting the focus from long-term dependency and a passive role towards activating the potentials and building capacities of PwD, as well as by creating conditions under which PwD can become active and productive members of society.

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%¹¹. Gender inequality in education is reflected more in the segregation by education profiles, which is indicative of the preservation of the patriarchal patterns on „adequate female and male professions“. In that respect, women have a higher share among students in humanities and arts¹². 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 favorable than the structure of the male

¹¹ Serbian Statistical Office, *Women and Men in Serbia*, Belgrade, 2005.

¹² The Government of RS, *National Plan of Action to Empower Women and Enhance Gender Equality (2007-2010)*, 2006:17.

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 unfavorable 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.

The share of women in government and political life in Serbia, and the share of women in the executive power is still at an unsatisfactory level. The position of women in the labour market has changed compared to that of the socialist period in which women had a high share in labor – around 70%, which in recent years is reduced to about 58%. The rates of activity and employment of women are much lower for women than for men. The unemployment rates for women in Serbia are among the highest women unemployment rates in Europe¹³. It is obvious in the structure of unemployment that there is a higher share of long-term unemployed among women than among men (61.4% of unemployed women in that status for two years or more, while 57% of unemployed men have that status of long-term unemployment). Women have lower share 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 trend of reducing employment of women (from 50.1% in 2002, to 44.9% in 2005). Women earn on monthly basis on the average 17% less than men and have a much lower share among the self-employed and entrepreneurs.

Women from marginalized social groups (The Roma, refugees, IDPs, women with disabilities) show a strongly unfavorable social position. Their discrimination is double, meaning that it results simultaneously from their gender and from being a member of a marginalized group with a more difficult access to key institutions and resources of the society. According to the data and surveys of UNDP from 2004, unemployment rates in marginalized groups are considerably higher compared to unemployment rates of the general population in Serbia¹⁴. In the Roma population, the number of employed Roma women is one employed Roma woman to every four employed Roma man. 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, high unemployment rate, the position of Roma women is characterized also by: high rate of illiteracy,¹⁵ dropping out of school, poverty and bad living conditions in isolated settlements, early marriage,¹⁶ 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, as women in

¹³ Compare UNDP, *Position of Women in the Labor Market in Serbia*, 2006: 9

¹⁴ While the rate of unemployment for the general population ranges around 15%, this rate for refugee and IDP population is about 32%, and for the Roma population around 39% (UNDP, National Vulnerability Report for Serbia, 2006)

¹⁵ According to the preliminary results of research MICS 3 undertaken by UNICEF in Serbia in 2006, the literacy rate of the Roma population is only 52.4% which is significantly lower than the general adult population in Serbia (95.6%)

¹⁶ According to the research MICS 3 by UNICEF, as many as 46% of Roma women are married before they reach the age of 18.

this group have a higher share among the unemployed and supported household members than those from Croatia.

Inadequate access to major resources of society results in lack of important resources (financial, knowledge, skills, social capital) and drives towards poverty the following categories of women: 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 characterized by the dominance of patriarchal system of values. The preservation of the patriarchal patterns within the household and in the family leads to unequal division of labor in which women perform most of the unpaid household chores, and very often have limited access to money.

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 some 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 the social distance;
- To enhance the position of persons with disabilities to that of equal citizens enjoying all rights and obligations;
- Equal participation of women and men in government and in decision-making on public policy;
- To enhance the position of women in the labour market and in the sphere of economic activity and achieving a position equal to that of men;
- Social integration of women and men from marginalized social groups through education, the labour market and decision-making in public policy;
- Prevent and suppress violence against women and protect women from violence;
- Remove gender stereotypes and promote gender equality in the public.

Priorities in achieving human rights are to continue the initiated reform processes, overcome structural deficits, especially in terms of coordinating tasks which at the same time are divided between competences of several authorities and clearly define competences for the implementation of obligations resulting from international conventions and relevant 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 to them by the majority Serbian population.

Priorities of Serbia in the field of gender equality are to adopt the National Action Plan to Empower Women, adopt the Law Prohibiting Discrimination, and The Law on Gender Equality, increase employment of women and increase the coverage of women from vulnerable groups in education and employment.

9.6. Public health

The health of the population of Serbia over the past period was exposed to unfavorable impacts resulting from conflicts in former Yugoslavia, sanctions imposed by the international community, a high number of refugees and internally displaced persons, economic crises (with record high 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 the public health. During the 1990s, investments in the health care system and public health very very low (as long as until the year 2000), which resulted in delapidation 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 the circumstances of dramatic demographic changes and accelerated aging of the population, causes increase in mortality and disability rates. The lack of preventive measures and the 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 those incapable to work and considerable losses for the community and the society as a whole. Inequality in access to health services, differences in quality of services, crisis in financing the health insurance and privatization of health care 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. Reasons stated for this fact are lack of systematic collection of data concerning diseases that directly or indirectly can be linked with the quality of the environment and the lack of research and studies dealing with the environmental impacts on health. Data for 2005 indicate that in central Serbia there is a registered number of 6719 persons 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 is an increase of CORD especially in the period from 2001 to 2005. The mortality rate ranged from 29.6 in 2001 to 38.2 in 2005, with a strong increasing trend.

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

Since the year 2000, visible progress has been made in the field of integral planning of health care. A new health care policy has been adopted by the Government, the Poverty Reduction Strategy has been developed and adopted by the Government and its implementation has begun, as well as other documents and laws whereby the

health care reform was initiated. The health care policy adopted in February 2002, and the document Vision of the health care system both emphasize as their priorities the enhancement of public health, reduction of inequalities in health care and the role of preventive and primary health care. In respect to specific diseases and greatest risk factors for sustainable development, the following documents have been adopted: in February 2005 the National Strategy against HIV/AIDS in Serbia for 2005-2010, the Tobacco Control Strategy is in draft form and is offered for public debate. 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 health care to implement prevention against cardiovascular diseases, diabetes and malign diseases, as well as ante-natal screening program, an activity was initiated to establish centers for preventive services within primary health care centers throughout Serbia. Draft National Strategy of Mental Health with relevant action plan has been developed, too.

The Poverty reduction Strategy also emphasized the significance of improving health of vulnerable groups through improving the quality of health services (especially services provided to these groups) and the significance of developing a better definition of preventive services. The need for better financing mechanisms for public health is stated in the strategy but not further elaborated. Mechanisms for adequate financing of public health activities should be formulated within the Public Health Strategy and Law on public Health. The drafts of these documents are being developed.

Strategic objectives until 2015 in the area of public health are

- Strengthen preventive health care
- Reduce morbidity, inability and premature death caused by predominant chronic non-infectious diseases (vascular and malignant diseases and diabetes;
- Reduce morbidity, inability and premature death caused by injuries;
- Reduce negative effects of infectious diseases, especially AIDS and TBC on public health;
- Reduce the burden of diseases due to depression and other mental health disorders;
- Reduce inequality in health between population groups through improving 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 include also: developing the capacity of research and academic institutions to research risk factors, diseases, mortality, burden of disease; develop primary health care institutions and preventive programs; raise education in public health; develop a system of response in emergencies including control and supervision of infectious diseases.

9.7. Housing and housing policy

Serbia has 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, including also a financial system and 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 relying 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 not affordable to households with average incomes and below average incomes as the rent (without the additional expenditures for utilities) requires more than 50% of the monthly income, or 27% of the average monthly income of all urban households in Serbia.

In terms of quality scarcity is still relatively present 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 in the Serbian labour market.

The Law on Maintenance of Apartment Buildings from 1995 is not adequate as it defined 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.

Estimate that the total number of illegal housing units in Serbia may be as high as one million of housing units. These settlements are a hygienic risk (in cases when 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% does 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 resolved housing issue, along with increasing the action potential of all actors in the process;
- To prevent the “slumisation” of certain settlements and remove the existing slums with minimum avoidance of displacing the 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 housing rental;

- 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 settleents while at the same time maintaining the specific regional features.

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 developemnt and initiate programs of affordable housing in the public/non-profit sector, programs for ehabilitation of slums and other informal settlements and a program of revitalizing uninhabited housing units.

9.8. Regional and local aspects of sustainable development

The current development trends in Serbia are such that there is a nedd to put a stop to the long-term trend of depopulation and absence of regional development, which still results in a very low level of utilizing the 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 process may evolve on the basis of the ecisting 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 environment of a country, which may be under the impact of certain limiting factors. Regionalization implies interests related to regional promotion Регионализација претпоставља интересе који се односе на промоцију of socio-economic developemnt and also, where applicable, of cultural and political development.

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

Local government in Serbia share the fate of other institutions and is still undergoing the process of reforms. 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, through the changes in attitude of the national level authorities to cities and municipalities, and through the achieved higher level of decentralization. On the other hand, expectations of full decentralization have not fully materialized and the reform of local self-government has not been implemented sonsistently 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 publci administration reform, fighting corruption, rgionalization of Serbia, ec.). 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 the establishment of a successfully development planning system, requiring the

generation of a sufficient scope of funds and its timely appropriation. The new Law on Financing of Local Self-Government certainly introduced improvement in the position of local communities: it provided a more predictable and transparent framework for financing of local communities, facilitation the further transfer of competences to cities and municipalities. Apart from this Law, the Law on Public Debt and the Law on Securities and Other Financial instruments, 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 cities and municipalities in 2005.

The process of intensified urbanization and industrialization of Serbia evolved to the detriment of rural areas due to the intensive migration of the population from rural to urban areas, the loss of major plots of arable land and due to lagging behind in socio-economic and cultural development. 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 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 visible also in terms of social development, demographic characteristics, cultural features, relation to tradition, modernization, environment, etc. The degree of urbanization (the share of urban population) according to the population census of 1948 was 20.7% while in 2002 it reached 56.4%, and is expected to continue to grow in the forthcoming period (for comparison purposes, this share in Romania is 55%, in Hungary 65%, in Greece 60%, in Croatia 58%).

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 of 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 non-developed land. Rural areas are depopulated and marginalized, especially in mountainous regions, with weak transport connections and insufficient municipal infrastructure. In terms of being equipped with physical and social infrastructure, the rural population is in a more unfavorable position than the urban population, primarily since the expenditures related to establishing infrastructure are much higher in areas with lower population density. 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 have a lower share of secondary school attendance (79.5%) than urban children (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 and quality of services that they have available at local level (health care and public utilities, culture, etc).

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

- Decentralization accompanied with 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;
- Reducing disparities in regional development;
- 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 principles of sustainable development and through use of economic incentives;
- Establishing a 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 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 appointed 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.

Priorities of Serbia in the field of local sustainable development include the establishment of 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; providing conditions for generation own sustainable sources of financing for units of local self-government in Serbia. Such sources are to be used to finance works needed to meet the fundamental mutual needs and interests of citizens, and build capacity of units of local government, with full citizen participation, to develop their own strategic development plans and implement them successfully. 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.

Priorities for resolving the problems of urban and rural development include the **reform** of the existing national legislation in line with the 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; 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 ICT technologies within authorities in charge of urban and spatial planning at national and local level. 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, there is need to reconsider the model to be used to finance the legalization of illegally developed buildings.

9.9. Information and public participation in decision-making

The system of public participation in decision-making consists of four components: (1) public participation in planning, decision-making, implementation and control; (2) creative and active cooperation of the public, private and civil society sector; (3) broad social and political cooperation and consensus; (4) public access to data and documents.

The state has a very important role in establishing the basis for the 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. In that way, the government, as the executive power, exerts positive impact 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 founded in two sources: international conventions and national legislation. The major problem related to the role of the state in informing and public participation is that the Law on Ratification of the Aarhus Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters. This law is not yet in the procedure for adoption, nor is there a proposal for the adoption of the Aarhus Convention. Also, although the National Assembly has adopted the *Law on Free Access to Information of Public Interest* („The Official Gazette RS“, Nr. 120/04) and has appointed the Trustee for Information of Public Interest, it seems that certain actors of public decision-making (at all levels of government and public administration) still resist to implement this law and act on the orders of the Trustee.

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

Reporting on environmental matters is 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 environmental matters. Reports and special programs are not broadcast in prime time, but rather in late hours, and therefore the contents are not available to all generations. Very often, the terminology used is too technical and not understandable for the general public. Reasons for such a situation lie in insufficient environmental awareness of journalists and editors in the media, lack of cooperation with the civil society, and inadequate readiness of authorities to speak publicly of 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 there is a need for a broader engagement of public authorities in such activities. Yet, it seems that there is an increasing interest of the media to report on environmental matters, and also for more general issues related to sustainable development. This is related on the one hand to increased reporting on

topics relevant to climate change in international media and, on the other, to the increased media freedoms in the country.

The basic problems which have impact on the public participation in general, and especially relevant to the environment, are 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 get 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, citizens of Serbia think 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 in using also other forms of participation, primarily at national level. After the year 2000, there is 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 are as follows:

- Promote pro-environmental thinking and awareness of sustainable development among citizens and civil society organizations and media;
- Promote dialogue among pro-environment oriented NGOs and environmental projects and civil society initiatives;
- Build 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;
- Build a network of pro-environmental and other NGOs and civic initiatives;
- Motivate citizens to participate in decision-making and exercising their right to access to environmental information at local level.

The priority of Serbia in the field of information and participation in decision-making is to create a space for dialogue and joint decision-making. Sustainable development requires such a system which would be aimed at increasing public environmental awareness, environmental knowledge and environmental responsibility of each citizen and each social groups. Responsibility must be established irrespective of whether it refers to direct or indirect participation in providing sustainable development and in designing and implementation of the Sustainable Development Strategy. Such a system can be built through different programs and education promoting sustainable development and environmental protection; through strengthening of 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 capacities of non-institutional actors in public life (NGOs, environmental organizations, civic initiatives and citizens themselves). As far as the state is concerned, it must be open, equipped in technical and human resources to embrace all forms of a wide public participation in this process of dialogue. A system needs to be built which will consist of four components: (1) participation in planning, decision-making, implementation and control; (2) creative and pro-active cooperation of the public, private and civil society sector; (3) broad social and political cooperation and consensus; (4) access to public data and documents.

10. 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 the national legislation with that of the EU, and its full implementation. It is a priority to adopt and implement the Draft 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 Sustainable Use of Natural Resources and Goods will have 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 need to further strengthen the capacities of the Ministry of Environmental Protection, the Environmental Protection Agency and the Environmental Protection Fund.

The development of cleaner technologies, increased energy efficiency and 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 a great potential to improve energy efficiency of the industrial sector. Energy efficiency is three times lower than the global average, and there is an unproportionally high level of generating industrial waste by unit of product, and also irrational use of raw materials. With about 138 kg of generated industrial waste per GDP of USD 1,000 Serbia is among countries with high intensity in waste generation. Promotion of renewable source of energy requires incentive measures, which would encourage private investments in the energy sector and strengthen competition in the energy and economy sector generally.

10.1. Natural resources

10.1.1. Air

The quality of ambient air in urban areas is caused by emissions of SO₂, NO_x, CO, soot, solid, organic and inorganic substances originating from energy generating and industrial plants, transport, combustion in individual heating plants, etc. Major polluters include power plants in Obrenovac, Kolubara and Kostolac, oil refineries in Pančevo and Novi Sad, chemical industry and metallurgical complexes located in Pančevo, Kruševac, Šabac, Bor and Smederevo. As a result of concentration of the petrochemical and refinery complexes and the fertilizer plants, there is cumulative air pollution in Pančevo. The quality of ambient air in urban areas is caused also by the increase of the number of motor vehicles and industrial production, as well as by the type and number of 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 ambient air in Belgrade and Niš are two to nine times higher than the allowed 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.

The identified causes of problems include: lack of harmonization of emission and immission regulations with EU directives; lack of air pollution abatement technologies and low efficiency of abatement technologies in industry and energy sectors; the use of outdated technologies with low energy efficiency; lack of incentives to reduce emissions to air; lack of rational management with transport systems; inadequate vehicle maintenance and control and bad quality of motor fuel.

The basic aim 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 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, relevant by-laws which would prescribe limit values of emissions and air quality and to establish an inventory of polluters. It is also necessary to establish a national network for automatic monitoring of air quality, in line with requirements of the EU Directives in terms of air quality indicators and measuring methods. It is necessary to adopt the National Program for climate change and action plan for air protection as a support to the National Environmental Strategy after its adoption. It is necessary to implement key international agreements related to cross-border air pollution and climate change – the Kyoto protocol. It is necessary to introduce differentiated charges for leaded and unleaded fuel and gradually fully phase out leaded petrol by the year 2010 in accordance with the Draft National Environmental Strategy. The revenues generated through the charge would be used in an earmarked manner to support faster move to unleaded fuel. It is necessary to establish the National Laboratory for Air and Water.

10.1.2. Water

Serbia has access to sufficient quantities of water to meet its needs, but only provided that it uses them in a rational manner. 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. 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), of which the population used about 55%, and the industry and public consumption make up for about 20%, and other uses make up for

25% including consumption within the treatment process and network losses. 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 equivalent populations 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 the total water pollution.

Sustainable development implies the preservation of water quality. In the past, there has not been sufficient attention to and investment into waste water treatment, which contributed to the deterioration of the quality of water courses or recipients. Water quality protection measures are seldom used. Perpetrators are difficult to identify and the fines are insignificantly low. Due to this attitude to water, most water courses in summer months are in a state that is adequate only for irrigation purposes, and even this is not always the case. Over the most recent period, a series of measures are being undertaken and sanctions against polluters introduced.

Key problems related to water are: national legislation is still not harmonized with the contemporary EU trends and standards, lack of plan for implementation of the EU Water Framework Directive, insufficient institutional and other capacities, inadequate funding of water management, low price for water and services and lack of economic incentives, lack of harmonization in sectoral policies with other sectors, insufficient 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.

The sectoral policy objectives for sustainable use of water are:

- To harmonize national water legislation with the EU legislation, especially to implement the EU Water Framework Directive;
- To increase access to quality water through connection of 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 and more efficient operation of waste water treatment plants;
- To implement the „polluter pays“ principle.

The adoption of a new Law on Water and other laws and relevant by-laws to ensure harmonization with the EU Water Framework Directive is a priority. The need for introducing a regulatory function in the water sector is most present in the field of providing 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 performances and fines, primarily the control of reducing network losses and through investing revenues generated through increased prices into the rehabilitation of infrastructure, and transfer to economic functioning of utility companies. 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. The protection of water resources is adequately

covered in the Draft National Environmental Strategy. Other plan documents include the Water Policy of the Republic of Serbia, water management plans and the Plan for development of the water sector, the Strategy for development and use of geologic resources of Serbia, within which there is a section relevant to hydrologic surveying of ground waters. What is missing is the basic plan and plan of implementation of the EU Water Framework Directive which would initiate the process of harmonization with the EU legislation. 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. It is necessary to establish the National Laboratory for Air and Water.

The alluvial sources have the greatest capacity representing about 70% of the total assessed ground water potential for water supply. In order to protect the ground waters it is necessary to prohibit all activities in the area of the alluvium which may have negative impact on the ground water regime (exploitation of gravel and sand and building of construction or mining facilities), or which may have impact on the quantity and quality of ground waters of the alluvium. In order to ensure the sustainability of increment, it is necessary to ensure continued protection and preservation of alluvial sediments as potential sources for massive water supply of population.

10.1.3. Soil

The share of agricultural land in the territory of the Republic of Serbia is 60.2% and in the territory of Vojvodina 82%. The structure of agricultural land, by category of use, has a high share of arable land (83%). Over the past fifteen year, the share of agricultural land has reduced by 10.6%, while the share of arable land has reduced by 10%. In terms of the purpose of use of agricultural land, the disappearance was greatest in terms of vineyards 20.7%, and least in terms of fisheries, reed and marshes with 2.5%. In terms of area, the reductions were greatest in 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 additional about 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 degradation of soil in Serbia include: permanent loss of agricultural land (mostly by actors such as: the spreading of settlements, industrial, mining, power generating 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 sustainable use of soil are:

- Harmonization of legislation related to soil use and protection with the EU legislation;
- Preventing further loss of soil and preservation of it quality, especially in respect to industrial, mining, power generation and other activities;
- Improving the quality of agricultural land, protection against degradation and changes of 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 network for control of soil fertility in order to record changes that happen over time. It is necessary to 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 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

10.1.4. Biodiversity and nature protection

A general characteristic of biodiversity in Serbia is its great genetic, species and biological diversity, while the biological resources, both potential ones, 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 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 values and sites of significance). There are also 35 identified bird areas of international significance (IBA), 59 areas of international significance for plants (IPA) and 13 internationally significant areas for butterflies

The 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 eco-system diversity, while the biological resources, both potential ones, and those used to a greater or lower level, are of a relatively limited capacity.

The genetic fund in Serbia is very abundant and includes a great number of sorts and races of autochthonic species of plants and animals. The bank for the sustainability of genetic material is one of the most reliable methods to preserve (in live or frozen form the plant and animal material, seeds, tissue cultures, etc.) for species samples, sorts, races and varieties of living organisms which represent the current biodiversity of Serbia, and this refers especially to useful plants, animals and micro-organisms.

The major problems include: lack of implementation of regimes and measures for protection of plant and animal life, scenery and geologic heritage, primarily through irrational use of natural resources, low coverage by urban and spatial planning documents and very strong illegal building; insufficient investment by the state in preservation and sustainable development of the most representative 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 unsound practices of collection of certain commercial species (mushrooms, medicinal herbs, etc.); inadequate law enforcement by competent authorities.

Policy objectives of the sector are:

- To adopt the law on nature protection and ratify international agreements;
- To develop a national strategy for preservation of 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 values of the Republic of Serbia;
- To draft regulation in the field 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.

It is necessary to further improve protected areas 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 management of protected areas and increase efficiency of competent authorities in preventing and sanctioning undesirable and illegal activities in protected areas and areas of environmental significance.

10.1.5. Forests

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

The major problems include: insufficient forestation, illegal felling of forests, 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 life.

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

- Harmonization of national legislation in the area of sustainable forests management with the 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 forests 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 measures of 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 accounts the functions of forests. Tax incentives are needed to encourage the activities to increase the territory under forests, and to encourage private investments in forestry and wood processing. It is necessary to stimulate forestation of degraded land and establish energy plantations, by linking with the existing markets of fuels based on biomass (for instance pallets, 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.

10.1.6. Mineral resources

Serbia is among the countries with a diversified mineral resources, but not abundant enough. In terms of diversity, energy mineral 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.)

Metallic mineral resources and industrial minerals

Most sites of metallic mineral resources are not among very rich deposits but could be used for the purpose of economic development of Serbia. Copper is among mineral resources with biggest economic potential and it occurs in sites concentrated mostly around Karpathian-Balkanide massifs in Eastern Serbia (the Bor metallogenetic 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 forecasting geologic reserves of the ore of lead and zinc are estimated at 45 Mt of ore with 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, most important areas being Zajača, Rujevac and Stolice. High concentrations of nickel in deposits Rudinci and Veluča in the upper course of the Morava river 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 big deposit of ferro-nickel (1 billion tons with content of 26.5% iron and 0.7% nickel). Occurrences of tin in Serbia, such as Cigankulja and Iverak, are located in the north-west of the country. Gold is present in many deposits in Serbia. It is extracted as a by-product from deposits in Timočka krajina region where it is an added value to the copper concentrate. This zone also includes epithermal streams in which there is gold either in free form in the quartz or bound with pyrite (Zlata). There are limited

reserves of aluminium ore, bauxite, and it is related to lime terrains of Dinaride province.

Deposits of industrial minerals in Serbia are numerous and diversified. Among the fifty present types and about 700 deposits in exploitation, significant economic potential exists for the following: raw materials that had been or are in exploitation (barite, dolomite, caoline, brick clay, feldspat, 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 whose deposits could be expected in Serbia (rock salt and mica).

Magnesite is related to deposit Liska in Western Serbia, with horizontally longitudinal ore formations of several hundreds of meters and 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 in 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 Kuršumljia. Basalt fibers will replace asbestos, which is known to have negative effects. The designed annual production is 2700 t of continued basalt fibers. Caoline and caoline clays are exploited in locations Bare and Rudovci in the north and Karačevo in the south of the country. 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 cement plants. The deposit Lipnica (gypsum) is also exploited for the needs of cement industry. Feldspat, mica, and quartz are extracted from the deposits of pigmatites Vidovački krš near Prokuplje. Annual production is 50,000 t of feldspat concentrate, 36,000 t of quartz and 14,000 t mica concentrate. Deposit of quartz sand Rgotina is exploited in two surface mines. Tuff and opal silicium in Katalenac are mostly used in 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 goods by types, by spatial distribution, by diversity, volume and quality; lack of balance categories.

Sectoral objectives are:

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

It is necessary to undertake a strategic assessment of the geologic potential and identify areas or deposits that could be considered feasible for exploitation of mineral resources. Such exploitation must be based on profit and environmentally-friendly technologies, in areas in which research and exploitation rights are not yet issued. The project is underway to identify the forecast and geologic-economic assessment of resources and reserves of mineral resources of Serbia, and to develop a mineral-genetic map of non-metallic mineral resources of Serbia. It is necessary to undertake studies of minerals, identify adequate locations for investments, undertake seismic assessments, and risk assessment for geologic-engineering processes and establish geo-scientific data bases, maps and reports. The geologic IT system of Serbia has been established with the objective to enable digital archiving of geologic data and information and provide modern and efficient IT basis for the execution of all activities relevant to 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. It is necessary to establish a national laboratory for soil and mineral resources, for preparation and management of geologic survey and research programs. It is especially worthwhile to mention the practice of non-collection of charges for use of mineral resources and work towards the implementation of regulation and increase charges to the level applied in EU member states. The current charges range from 1% to 5% of the value of extracted mineral resources, depending on the type of minerals and type of deposit, are not without relevance although they lag behind the level of charges in the region.

Fossil fuels

Lignite makes up almost 90% of energy resources of the country, while oil and gas account for less than 10%. Serbia has access to 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, 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. The current rate of exploitation of reserves in the Kolubara and Kostolac basin guarantee another 55 years of exploitation. It is worthwhile to mention that in only one surface mine in Kolubara coal is mined and represents with 32% in the power generation in Serbia. Serbia does not have significant reserves of oil and gas. The existing deposits are in the Pannonian basin. Annual production is about 0.7 Mt of crude oil, which is about 20% of annual demand in Serbia which uses about 4.13 Mt. Further development in the sector of oil and gas will be in the direction of identifying new deposits and granting concessions. 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, a disproportion between geologic and exploitation reserves of coal, oil and natural gas, which indicates to potential uncertainties related to the availability of these resources in the future period.

Sectoral objectives include:

- Exploitation of non-renewable natural resources in a manner that causes the least degradation of the environment and public health;
- Identification of new deposits and sustainable use of non-renewable natural resources in a most efficient and rational way;

- Substitution of fossil fuels with renewable energy sources wherever economically feasible.

It is necessary to develop long-term strategies of 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), 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. New research is needed in order to identify new deposits, refineries need to be modernized, new transport routes/sources need to be built, and a system for environmental monitoring and protection needs to be introduced.

10.1.7. Renewable energy sources

The degree of utilization of renewable energy sources is very low, as costs associated with the use of renewable energy sources are higher than those associated with conventional sources of energy. 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. Hydro power (use of minor water courses as a form of renewable energy source) and the biomass energy are currently the predominant national energy potential, and as such are emphasized in the National Strategy of Development of the Energy Sector. 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 its primary and/or industrial processing), and more than 1.4 Mtoe comes from agricultural biomass (residues of agricultural and gardening cultures, including liquid manure. Production of bio-diesel from oil beat, soy beans and sunflower has started in Serbia. About 0.4 Mtoe annually is the potential of minor water streams. Only about thirty small hydro 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. Serbia has many years of experience in using geothermal energy for heat generation. Approximately 0.2 Mtoe annually exists in existing geothermal springs located in the territory of 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 indicate 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 done so far regarding the potentials of Serbia for installation of sun collectors and systems, but it could be said with a relative degree of certainty that the fact that solar energy is not used means the lack of use of about 0.64 Mtoe annually.

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 potentials of renewable energy sources, lack of efficient system of financial incentive instruments aimed at massive use of renewable energy sources.

Sectoral objectives are:

- To adopt regulation for promotion of use of renewable energy sources (tariff systems and incentive 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 the renewable energy sources was established by the adoption of the Law on Energy Sector in 2004, but the relevant by-laws have not yet been adopted. Producers who use energy generated from renewable sources or waste and who permanently generate electrical or heat energy are termed “privileged producers of electrical energy” (Article 84, Law on Energy), or “privileged producers of heat energy” (Article 139, Law on Energy). They will be able to use economic incentives consisting of monetary subsidies, tax relief and the like. At present, producers of energy from renewable sources are exempt from payment of taxes for transmission. However, the system promoting production of energy from renewable sources is still not introduced. Such unclear conditions do not contribute to creating market conditions nor do they encourage investments in projects concerning renewable energy sources. Also, the licensing and permitting procedures for installation of facilities for energy generation from renewable sources are very complex and time demanding.

Incentive instruments are needed for 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.

Recently ratified Kyoto protocol and the implementation of the UN Directives according to the SE Europe Energy Community Agreement, imply certain obligations of the Republic of Serbia, but also enable access to 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 a non-discrimination access to transmission networks. The main goals of the agreement are to promote investments in the energy sector, to protect the environment and provide reliable supply. Major steps forward have been made in Serbia towards fulfilling the obligations under the agreement. The agreement was ratified by law in 2006. 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 need to support the participation of the private sector and the development of public-private partnerships in this field

10.2. Environmental risk factors

10.2.1. Climate change and the ozone layer depletion

The greatest part of the territory of the Republic of Serbia has moderate continental climate with more or less expressed local characteristics. The Republic of Serbia is a successor to the ratification of the UN Framework Convention on Climate Change, the Vienna Convention and the Montreal protocol. Serbia has ratified all four amendments to the Montreal protocol in December 2004. The Law on ratification of the Kyoto protocol was adopted in September 2007. 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 heating even as much as one thousand times more than CO₂.

On the basis of the degree of industrial activities over the past ten years or so, Serbia may be classed as a significant emitter of CO₂. In the territory of Serbia, this gas is primarily generated through combustion of fossil fuels in power plants and heating plants, transport and partly by households who are heated in this manner. The data from the report on Implementation of the Millennium Development Goals indicate (for Serbia and Montenegro) for the year 2002 the emission of 4.49 t CO₂ per capita, which in absolute terms is by 14% higher than the world average, or in total 47.244 million tons of CO₂, while when compared per unit of GDP the emission of CO₂ in Serbia is two times higher than the world average. The available numerical data are an estimate and can not 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 identified problems include: lack of national inventory of greenhouse gasses, lack of strategic documents on climate change (Strategy for implementation of clean development and national strategy for climate protection), legislation relevant to emission and immision not harmonized with that of the EU.

Sectoral objectives are:

- Harmonization of national legislation in the area of climate change and damage of the ozone layer with the regulation of the EU;
- 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.

The Law on Ratification of the Kyoto Protocol was adopted by the National Parliament in September 2007. By 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 not the first national communication with the UN Framework Convention on Climate Change, in which it significantly lags behind the region. After ratification, as a country not on the list of Annex B of the Kyoto Protocol, Serbia will have to adopt a Strategy for implementation of the Clean Development Mechanism. 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 clearly determine 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 obligation 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

10.2.2. 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. Landfilling is the only organized manner of waste management. 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. The National Waste Management Strategy (2003) envisages of constructing 29 regional landfills (for the needs of several municipalities) with recycling centers. 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. 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 storages, some of which exist even for decades. Also, there is lack of management of special waste streams: collection of used oil, 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 permitting system for waste management, lack of facilities for treatment and disposal of hazardous waste, inadequate management of medical waste, PCB-containing waste and waste from slaughter houses, etc.

Sectoral objective for waste management include:

- Harmonization of legislation regarding waste management with relevant EU directives;
- Adoption of regional and local waste management plans;
- 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);
- Establishing an organized system of recycling and incentives for utilization of waste;
- Rehabilitation of existing dump sites of municipal and sites of hazardous waste;
- Education and raising public awareness to resolve waste management problems.

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, control and monitoring. It is necessary to encourage competition and participation of the private sector in waste management. It is necessary to gradually introduce 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 landfilling charges will provide incentives to reduce the quantity of waste generated 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 for raising 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.

10.2.3. 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 permanently increasing (fertilizers, polymers, fibers, pesticides, medicinal products, detergents, cosmetics, dyes, adhesives, explosives, etc.). The legislative framework relevant to chemicals in Serbia is not harmonized with the EU regulations and does not cover all the aspects set out in European regulations. The following problems have been identified: lack of a data base and systematic monitoring of chemicals, or impacts 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; poor state of infrastructure in chemical industry and insufficient financial resources for investment in cleaner technologies; insufficient inter-sectoral cooperation between authorities in charge of different stages in the life cycle of chemicals management; inadequate storage of chemicals.

Sectoral objectives are the following:

- 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 for 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 IT system for management of chemicals;
- Implementation of activities in the area of education and raising public awareness of chemical risks for human health and the environment.

In order to achieve a more efficient implementation of new legislation in the field of management of chemicals it is necessary to strengthen administrative and professional capacities of staff. It is necessary to develop a program for monitoring of chemicals including risk reduction measures, to establish a system of authorization (use permits issuance) for certain hazardous chemicals for the purpose of their replacement with less hazardous ones, and to undertake socio-economic studies including the

calculation of costs associated with replacement of hazardous chemicals with less hazardous ones. In order to establish and develop an IT system for management of chemicals, it is necessary to establish and update data bases of chemicals in the market, their properties and impact on human health and the environment. It is also necessary to strengthen capacities of NGOs, including consumer protection organizations for the purpose of informing the public of risks associated with chemicals.

10.2.4. Accidents

Serbia is suffering from a burden of the bad situation in many chemical plants, their transformation processes, unplanned urbanization, inadequate measures for prevention and alert, and inadequate response to accident 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 trans-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 accident and mitigate consequences.

10.2.5. Ionizing and non-ionizing radiation

Of the total number of sources of ionizing radiation in the Republic of Serbia, about 80% is used for health-care 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. Systematic monitoring of ionizing radiation is performed in accordance with the Decision on Systematic Testing of Content of Radionuclides in the Environment, and there is no established monitoring of non-ionizing radiation. The four locations in the territory of the Republic of Serbia (excluding Kosovo and Metohia) which were contaminated by depleted uranium after the NATO bombing during 1999, have been decontaminated in 2007. With respect to protection from non-ionizing radiation, there is no national legislation. The following

problems have been identified: lack of harmonized legislation, inadequate network for monitoring of radioactivity and non-ionizing radiation, lack of data base on sources of ionizing and non-ionizing radiation, use of sources of ionizing and non-ionizing radiation contrary to regulations; abandoned sources of ionizing radiation in industry and sources out of regulatory control, lack of early warning system for emergencies and lack of Plan of response in case of emergency, lack of infrastructure for adequate storage of radioactive waste.

Sectoral objectives are:

- Harmonization of national legislation in the field of protection against ionizing and non-ionizing radiation with the 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, data base 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 administrative and professional capacities of the staff. It is necessary to provide full information of the public concerning the issues of protection against ionizing and non-ionizing radiation.

10.2.6. 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 noise of local sources (catering/tourism and trades, etc.). The identified problems are: national legislation is not harmonized with that of the EU, 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, lack of implementation of regulation regarding noise insulation in construction.

Sectoral objectives are the following:

- 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.

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.

10.2.7. Natural disasters – floods, land slides, fires, earthquakes

Flood protection is the most important aspect of protection against negative impacts of water, as the potential flooding area is about 1.6 million hectares. 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 the expected 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 land slides refer to possible consequence to material values that may be at risk and potential damage resulting from activation of land slides. Previous knowledge and experience indicate that about 25% of the territory of Serbia is exposed to land slides and rock slides. 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 land slides in 2006 are estimated at EUR 25 million. A great number of civil defense centers took part in rescue activities on the ground in cooperation with local governments.

Major forest fires which occurred in 2007 in Stara planina mountain. 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 fund to recover.

Serbia is among seismically active regions. In recent years there has been a series of minor earthquakes, but without major damage caused.

The identified problems are: inadequately developed organization of civil defense to provide assistance under natural disasters and catastrophies; lack of early warning systems; lack of 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 are:

- Institutionalization of civil defense 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 negative impacts 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 water sheds and regulation of water courses, reconstruction of embankments along the river 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 data base of land slides and evaluation of risk mitigation measures. Work is currently underway for building an inventory of land

slides and unstable inclinations in Serbia which will become an integral part of the geologic IT system. A good organization of civil defense 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 defense in Serbia, it is necessary to organize civil defense 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.

10.3. Economic sectors and their impact on the environment

10.3.1. Industry

For a long period of time 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-etatistic manner, oriented to the domestic rather than the foreign markets, with excessive number of employees. The industry was ill-prepared for the technological and structural changes in the world economy, and during the 90-s, together with the rest of economy, it experienced a serious crisis accompanied with major drop in production and employment. In comparison to other production activities, industry remains the biggest contributor to generating GDP. There are two documents of significance for the future development of industry. The National Strategy of Economic Development of Serbia was adopted at the end of 2006 for the period 2006-2012. Before that, in 2005, the Strategy for Attraction of Foreign Direct Investments was adopted. There is, however, an evident lack of other sectoral strategies for the development of individual fields of industry.

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, 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). In this context, almost 90% of industrial waste waters is discharged without previous treatment. Most industries do not have storage for temporary storing of hazardous waste.

Sectoral environmental objectives of sustainable development are:

- Harmonization of national legislation in the field of protection of air, water, soil, waste management, 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 of innovation of technological processes, establishing a system for integral permitting for industrial plants in accordance with the law on Integral Pollution Prevention and Control, introduction of BAT and BEP;

- Rehabilitation of polluted industrial sites;
- Introduction of cleaner technologies and increase of energy efficiency and raw material efficiency accompanied with 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 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 data bases according to EEA and EIONET directives. The work to build an integral inventory of polluters is at the very initial stage. It is necessary to establish a centre for cleaner production and to set monitoring criteria through accredited laboratories. In this respect, it is necessary to set standards also for industrial products and standard for work in individual fields of industry, and to accredit national laboratories to supervise the implementation of set 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 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.

10. 3.2. Mining

Currently in Serbia there are about 200 operating mines. Over the past decades there has been a significant decrease of mining production. The reasons for this are multiple, including: insufficient investment in new technologies for exploitation, preparation and processing of minerals which could be the basis valuation of raw materials of lower quality, significantly reduced geological research, not defined status and competences of relevant geologic organizations, insufficient preparation of new reserves due to intensive exploitation of resources, with the excessive exploitation of deposits which results in reduced quality and quantity of mineral resources as basis for production.

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

Sustainable development in this field implies the following sectoral objectives:

- Harmonization of the national mining legislation with EU legislation;
- Rational management of non-renewable resources and prevention of illegal exploitation;
- Overall restructuring in the production of minerals including the coal industry,

oil and gas industry, which implies a successful finalization of the transition in the mining sector with a higher share of private capital;

- Development and 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 achievement of the above objectives will have multiple positive effects, not only in reducing the environmental pressures, but in promoting the development and implementation of applied scientific research, development of technologies and increased employment.

10.3.3. Energy

The energy resources of the Republic of Serbia are relatively poor and geographically unevenly distributed. The import of energy sources will continue to grow at increasing rates, unless there are measures taken to increase their rational use, to increase energy efficiency, and to reduce energy intensity on the one side, and increased use of nationally available renewable sources of energy on the other. The production and consumption of energy are the sources of main environmental pressure in Serbia, and therefore it is in this sector that major investments are expected which may have stimulating effects on overall economic development. 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 of 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 and transmission and their long inadequate maintenance, 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, insufficient share of 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:

- 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;
- 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;
- 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;
- Significantly increase energy efficiency as Serbia lags behind the region, and especially behind the EU, in this respect.

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 EURO cents per 1 kWh, could achieve annual savings exceeding EUR 70 million, by increasing energy efficiency by 10%. It is also estimated that, at that price level, investing in increasing energy efficiency in the industrial sector pays back in four years.

Competitiveness of the Serbian economy should not be based on low prices of energy, but on energy efficiency. As long as the price of electricity is underestimated, measures to increase energy efficiency in Serbia will not give true effects. A tax on the price of electricity for industrial users could be an efficient economic instrument to improve energy efficiency. Revenues generated in this way would be directed to the Energy Efficiency Fund, with additional support from international funding. Companies which implement energy control and measures to increase energy efficiency would be exempt from payment of such tax. Another instrument to increase energy efficiency could be negotiated energy consumption. This instrument is lacking and needs to be promoted in Serbia. Pilot projects in the industrial sector should be public and should indicate the economic benefits of reduced energy consumption. It is also necessary to establish institutional and legislative conditions for ESCO arrangements, which have proven efficiency in economies with high energy efficiency. An obstacle to implementing the policy of rational use of energy is the lack of public awareness. Therefore, the Energy Efficiency Agency and its regional centers should work towards raising public awareness and strengthening it.

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 with the aim to reduce the consumption of fossil fuels, reduce import dependency and produce electrical and heat energy with reduced adverse environmental effects will remain to be 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, which was adopted by the National Assembly in 2005, 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 towards sustainable development.

10.3.4. 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, berry fruits, cereals (corn and wheat) and processed food (conditory products). There is a significant potential to increase the export of many products.

The serious economic crisis during the 1990-s resulted in decreased pressure on natural resources due to reduced intensity of agricultural production. With the beginning of transition, there was a trend of intensified 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 in villages leads to degradation of anthropo-zoogenic grass communities of high mountain pastures due to lack of livestock for pasture. At the same time, in areas closer to settlements show effects of excessive pressure of pasturing, and excessive forest felling, resulting in erosion on inclinations. In certain rural areas there is visible eutrophication of waters, in others there is degradation of soil or reduced biodiversity. Such an unfavorable 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 Kosovo and Metohia. In this respect, Serbia is close to Austria with 41.2%, Belgium with 46.1% and Germany with 48.7%. About 85% of arable land is private property. The distribution in terms of property structure is as follows: 26.7% of estates is under 1 ha, 32.7% of estates has between 1 and 3 ha, 17.3% of estates are from 3 to 5 ha, 16.9% of estates are from 5 to 10 ha, 4.8% are from 10 to 20 ha and 0.8% of the total number of farming estates are above 20 ha. This indicates that most of the privately owned estates are small in size, the estates are fragmented, which implies an extensive farming method.

The presence of livestock breeding differs by regions. Low land 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 farming estates have livestock. Combined farming with semi-intensive production systems is a dominant form in most estates. 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), goat (169 thousand) and horses (24 thousand).

The size of farms is a serious obstacle to further development of agriculture. The average size of a farming estate in Serbia is somewhat over 2.5 hectares. The average size in Central Serbia is 2.1 ha, and if this includes lease that the average size is 2.11 ha, while the average for 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 Vojvodina). Apart from this problem, there is also a very unfavorable age structure of 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 rely sufficiently on care for environmental protection.

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 preserved. Although phytosanitary and veterinary services have been significantly strengthened over the recent years, agriculture remains to be a potential environmental risk. The Ministry of Agriculture, Forestry and Water Management has, within its international cooperation, initiated work on introducing integral production and good agricultural practice in order to reduce pollution from livestock farms and slaughter industry. These activities are harmonized with the National Strategy of Agriculture and the Draft National Environmental Strategy. The loss of traditional agricultural systems in Serbia is 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 unfavorable property and age structure in individual estates and inadequate transfer of knowledge in the field of bio-technology, marketing, economy and environment. A great deal of processing plant in food processing industry is outdated and requires significant investments in order to be harmonized with export standards and be accredited under ISO 9001 and HACCP, which is a requirement for export.

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 create conditions for access to European markets.

Sectoral objectives in the field of agriculture are:

- 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 agri-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;
- Introducing organic farming;
- Raising environmental awareness of agricultural producers by 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 adequate fields of development and implementation of high technologies in Serbia. The establishment of a National Food Safety Laboratory would create an adequate institution which would not only contribute to resolving environmental problems in national agriculture but could also raise public awareness, promote the agricultural export and improve the quality of imported food. Such an institution would also contribute to the development and 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.

10.3.5. 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 fishery. The specific features of forestry as an economic activity depend on the naturally determined quantity and quality of resources, but also on social-economic circumstances, which has resulted in a series of problems that this activity and the related wood processing industry are currently faced with. Sustainable forests management and development of forestry as an economic sector can be achieved only if there is continued monitoring and identification of the existing forests 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 process of privatization of big socially-owned enterprises dealing with wood processing is not 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. Export of wood processing industry in 2005 was characterized by increased share of final products and 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 to mention that only furniture exports are increasing (USD 8.5 million), while other export products have increased export levels than in 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 have increasing exports, while the exports 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 fire arms was 447,343. The users of hunting grounds every year make estimates and monitor the number 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, inadequate management of certain species of wildlife.

In terms of diversity of natural and antropogenically formed eco-system in fishing waters and in terms of the diversity of significant fishing species, Serbia does not lag behind the countries in the region. In contrast with the favorable natural potential, the share of registered fishermen in the total population and the productivity in facilities for fish production are the lowest in Europe, and there are no reliable data on the level of fishery in open waters, the number and structure of facilities for production of fish and their productivity. Serious problems result from the practice of illegal fishing, and the use of forbidden means and tools. Apart from unfavorable social conditions which have caused the present situation, it is evident that the position of fishery generally

over the past decades was never addressed systematically. Leaving fishing only to sport-fishing associations leaves unused great natural potential and a 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 centers with the biggest markets for sale. A significant risk to the fund of sturgeon below the dam of the hydro power plant „Derdap II“ and of the strategically important production of white sturgeon caviar is caused by reduced fishing periods and reduced allowed quantities of fishing sturgeon.

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 pre-condition for a sustainable development of aqua-culture is the requirement of the prescribed environmental assessment and the assessment of impact on the already pressured water resources, especially in artificial reservoirs when using cage growing 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 list of problems in fishing includes: 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 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 excessive number of employees in fisheries, lack of capital and expensive loans for credit arrangements, weak protection of national production against the strong competition in the region and inadequate judicial practice in terms of procedures for fines and violations of regulation.

The objectives of sustainable development related to forestry, hunting and fishery 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 through: 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 in Serbia 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 the fish fund. It is necessary to protect natural spawning sites, revitalize the existing flood zones and through the eco-system approach ensure maximum natural reproduction of the fish fund. It is of 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 (ex. by introducing individual transferable quotas) for vulnerable fish species (ex. 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 fisherman entrepreneur 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 nearly employ 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 potentials of forestry in terms of implementation of flexible mechanisms of the Kyoto Protocol.

10.3.6. 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 neighbors.

There are different data regarding the length of the road network in Serbia: the information from the Reference Road System of the Republic of Serbia and the official statistics – 38,300 km of roads; different pieces of information from the Public Company “Serbian Roads” (Transport Directorate) 40,700 – 42,900 km; and information from the World Bank document – 49,800 km. This is a result primarily of 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 and the new inventory of roads which also needs to be updated 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 was 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 the main railroads. 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 rivers Dunav, Sava and Tisa, and the network of inland canals of the hydro-system Dunav-Tisa-Dunav, with a total length of the navigable inland waterways of about 1,677 km. The conditions of navigation differ, and vessels of bearing capacity of up to 1,500 t can navigate on the total length of the inland waterways from the kilometer 993 km, while vessels with capacity up to 650 t can navigate in sections off total length of 1.360 km.

Serbia has four registered civilian aviation airports: Belgrade, Niš, Vršac and Bor, but due to technical-technological conditions and equipment, only the Belgrade and Niš airports are open for international flights. The number of passengers at the Airport “Belgrade” in 2004 was 2.05 million (its capacity is 5.6 million passengers annually) and it served about 16,000 aircrafts. The same year, the Niš airport served 18,350 passengers and 175 aircrafts.

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 nor equipped with modern technical-technological systems; lack of by-pass roads around cities in Serbia, and especially around Belgrade; lack of funding for the development of infrastructure; centralized management of the transport infrastructure; inadequate system of public transport of passengers and goods; lack of strategy of development of the transport sector; 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. Priorities include 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:

- Reduce the share of transport in air pollution and noise emission by improving quality of fuel and vehicles;
- Serbia in the trans-European network with transport safety in crease by 50 % in comparison to 2005;
- Increase the quality of transport services and services by transport infrastructure by 25% in comparison to 2005;
- Increase the share of intra-modal transport in the total transport of goods by increased use of inland waterways an railroad transport by 25% in comparison to 2005;
- Unified system of passenger transport adjusted to passenger needs at regional level in the Republic of Serbia;
- Strengthened external aspects of the market – transit transport, export and import of goods and services.

A thorough restructuring of public enterprises is of special significance for further development of the transport sector in Serbia; primarily this refers to the 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 sources to achieve the much needed modernization of technical faculties and systems, nor to achieve environmental standards in compliance with the 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 of this sector for international competition in all modes.

It is necessary to develop intra-modal transport and stimulate more intensive use of railroads and especially inland waterways transport. 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, improved international competitiveness of the economy and would have positive effects in other service sectors

10.3.7. 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 of the Republic of Serbia. Surveys indicate that the average hotel in Serbia is 42 years old, has 105 rooms, it was last partly renewed 13 years ago and has two or three stars classification. During 2004, the average Serbian hotel generated about EUR 8,000 total revenue per room, while international standards for the same average category is 2.5 times higher. Having 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 tourist overnight stays (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 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 damages and expensive mistakes and avoid gradual degradation of natural values significant for tourism. The current negative environmental impacts of tourism activities are 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 values.

The objectives of sustainable development of tourism include:

- Improving accommodation capacities; develop the quality assurance system in tourism and consumer protection systems;
- Develop an IT system for tourism (tourist information centers, 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 use of resources.

The tourism sector is widely recognized as a sector that has the potential, and this is reflected in the fact that there is a vertical institutional structure for tourism development. Apart from the Ministry of 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 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 improved social situation generally.

10.3.8. 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 waste management systems, especially in terms of hazardous waste. It is clear that Serbia can not ensure competitive advantages in the international market either through cheap labor or through the abundance of natural resources. Natural resources, both in terms of their structure and in terms of quality, can not meet the growing needs of dynamic development. There is and there can not 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 high quality of human capital, another is doubtless the selection and use of efficient technology which minimizes the pressures on natural resource and the environment. The major problem in the process of introducing cleaner production is the lack of relevant strategy. Other problems include: lack of 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 the efficiency in using raw materials, production and products; lack of 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 this field are:

- Amending the existing and adopting new regulation to promote cleaner production and harmonization with EU legislation;
- Establishing the Center for Cleaner Production;
- Adoption of the Cleaner Production Strategy;
- Introducing and/or enhancing efficient, sustainable and cleaner production and more efficient use of energy;
- Building cleaner production infrastructure – implement investment projects in the field of research (studies and development research and building of industrial plants), development of industrial-technological parks, clusters, innovation centers and incubators;
- Establishing waste management systems, with special emphasis on minimizing waste generation and use of waste as secondary raw materials and energy source;
- Accelerating the process of restructuring and privatization;
- Reconstructing and improving the existing technological processes accompanied with harmonization with relevant BAT-s;
- Improve 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 relevant to: environmental quality standards and emission standards; environmental protection management systems; environmental labels; import and export of substances damaging the ozone layer; 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 establish a Centre for Cleaner Production to be in charge of implementation of cleaner production projects and providing 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 favorable conditions for organization and improvement of production, introducing EMS, the existing customs incentives relevant to the import of the 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 plants; 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 labeling, subsidies for energy sources originating from renewable sources, introducing green and white certificates in the generation and use

of energy, subsidizing the costs for 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 “cleaner knowledge” and increase the overall welfare of the society.

11. THE INSTITUTIONAL FRAMEWORK

Institutional mechanisms for the implementation of Strategy for sustainable development depend very much on the specific features of 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 within the Office of Deputy Prime Minister. 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 include 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 their absence may also. 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 a strong political support for the necessary strategic reforms is much needed although in practice it is often lacking.

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 better quality of life and living standard 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 Strategy of Sustainable Development through inter-sectoral cooperation is the task of the Unit for Sustainable Development within the Office of the Deputy Prime-Minister. The Unit for Sustainable Development is in charge of preparing decisions and coordinating the work of the Council for Sustainable Development.

The Council for Sustainable Development is an inter-ministerial body made up of ministers in charge of environmental protection, economy and regional development, finance, labor and social policy, telecommunications and IT society and science, and other ministers of the relevant ministries of the Republic of Serbia. The Council is chaired by the Deputy Prime-Minister who is in charge of implementing the process of sustainable development.

It is necessary to establish the Agency for Sustainable Development, as a technical and operative body, in charge of implementation of the Strategy, implementation of projects and activities from the Action Plan, and monitoring the achievement of objectives of sustainable development. For the Agency to be operational, apart from the existing institutions such as: Environmental Protection Agency, Energy Efficiency Agency, Public Health Institute of Serbia, Hydro-meteorological Institute of the Republic of Serbia (RHMI), Statistical Office of the Republic of Serbia, Institute for development of the Republic of Serbia, Institute for Nature Protection, and others, it is necessary to establish also new relevant national laboratories and centers. Primarily, these include: National Laboratory for Water and Air, National Laboratory for Soil and Mineral Resources, National Laboratory for Food Safety, and Centre for Cleaner Production and the National centre for Climate change, recently established within the RHMI with the intention to be transformed into a sub-regional center for climate change for SE Europe. It is expected that other new institutions will be established which would, apart from their basis functions, be in charge of monitoring a certain group of indicators of sustainable development. For instance, it is expected that National Housing Agency, 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 on competences. The results of their work would be universally accessible, subject to any check by professional and general interested 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 have a transparent and efficient management of sustainable development policy.

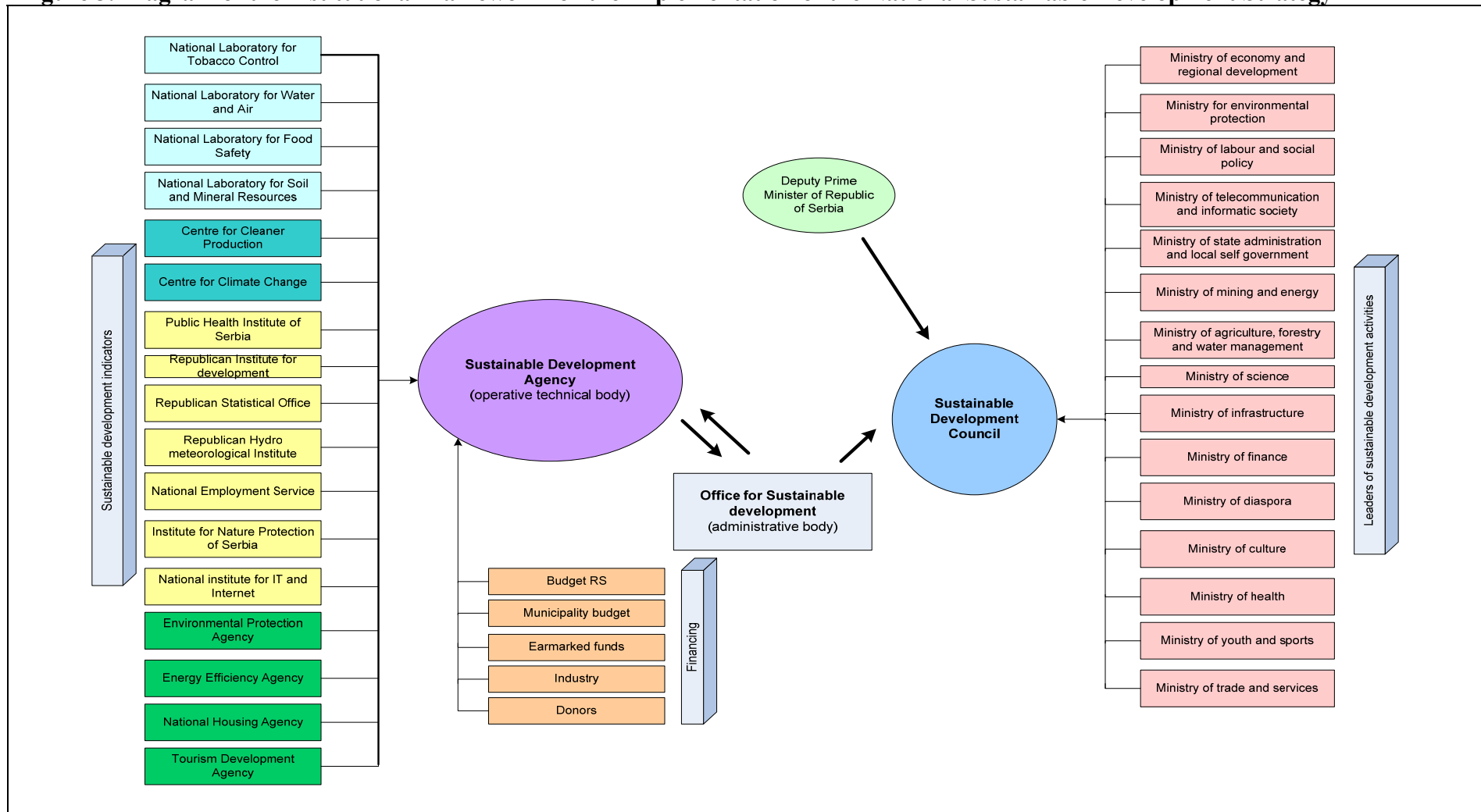
Apart from the said institutions, other institutions important for the implementation of the strategy are: The Office for EU Accession, Agency for Privatization, National Employment Service, Institute for Intellectual Property, National institute for IT and Internet, Agency for SME, Broadcasting Agency, Competition Agency, Commission for Securities, National Education Council, representative trade unions and representative associations of employers, consumers, pensioners and other non-government organizations.

For the needs of financing the process of sustainable development it is expected to use funds from the national budget of Serbia, municipal budgets, ear-marked funds, such as the Fund for Development and the Fund for Environmental Protection, donations and, mostly, funds from the economy.

The ministries of the Republic of Serbia, within their competences, as well as other bodies of public administration and local government, are key actors in activities of sustainable development and will participate in the implementation of the Strategy of Sustainable Development.

Figure 3 is a schematic presentation of the institutional framework for the implementation of the National Strategy of Sustainable Development.

Figure 3. Diagram of the institutional framework for the implementation of the National Sustainable Development Strategy



12. FINANCING THE STRATEGY IMPLEMENTATION

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 of different funds of the Republic of Serbia;
- Funds provided by the economy;
- Donor programs of assistance and loans from international financial institutions.

The period of 2001-2005 has seen a high real growth of GDP at the average annual rate of 5.2%. The year 2004 saw the highest GDP growth rate of 8.4% based on industrial growth, growth of agricultural production and a significant share of the sector of services, especially PTT and telecommunications as well as trade and retail. In 2005, there was also a significant increase of GDP of 6.2%. 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 to the standard of living. There has been a significant real growth of average new salaries from EUR 102 in 2001 to EUR 210 in 2005, and an increase of average pensions from EUR 69 in 2001 to EUR 138 in 2005. 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 enterprises. Further reforms are needed in the social sector to achieve the set goals.

The current level of environmental expenditures 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), and the financing by industry and the private sector is insufficient. The environmental expenditures of new EU members states from Central Europe during the period accession were 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, reduce emissions and environmental protection, or shortly, it is necessary to adjust to the international 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 handling of the product.

The estimates of investments needed to implement the objectives over the next ten years are based on the estimated total costs for the implementation of the Action Plan (2008-2017). The estimates used also the experiences from comparative analyses of countries of central Europe and countries which have already successfully implemented environmental programs, as the time period is too long to do an accurate financing plan.

The estimated overall investment for the implementation of the Strategy is

(this part will be finalized after the estimated funding for implementation of the Strategy on the basis of the Action Plan).

13. 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 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 objectives set out in the Strategy.

In order to monitor the measures undertaken, a set of internationally recognized indicators of sustainable development has been selected.

Institutional responsibility for reporting on progress made in implementing the Strategy is 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.

13.1. Sustainable development indicators

Indicators are very important for successful evaluation of measures 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 including also the indicators for the Millennium Development Goals.

Table 1. 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 standard below the national poverty line Unit: % of the poor compared to total population	Statistical Office of the Republic of Serbia (DEVINFO data base, Living standard 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 (DEVINFO data base, Living standard survey-LSS)
		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 ration 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
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 the 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 the 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 the 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 the 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 the 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 the 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 the 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 enrollment in primary and secondary schools Unit: % of enrolled compared to the total potential number of those who could enroll	Ministry of Education and Sport
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 labor 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
		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 Institute for Development of Serbia
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 labor)	Statistical Office of the Republic of Serbia The Ministry of Finance Ministry of Labor and Social Policy
	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	Energy Efficiency Agency
		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	Energy Efficiency Agency
		Share of energy from renewable sources in total energy generation	Definition: share of energy generated from renewable sources in total generation of energy Unit: %	Energy Efficiency Agency
	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