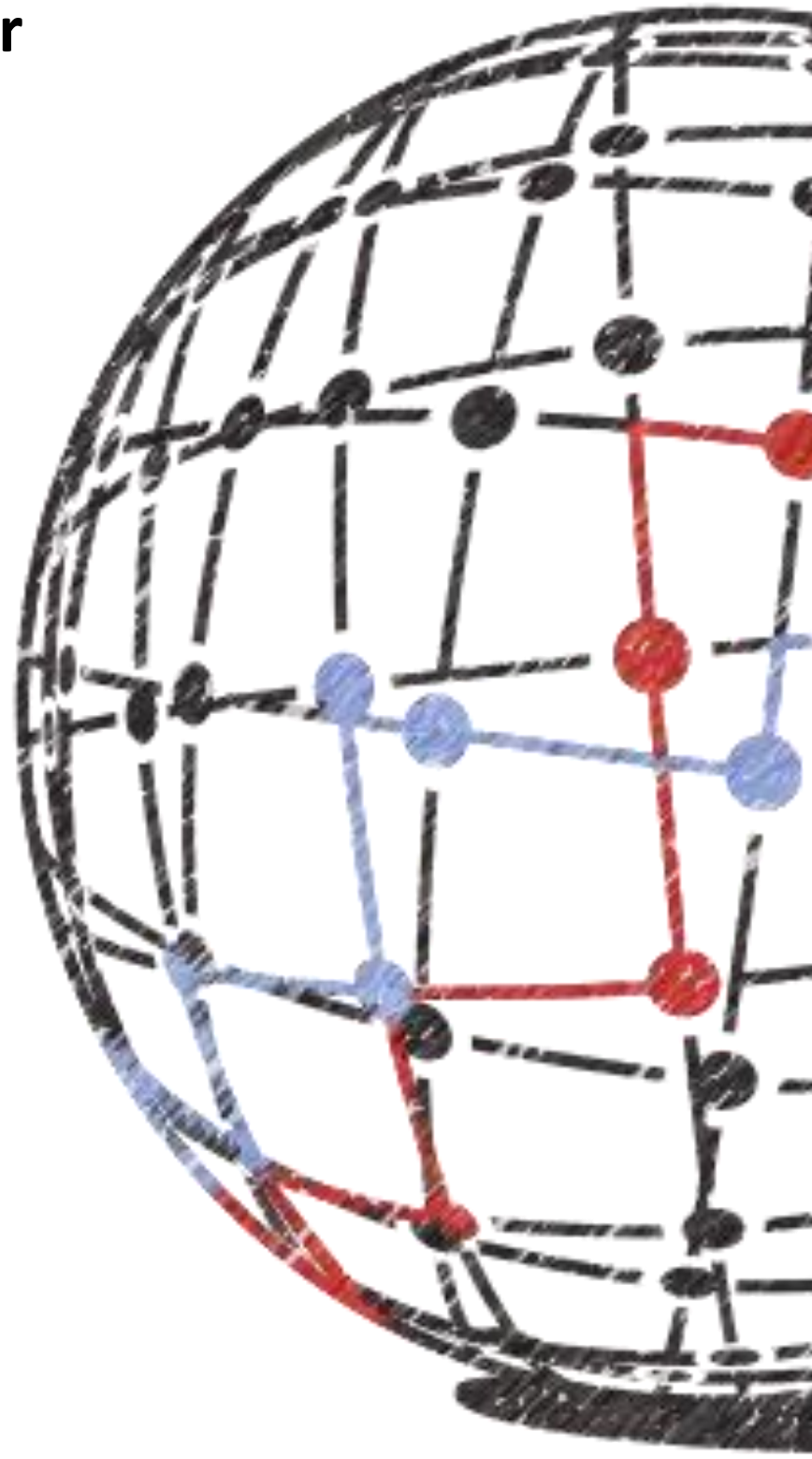
Overview of Higher Education and Research Systems in the Western Balkans

Serbia



April 2013*

*The initial version of the report was amended in the chapter *Organization of studies,* p. 12, October 2013.

About Country Reports

The series of reports entitled "Overview of Higher Education and Research Systems in the Western Balkans" is produced within the framework of the project "European Integration of Higher Education and Research in the Western Balkans" which is funded through the NORGLOBAL programme of the Norwegian Research Council. The reports cover seven higher education systems in the region – Albania, Bosnia and Herzegovina, Croatia, Kosovo*[1], FYR Macedonia, Montenegro, and Serbia.

Each of the seven reports represents an overview of the higher education and research systems in the region, covering topics such as policy, governance arrangements, funding, institutional landscape, and quality, while focusing on the major reforms and trends in the recent years. Aiming to secure a comparative perspective in writing the reports, their structure is built around the questionnaire produced by the project team.

Apart from striving to complement our knowledge base on the dynamics of higher education and research systems in the Western Balkan region, the purpose of the reports is to introduce these systems in a structured manner, as well as to offer a basis for prospective comparative research.

[1] * This designation is without prejudice to positions on status, and is in line with UNSCR 1244 and the ICJ opinion on the Kosovo Declaration of Independence.

European Integration of Higher Education and Research in the Western Balkans

Overview of Higher Education and Research Systems in the Western Balkans

Country Report: Serbia

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Table of contents

List of figures

List of tables

List of abbreviations

BOS	Belgrade Open School
CEP	Centre for Educational Policy
EHEA	European Higher Education Area
ENQA	European Association for Quality Assurance
ERA	European Research Area
S&T Strategy	Strategy on Scientific and Technological Development of the Republic of Serbia
ECTS	European Credit Transfer System
GERD	Gross Expenditure in Research and Development
GOVERD	Government Expenditures in R&D
HEI	Higher Education Institution
LHE	The Law on Higher Education
LSRA	The Law on Scientific Research Activity
MESTD	Ministry of Education, Science and Technological Development
NCHE	National Council for Higher Education
NCSTD	National Council for Scientific and Technological Development
CAQA	Commission for Accreditation and Quality Assurance
R&D	Research and Development
SORS	Statistical Office of the Republic of Serbia

Introduction

Together with Croatia, Macedonia, Montenegro, Slovenia and Bosnia and Herzegovina Serbia was one of the six republics of the Socialist Federal Republic of Yugoslavia (SFRY), a multinational communist federation. The SFRY broke apart in 1991, and Serbia with Montenegro came to form the new Federal Republic of Yugoslavia (FRY) in 1992 which have lasted until the secession of Montenegro in 2006.

During the 1990's Serbia was under the authoritarian rule, engaged in the post-yugoslav civil war 1992-1995, suffering UN sanctions, and the bombing of its territory by NATO in 1999. It was a decade of wars, sanctions, severe and lasting economic crisis with the world highest inflation and overall economic, political, social, educational and scientific isolation.

In September 2000 the authoritarian rule was abolished and in due course of time under free elections the new democratic government was established, beginning political and economic reforms towards liberal democracy and market economy. In 2003 the Minister of education and sport signed the Bologna Declaration and Serbia begun overall reform of higher education moving toward the common European Higher Education space. In March 2012 Serbia was granted EU candidate status, accession negotiations are expected to start in the near future.

Sources & data

Report is based on various sources and data: Statistical Office of Serbia and Ministry of Education, Science and Technological Development (MESTD), reports and researches (national and international). Since in several occasions there were different data presented in different documents and reports, at respective places (mostly in foot notes) we have signalled to those differences, pointing out some lack of reliability.

Structure of the report

The report follows the structure of the questionnaire prepared by the project team which was used for all seven higher education systems. Section 2 is focused on size and structure, funding, quality, governance and major reforms and policy trends of the higher education. Section 3 is focused on the same aspects of the research system. Section 4 deals with the policy and governance arrangements and offer a rough interpretation of Serbian higher education steering model, with the concluding remarks about organizations and NGO's dealing with research in HE.

2. The Higher Education System

Size of the system

Institutions

According to data from 2013, Higher Education System in the Republic of Serbia consists of 18 universities and 72 non-university HE institutions.

Table 1. Size of the HE system, 2013 (source: CAQA)

	Public	Private	Total
No. of non-university /vocational/professional HE institutions	52	20	72

The first private university in Serbia was established in 1993 in Belgrade. It was University Braca Karic, which became Alfa University in 2008 along with the change in the managing structure.

The Bologna Process reforms initiated the adoption of a new Law on Higher Education (LHE) in 2005. It brought about a number of changes relating to the establishment and operation of higher education institutions:

Private faculties could no longer function as autonomous higher education institutions (HEI), but only under the framework of a university.[2] They begin, therefore, to group into universities thus giving rise to the increase of number of universities.

The new Law introduces academic and vocational studies in the area of higher education.[3] The introduction of academic and vocational studies caused the increasing of private HEIs number, especially the number of colleges across Serbia.

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[2] An institution of higher education shall have the status of a university if its academic study programs imply all levels of study courses at least in three areas or fields within the following educational-scientific and/or educational-artistic fields: natural sciences and mathematics; social studies and the humanities; medical science; engineering and chemical engineering; arts (*Law on Higher Education*, Article 33, at http://www.mpn.gov.rs/sajt/page.php?page=198).

[3] Previous *LHE* recognized only the term „studies“ as a part of higher education (which should be equivalent to academic studies).

After The Commission for Accreditation and Quality Assurance (CAQA) was established under the provisions of the new Law, a small number of higher education institutions lost their license since they didn't fulfil the required criteria for accreditation.

Private HEIs are competing with public HEIs mainly in the field of social sciences and humanities, and soft-applied disciplines because of the demand for those programs at the labour market and easier access to employment (e.g. out of 10 accredited private universities, 8 of them offer study courses which relate to professional studies (entrepreneurship, business) whereas 9 of them have management-related study programmes, etc.) (A Guide to Accredited 2012 Study Programs, 2012). On the other hand, there is very small number of private faculties in the field of medical, technical and mathematical sciences.

Public and private faculties are competing in several fields:

- Criteria for employing of teaching staff in private and public universities are the same, but it is somewhat different in practice (e.g. a lecturer from a public university will be deprived of the right to do lectures within first degree studies after retirement whereas the private universities allow for this possibility, etc.), and private university professors are promoted in rank significantly faster compared to their public university peers.
- Private universities have more structured study regime and of more efficient faculty services compared to public universities, and they often offer a range of possibilities to their students (e.g. the first study year free of charge and similar mechanisms). Also, there is a perception that there is a faster study progress in private universities compared to public universities.
- Private universities are generally perceived as of lower quality compared to the public universities. For such reason we have frequent situations where students from the private HEIs are not equal to their colleagues who study at the public universities, especially at the labour market and when applying to public HEIs to continue their education (because they are usually considered not to have sufficient knowledge and required skills).

There is still no higher education institution founded under the international partnership. One of the priorities in Serbian higher education system was to encourage universities to develop international joint degrees study programs (National Report regarding the Bologna Process

Implementation 2009-2012, Serbia, (2012), p. 8). Erasmus Mundus is one of the important lines in this sense. In 2012/13 several international joint degree programs were started.[4]

Structure of educational provision

There are five types of higher education institutions in Serbia: Universities, Faculties/Art Academies, Academies of Vocational Studies, Colleges and Colleges of Vocational Studies (MESTD, at: http://www.mpn.gov.rs/prosveta/page.php?page=78).

Organization of Studies

The first level studies (Undergraduate) can be organized as basic academic studies or basic professional career studies by all institutions of higher education. Undergraduate academic studies last three to four years (180-240 ECTS), undergraduate vocational studies last three years (180 ECTS).

The second level studies (Postgraduate) can be organized as diploma academic courses for a master's degree, specialist academic studies and specialist professional career courses by a university, faculty or college. They last one or two years depending on the duration of undergraduate academic studies (60-120 ECTS).

The integrated Studies (single cycle program): Academic study programs in medical sciences can also be organized as integrated studies, as a part of the undergraduate and graduate academic studies, with the total not exceeding 360 ECTS points.

The third level studies (Doctorate): Doctoral academic studies can be organized only by universities or faculties (180 ECTS).

Public universities are free to determine the contents and teaching methods of programs they offer. The academic freedoms as set forth by the Law on Higher Education include the freedom to choose study programs, as well as methods to interpret their contents, whereas the autonomy of universities and other higher education institutions guarantees the right to identify study programs (LHE, 2005, Art. 5). National Council for HE (NCHE) defines standards and procedures which study programs have to fulfil, in order to be accredited (see Section 2).

[4] According to the *Catalogue of the Commission for Accreditation*, the number of accredited joint degree study programs in the academic year 2012/2013 is 13 (out of a total of 1329).

The introduction of the new degree structure has coincided with an increase in total number of study programs. On the other hand, as the number of both public and private HEI increased, along with the total student numbers, it could also be argued that the number of programs would have been increased even without the restructuring of studies. Unfortunately, there is no overall data on number of "old" study programs (before Bologna). There is no data on whether the introduction of the new degree structure contributed to higher completion rates and/or faster study progress.

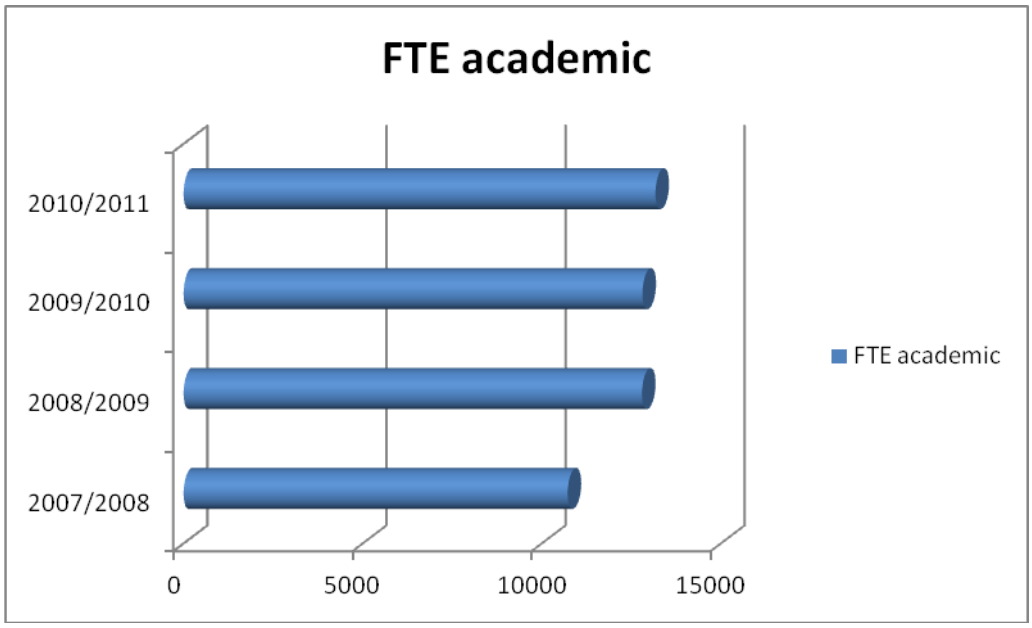
According to the Svein Kyvik's classification (Kyvik, 2004), higher education system in Serbia is a binary system. According to the data from the CAQA, there are 1,329 accredited study programs within all universities in Serbia (both public and private), and only 30 of them are vocational HE study programs within the universities. New, non-university higher education institutions were established in addition to upgrading the existing post-secondary schools to colleges of higher education. The main purpose of these non-university institutions was to offer a wide spectrum of vocational education, either to qualify for a specific occupation or to prepare for a future profession. Non-university system is functioning under the same set of regulations as the university system. Also, the non-university system is organized in multidisciplinary centres according to geographical criteria, which has an important role in strengthening regional economy.

The university and non-university sectors were to offer clearly defined educational alternatives with an identical degree structure: universities – traditional academic studies, while the colleges were to focus on the more practical subjects (an important premise of the reform was to protect universities against an unwanted vocational orientation).

Staff

Following the number of students and establishment of new HEIs, the total number of staff at HEIs in Serbia has been increasing in the past several years – in 2007/08 the total number of FTE academic staff was 10,723, in 2008/09 - 12,799, in 2009/10 -12,813, in 2010/11 – 13,175 (Figure 1). There is no official statistics concerning administrative staff neither total number of HEI staff.

Figure 1. Number of academic staff (FTE, 2007/08 – 2010/11)



Source: Statistical Office of the Republic of Serbia

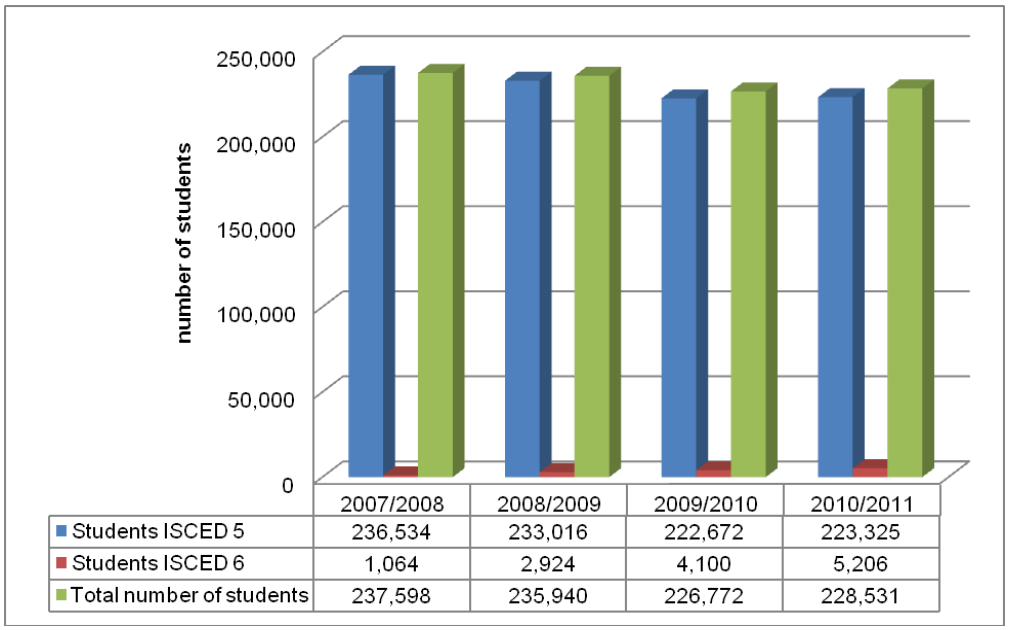
Public universities are free to appoint staff. Autonomy of universities and other HEIs, according to the Law on Higher Education, means that HEI has the right to select teachers and other members of staff, while the NCHE gives recommendations for the criteria for the selection process. In public higher education institutions, the number of employees is identified on the basis of regulations on the number of staff. HEI advertise vacancies for teachers within the specific scientific field. A faculty renders a decision on the selection of teaching staff to be, in turn, approved by the university – the procedure of the selection of teaching staff entails two levels and the university makes a final decision in the selection process.

Public HE employees receive salaries determined by the coefficient defined within the Law on State Employees Salaries. The amount is determined by the regulation on coefficient for calculation and payment of salaries for the employees in public sector, but each HEI has the right to supplement the salaries of its employees (LHE, 2005, Art. 60) from its own resources by not more than 30% of the base pay.

Students

Between academic 2007/08 and 2010/11 the total number of students has failed for 3.8% (in 2009/10 the number of students at ISCED 5 significantly failed, but in 2010/11 it started to increase again). On the other side, in the same period the number of students at ISCED 6 has increased in 389%.

Figure 2. Number of tertiary education students at ISCED 5 and ISCED 6 levels

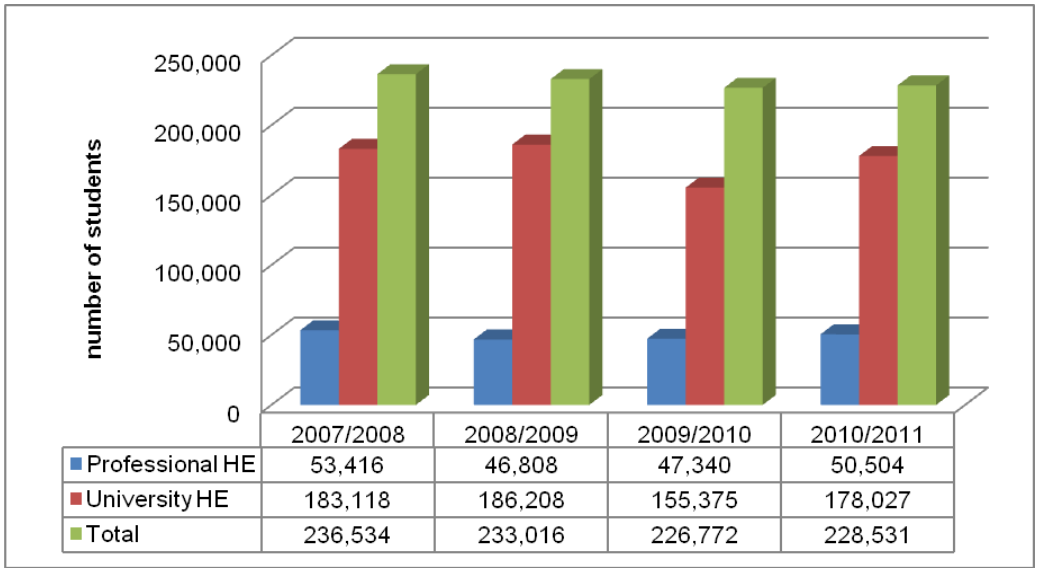


	2007/2008	2008/2009	2009/2010	2010/2011
Students ISCED 5	236,534	233,016	222,672	223,325
Students ISCED 6	1,064	2,924	4,100	5,206
Total number of students	237,598	235,940	226,772	228,531

Source: Statistical Office of the Republic of Serbia

Concerning overall student data, the Gross Enrolment Ratio in 2010/11 was 41.15%. Completion rate and Drop-out Rate are not measured by the Statistical Office of the Republic of Serbia.

Figure 3. Number of students in the system at different levels



	2007/2008	2008/2009	2009/2010	2010/2011
Professional HE	53,416	46,808	47,340	50,504
University HE	183,118	186,208	155,375	178,027
Total	236,534	233,016	226,772	228,531

Source: Statistical Office of the Republic of Serbia

According to the existing data, the total number of students has decreased for the 3.38% within the observed period, between 2007/2008 and 2010/11 - 5.45% at the professional HE and 2.78% at the university HE (Statistical Office of the Republic of Serbia, 2013).

Funding of higher education

LHE (2005) has introduced new arrangements for funding of HE – model of negotiated funding. But, in practice, the new model has not been implemented; instead, the HE has been funded through the system of direct financing, set up in 1993 by a government decree (Vlada Republike Srbije, 2005; Vukasovic (ed), 2009, 75-80, 85,86, 114, 115). Under this regulation all faculties are ranked in 8 groups regarding the number of students, professors, staff, study programs etc. The state decides each year on the percentage of budget for HE. The sources are distributed directly to faculties, and a part of the resources is sent to the university.

During last 10 years, a part of public funds has been allocated for fulfilment of some specific targets like mobility, access and quality. In 2006 a part of NIP funds (National Investment Plan, centralized fund managed by the Ministry of Finance, with sources coming from privatization), had been given to HE. Small amount of extra funds have been used for international cooperation, exchange of students and stimulation of mobility (2008-2012). A part of public funds is allocated for increased access of some categories of students (poor, Roma students, students without parents or with one parent etc.) (Vukasovic (ed), 2009, p. 81).

The Government and the MESTD give grants on merit base (the efficiency and the quality of studies), so most of these resources can be seen as a fund for stimulation of the quality of studying, including the already mentioned Fund for Young Talents to support talented students.

The public universities and faculties are free to generate private funding from tuition fees, donations, teaching, consultancy, administrative services, renting etc. The greatest amount of private funding comes from tuition fees. The percentage of faculties own income varies from 10% to 70%.[5] Most faculties have about 45% of budget transfers and about 55% of their own, extra earned, income.

The public universities and faculties are not free to internally allocate resources coming from budget transfers. Budget transfers are predestined (itemized), meaning that their use is given

[5] The amount of resources received from the state vary: Faculty of Mechanical Engineering, Belgrade, 90%, Faculty of Physical Chemistry, Niš 89%, Faculty of Natural Sciences and Mathematics, Belgrade 84%, Faculty of Electrical Engineering Niš 73%, Faculty of Dentistry, Belgrade 71%, Faculty of Forestry, Belgrade 47%, Faculty of Political Sciences, Belgrade 47%, Faculty of Law, Belgrade 45%, Faculty of Economics, Belgrade, 33%.

for specific aims (covering students` tuition fees for defined number of students, wages for professors and administration, maintenance, some operational costs etc.) and can`t be used for other purposes. As for the other source of finance (private funding), faculties are free to allocate it.

Table 2. Level of investment into the HE system

Year	Total investment into education as proportion of GDP (%)	Public investment into higher education, as proportion of GDP (%)	Private investment into higher education, as proportion of GDP (%) Self-financed in Public + Private investments
2008	3.06%	1.36%	Private investment at public HEI 1.65% + private HEI 0.0521%
2009	3.17 %	1.40%	Private investment at public HEI 1.71% + private HEI 0.0638%
2010	2.93%	1.28%	Private investment at public HEI 1.57% + private HEI 0.0848%
2011	2.88 %	1.26%	Private investment at public HEI 1.54% + private HEI 0.0817%

Table 3. Proportion of students paying tuition fees

	Professional HE (%) Public Private	University HE (%) Public Private
Undergraduate	56% 100%	35%-40% 100%
Masters	95% 100%	95% 100%
Integrated	-	35%-40% 100%
PhD	-	95-100% 100%

The data gathered are for 2012. The state co-financed undergraduate studies at public HEIs from 55% to 60%, master studies only 5% and PhD studies even less. [6]

[6] For gathering these data were used official Faculty sites, phone calls, and interviews.

Table 4. The average amount of tuition fees in EUR

	Professional HE Public Private	University HE Public Private
Undergraduate	870 540 to 1200	1118 720 to 1700
Masters	870 540 to 1200	1232 720 to 2000
Integrated	-	1065 1065
PhD	-	1800 1500 to 2700

The average burden of students with tuition fees is measured by the relation between tuition fee and average wage (AW)[7]. In Serbia this burden is higher than in other European countries (except the Great Britain, Netherlands and Latvia) (Vukasovic (ed), (2009, 94). Regarding tuition fees for undergraduate and master studies, only public HEIs are a little over that limit. In professional HEIs it is almost 3 AW, at the public universities 3,5 AW, in private universities even 5 AW, and in integrated HEIs 3 AW. PhD tuition fees are even higher: in public HEIs 4,3 AW, in private HEIs 8 AW and average burden for the whole university HEIs is 5 AW.

Quality in higher education

In addition to the degree structure reform and introduction of ECTS, the development of the quality assurance system in higher education is one of the main results of the Bologna Process in Serbia and it was introduced by the 2005 Law on Higher Education (LHE, 2005 and amendments in 2008, 2010 and 2012). The law limits the MESTD authority and transfers several responsibilities to the following buffer bodies, which consist predominantly of senior academics coming from diverse disciplinary fields:

The National Council for Higher Education (NCHE), NCHE is almost an exclusively academic body (almost all members are active or former professors. It is a 21-member body appointed by the Parliament of the Republic of Serbia based on the proposal coming from: 1) The Conference of Universities in Serbia (12 members of NCHE), 2) The Conference of Non-university higher education institutions (2 members), 3) the Government (7). The final list of candidates from which these bodies nominate candidates to the Parliament is formed based on the results of the open call for the individual candidates willing to be members of the NCHE. The mandate of the NCHE members lasts for four years and members can be re-elected once. Two student representatives participate in the NCHE work (two-year mandate), with voting rights for decisions concerning quality assessment. The NCHE has broad competences. It is to (1) follow

[7] Average wage in Serbia is around 350 EUR for 2012.

the development of the higher education in Serbia and propose policies which would bring Serbian higher education in line with European and international developments, (2) to decide and/or give recommendations about various issues including names of the degrees and professional titles, criteria for appointment of academic staff, enrolment and access policy for higher education, and (3) to play a crucial role in accreditation. Within the third point, NCHE is in charge of (a) appointing CAQA's members and (b) decisions about standards of internal institutional evaluation and quality assessment, standards for external quality assessment, standards for accreditation of higher education institutions and standards for accreditation of study programmes. NCHE also acts as the appeals forum in case of complaints against accreditation decisions (LHE, 2005).

The Commission for Accreditation and Quality Assessment (CAQA) carries out accreditation. Members of the Commission are appointed by the NCHE. CAQA consists of 15 members (3 from each of five disciplinary areas), who are all full-time professors, forbidden to hold any other elected public office (in the state, political party, NGOs dealing with education or as a dean or rector). The competences and composition of the Commission are defined by the Law. The Law mandates NCHE to appoint the Commission's members and the Commission reports to the NCHE. Similar to the procedure for the election of NCHE, the Conference of Universities, forms the final list of candidates. Based on the results of an open call for individual candidates, CAQA members have a four-year mandate, renewable once. In 2006 standards for institutional and programme accreditation were adopted.[8] The activities of the CAQA cover the whole higher education system.

The CAQA carries out quality assurance processes in two forms: 1) accreditation and 2) external evaluation. The scheme of higher education quality assessment in Serbia is an accreditation scheme focused on threshold standards (with 'yes' or 'no' outcomes). The accreditation process comprises accreditation of all higher education institutions (institutional accreditation) and of all their study programmes (programme accreditation). Accreditation establishes whether or not a given higher education institution and its study programmes comply with the Standards (Official Gazette 106/06). The accreditation certificate for an institution is a prerequisite for getting the operating license (work permit), which is issued by the Ministry of Education and Science. Only accredited higher education institutions and study programmes are entitled to award Bachelor, Master and Doctorate - PhD degrees. In the period 2007-2010 all of 206 existing HEIs were covered by accreditation. All the expenses of CAQA are covered by accreditation fees. The Ministry provides the organizational support and the Secretariat.

[8] Available from: http://www.kapk.org/index.php?option=com_content&task=view&id=15&Itemid=27

Accreditation of institutions and study programmes is repeated periodically, at the intervals of five years. The second accreditation cycle of the accredited HEIs started in 2012.

Public universities are required to have internal quality evaluation of teaching staff and teaching process. The student evaluation of the teaching staff includes teachers, researchers and associates in their scientific, artistic and teaching activities. An evaluation of Student support services includes premises, equipment, library, textbooks, IT support. Assessment of quality of the teaching process, obligatory at public HEIs, is carried out by students' evaluation. At University of Belgrade, for example, there is a common evaluation questionnaire for assessing quality of teachers. Every teacher is evaluated. Besides that, at Faculty's level, evaluation questionnaires are being introduced for assessing quality of studying process. Evaluation of study programmes is still not obligatory.

External evaluation is the second external quality assurance mechanism introduced by the LHE. Between two accreditations, the CAQA carries out external evaluation of all higher education institutions in Serbia. In this process, it reviews compliance with the quality assurance obligations by a higher education institution and reports on this issue to the NCHE, to the Ministry and to the higher education institution itself. The review points out to strong and weak points in functioning of a higher education institution. It doesn't have an immediate impact on the operating license (National Report regarding the Bologna Process implementation 2009-2012: Serbia, (2012), 20). The first external quality assessment cycle started in 2011.

External quality assurance evaluation is based on qualitative and quantitative indicators. One of the quantitative indicators is the number of teachers, which should correspond to the requirements of study programmes which the institution implements. The total number of teachers should be sufficient to cover the total number of hours of active teaching (lectures, exercises, practicum, seminars, consultations, etc.), starting from the norm of 180 h/y per teacher. The workload of a teacher cannot exceed 12 lessons of active teaching per week. Minimum 70% of teachers have to hold a permanent full time employment contract. The institution should provide the teachers and associates with all conditions for scientific, artistic and professional advancement and development. Qualifications of the teaching staff should correspond to the educational and scientific field and the level of their responsibilities. A teacher must have a certain number of published references. Data about teachers and associates (CV, election to functions, references) must be publicly available. HEI should posses organizational and material resources: for the realization of a study program human, spatial, technical, library and other resources should be provided, adequate to the character of a study program and the anticipated number of students. A higher education institution has to ensure adequate premises for the performance of its study programmes, namely, a building with at least 2 sq meters per student, except in the field of arts (5 sq meters per student).

The CAQA make accreditation decision based on the reports of the reviewers and the site visit report. Decision is made by CAQA academic staff, students are involved in external quality assurance process but without decision making power, while international experts are not involved in the process at all (EACEA, 2012). The responsibility in the field of external quality assurance is shared between the CAQA and NCHE. The NCHE defines a general framework, standards and guidelines, and the CAQA performs concrete implementation. Moreover, if a CAQA decision concerning a study program or a higher education institution is negative, the NCHE can refuse accreditation or can award accreditation after an evaluation at the second level resulting from a complaint lodged by the HEI (National Report regarding the Bologna Process implementation 2009-2012: Serbia, 2012, 22).

Although Serbian standards are to a large extent in line with ENQA standards (during the development of the QA system, the European Standards and Guidelines - ESG were utilized as the main source of information (EACEA, 2012, 78), agency has been evaluated against the ESG for the purpose of ENQA membership - CAQA is candidate member agency in ENQA), accreditation process needs further improvements: to speed-up the process (in some cases CAQA was not able to take decision within the timeframe defined by LHE), external quality assessment through site visits needs to be more detailed. Without the thorough assessment by visiting peer group, the quality assessment procedures have low potential for quality improvement, because they focus solely on institutions' production and collection of various documents and questionnaires to be analyzed by CAQA members and anonymous reviewers. The functioning of internal quality assurance was practically not checked during site visits – process of external quality assessment has just begun in 2011. Furthermore, efforts should be made in the direction of including employers in the external review processes.

Recent changes and specific characteristics

In the last fifteen years there was an expansion of private universities as well as vocational non-university high schools. Private universities are founded mostly in the areas of management, business economy, IT, finances, banking, public administration and business law, while vocational high schools in the areas of construction, mechanical engineering, electrical engineering, textile industry, agriculture, and food technology (A Guide to Accredited Study Programs, 2013). Its consequence is an expansion of the programs; however, an overall expansion of the programs occurred in the last five to seven years with the reform of curricula and particularly with the accreditation of HE institutions and new study programs.

The expansion of HE has changed the ratio of students from working class families, middle class families and upper class families. In relation to other two groups, the number of students from working class families increased only slightly. A recent research shows that fathers of 38% of

students has higher education, and in whole population there is only 7% of fathers with higher education degree (Djordjevic., K, 2012, 7).This under-representation of students of lower educated parents is a trend noticed from the 1990's (Vukasovic, ed, (2009), 70). In relation to 26% of working active men, there is only 4.2% of students from the families with education lower then secondary (EQUI-ed Baseline Study, 2012, p. 19).

In the last ten years, under the LHE, state universities apply quota for enrolment decided every year by the MESTD. Under a provision of the Law, students with special needs, Roma students, Serbs from the region and foreigners enrol outside this quota, but the Ministry has decided this year that universities has to reserve 10% of the quota number for this groups of students. This provision does not take in consideration the socioeconomic background or the gender.

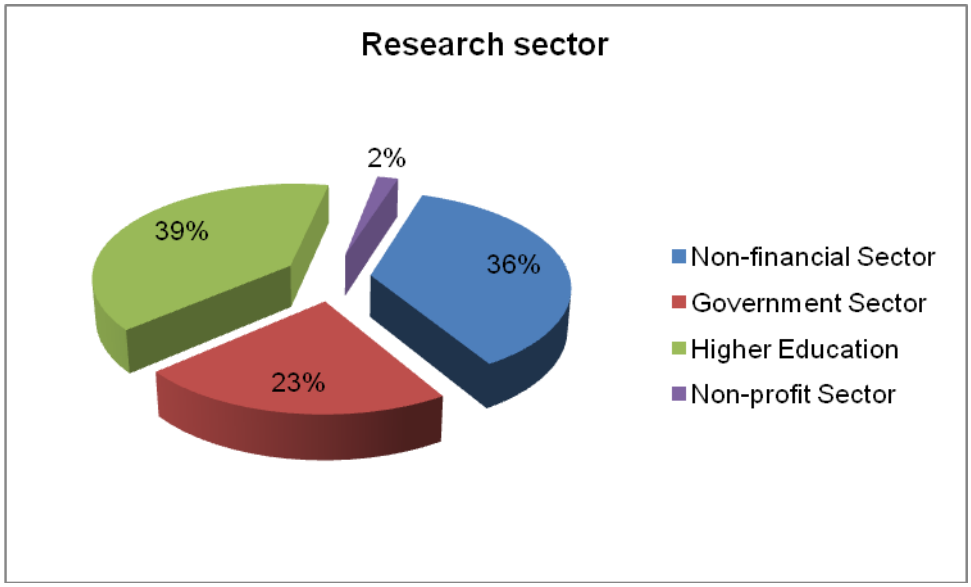
One of the most contested demands of reform was the demand towards more integrated universities since there was decades-long tradition of universities as a kind of weakly connected confederation of independent faculties (Brankovic, 2010, 68-71). At the time being, the result is some milder version of integration then it is demanded (so called “functional integration”) with still very independent faculties as legal entities, with high financial autonomy. That is the reason why until now only a few important tasks were entrusted to the university management. The deregulation process is also very slow, so that HE system is still very centralized and state controlled. Some provisions of the Law are not implemented due to very strong resistance of students (for example the articles provisioning the number of ECTS required for the enrolment at the next year of study; the law provision that every student who did not pass the same exam three times have to re-enrol at the same course in the next year etc.). The constant “brain drain” from Serbia is one of the most serious problems of the country. About 20,000 inhabitants of Serbia with university degrees have left Serbia since 1990. Universities still didn`t start to evaluate study programs in relation to the needs of labour market, the quality of educational programs in procuring skills necessary for development of society, to measure the employability of students, etc.

3. The Research System

Size of the research sector

According to the official Research and Development (R&D) statistics at the Annual Statistical Year Book 2011 (Statistical Office of the Republic of Serbia), the total number of research organizations was 259 – Non-financial Sector - 94, Government Sector – 58, Higher Education - 102 and Non-profit Sector- 5 (Statistical Office of the Republic of Serbia, 2012, 348; by Frascati classification).

Figure 4. Size of the research sector



Source: Statistical Office of the Republic of Serbia

According to the data from 2011 (Statistical Office of the Republic of Serbia, 2012), research sector in Serbia engaged 13,609 researchers and 1,431 associates – 10,506 Researchers and 695 Associates are employed in Higher Education (74%). This data means that the Research sector in Serbia is very related to universities. According to the data from the Statistical Office of the Republic of Serbia for 2011, around 39.4% of the research activity takes place at universities.

Although there are no official statistical data concerning the participation of private faculties and private universities in the research activities, either on the national or international level, findings of surveys of research activities in the higher education sector indicate that most of the private higher education institutions are “teaching” faculties, with transmission of knowledge (teaching) as their only activity (ERAWATCH, Serbia, 2012).

According to the Report on Science in the Republic of Serbia in 2011, research activity within companies and corporations (non-financial sector) participated in the total number of researches with about 36.3% (Statistical Office of the Republic of Serbia, Bilten, 2012) 9. According to the official R&D statistics, the business enterprise sector employs only 2.61% of all R&D personnel and only 1.21% of all researchers in Serbia (Statistical Office of the Republic of Serbia, Bilten, 2012). A crucial challenge for research governance in Serbia is the question how to increase R&D and innovation activities in the business enterprise sector in the country.[10] Identification of companies with significant R&D and innovation activities is necessary in order to organize a more efficient governance of R&D system in Serbia[11]. There are no public-private research and technology organizations registered in R&D system in Serbia (ERAWATCH, Serbia, 2012).

Table 5. Number of research centers or institutes (source: Statistical Office of the Republic of Serbia)

	Part of a university	Part of a company	Independent	Total
Number of public research centers or institutes	102	-	48	150
Number of private research centers or institutes	-	94	10	104

The number of non-profit organizations is not put in this table, but it is counted in the total number of scientific-research organizations.

The total number of staff in the research sector has been generally increasing within the period 2007/08 – 2011/12 (Figure 5). But, while the number of FTE researchers was constantly increasing, the number of the FTE administrative has been decreasing since 2009/10.

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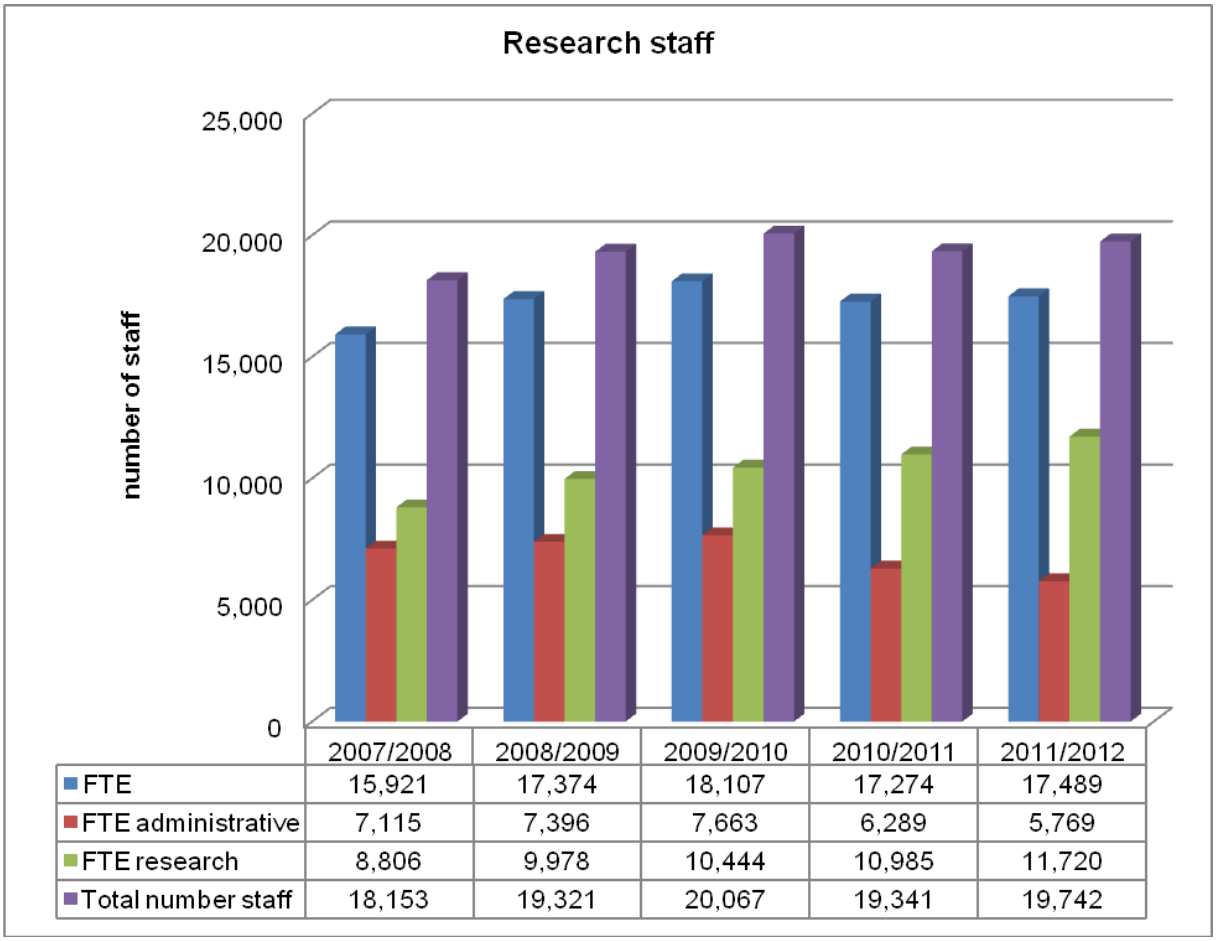
[9] Official statistics cover only R&D organizations which are registered under science and innovation laws. A number of companies recognized as R&D intensive organizations through several surveys are not included in official R&D statistics. Therefore, all figures presented in official statistical publications should be treated just as basic information and as a starting point for further analysis.

[10] Official figures showed that BERD share in GERD was only 11.63% in 2010, compared with an average of 61.5% in the EU.

[11] The example of the spin-off companies formed within Faculty of Engineering in University of Novi Sad supports this need for the reorganization of research governance: there are 59 spin-off companies with 950 employees (more than 90% of employees are university graduates) and €36m of turnover in 2009 (number of spin-off companies in February 2012 is 63). All these companies are in high-tech sectors, mostly in embedded software development, with more than 8% of all activities being classed as R&D. None of these companies are registered as R&D organizations; and only two are registered as innovation organizations under the innovation law

Figure 5. Number of staff, administrative and academic



	2007/2008	2008/2009	2009/2010	2010/2011	2011/2012
FTE	15,921	17,374	18,107	17,274	17,489
FTE administrative	7,115	7,396	7,663	6,289	5,769
FTE research	8,806	9,978	10,444	10,985	11,720
Total number staff	18,153	19,321	20,067	19,341	19,742

Source: Statistical Office of the Republic of Serbia

Researchers and scientists in state-owned laboratories and institutes are treated as civil servants, whose positions and a significant share (or the total amount) of income is regulated by science law. The same holds for recruitment and competition procedures for all applicants for permanent positions in public universities and public research institutes (ERAWATCH, Serbia, 2012). According to the Report on the State of the Science from 2010, the great number of R&D organizations is a part of the Universities (almost the same situation is in 2011). However, less than 50% of teaching staff are engaged in research projects. Only 1.25% of students participated in scientific and research projects (National Report on the State of the Science, 2010). In 2010, that number increased to 1.95%, but is still significantly lower than in the EU (2.9% average).

Scientific productivity has been monitored by the number and by the quality of published scientific papers measured by the impact factor and citation (European Commission, 2012, Ch. 25). Significant progress has been made in the number and the quality of the papers, as well as

in the area of citation during the last five years (number of published papers increased by three times). According to the data from 2011 (Statistical Office of the Republic of Serbia, Bilten 2012), the number of total research activity results in Serbia was: the number of research papers (projects and studies)– 10,698, published professional and scientific papers – 23,198, inventions and patents – 49.

Research funding

In 2010, Serbia's GERD as a percentage of GDP was 0.76% which was significantly lower in comparison to the EU 27 average (2.0%). These levels of investment are subject to significant variations year on year i.e. in 2004 Serbia's GERD as a percentage of GDP was 0.32%, in 2006 it increased to 0.71%, in 2007 decreased to 0.64% and in 2008 increased to 0.732%. By comparison to other Eastern European Countries, Serbia lags significantly behind Slovenia (1.86%), Czech Republic (1.53%), Estonia (1.42%), and Hungary (1.15%), according to EUROSTAT data (ERAWATCH). Serbia is lagging behind most of the EU member countries in R&D investments, reaching GERD in 2010 of 38.0% of EU27 average. The main source for funding of R&D activities in Serbia is the government budget, with GOVERD (60.99% of the funding of government owned institutes and R&D centres coming from public sources) and HERD (69.52% of the funding of HE institutions for R&D activities coming from public sources) combined reaching 88.32% of all R&D expenses in country.

Serbia has a rather simple governance structure for research, with only two bodies involved in policy development. The Serbian research system is centralised and governed by the MESTD. The MESTD is the dominant and almost only public funding body in the country. Investments in research and innovation in Serbia from public sources are prioritised and budgeted in the framework of multi-annual plans to ensure stability and long term impact. The core regulatory document of the sector is the Law on Scientific Research Activity (LSRA 2005, amended 2010). The LSRA provided for the establishment of the National Council for Scientific and Technological Development (NCSTD), which is supposed to be the highest advisory and expert body within Serbia’s research system. It was constituted in 2010. Its mandate lasts for five years, during which time it is supposed to establish a quality assurance system for research activities and to give recommendations on the future development of science and technology in Serbia. The Council publicizes annual reports on the state of science in the country; the first report was issued in May 2011 (The Report of National Council for Science and Technological Development about the State of Science in Serbia, 2011). The execution of measures foreseen by the research policy falls solely to the MESTD and its expert working groups, as no public agency has been set up for such purposes (Brankovic, Šabić, 2011, 74).

Several programs for research activities have been identified by the LSRA. These programs constitute the primary instruments for the implementation of the research policy. Within these programs the MESTD announces the call for project applications. There is no institutional nor block funding for R&D activities in Serbia, although restructuring and possible privatisation processes in the R&D sector are just in the conceptual phase. Project financing based on open competition for R&D and innovation projects is decades-long practice in Serbia. Latest developments proved the government's long-term orientation toward competitive rather than institutional funding of R&D activities: the "Strategy of Scientific and Technological Development of the Republic of Serbia 2010-2015" (S&T Strategy) adopted by the Government of the Republic of Serbia in 2010, defined seven national priorities in the domain of science and technology and proposed institutional funding on a reasonable minimum level, i.e only for a minimum share of maintenance costs of a few government owned R&D organizations. Financing is awarded to R&D teams selected after evaluation of project proposals submitted to the public call. The last public call was launched May-June 2010. The decision on financing projects is made by the MESTD, based on a specific set of criteria. Criteria for selection, depending on research productivity, were defined by the Act on the selection, evaluation and financing of research for the project cycle 2011 – 2014, categorizing scientific journals and results. The criteria are adopted by the MESTD, yet the NCSTD does provide an opinion (Brankovic, Šabić, 2011, 106). Regular monitoring activity is based on both regular reporting (yearly or following the phases of the project) and final reporting. This reporting contains both the technical and financial aspects of the projects as well as its scientific content. With regard to the measure of performance, research-output criteria is to be taken into account when deciding which project to fund. The criteria are typically based on previous research results measured in terms of bibliometric indicators or results in technology development, such as patents, products, and processes enhanced engagement in other international projects, such as the EU Framework Programme, etc.

Financing of R&D is a combination of institutional funding and competitive research grants funding with strong orientation in favour of competition funding since the ratio of institutional funding has declined from 30% to 25% in relation to project funding. Project funding is organized through 4 year project cycle for financing research projects, and annual research grants through public call for submission of proposals for smaller grants for attending international conferences, paying fees to international research organizations and associations, publishing results of conferences, etc (Public Call, 2013).

Funds are distributed as institutional funding for the so-called direct material costs (heating, water, power, building maintenance, wages for administrative staff etc.), and project funding for salaries for researchers and research costs including research trips, equipment etc. There is

an annual, mid-term and final assessment of the project results, and at the half time of the 4 year cycle period there is additional grant for institution, research leader and researchers for projects with optimal research results.

Quality in research activity

Research policy evaluation and research policy evaluation culture in Serbia is moderately well developed. Evaluations of researchers, R&D organizations and R&D activities are obligatory under the science and innovation laws and supporting bylaws. The evaluation of researchers comprises a review of scientific productivity according to criteria and quantitative indicators which are predefined and enable structured advancement in the scientific career. Evaluation is in the jurisdiction of the Committee for Scientific Promotion, but the personal assessment must be done by the S&T Board for the S&T field in which the researcher is active. The Accreditation Board is responsible for the assessment of the infrastructure and efficiency of RO every four years as regular activity. The main focus of this assessment is on the assessment of quantitative data and information provided by the RO. Evaluations of R&D activities are under the jurisdiction of MESTD: ex ante evaluation of R&D project proposals, regular yearly R&D project implementation progress reports and ex-post evaluation of R&D projects results. There are no peer-reviews of R&D organizations, impact evaluations of (co)financed R&D activities, evaluations of research programs or research portfolios (i.e. sets of research programs or policies constituting a policy mix), nor of research systems and sub-systems (e.g. performance assessments of national or regional research systems). Also, there is no evaluation department within MESTD, i.e., staff responsible for administration of R&D programs are responsible for evaluation activities too. Therefore, there are no specific budgets devoted to evaluation activities, and the organization of ex-ante evaluation of R&D project proposals is usually underfunded (ERAWATCH).

Among the bodies responsible for the national quality assurance system for research activities, i.e. expert bodies, the most important are the National Research Council, the Committee for Accreditation of Scientific Research Organizations, the Commission for Acquiring Scientific Title (Committee for Scientific Promotion), and the specialized scientific boards. S&T Boards are organised for fields of S&T proposed by the National Research Council. Members of S&T Boards are appointed by the MESTD from the candidates who apply under the public call for these positions. These boards have a crucial role in the governance of R&D activities in Serbia.

Major reforms and policy trends

Because of the long period of economic and political crisis in Serbia during the 1990's investments in R&D were poor, and because of the UN sanctions all institutional channels of

international cooperation had been cut off in the 1990's. In this decade R&D activities have been in constant decrease. Total number of research organizations have dropped from 297 to 189, there were no investments into new equipment and technology, and research infrastructure was outdated (Brankovic, Šabić, 2011, 73). This, together with the brain-drain, had resulted in reduced research capacity at the universities and research institutions in the conditions of non-existing research strategies.

In the last 12 years Serbia has been working intensively on becoming an EU member state, and making steps to join the EHEA and ERA. In 2007 Republic of Serbia has signed the Memorandum of Understanding with the EU, becoming associated country to the EU FP7, with now 118 projects in progress (Report of NCSTD about the State of Science in Serbia, 2011.) Serbia is also "one of the leading partner countries in the Tempus program (EU Commission, Serbia, 2012). But, until recently, there has been no comprehensive development strategy in Serbia. It was changed in last two years with the adoption of the Strategy for scientific and technological development for the period 2010 to 2015, and preparation of so called 'Serbia 2020', the concept of socio-economic development of the country until 2020. In Serbia 2020 R&D is mentioned as one of five main areas of development, with the main strategic aim to increase investment in R&D to 2% of the national GDP (now it is only 0,3%) and with 50% covered by the private sector (Serbia 2020, p. 9). *The Strategy of Scientific and Technological Development, 2010-2015* define Serbia in the beginning of the third decade of 21st century as a country of innovations with researchers attaining European standards and advance technological development of economy. Stress is put on rationalization of the network of research organizations, linking science and industry, establishing a fund for supporting innovations, which are directly linked with the development of new products, processes and services.

4. Policy & governance

The main actors in the process of policy making in the areas of HE and research are: National Parliament, MESTD, buffer bodies and HEIs (universities, faculties, institutes, higher schools).

Regarding external governance a number of buffer bodies have been established: National Council for Higher Education (NCHE), Commission for Accreditation and Quality Assurance (CAQA), National Council for Scientific and Technological Development (NCSTD), Committee for Accreditation of Scientific Research Organizations, and Commission for Acquiring Scientific Title (Committee for Scientific Promotion)

There are also 4 conferences as representative bodies: Conference of Universities of Serbia, Conference of Academies of Vocational Studies of Serbia, Students' Conference of Universities of Serbia, and Students' Conference of Academies of Vocational Studies of Serbia.

Regarding the internal governance system, the main decision-making bodies at the Faculties are: Council (Veće) - as professional body, Board (Savet) - as governmental body, and dean with the team of vice - deans as executive bodies. The structure of governing bodies at University level is similar: Council (Senat) - as professional body, Board (Savet) - as governmental body, and rector with the team of vice – rectors as executive body.

MESTD proposes legal regulations in the field of HE and R&D, and the Parliament, with its Committee on Education, Science and Technological Development, decide on these proposals and stipulate the Law. The influence of buffer bodies as external, as well as internal HE bodies, at the process of decision making in the field of HE is very strong.

NCHE is constituted of 16 members. 12 are professors (academics) nominated by Conferences (10 from Conference of Universities of Serbia and 2 from Conference of Academies of Vocational Studies of Serbia). The next 4 are selected by National Assembly and appointed by the Government from among the ranks of prominent scientist and scholars, academics, educators, artists or businessmen (LHE, 2005, Art. 10).

CAQA is constituted of 15 members from Academia. They are nominated by the KONUS upon a public call and selected by the NCHE.

Main decision-making bodies at the University and at Faculties are: Board, as governmental body, Council, as professional body, and executive bodies: rector at university and dean at faculty. Council is composed of deans and directors of university institutes, and the Board of

delegated professors, students and members appointed by the government. Main competencies of the Board are managerial matters and main competencies of the Council are predominantly of a professional matter. The Board adopts statutes, financial and investment plans, adopt report on activity, manages institutions` property and decides on the tuition fees.

The Council is responsible for academic and professional aspects of university activities. But the new regulation made a kind of overlapping of competencies between the Board and Council on the University level. A part of managerial competencies, like a number of financial and organizational questions, are put in a charge of professional body (Council). The Council has the right to propose the amount of tuition fees, to propose and decide on investments, financial topics and planning. This is a so-called internal buffer, strengthening position of academic and professional vote. On the other side, these solutions indicate the ambition of faculties to have a dominant position in management at university level.

Student parliaments at faculties and universities have mandate to debate and give their opinion on the topics of reform of study programs, about quality and efficiency assessment, and determining number of ECTS.

Generally speaking, the model is the self-regulation one. For a number of reasons it could not be rational planning and control model. Comparatively analyzed in regard to other fields, this policy field had a number of advantages: it procured permanent reform at the pace which the academic community found as optimal. From that point of view it could be institutional steering model (Gornitzka & Maassen, 2000). The academic community has the dominant role in decision-making processes regarding the bodies and the content and the rhythm of the reform. Its representatives predominate in all buffer bodies (NCHE, CAQA) and have an influential role in the Ministry.

The state has the monitoring position (steering), and the state took a more active position in solving problems only in critical situations (students` riots regarding the level of tuition fees and the number of ECTS as a precondition for enrolling the next school year). Important actors in decision-making processes are: professional associations, unions, students` organizations, NGOs, as well as Conferences, as permanent buffer bodies. In this point, this system partly has the elements of corporate steering model.

The uniqueness of the Serbian system is the decentralized university, with faculties as legal entities with huge autonomy (both in decision-making regarding professional and managerial matters, and financially). The reform processes strengthen a kind of functional coordination role of the university in some important matters (reform of programs, including a number of

standards for evaluation and quality assurance, establishing a number of multidisciplinary university programs etc.).

Research capacities of HE

Concerning the research capacities of HE in NGO sector there is one research centre focused on HE and research (CEP) and one NGO (BOS) with some researches concerning higher education.

Centre for Education Policy (CEP) was founded in 2007, with the mission of contributing the quality of HE and research policy in Serbia. It is financially supported from various donors (Fund for Open Society etc.). The CEP team consists of a number of young enthusiastic researches. It is a part of various research networks in the region, Europe and the world and it established cooperation with similar centres abroad like: NIFUSTEP (Norway) and CEPS (Slovenia). CEP has a number of projects, conferences and publications. They covered a wide scope of topic of a vital importance for HE (reforms, management, autonomy, knowledge economy etc.).

BOS (Belgrade Open School) is an NGO founded in 1998, with a mission of upgrading the quality of education with various educational programs. It is financially supported from various donors.BOS has a wide scope of activities and projects and is a part of various networks. It publishes a number of books, publications and a journal „Education and Development“. In the field of HE, besides topics like life-long learning, social partnership and participation in HE, networking at local, regional and international levels etc., it is specialized for the research on corruption, constituting a special program for it. BOS is a part of the Anticorruption Student Network in South Eastern Europe.

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