

COUNTRY REPORT – SERBIA



Table 1: Country Profile, 2005

Area	88,361 sq km ¹
Population (excluding Kosovo)	7,498,001
GDP (official exchange rate US\$) (excluding Kosovo)	19.19 billion
GDP - per capita (PPP) (US\$) (including Kosovo)	4,400
GDP - real growth rate (annual %) (excluding Kosovo)	5,9%
Inflation rate (consumer prices) (%)	15.5
Industrial production growth rate (%) (2006 est.)	1.4
Value added in agriculture (% of GDP)	16.6
Value added in industry (% of GDP)	25.5
Value added in services (% of GDP)	57.9
Labour force (including Kosovo) (2002 est.)	2.961 million
Unemployment rate (%) (2005 est.)	31,6
Note: unemployment is approximately 50% in Kosovo (2005 est.)	
Exports (US\$) (excluding Kosovo) (2005 est.)	4.553 billion
Imports (US\$) (excluding Kosovo) (2005 est.)	10.58 billion
Investment (gross fixed) (% of GDP) (2005 est.)	14.2
Telephones - main lines in use (2004)	2,685,400
Telephones - mobile cellular (2005)	5.229 million
Internet users (2006)	1.4 million

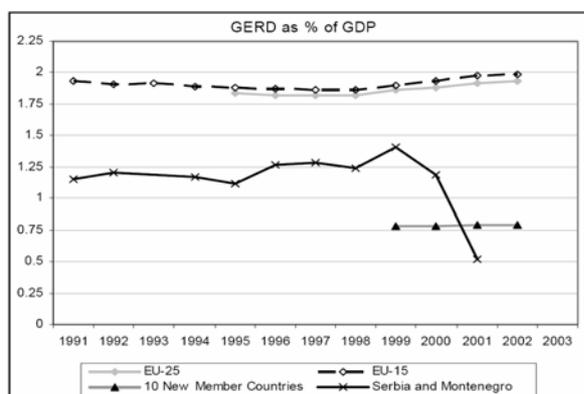
¹ CIA, World Fact Book 2006

R&D INVESTMENT AND HUMAN RESOURCES IN R&D

After an extended period of political and economic sanctions and the damages to former Yugoslavia's infrastructure and industry during the NATO air strikes in 1999, the Republic of Serbia has been left with an economy only about half the size it was in 1990.

As can be seen in Figure 1 the R&D intensity in the early nineties varied around 1.1 to 1.2 percent of GDP, though one has to keep in mind that GDP in this period was declining rapidly. Furthermore, one also has to take into account that the comparability of financial data until 1992 was mediocre as the national classification used is very difficult to transform into the internationally accepted Frascati classification. In 1993, Yugoslavia was experiencing a world-record inflation level, which makes data for this year not reliable.

Figure 1: R&D expenditures in the BSEC-Countries



Source: EUROSTAT, Statistical Office of the Republic of Serbia

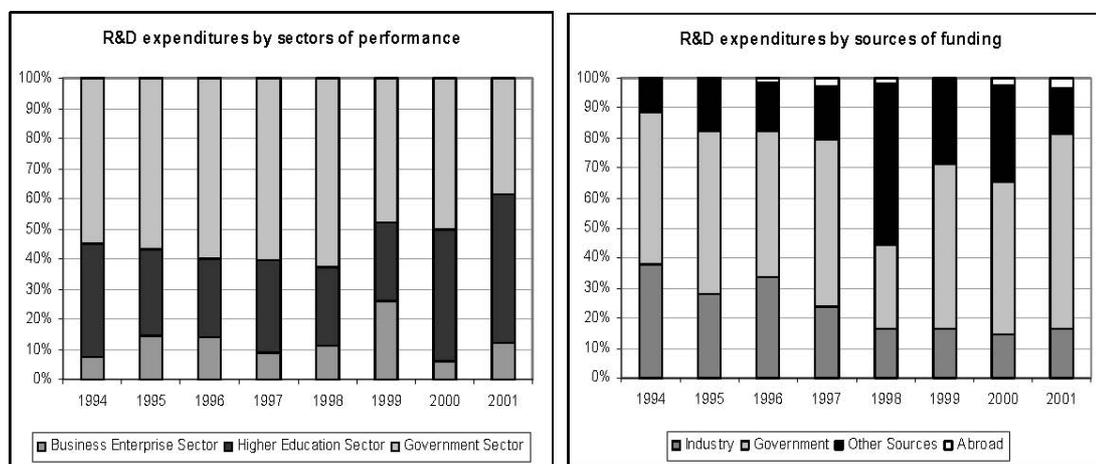
From 1995 to 1999 Yugoslavia's economy began to recover, GDP started to increase as well as and R&D intensity. However, the increase ended abruptly after the NATO air strikes in 1999, which seriously hit the existing infrastructure, industry, environment and the economy as a whole. R&D intensity dropped from 1.4% of GDP in 1999, which

was quite above the level of the new European member countries, to a mere 0.52% in 2001. The low spending in the last decade left Serbia with a significant lack of research equipment and infrastructure. Existing equipment is mostly outdated. Scientists claim that domestic funding is just enough to cover for the salary but not for research. Consequently, access to external funding is crucial.

With the ongoing re-integration of Yugoslavia into the international community and donors provided by the World Bank and the European Commission for economic restructuring a re-consolidation of R&D activities may be expected.

Figure 2 shows that most of the R&D performance is concentrated in the higher education sector and the government sector, which account together for about 90% of R&D performance. Recent trends show a shift in R&D performance from the government sector to the higher education sector, which can be explained by an organizational shift from research institutes to universities. In the period under consideration the R&D-funding by industry steadily declined from 37% in 1994 to 16% in 2001. Sources from abroad were still at an almost negligible level of 3% in 2001, leaving most of the funding to the government sector and other non specified sources of funding.

Figure 2: R&D expenditures by performance sectors and funding sources



Source: Statistical office of the Republic of Serbia

Official statistic for **human resources in science and technology** in Serbia for R&D employees and researchers do not equate to Full Time Equivalents (FTE) as defined in the OECD's Frascati manual. Especially in the higher education sector, researchers are only partly engaged in full-time R&D activities. As one third of funding for researchers in the higher education sector is provided by the Ministry of Science and Technology and two thirds are provided by the Ministry of Education for teaching activities, 1 FTE is equivalent to 3 employees¹. [For HES researchers involved in teaching and research; if they are only in research, 1 FTE=1 researcher!]

About 95% of the R&D activity, institutions and personnel are concentrated in the Republic of Serbia, though the Republic of Montenegro's contribution increased in 1999 because of heavy political pressures on universities and institutes in Serbia, especially in 1998-1999 (cf. Kutlaca, 2004).

Researchers in the Republic of Serbia are allocated in

- 1) higher education sector,
- 2) independent R&D institutes,
- 3) R&D units in the industry
- 4) S&T infrastructure.

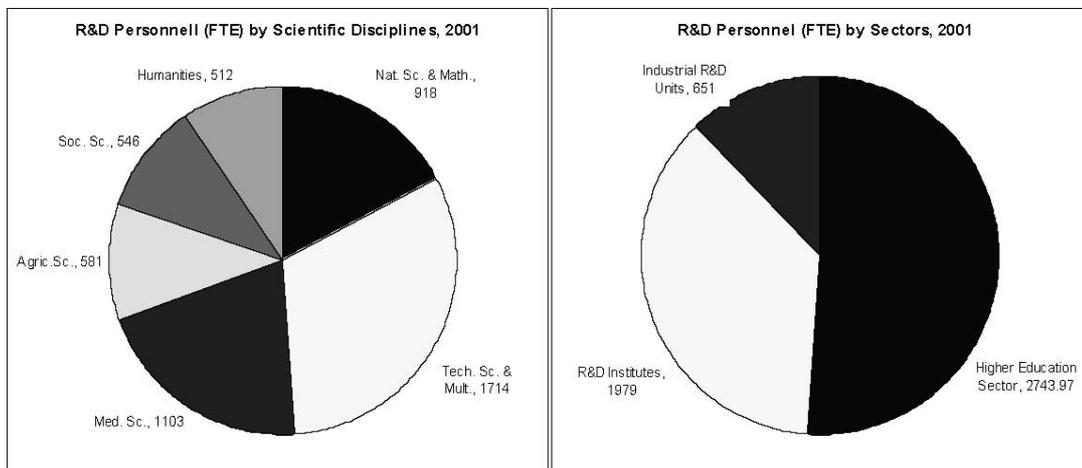
The FTE of researchers in the R&D system declined from 8,091 in 1990 to 5,357 in 2001.

There was a considerable structural change in the R&D system, which can be seen when looking at R&D expenditures by sources of funds, but is also reflected in the distribution of human resources in the respective R&D institutions. While the relative share of researchers in the higher education sector increased from 34% to 51% in the last

¹ This method for re-calculation was introduced by Prof. Djuro Kutlaca, whose calculations we rely on.

decade, the number of researchers in independent institutes decreased from 57% to 37%. The concentration of Human resources in the industrial sector remained at a very low level (9% in 1990 and 12.9% in 2001).

Figure 3: R&D Personnel by Scientific Disciplines & Sectors of Employment (2001)



Source: Kutlaca, 2004

Almost 50% of researchers are allocated in the natural and technical sciences as can be seen by the distribution of researchers by scientific disciplines in Figure 3. The natural and technical sciences mainly contributed to the shift of researchers from research institutes to the higher education sectors. Furthermore, there is also a strong specialisation in medical sciences. While organizational changes as the abandonment of R&D activities in some hospitals led to a concentration of human resources in better-equipped organisations, the medical sciences suffer not only from a brain drain of researchers but also from the emigration of supporting staff (cf. Kutlaca, 2004). Whereas in the agricultural sciences, which are traditional fields of R&D in Serbia, new recruitment offsets some degree of brain drain, R&D personnel in the social sciences is declining in all three sectors of R&D employment, as academic careers become less attractive due to the bad economic situation and better job-opportunities outside the R&D sector. Finally, there was a substantial growth in university staff in the humanities, as there is a general trend of increased interest in the humanities by students.

From perspective of the interviewed local experts, the strengths of the science system are the basic natural and technical sciences. Generally, the quality of the science system is considered much higher than the level of the economy would suggest. One reason for this is seen in the sufficient supply of human capital. The education system, although not modernised and consequently having difficulties in providing high qualified graduates on a broad basis, is capable of supplying sufficient large elite of scientist to keep up the status of the science sector. However, the continuous brain drain poses a severe threat to this system. Driving forces for the brain drain are seen in the deteriorated economic living conditions, the lack of state-of-the-art infrastructure and funds that constitute serious obstacles for research, and restrictive visa regulations that hinder scientific exchange and temporary employment abroad.

INSTITUTIONAL CAPACITY FOR S&T POLICY MAKING IN SERBIA

The only institution in Serbia responsible for managing, planning and financing of public R&D activities is the Ministry of Science and Environmental Protection – MSEP. From 2001 to 2004, this Ministry was called Ministry for Science, Technology and Development. MSEP also has core and full responsibility for international R&D cooperation. Therefore, there is no division of labour and distribution of jurisdictions; everything is under the roof of the MSEP. Serbia has no funds or agencies that are responsible for financing R&D activities i.e. complete financial schemes, payment procedures, and the controlling of the infrastructure is within the responsibility of the ministry. Still, besides MSEP there are other relevant intermediary institutions and research performers of the Serbian STI-system as shown in Figure 4.

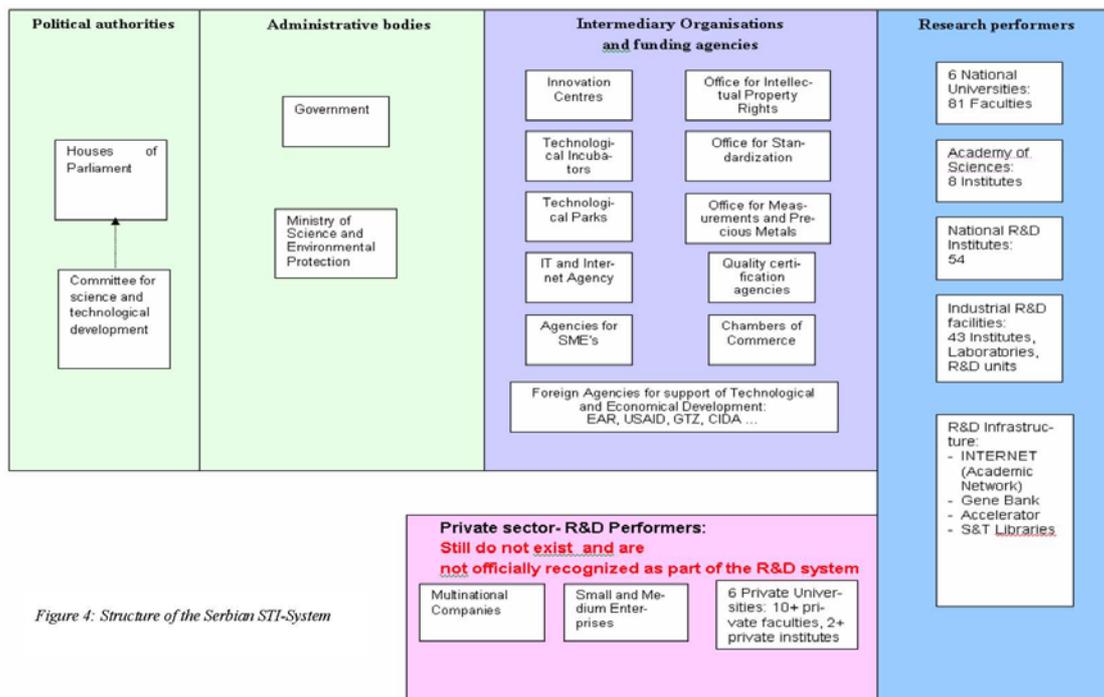


Figure 4: Structure of the Serbian STI-System

The Ministry of Science and Environmental Protection (MSEP)

The Law on Ministries, the official gazette of the Republic of Serbia, No. 4/2001, defines MSEP's specific roles, competencies and responsibilities. The ministry has responsibilities in the field of S&T as follows:

- Development and promotion of R&D activities for technological and economical development;
- Internet and e-business;
- Creation and implementation of S&T policy and strategy for development;
- Creation and realization of S&T and development programmes;
- Development of system of S&T information and S&T and information infrastructure;
- Transfer and diffusion of new technologies in economy;
- Application of S&T achievements and results;
- Financing of specific programmes for technological development;
- International S&T cooperation;
- Training and development of researchers and other activities.

Communications and Relations with Actors of the R&D System

MSEP's core activities are the financing of R&D activities on the project basis (as no agencies, funds, etc. for financing of R&D activities exist) and the financing of the S&T infrastructure. As the ministry is the owner of all national R&D institutes, it has the majority in the management boards (without obligations for maintenance of facilities, salaries for employees, etc.) and plays a decisive role in all main strategic decisions, such as:

- Creation of S&T strategy and policy, and R&D programmes;
- Setting-up of rules and procedures for all R&D activities financed and promoted by the Ministry;
- Certification of R&D organizations and researchers;
- Negotiation, building-up and financing of international bilateral and multilateral S&T cooperation;
- Co-financing of technological development projects and programmes for and with industrial and other public companies.

Responsibilities for International R&D Co-operations:

MSEP has full autonomy and responsibility for international R&D cooperation as:

- Negotiation with partners in international and national S&T institutions;

- Contracting the framework for international bilateral and multilateral S&T cooperation, as a obligatory basis for domestic, state-owned R&D organization;
- Financing of international bilateral and multilateral S&T activities, which are selected and approved by the Ministry.

Intermediary and Technology Transfer Institutions

The main actors at the intermediary level are

- Intellectual Property Rights Office (IPRO)
- Innovation Centres
- Technological Incubators and Technological Parks
- Agency for the Development of Small and Medium Sized Enterprises
- Chamber of Commerce and the Information Technology and Internet Development Agency (ITIDA).

Intellectual Property Rights Office (IPRO)

The IPRO for Serbia has no sufficient number of personnel trained for the substantially changed role, scale and scope of activities emerging year after year, since adoption of market economy rules came in power. A new patent law adopted by the Federal Assembly in 1995 significantly altered the practice of protection of invention in the country: Since then employee inventors have not been allowed to apply for patent rights without their firm's permission.

The IPR Office is in a process of adoption EPO rules and principles, aiming for association with EPO (European Patent Office). New patent laws have adopted WIPO (World Intellectual Property Organization) and EPO recommendations concerning the protection of pharmaceutical products, which had been the subject of negotiations between former Yugoslavia and these organizations. This patent law is again in process of change, adopting new regulations, particularly in the field of protection of software.

Innovation Centres, Technology Incubators and Techno-Parks

Innovation Centres are practically in a setting-up procedure and still not in function. So far Technological Incubators have only been established at the Technical Faculty of the University of Novi Sad and an ICT-Incubation Centre in Belgrade. Techno-Parks are as well as innovation centres only in a setting-up procedure (feasibility studies, expression of interests etc.) and still not in function.

Known sites are:

- Belgrade – Mihajlo Pupin Institute,
- Belgrade – Institute Vinča,
- Belgrade – University of Belgrade-Technical faculties,
- Belgrade – Institute for Chemistry, Technology and Metallurgy,
- Novi Sad – Technical University,
- Niš – University of Niš,
- Kraljevo,
- Technological Park in the Region Podrinje-Kolubara.

Information Technology and Internet Development Agency (ITIDA)

The ITIDA has been founded in 2001 because the Serbian government placed a strategic orientation on Information and Communication Technology (ICT) in order to overcome the existing gap in and to unite all the authorities in the field of IT and the internet in one coordinated body. It consists of a working body of about ten ICT experts, as well as assisting technical staff. The Agency is the fundamental source of contact and work coordination between international and local donors, Serbian government and final beneficiaries of ITIDA's programmes.

ITIDA has authority over:

- Coordination of the state authorities work concerning use and application of information and ICT in all state institutions, as well as regulation analysing, designing and monitoring the use of ICT standards country-wide;
- Development of the intranet infrastructure of the state bodies and computerisation of the state administration work process: E-government, as well as cooperation with international organisations and national and international agencies concerning ICT development issues;
- Education: Creating plans and proposals for ICT introduction into the educational curriculum, from elementary schools to universities, as well as providing funds for the realisation of certain programmes.

ITIDA planned very ambitious programmes, which have been realized just in parts. Because of conflicts in jurisdiction between ITIDA and the Ministry of Science, Technology and Development, ITIDA activities are practically suspended since 2003.

The Agency for the Development of Small and Medium Sized Enterprises

Established under the law on agency for the development of SMEs, the agency has the basic aim to support the development of the SMEs in the country. Among a variety of tasks and missions the agency should provide support for SMEs in process of the acquiring of new technologies, should establish an information system with data of importance for SMEs, and should contribute to the transfer of knowledge and technologies. So far, the agencies failed to support commercialisation of new technologies and products developed in R&D sector (Kutlaca 2005).

The Chamber of Commerce and Industry of Serbia

As an independent, non-governmental, business-expert interest association of legal subjects and individuals in the private enterprise sector, the Chamber has established joint activities with the Ministry of Science and Environmental Protection (MSEP) in order to promote R&D results and transfer technologies from the R&D sector to the economy. The ongoing joint programme for the year 2005 is to provide "1000 technologies from the R&D sector to the Serbian economy".

The Academy of Sciences in Serbia

Serbian Academy of Sciences and Arts (SASA)

The SASA was founded in 1886 as the Royal Serbian Academy. Today it counts 280 members of which 102 are full, 55 are corresponding, 19 are non resident and 104 are foreign members. All of them are honourable, elderly scientists, which are associated to one of the eight departments, namely: Mathematics, Physics and Geo Sciences; Chemical and Biological Sciences; Technical Sciences; Medical Sciences; Language and Literature; Social Sciences; Historical Sciences; Fine Arts and Music. The technical and natural science departments account for about 40% of the members. Academy members are elected every third year.

SASA has an assembly which includes the full and corresponding members. The Executive Board of Presidency consists of the president (currently Nikola Hajdin), two vice-presidents, a secretary general and the president of the SASA Branch in Novi Sad. The presidency itself encompasses the secretaries of the scientific divisions, one additional representative of each division, and one representative of the SASA Branch in Novi Sad.

The Scientific Research Fund of SASA provides funds for scientific-research work, publishing, international cooperation, conference and workshop participation of SASA members and their associates as well as for the acquisition of scientific literature. In 2004, the scientific research programme of SASA conducted 64 projects in the field of Natural Sciences and Mathematics, 16 in the field of Technical Sciences, 24 projects in the field of Medical Sciences, 21 projects in the field of Language and Literature, 9 projects in the field of Social Sciences, 40 projects in the field of Historical Sciences and 5 projects in the field of Fine Arts and Music.

The academy has research centres in Niš and Kragujevac, runs a library and two galleries in Belgrade. Moreover, there are ten institutes under the roof of SASA, which are located in Belgrade:

- Archaeological Institute
- Institute for Balkan Studies
- Institute for Byzantine Studies
- Geographical Institute "Jovan Cvijić"
- Ethnographical Institute
- Institute for the Serbian Language
- Institute of Technical Sciences
- Historical Institute
- Mathematical Institute
- Institute of Musicology

The institutes are independent institution, which are – like SASA as such – mainly financed by the Serbian Ministry of Science and Environmental Protection.

SASA has bilateral agreements on scientific cooperation with several academies of sciences or similar institutions, especially in Eastern Europe (Poland, Hungary, Romania, Bulgaria, Czech Republic, and Slovakia). These agreements include joint research projects and researcher exchange. Moreover, it takes part in various international organizations.

STRATEGIES, PROGRAMMES AND GOVERNANCE FOR R&D

R&D Strategy

After the democratic changes in October 2000, the new government has started a process of setting-up a number of strategic documents in different sectors. The ministry of science, technology and development has developed strategic documents such as: "Science and Technology and Innovation Policy for the Republic of Serbia", which can be considered as the main strategic document for Science and Technology for the Republic. Though the document has been finished just before the new elections and government and/or parliament never adopted it officially, the R&D programmes are functioning under the framework of this document, as the new government and the respective Ministry for Science and Environmental Protection did not provide different or changed documents so far.

Besides the strategic vision, that the Republic of Serbia has to get a middle-range, internationally competitive developed European economy by means of a successful National Innovation System, and the respective innovation policy aims, the document also proposes main devotions for the use of R&D resources in Serbia, including among others:

- Optimal utilization of R&D resources targeting the GDP growth;
- Incentives for applied research and technology development (industrial R&D);
- New mechanisms for knowledge transfer from knowledge sources to implementations in society;
- Support of industrial R&D, and national programs for national problems;
- R&D according to the national development strategy and market needs;
- New mechanisms for direct knowledge and technology transfer from universities to market
- Business incubators, start ups & spin-offs, ST-Parks;
- High priority to the quality of R&D projects – international peer review of proposals, impose the competition and competitive criteria, quality metrics;
- Encouragement of international R&D collaborations.

The document proposes following focuses of innovation policy:

1. Companies are the main actors of NIS – innovations are generated and used there. Government support for technological development must be directed to industrial enterprises. Development of innovative products and processes will be co-financed up to 50% of total innovation project costs;
2. Government will support the establishment of new technology based in small and medium sized firms (NTBF) through the creation of technology incubators and financing via public risk capital funds;
3. Traditional industries must be revitalized through the transfer of technologies and knowledge, and support of export-oriented production. Special attention will be given to restructuring of large public companies;
4. Government will support the development of transfer institutions (such as innovation centres, technology incubators, centres for transfer of technologies, etc.)
5. R&D activities should be adapted to the needs of economy and society. Therefore, applied research and technological development activities will have higher priority. Basic research activities will be supported if they contribute to specific development aims, i.e. if they create knowledge, inventions and human resources for applied research and technological development. At least half of the total R&D budget should be allocated for technological development in industry.
6. Public financing will go only to R&D activities adjusted to national R&D priorities. Industrial enterprises must cover minimum 50% of total R&D project costs.

For the realization of the proposed innovation policy, the responsible ministry proposed the following programmes:

1. Programme for support of development of innovation – support of innovation projects in industrial enterprises and R&D organizations, support of innovation centres, support for protection of patents and other sorts of intellectual property, support for awards to innovative individuals and companies;
2. Programme for support of establishment of NTBF – support for development of technology incubators, training of employees for entrepreneurship, management, quality control etc;
3. Programme for support of establishment of risk capital funds, both public and private;
4. Programme for transfer of knowledge and technologies – support for information centres and information services, technology transfer centres, networking of transfer organizations, training courses for use of new technologies, support for feasibility studies for introduction of new technologies in industrial companies, support for loans for acquisition of high tech equipment;
5. Programme for support of cluster building activities in selected industries/technologies;
6. Programme for technology development addressing the development of new technologies, new and/or improved

products and processes;

7. Programme for scientific research activities – support for integrative research programmes and strategic R&D programmes, for basic and applied research projects which are in accordance with national research priorities.

Thematically, the R&D policy focuses upon three fields:

- Agriculture / Biotechnology / Life-Sciences
- Information and Communication Technology
- Nanotechnology.

R&D Programmes

National programmes

With MSEP having the only political and operative responsibility in the field of Science and Technology in the Republics of Serbia, MSEP is also responsible for the design and implementation of R&D programmes. Several research programmes exist:

- The **Basic Research Programme** funds projects in all fields of sciences. Project duration is about 3-4 years with a yearly financing up to 100% of project costs. In total, about 1.34 billion Serbian Dinar (ca. 18.5 Mio. €²) are allocated to this programme (2003).
- The **Technological Development Programme** funds projects in the fields of ICT, materials and chemical technologies, mechanical engineering and industrial software, traffic engineering and civil construction, energy technologies, and biotechnologies. Project duration is about 2-3 years with a yearly financing up to 70% of project costs. For this programme the MSEP has provided about 0.91 billion Serbian Dinar (ca. 12.6 Mio. €²) in 2003.

Both programmes are organized as open public calls by the MSEP. The proposals are subject to national peer reviews for technological development programmes and to national as well as international peer reviews for basic research programmes. Currently, the MSEP tries to strengthen applied research by shifting funds to the technological development programme. Both programmes follow the bottom up approach, whereas MSEP also pursues a top-down strategy in the case of three national thematic programmes:

The project duration within the three national thematic programmes is about 2-3 years, the yearly financing up to 50% of the project costs exist since the year 2003:

- **Energy Efficiencies** (more than 100 projects in 7 sub-programmes, equivalent to 3,168 man-months or 264 full time equivalent (FTE));
- **Biotechnology and Agro-Industry** (more than 60 projects in 7 sub-programmes, 763 man-months or 63.6 FTE);
- **Protection and Use of Waters in Serbia** (more than 40 projects).
- **Technology Transfer and Entrepreneurship-Programmes**: Financial support for setting-up of 9 innovation centres in 5 public universities, setting-up of programmes for support of innovation projects, setting-up of programmes for support of new technology-based small and medium firms, financing of maintenance costs and equipping of R&D organizations, creation of a concept of National Innovation System in Serbia.
- **Support for R&D training and international exchange**: Since 1993, the Ministry of Science and Technology (MST) of the Republic of Serbia has adopted a program to encourage and upgrade young scientists. During the twelve years of this program's implementation, hundreds of young research fellows were involved in R&D projects in the R&D organizations. Their work was observed and guided by mentors – eminent scientists, researchers and professors. In the year 2005 for the first time since 1980s some 20 junior researchers are granted for post-graduate studies abroad (up to 6 months). Furthermore, MSEP supports domestic researchers participating at international R&D projects, meetings and conferences, and foreign scientists visiting Serbian R&D institutions and conferences.

Currently, the MSEP considers changing the funding structure. One option would be that the MSEP provides the institutional funding, whereas a new established funding agency organizes calls and hands out research grants.

International R&D co-operations

After more than a decade of isolation, the Serbian science system is currently trying to re-establish its international

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² Calculation based on the exchange rate at the 31.12.2003.

research networks. The focus is thereby on EU-programmes and on collaboration with neighbor countries. One major aim of collaboration with EU-partners is the access to urgently needed funds for research and infrastructure. However, current EU programmes do not include funds which can be invested in infrastructure.

For international collaborations the existing network of expatriated Serbian scientists worldwide, especially in the USA, Canada, and Europe, is of great importance. Often these former staff members of Serbian research organisations keep in contact with their former institutes and act as contact points for international research projects, including access to external funding. Hence, viewed from this perspective, the brain drain of scientists from Serbia can also have some positive impacts on the science system.

R&D institutions in the Republic of Serbia participate in the following multilateral programmes:

EU Framework Programmes (FP): In 2003 R&D-organizations from Serbia are involved in 16 EU FP5 projects, which account for a total budget of above 1 million EUR. In 2004, R&D organizations from Serbia have applied for EU FP6 projects, dedicated for West Balkan Countries. The allocated total budget for Serbian R&D organizations was about 3 million EUR (see Table 2).

For EU-FP-projects the MSEP provides 10% of the budget as an incentive for the participation and in order to avoid liquidity problems at the beginning of projects, which might be caused by the relatively late transfer of EU-funds.

Table 2: Participation and funding of Serbian R&D-organizations in EU FP5 and FP6

Project	R&D-Organization	Total Budget (€)	Budget for R&D org. in Serbia (€)	Ministry contribution (€)
FP5 projects financed in 2004				
PROMETHEAS	Fakultet za fizičku hemiju, Univerzitet u Beogradu	€ 598,060	€ 110,416	€ 11,042
PH-FDV	Mašinski fakultet, Univerzitet u Beogradu	€ 380,000	€ 124,440	€ 12,444
APOPSBAL	Institut za hemiju, PMF Novi Sad	€ 648,761	€ 107,000	€ 10,700
REINTRO	Centar za multidisciplinarnu studiju, Univerzitet u Beogradu	€ 649,778	€ 81,872	€ 8,187
SAFETYSAusage	Institut za higijenu i tehnologiju mesa	€ 1,000,000	€ 114,387	€ 11,439
AGROIWATECH	Institut za hemiju, PMF Novi Sad	€ 996,159	€ 124,220	€ 12,422
ESCAPE_TRIAL	Medicinski fakultet, Univerzitet u Beogradu	€ 1,604,329	€ 0	€ 1,000
FP6 projects financed in 2004				
TRioH	INN Vinča	€ 11,610,500	€ 138,800	€ 13,880
VIF-CA	FTN, Novi Sad	€ 1,500,000	€ 15,000	€ 1,500
RECOFUEL	INN Vinča	€ 5,928,840	€ 120,000	€ 12,000
WATERWEB	Poljoprivredni fakultet, Univerzitet u Beogradu	€ 1,200,000	€ 215,570	€ 21,557
WATERWEB	Institut Jaroslav Černi	€ 1,200,000	€ 183,280	€ 18,328
SARIB	Institut Mihailo Pupin	€ 1,200,000	€ 160,500	€ 16,050
INTREAT	TMF, Beograd	€ 1,000,000	€ 100,000	€ 10,000
EMKO	TMF, Beograd	€ 1,199,987	€ 146,921	€ 14,692
FlexHEAT	Mašinski fakultet, Beogradu	€ 1,298,336	€ 309,000	€ 30,900
ADEG	INN Vinča	€ 1,189,802	€ 195,156	€ 19,516
PBPTSD	INN Vinča	€ 1,300,000	€ 2,400	€ 1,000
PBPTSD	Medicinski fakultet, Beogradu	€ 1,300,000	€ 435,420	€ 43,542
PBPTSD	Institut Siniša Stanković	€ 1,300,000	€ 157,888	€ 15,789
SEEGrid	Institut za fiziku	€ 972,000	€ 99,642	€ 9,964

EUREKA: In 2003, R&D-organizations from Serbia are included in the following EUREKA projects:

- EUROTRAC – Environmental protection,
- LOGCHAIN MTC NRW BALKAN – Transportation,
- FACTORY WELDERS PASSPORT – Information technologies,
- EUROPEAN WELDER (EUROLEARN) – Information technologies,
- ENGINEALPARTS – Transportation.

Serbia is also participating in the EUREKA thematic networks EULASNET and EUROTOURISM.

EU COST: R&D organizations from Serbia have been involved since June 2001 in 11 EU COST actions.

UN-Programmes: The International Agency for Atomic Energy (IAEA) together with US government supports activities in the Institute of Nuclear Science *Vinča* under the name of *Green Vinča* within 6 projects.

Moreover, Serbia has bilateral R&D co-operation programmes with the following countries:

- *France:* New programme for R&D cooperation for 2004-2005 – 18 projects approved for financial support,
- *Slovak Republic:* New programme for R&D cooperation for 2004-2005; 12 projects approved for financial support,
- *Austria:* Donation for R&D infrastructure from the Austrian government; 450.000 EUR under World University Service programme,
- *Greece:* Renewed bilateral programme with Greece, 75 project applications are in the process of evaluation for financial support,
- *Slovenia* – new bilateral programme – 36 project applications are in the process of evaluation for financial support,
- *Germany:* With the regional call "*International Cooperation in Education and Research - Central, Eastern and South Eastern European Region Programme*", which has been issued in June 2005, the German Ministry of Science (BMBF) provides funds for preparatory projects in the field of applied research, development and education in order to place project applications in current BMBF funding programmes and to prepare projects on thematic priorities of FP6 as well as on other EU programmes which are relevant to research,
- *Israel:* Improved co-operation
- *Russia and China:* Resumed cooperation with both countries,
- Ongoing negotiation for bilateral co-operation with ten more countries, of which Bulgaria, Russia, Ukraine and Romania are BSEC countries

Governance of R&D Policy

The R&D governance system of the Serbia is characterized by a high degree of discontinuity in the process of policy setting. New governments always re-start from the beginning, preferring a more political than policy aspects of the issue. E.g., the science law adopted in 1993 was strongly criticized by the new government in 2001 and a new science law was prepared. Two years later the new law remained without final approval and in 2004, another new government started up new with preparations for a new science law. One expects this version to be in Parliament for adoption in spring 2005.

Worldwide-accepted methodologies such as foresight in science and technology never were implemented in Serbia, although the R&D community generated some proposals in this direction. One usual explanation for this is that most of stakeholders are not educated and trained for implementation of foresight activities. There is a lack of confidence in the stakeholders, and an absence of systematic work in this field, as well as very strong influence of politics rather than policy awareness. Furthermore, there is very strong pressure on quick preparation of policy documents, which ends with premature documents and long procedures. Finally, like in the case of the new science law processes last very long and end up without final approval.

S&T policy documents and programmes are practically set up without evaluation procedures and professional expertise. As MSEP is the only funding authority and programme implementation and selection procedures are fully integrated in MSEP the R&D community is fully dependent from MSEP. Therefore, the scientific community is behaving highly opportunistic in a sense that it is sensitive only to proposals in R&D policy, which are directed to change the present situation and the inherited position. The difficult economic situation in the country leads the R&D community to try to preserve financing from MSEP as there are no other funding sources. As all initiatives to push technology transfer and the development of commercial utilisable R&D are only in a process of being set-up or even have been discontinued, the R&D system practically remains separated from the economy and society. This constitutes the main obstacle for the R&D system in Serbia.

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