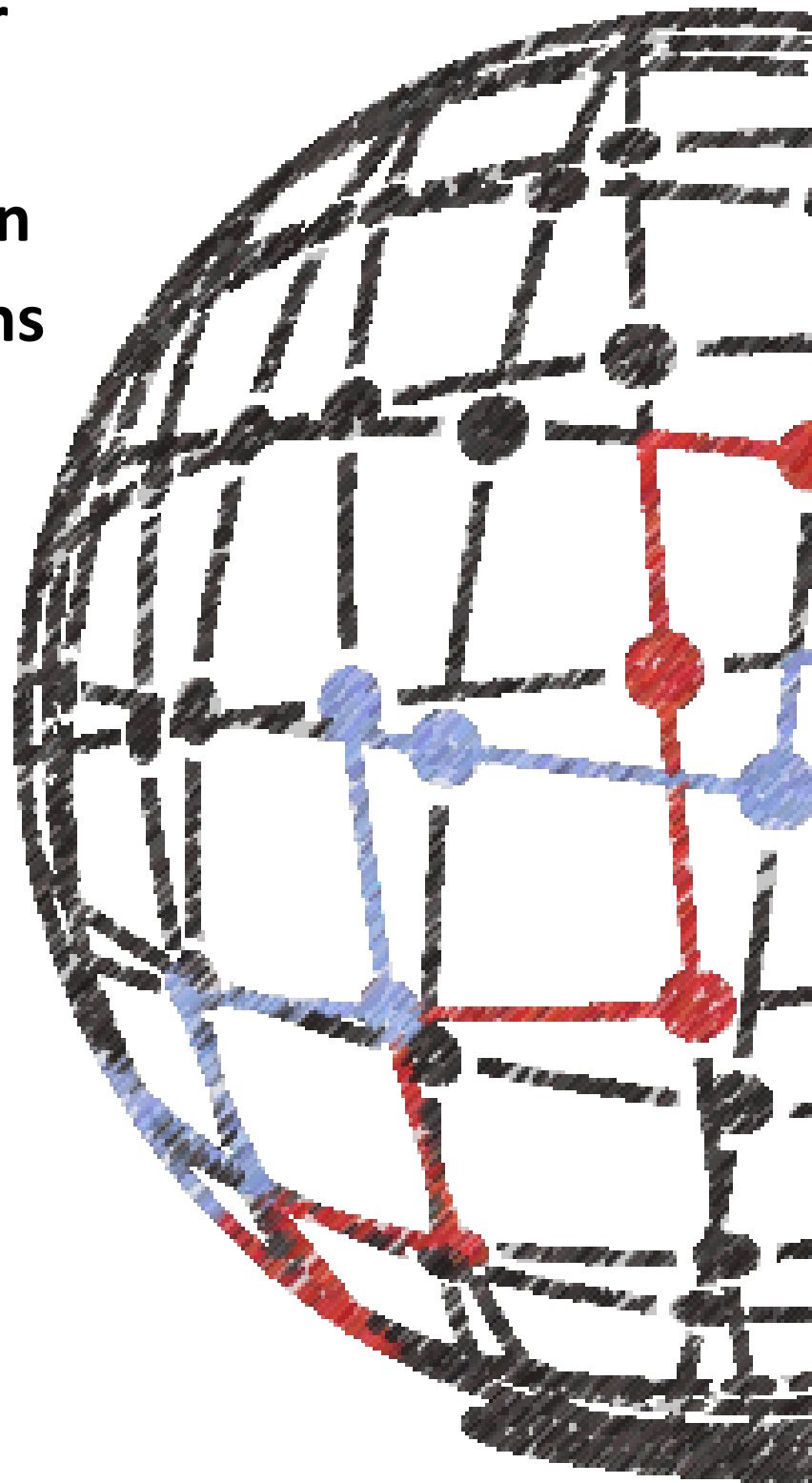


Overview of Higher Education and Research Systems in the Western Balkans

Macedonia



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April 2013

The views expressed in this report represent those of the authors and do not necessarily represent those of the project partner institutions or any other party.

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: Macedonia

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April 2013

This report has been produced within the framework of the project “European Integration of Higher Education and Research in the Western Balkans” (web: www.herdata.org), funded through the NORGLOBAL programme of the Norwegian Research Council (project number 203340), lasting from March 2011 to February 2014.

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List of abbreviations

DNSHE	Decree on Norms and Standards for Establishing Higher Education Institutions and Performing Higher Education Activities
EHEA	European Higher Education Area
ENQA	European Association for Quality Assurance
ERA	European Research Area
ECTS	European Credit Transfer System
GERD	Gross Expenditure in Research and Development
GOVERD	Government Expenditures in R&D
HERD	R&D in higher education
HEI	Higher Education Institution
LHE	The Law on Higher Education
LSRA	The Law on Scientific Research Activity
MASA	Macedonian Academy of Sciences and Arts
MES	Ministry of Education and Science
PSRA	Program for Scientific and Research Activities
R&D	Research and Development

Introduction

The Republic of Macedonia was one of the six federal units of the Socialist Federal Republic of Yugoslavia until its dissolution in 1991. Its international recognition was delayed because of the objection of the Republic of Greece to the name "Macedonia" (as traditional name of the part of Greece), and there is still dispute between two countries over the name since Greece insists that Macedonia should be called The Former Yugoslav Republic of Macedonia (FYROM). In 2004 Macedonia have been recognized by 134 countries under its constitutional name, Republic of Macedonia, but international organizations UN, NATO, EU still use the wider version.

After sharp ethnic conflicts and fighting between ethnic Albanians (25,2% of population) and Macedonian police in 2001 Ohrid Framework Agreement was signed between Albanian community and Macedonian Government establishing new minority politics and defining Macedonia as multicultural state. From that period on there were changes that stimulated democratic reforms, economic growth and increase of minority rights including the right of education at all levels in minority language.

Sources & data

Preparing this report we have consulted various sources and data: foremost from the State Statistical Office Republic of Macedonia and Ministry of Education and Science of the Republic of Macedonia, various other sources, reports and researches, domestic and international, as well as personal interviews. Since in several occasions there were different data presented in different documents and reports, at respective places (mostly in footnotes) we have signalled to those differences, pointed 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 Macedonian 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 Macedonia consists of 20 universities and 7 non-university Higher Education institutions (HEIs).

Table 1. Size of the HE system

	Public	Private	Total
No. of non university/ vocational/professional HE institutions	1	6	7
No. of universities	5	15	20

Source: The Ministry of Education and Sciences (MES)

The oldest universities in Macedonia are the public universities "St. Cyril and Methodius" in Skopje, founded in 1949 and "St. Kliment Ohridski" University in Bitola, founded in 1979. Other three public universities were founded after 2000 - the State University in Tetovo (2004), the "Goce Delcev" University in Stip (2007) and the University of Information Sciences and Technologies "St. Apostle Pavle" in Ohrid (2009). In the same period the first private university in Macedonia was founded - the FON University (2002), and after that a significant number of private HEIs were opened.

With regards to the recent changes involving institutional transformation, there were many changes during the last decade. The new Law on Higher Education (2008) provided for change of the university structure from a loose association of legal entities into an integrated university. The University of Skopje and the University of Bitola became integrated universities in January 2009.

Also, a new type of public-private non-profitable higher education institution has been introduced - the South-East European University² established in Tetovo in 2001 with financial

² In 2000 OSCE High Commissioner for National Minorities initiated discussions for establishment of a new university in the Republic of Macedonia, which should be supported by international donors. Following the adoption of the Law on Higher Education (LHE) by the Parliament of the Republic of Macedonia, that allowed the founding of universities not related to the state and with the aim to support higher education in Albanian language South East European University (SEEU) was opened in 2001.

contributions from numerous international donors (EU Commission and USAID among others) and foreign HEIs.

The most significant reform in the higher education system in Macedonia is the implementation of the country's strategy for opening HE units of dispersed studies in almost every town in the country³ in order to increase the number of graduates in the country and bring the universities closer to the rural areas (Tempus Report, 2010, 3)

A few private universities were established under the international partnerships. According to the data from the Commission for Accreditation and Quality Assurance, these are: South East European University, International Balkan University,⁴ and The European University – Republic of Macedonia.⁵

Also, Franklin University of Ohio, USA offers program at St. Clement of Ohrid University of Bitola in Bitola, Macedonia through agreement with affiliated universities.

Private universities compete with public ones in several fields:

- Concerning variety of study fields, most of private universities offer study programs in the fields of Social Sciences - Economy, Law, Communications, Political Sciences, Public Administration and Management and IT technologies.
- Private universities offer better conditions to their students with respect to the organization of the study regime, HE institutions are equipped in a modern fashion, faculty services are more efficient and effective, and professors are more available for students.
- Private universities provide their students with internship during their studies.
- The study progress is significantly faster at private universities.

On the other hand, private universities have some weaknesses in relation to public universities:

the very fact that private university students progress faster to graduation results in a perception that they are less competent than their public university peers (interview with MES

³ For example, the state University "Goce Delcev" in Shtip has 13 faculties with 450 staff members, academics and teaching assistants, who serve more than 5,000 students on campuses in Shtip, Strumica, Kochani, Kavadarci, Gevgelija, St. Nikole, Vinica, Probishtip and Radovish.

⁴ Founded by Skopje Education and Culture Development Foundation, which was established by financial and moral support of several Macedonian and Turkish businessmen.

⁵ Established with support of numerous number of Macedonian companies, mostly banks.

representative). Such gap can be seen even in job openings where it is highlighted that a candidate is required to be a public faculty graduate (this is particularly referred to in public administration jobs).⁶

Structure of educational provision

With respect to the introduction of Bologna reforms, the study programs of the two-cycle system were reformed. Thus, the traditional 5+2 model was transformed into a 4+1 or 4+1.5 model for academic studies and 3+2 for vocational studies. Some studies with duration shorter than three years were introduced as "short cycle" studies in the framework of the first study cycle. Experience shows that the 3+2 model for three-years undergraduate studies is the most difficult one to accept by the state HEIs, but frequently accepted by private HEIs. The majority of faculties at the state universities have maintained the four year duration of the first-cycle studies, and in some cases even five or six years, as it is in the field of regulated professions (Tempus Report, 2010, 2).

The LHE (Article 16) describes the types of HE institutions in Macedonia: university and the higher vocational school; faculties, art academy, higher vocational schools and scientific institutes shall be the part of the university.

The academic study programs are distributed in three cycles of higher education (LHE, 2008, Art. 94-97). The first cycle of university studies, lasts from three to four years with 180 to 240 ECTS. The academic university studies of the second cycle last one to two years with 60 to 120 ECTS. Studies of third cycle last at least three years, leading towards attainment of the degree - specialist in a particular field (spec.).

The vocational studies are implemented at universities and at higher vocational schools lasting three years with 180 ECTS. The universities and higher vocational schools can organize specialist vocational studies of second cycle for persons having had the first cycle of vocational or academic studies completed.

Public universities are free to determine the contents and teaching methods of programs they offer. With the new Law on Higher Education, all HE institutions (both public and private) are encouraged and indeed obliged to develop and establish modules, courses and study programs by themselves with European content, orientation and organization. Universities and other HE units operate by the principle of academic autonomy (LHE, Article 12): (1) Freedom of studying, identification of study rules, shapes and types of educational work as well as appraisal of

⁶ Interview with Deputy Head, HE Sector, MES and National Tempus Office Coordinator, February 19, 2013

student's knowledge; (2) Freedom of selection of study programs and content of particular subjects as well as drafting textbooks and other study materials; (3) Freedom of selection of method for interpretation of educational and artistic content.

Universities periodically review their programs – departments organize workshops to revise curricula inviting representatives from industry and other higher education stakeholders to these workshops in order to discuss the needs of the labour market regarding the employability of graduates (Tempus Report, 2010, 6)

The introduction of the new degree structure in higher education has increased the number of study programs, particularly the number of second degree (master) programs. At first there was also a trend to increase the number of first degree studies, but the decision of the MES was to keep first degree studies at the level of general studies whereas second degree studies were to be part of higher education which would direct students to more specific competences and skills (Interview with Deputy Head, HE Sector, MES, 2013). There are no records on the number of study programs before the introduction of the Bologna Process, and accurate data on the number of accredited study programs has not been available since the last record is from 2008 (The Commission for Accreditation of the Republic of Macedonia does not have its website yet).

According to the data of the Statistics Office of Macedonia (State Statistical Office, 2012), one can imply that the introduction of the Bologna Process has contributed to a faster study progress – 'new' Bologna generations of students have increased the higher completion rate – a larger number of post-graduates and vocational study graduates is especially visible where the number became five times higher in the period between 2008 and 2012 (2008/09 – 272, 2011/12 – 1,294).

There is no systemic data concerning degree structure contributing to mobility. The LHE sets forth that the part of a study program completed by a student abroad must be recognized by the home HEI, but the provision is not fully implemented. The Learning Agreement (LA) should be signed by a University Rector, and if a student wins a scholarship and amends the LA, the amendments shall be signed by a person in charge for IRO at a university/faculty– it happens often, therefore, that a student returns from the mobility programme, and a competent teacher from the home faculty says that s/he will not recognise completed exams. The MES founded the National Agency for European Educational Programs and Mobility in 2008, which is aimed to promote and implement the European educational programs into the Republic of Macedonia. Concerning HE, this Agency is managing Erasmus programs – a catalogue of study programs is being designed and prepared at the moment which will be compatible with Macedonian university programs, and such listing and classification of programs would prevent failure of recognition of a part or the whole study programme completed abroad.

In order to improve it, the MES founded the National agency for European educational programs and mobility in 2008, which is aimed to promote and implement the European educational programs into the HE system of the Republic of Macedonia. Concerning HE, this Agency is managing Erasmus programs – a catalogue of study programmes is being designed and prepared at the moment, which will be compatible with Macedonian university programmes, and such listing and classification of programmes will prevent failure of recognition of a part or the whole study programme completed abroad.

There are no specially set up state funds for encouraging mobility, but the state provides support to talented students, who manage to enrol in top faculties worldwide, in such manner that it fully funds their studies which obliges the students to work in public administration for 3 to 5 years following graduation (the state is also obliged to provide them with a job when they return).⁷

Both public and private universities in the Republic of Macedonia provide academic and vocational studies. Moreover, professional programs are predominantly conducted within universities (there are only 7 independent vocational schools, see Table, 1).

According to the classification of HE systems by Svein Kyvik's study (Kyvik, 2004), the Macedonian higher education system is a **binary system**. Non-university system is functioning under the same set of regulations as the university system, organized in multidisciplinary centres according to geographic 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).

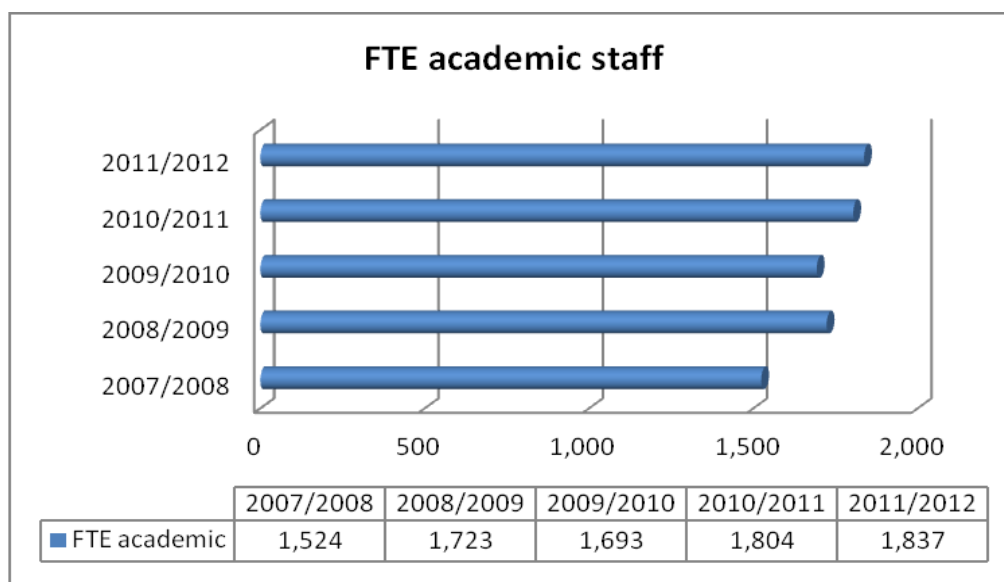
Staff

Following the establishment of new HEIs, the total number of FTE academic staff in Macedonia has been increasing in the past several years.

Figure 1. Number of staff, administrative and academic

⁷

The interview with the director of the National agency for European educational programs and mobility, February 20, 2013.



Source: State Statistical Office Republic of Macedonia

Also, the number of FTE supportive staff also has been increasing

Year	FTE	FTE administrative ^(support staff)
2007/2008	2,717	1,193
2008/2009	3,134	1,411
2009/2010	2,934	1,241
2010/2011	3,055	1,251
2011/2012	3,120	1,283

Source: State Statistical Office Republic of Macedonia

There are no restrictions to appoint staff to the needs of HEIs. Public universities recruit their staff independently. Employment of teaching staff is a single procedure where a faculty will decide on the outcome in all cases but in the case where full time professors are elected – the procedure becomes a two-level procedure, and the final decision is made by the University Senate. Since faculties are not independent legal persons, teachers sign employment contracts with the University Rector as an employer.

Also, in order to improve the efficiency and effectiveness of the HE system. The MES of the Republic of Macedonia is preparing measures for building the capacity of non-teaching staff employed in a HEI (Interview with Deputy Head, HE Sector, MES, 2013)

Salaries for employees in public universities are partly funded from the state budget, and partly from own HE institution resources. Each year a university sends its cost projections (including

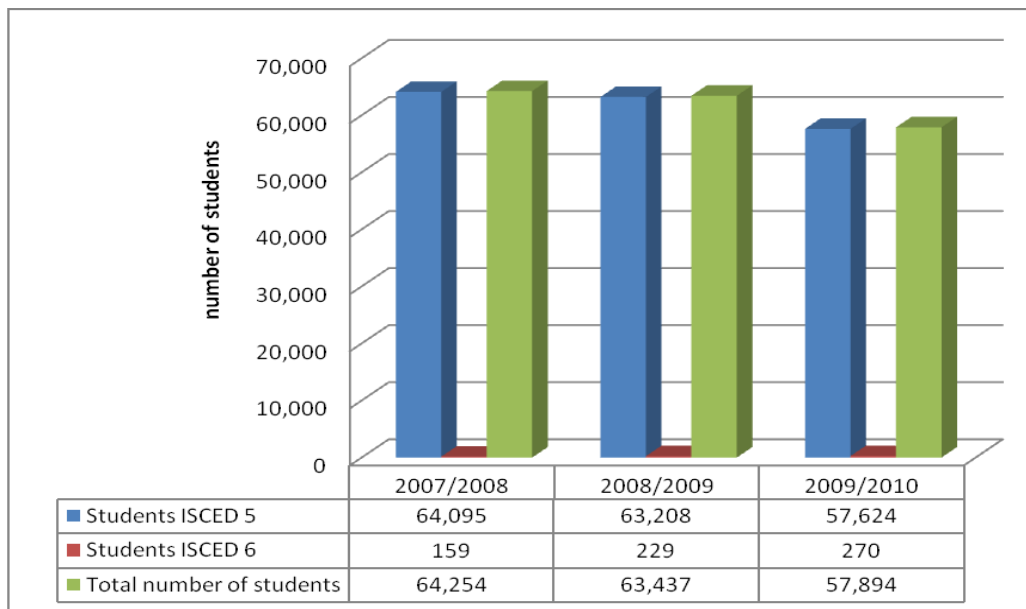
salaries) to the MES, and a competent authority estimates whether or not the proposal is realistic and in line with the existing resources. Upon the Ministry’s approval, and based on such estimate a coefficient is identified under which the part of salaries for employees funded from the budget is calculated.

Students

There are no official data on total number of students in last two years (2010/11 and 2011/12), but according to MES representative the total number of students in 2012/2013 is 70,950 (Deputy Head, HE Sector, MES). It could be concluded that the total number of students in the Republic of Macedonia has been growing in last two years, especially the number of students enrolled in public HEIs (interview with the MES representative).

In comparison with the official data it could be concluded that the total number of students raised, but the growth was not equally noted neither for all levels of higher education, nor in all types of HEIs.

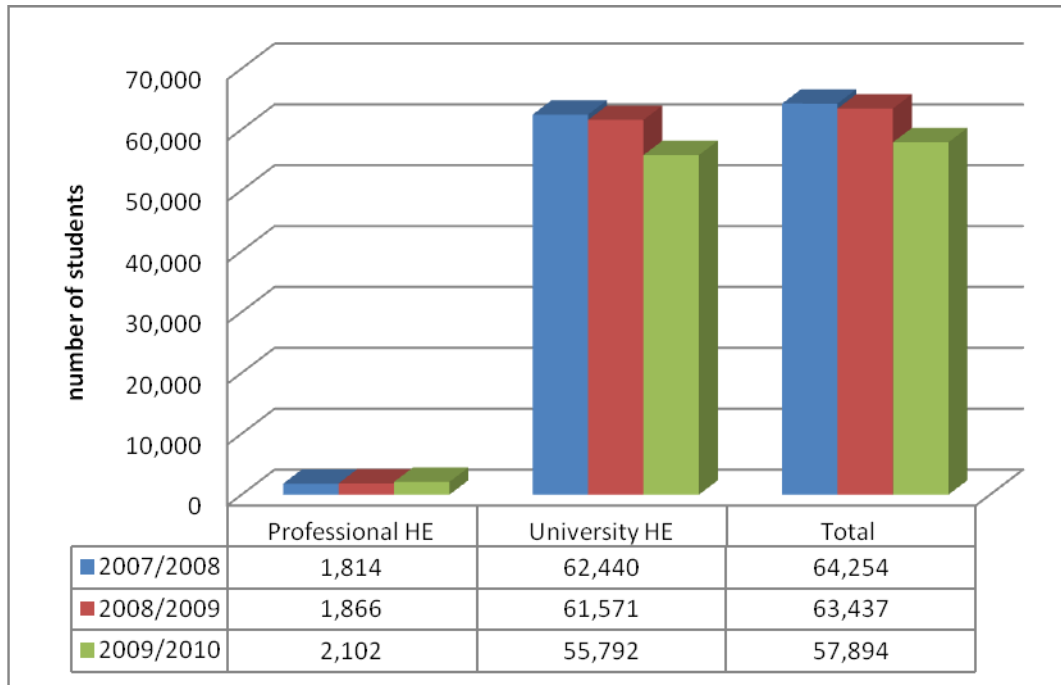
Figure 2. Number of tertiary education students at ISCED 5 and ISCED 6 levels



Source: State Statistical Office Republic of Macedonia

Concerning overall student data, the Gross Enrolment Ratio in 2009/10 was 29.85%. Completion rate and Drop-out Rate are not measured by the Official Statistical Office. Also, according to data from Figure 3, the number of students enrolled in the professional HE schools is raising.

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



Source: State Statistical Office Republic of Macedonia

Funding of higher education

The new LHE (2008) has opened the new way of financing. The public HEIs have been directly financed from the budget. The whole scope of the resources for HE is defined by the Government and the MES, on the base of HEI s' needs, as well as the scope of budget (formula finding). The amount of resources for each HEI is defined by: (1) approved study programs as well as number of study groups, departments and courses of the higher education institution; (2) number of full-time students enrolled for the first time under the state quota in each academic year; (3) number of students who graduate; (4) net usable premises of the HEIs; (5) qualification structure of employees;(6) the number of managerial personnel needed (Tempus Report, 2010, 4). In 2007 the government dissolve financial buffer body called Council for finance and development of high education established in 2000 with explanation that it made unrealistic decisions, pressing government to accept them. "The silent war" between HEIs and the government is permanent on this topic. The World Bank together with Ministry and representatives of the HEIs try to develop mechanisms for accountable planning of financial resources. In May 2012 a conference was held on financing HE in Macedonia (World Bank, 2012).

The Ministry for HE gives three types of grants: for talents (best students), ordinary grants and social grants. There are also 100 grants (covering all costs of living and studying) per year for graduated students, who can use them for studying at 100 best ranked universities in the

world. This kind of grant supports both mobility and access. The grantees have obligation to work in public institution for 3 to 5 years after their return (the state provides them a job after return). Ordinary grant, as well as social grants, helps students to study easier and support their access to HEI.

Public HEIs are free to generate funding from tuition fees, teaching, consultancy, donations etc. The Ministry for HE defines the quota of budget co-financed students (paying tuition fee 200 EUR or in some cases 100 EUR)⁸ and the quota of self-financed students (paying tuition fee 400 EUR) (EACEA, 2010, 4).⁹ They are free to allocate their own income. State grant is allocated for maintenance, wages for staff, administration and management, operational costs etc. and cannot be used for any other purpose. Public universities generate 63% of own income (58% from tuition fees and 5% of other sources like projects, rents, etc.) (Source: Sector for Higher Education, MES).

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 (%)
2008	-	1.36 %	NA
2009	-	1.123 %	NA
2010	3.6 %	1.18 %	Private investment in public HEI 2% Private HEI 0.41%
2011	-	1.32 %	NA
2012	-	1.17 %	NA

Table 3. Students paying tuition fees

	Professional HE (%)	University HE (%)
Undergraduate	Public (100 %) Private (100 %)	Public (100 %) Private (100 %)
Masters	-	Public (100 %) Private (100 %)
Integrated	-	Public (100 %) Private (100 %)
PhD	-	Public (100 %) Private (100 %)

Tuition fees changed significantly from 2000 to 2012. From 2000 to 2011 public universities actively use their rights to determine tuition fees. In 2010 the level of tuition fees had become

⁸ After the process of decentralization of HE, branches of HEIs were established in almost all cities in Macedonia. Students in these cities pay the lowest tuition fees - 100 EUR.

⁹ In this study it is mentioned that this type of tuition fees comes to 700 EUR, but various reviews on enrollment in 2012 do not mention any other sum but 400EUR.

to 600 EUR and even to 800 EUR (Petkovska, 2011) but the Ministry cut the tuition fees in 2011 at 100 EUR, 200 EUR and 400 EUR. For some programs, the Ministry decides to be free of charge (for example, study program in physics).

Table 4. Average amount of tuition fees in EUR (in 2012)

	Professional HE		University HE	
Undergraduate	average	455 EUR	average	510 EUR
	public	280 EUR	public	280 EUR
	private	1,462 UR	private	1,815 EUR
Masters	-		average	577 EUR
			public	280 EUR
			private	2,080 EUR
Integrated	-		average	280 EUR
			public	280 EUR
			private	NA
PhD	-		average	336 EUR
			public	280 EUR
			private	1,885 EUR

Source: State Statistical Office Republic of Macedonia

Quality assurance

The accreditation and evaluation process of HEIs in the Republic of Macedonia has started in the year of 2000 with the new Law on Higher education (LHE), which established two bodies: Higher education accreditation board and Agency for evaluation of the HEIs. The work of these two bodies took place from the year of 2000 to 2011 when the changes and amendments on the LHE entered into force. New LHE entered into force in 2008, followed by 9 amending acts.

First phase of quality assurance process in Macedonia (2000-2011)

During 2000-2011, the HE quality assurance system encompassed the following:

- Approving, confirming and recognizing the right of a higher education institution to carry out activities in accordance with the law (accreditation/licensing).
- Assessment of quality in the performance of a higher education activity, the management, financing, academic and other activities and priorities therein (institutional evaluation and the evaluation of study programs and learning processes).
- Quality assessment of teaching staff.

The Higher education Accreditation Board determined whether HEIs have met the requirements to perform the higher education activity; decided on the licensing of a scientific institution and fulfilment of the conditions for organizing new study programs and determined the capacity for studying; licensed study programs; kept records on licensed HEIs.

The external evaluation was performed by the Agency for evaluation of the HEIs (Evaluation Agency). The Agency performed the external evaluation under the conditions determined in the Guidelines for providing and assessment of the quality of HEI and the academic staff in the Republic of Macedonia (adopted by the Evaluation Agency upon a proposal by the Inter-university conference). The self-evaluation was performed by the HEI.

The Evaluation Agency:

- Monitored the work of the HEI to which accreditation has been issued (on the basis of the report on the evaluation of a HEI);
- Assessed the status and operation of HEI and on that bases, proposed to the Accreditation Board the extension or withdrawal of accreditations (once every 5 years);
- Issued recommendations necessary for the performing HE activities;
- Proposed measures to improve the network of HEI;
- Published a report on the evaluation results.

During the first phase of quality assurance system, the following documents were adopted: Norms and standards for establishing HEI and performing HE activities; Guidelines for the quality of HE education in the Republic of Macedonia; Guidelines and evaluation procedure at the level of Faculty/HEI /Research institute.¹⁰ In accordance with these documents HEIs were in position to perform the self-evaluation procedure and the same has been carried out in 35 institutions. The Agency acted as consultant and selected experts for external evaluation. At the end of the year 2004 the external evaluation reports were submitted to the Agency and to the HEIs. These two bodies for quality assurance continued their work till the changes and amendments on the LHE entered into force in February 2011.

¹⁰ Republic of Macedonia, Higher Education Accreditation and Evaluation Board, Letter to ENQA Board, 26th of August, 2011

Second phase of quality assurance system (from 2011)

Recognizing the need for the national quality assurance system to comply with the Standards and Guidelines for Quality Assurance in European Higher Education (EACEA, 2011) the new LHE (2008) provides for:

- Strengthening the role of the Higher Education Accreditation Board and the Agency for Evaluation of Higher Education by merging them into one national body for quality assurance in higher education;
- Introduction of student participation as well as participation of employers' representatives in decision-making bodies of the universities and the quality assurance process (from both the private and the public sector);
- Introduction of international cooperation in the quality assurance process (peer reviewers, other quality assurance agencies and/or relevant associations);
- Membership of the national bodies for quality assurance in the European Association for Quality Assurance in Higher Education (ENQA).

The article 68 of the Law for changes and amendments of the LHE (Official Gazette no. 17/2011) prescribes the system for quality assurance and assessment of the Higher education to be provided by one body, the Board of Accreditation and Evaluation of Higher Education (Accreditation and Evaluation Board). Accreditation and Evaluation Board is composed of 23 members, 9 of which are elected by the Inter-University Conference of the Universities in Macedonia, proportionate to the number of students enrolled in the first year of study, 2 members of the Macedonian Academy of Science and Arts, 1 representative of the most representative body of the Employers, 2 members of the Inter-University student Parliament and 9 members appointed by the Government, from among the professors and scientists. The members of the Accreditation and Evaluation Board have a mandate of 4 years. A member may not be re-elected for more than two consecutive terms. They are independent in their work and shall not be removed before the expiration of the time period they have been elected for. The constitutive session of the Board is convened by the Minister in charge of higher education affairs.

The Board determines whether HEIs have met requirements for performing HE activity; decide on the licensing of a scientific institution, fulfilment of the conditions for organizing new study programs, determine the capacity for studying; license study programs; keep records on licensed HEIs. At least each five years it organizes follow up and assessment of the higher

education activity of the academic staff and study programs of HEI and extends /confirms or withdraw the accreditation. The Board publishes external evaluation report. The Board set up expert commissions for the accreditation and evaluation procedure, it can engage an external expert if needed. The funds needed for the operation of the Board are provided by the state budget within a special budget item and from its own assets. In 2011, Accreditation and Evaluation Board applied for associate membership in ENQA.

The LHE provided for bi-annual ranking of all universities and HEIs in the country through an open procedure for engagement of a consulting firm. The first ranking of Macedonian HEIs was commissioned by the MES in February, 2011 and released on February 16, 2012 (Academic Ranking of World Universities, 2012). Nineteen qualified HEIs were included in the ranking. The ranking used 19 indicators of academic performance and competitiveness, covering major mission aspects of HEIs such as teaching, research and social service.

Recent changes and specific characteristics

Last 12 years were marked by an expansion of all kinds of universities and programs. Three more public universities were established, branches of public universities were opened in almost every bigger town in the country, and 15 private universities were founded. Expansion of programmes is one of the consequences thereof. The expansion of HE, decentralization of HEIs and cut and equalization of tuition fees have increased the diversity of the student body concerning socioeconomic background and ethnicity making access to HE more open.

Ohrid Agreement provided for multi-lingual education at all levels (Ohrid Framework Agreement, 2011, Art. 6.2; 6.3). In the same time the South East European University was established in Tetovo, with the Albanian, Macedonian and English language instruction. The teaching and administrative staff are also of different ethnic backgrounds (Xhaferi, B. ,Xhaferi, G., 2012).

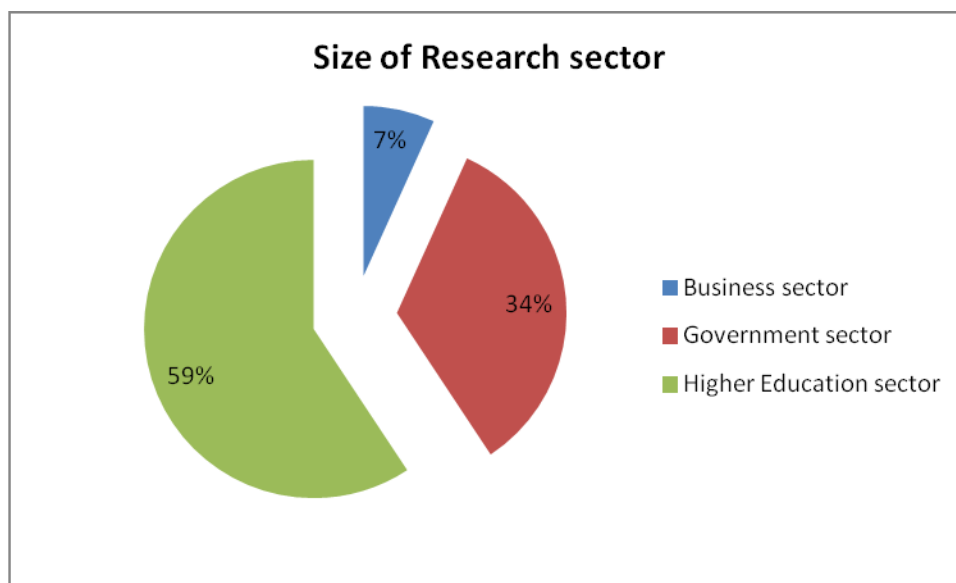
In Macedonia, public universities have been successfully integrated, and HEIs decentralized with the formation of the branches of HEI all over the country, but on the other hand there are several areas of conflict and tensions between the state and the HEIs, particularly over financing of HE and criteria for evaluation and promotion.

3. The Research System

Size of the research sector

According to the data from the State Statistical Office, Research and Development Activity 2010, there are 59 Research organizations in Macedonia: within Higher Education sector – 35, Business sector – 4, Government sector – 20 (State Statistical Office Republic of Macedonia, 2010, 12; by Frascati classification)

Figure 4. Size of research sector



Source: State Statistical Office Republic of Macedonia

All those organizations employed 5,908 persons. The largest number of researchers is coming from the education sector – 79.36% out of the total number of employees in the research activity, meaning that the research sector heavily relies on university human resources.

The university sector is the main research activity performer in the country. According to ERAWATCH report, the overall number of scientific publications in the country was 1431 in 2008 (ERAWATCH, 2012). The largest contribution to scientific publications has been made by researchers employed in the higher education sector (52.2%). Performing research in the state HE sector is required for participation in PhD studies and for teaching staff to be granted promotion.

Research in the Republic of Macedonia is mainly conducted by public higher education units, the Macedonian Academy of Sciences and Arts (MASA) and a few other public research organizations. Private universities and small and medium enterprises have a minor, almost insignificant, Research and Development (R&D) role (ERAWATCH, 2012). There are only a few large private companies that participate in research activities more significantly: Pharmaceutical company Alkaloid A.D. Skopje (for 2009 this company was the main R&D performer in the chemicals and chemical products manufacturing industry), *Mikrosam A.D.*, a company from Prilep, (established the Institute of Advanced Composites and Robotics), the company for information technology *SEAVUS DOOEL Skopje*, the biggest ICT company in the country (since 2009 the company has a formally established R&D department).

One of the laws which regulate R&D activities in Republic of Macedonia, the Law on Technical Culture, allows the MES to delegate the realization of activities for technical culture through civil society organizations and associations that are verified by the MES. These activities include training in technical, technological, and IT knowledge and skills, inventions development, spreading scientific and technical achievements, supporting research and scientific work and technical education especially for the young. Their activities can also be co-financed by the business community and the local municipalities.¹¹ Furthermore, the Law on Scientific and Research Activities adopted in 2008 allows for the establishment of mixed scientific institutes. However, currently no official data and evidence are available for the number of these private research organizations and the volume of R&D activities performed. Therefore, the identification of separate private research and technology organizations is difficult.

Regarding official data on Scientific-Research Activity in the Republic of Macedonia, 93,2% of research providers are public, and 59,32 are part of the university (Table 5).

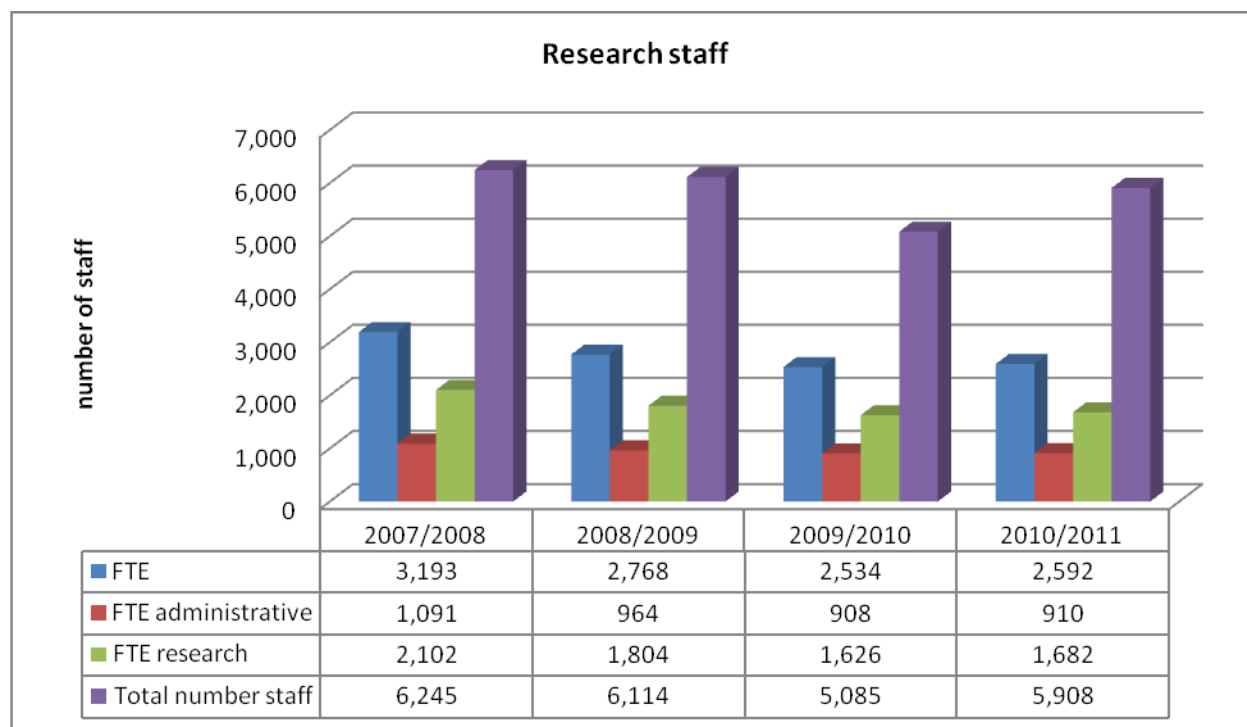
Table 5. Size of the research sector (Source: State Statistical Office Republic of Macedonia, 2010)

	Part of a university	Part of a company	Independent	Total
Number of public research centres or institutes	35	-	20	55
Number of private research centres or institutes	-	4	-	4

¹¹ One such umbrella organization is the Union of Associations for Technical Culture of the Republic of Macedonia, which has 13 offices in cities all over Macedonia. Other unions are the Union for Technical Culture in the Economy of the Republic of Macedonia, Union of Clubs of Young Technicians and Naturalists, Union of Associations of Young Explorers, Cinema Union, Photo Union, Radio Union and SPATUM.

Since 2007/8 till 2010/11, the total number of staff in the research sector has been decreasing. The same trend applies to the FTE and FTE researchers. It can also be noted between the last two periods (2009/10 and 2010/11) that the number of staff in the research sector has stalled. The only significant difference to these trends is the 2009/10 data for the total number of staff – it decreased for around 1/5, in comparison to years before and after.

Figure 5. Number of staff, administrative and academic



Source: State Statistical Office Republic of Macedonia

According to the data from Statistical Review 2010, the total number of research activity results in Macedonia was 1,462 published scientific and expert works and 86 research projects.

Research funding

The national research system of the Republic of Macedonia is centralised and underfunded. In 2009, GERD (Gross Expenditure in Research and Development) as a percentage of GDP was only 0.199 in the country, significantly lagging behind EU average. The overall responsibility for developing and administering Macedonia's R&D system is concentrated in the MES. According to the Law on Scientific and Research Activities, R&D activities are carried out via a four-year

National Programme for Scientific and Research Activities adopted by the Government of the Republic of Macedonia and based on a proposal from the MES (ERAWATCH, 2012).

The MES provides the funds necessary for the development of science and scientific education, national research and technology development projects and the development of the research and technology infrastructure. The main advisory and expert body of the government for R&D is the National Committee for Development of Scientific Research and Technological Development, responsible for providing scientific advice to the government. It is an expert body that consists of nine members: the minister of education and science, the president of the MASA, the president of the Commission for Technological Development and scientific research experts from six different scientific fields. As provided for in the Law on Encouragement and Support of Technological Development adopted in 2011, the government established a new Committee for Technological Development. The committee consists of seven members, six ministers from the ministries involved in R&D and innovation and the Government vice-president for economic affairs who act as a president of the committee. The committee proposes the four-year Programme for Technological Development and is the main decision-making body for financing large projects from the Programme for Technological Development. The purpose of the establishment of the new committee is to increase the efficiency of the governance of the innovation system of the country and efficient implementation of the large projects of national importance.

On the operational level, the MES has two advisory bodies, the Council for Scientific Research and the Commission for Technological Development. The Council for Scientific Research advises the minister during the preparation of programmes for scientific research proposes themes and topics for domestic and international projects, carries out internal and external evaluation of the scientific and research activities, etc. The Council is headed by the president, and has six additional members who represent six scientific fields. The Commission for Technological Development acts as the ministry's advisory body. This commission has the responsibility to advise the Committee for Technological Development on issues regarding technological development and to participate in the preparation of the Programme for Technological Development (however, the new Law on Encouragement and Support of Technological Development adopted in 2011 doesn't envision representatives from companies acting as a members of the Commission for Technological Development). The commission consists of seven members: six representatives from the ministries involved in R&D and innovation and a representative delegated by the vice-president of the Government of the Republic of Macedonia for economic affairs. The representative from the MES is the president of the commission. In October 2012 the Government adopted Innovation Strategy 2012-2020, together with Strategy implementation Action Plan 2013-2015, envisaging the establishment of

the National Council for Higher Education, Science, Innovation and Technology. National Council (not established yet) is supposed to take over responsibilities of several existing bodies.

The ministry's Department of Science and Technology Development carries out the ministry's tasks regarding R&D policies. It defines and organizes the procedures and criteria for selecting and funding or co-funding domestic and international R&D projects and awarding grants for other R&D activities. At the research performer level, the main actors are the units of the state universities and MASA. The faculties of the state universities are the main contributors of expenditures on R&D in higher education (HERD), whereas the public scientific institutes of the state universities together with the MASA are the biggest performers regarding the intramural expenditures in the government sector (GOVERD). The next most significant performer is the industry sector. The private universities are small research performers in the country with marginal participation in the R&D activities.

The responsible ministries consult with the universities, research institutes, the MASA and individual national or international experts. The consultations are focused on evaluation of proposals, final project reports, performance assessment of research institutes, preparation of actions and research funding programmes. A special teams of distinguished researchers from the country and abroad along with representatives from the state policy making structure have been established for all important national strategies that are in development. The main role of these teams is to act as scientific advisers in the policy formulation process. Expert bodies and individual experts from the research community and industry are invited to contribute during the development phase of all national R&D policy documents and programmes. They are included in different research areas as advisors, evaluators, peer reviewers and analysts. In addition, public consultation is widely used for all significant policy decision making and for the selection of research priorities.

The most important source of funds for research activities in the country in the period between 2005 and 2009 was the government sector. The government sector share in the funding was 71% in 2005, 51% in 2007, 45.9% in 2008 and 50.3% in 2009. The MES as well as the other ministries directly fund institutions and projects from their R&D budgets. Institutional subsidies covering salaries, running costs and capital spending in state-controlled institutes and public autonomous research organizations account for the greater part of the national budget distribution. A considerable share of the public research funding is competitive and project based. According to state budget spending for 2011, state-controlled public institutes received €1.37m, the MASA €1.32m and the budget line for scientific research, technological support and technical culture programmes was €1.1m, primarily granted through competitive calls. Similar budgets were allocated to these public institutions for 2012. The majority of the

competitive and project based calls are generic. Therefore, the MES finances all types of research.

Financing of R&D is based on institutional funding (through direct financing of research institutions) and competitive funding (financing research projects competing for funding). The MES is the main provider of funds for the development of research and technology infrastructure and projects, but several other ministries are also providing resources for sectional researches (agriculture, industry). Competitive funding is carried out through research programs for scientific and research activities, for technological development and for technical culture, providing grant funding for research projects.

Also, the MES annually finances, by public call, the publishing of research results, scientific conferences and participation of researchers in international conferences and provide contributions of domestic associations and organizations to international research associations and organizations.

Institutional funding

Institutional funding is provided to higher education, government controlled public research institutes and the MASA through the annual budget funding. The funds mainly go towards salaries for permanent staff and other running costs, which thus constitute the bulk of funding at 90.6% of GOVERD for 2009. The institutional funding to universities represents approximately 97.5% of the total public university funding by the MES. Only a small segment of the institutional funds received by universities is intended for R&D activities.

Competitive funding

The main instrument used for project funding are research programs. There are three budget lines coming from the MES that support the following programs: Programme for the Scientific and Research Activities, Programme for Technological Development and Programme for Technical Culture. These programs provide grant funding for project-based research to research organizations, universities, and individual scientists. They also encourage the mobility of scientists in bilateral research projects.

The Programme for the Scientific and Research Activities finances both national and international projects along with the programmes of the public research institutes. The line from the Programme for Technological Development supports research collaboration between academia and business through co-financing, with all of the funds awarded through competitive calls. The calls are open for the organizations that are registered for technological development activities. The project proposals are evaluated scientifically and the funds are awarded based on excellence, with the awarding criteria determined by rulebooks. According to the Programme

for Scientific and Research Activities, the MES finances the publishing of research results, organization of conferences in the country, access to electronic scientific databases, and also provides scholarships for young researchers.

A combination of merit-based research funding and mission-oriented research is applied in the framework of the Programme for Technical Culture. The MES, for example, funds projects proposed by associations of citizens that are certified by the ministry.

Research is carried out through a four-year National Program for Scientific and Research Activities, and a four-year Program for Encouragement and Support of Technological Development, adopted by the Government. These programs are realized through annual programs. The Ministry of HE finance yearly programs and projects for scientific-research activity by public call with preferences for high impact factors for last three years (The Law on Scientific Research Activity (LSRA), Art. 49-52).

Concerning the research policy, the main advisory and expert body of the Government for R&D is the National Committee for Development of Scientific Research and Technological Development. The Committee advises the Minister about scientific, research and technological developments, about programs for scientific research, makes internal and external evaluation of the scientific and research activities, etc. Its members are the Minister for Education and Science, the President of the Macedonian Academy of Science and Arts, the President of the Council for Scientific-Research Activity and six representatives of scientific and research community.

There is also another advisory body, the Commission for Technological Development, which advises concerning the Program for Technological Development and comment directions of technological development in comparison with the European and world trends. It also evaluates proposals for projects and gives its opinion, suggestions and recommendations to the Minister (ERAWATCH, 2012).

Quality in research activity

The mechanisms for national academic and research quality assurance are defined by the LHE, the Law on Scientific and Research Activities and the Decree on Norms and Standards for Establishing HEIs and Performing Higher Education Activities (DNSHE). DNSHE, adopted in 2010, defines the criteria required for the accreditation of HEIs and the evaluation of their scientific research (METRIS, 2011, 11). The MES ensures that the criteria are fulfilled through the Accreditation and Evaluation Board. The self-evaluation of each research unit is officially adopted by the Educational and Scientific Council of the research organization. The quality

evaluation system for academic staff is a form of evaluation of the individual researchers and provides promotion of researchers and university professors into the higher scientific grade. The criteria are mainly based on bibliographic indicators – the number of scientific papers in the relevant, highly ranked international journals. Regarding the realization of research activities performed in accordance with the Law on Scientific and Research Activities, the MES evaluates the realization of the National Programme for Scientific and Research Activities and creates conditions for improving the quality of scientific research. The primary focus of this evaluation is the realization of research projects financed through the MES. The MES publishes an annual report containing ex-post information and evaluation of R&D activities. A similar mechanism exists in the other ministries that perform research and innovation policy development. Research institutes, universities, the MASA and individual national or international experts are consulted by the responsible ministries and public agencies for providing scientific and technical advice, mainly for evaluation of the proposals and the final project reports, assessment of the performance of research institutes and preparation of actions and research funding programmes.

While the Law on Scientific and Research Activities promotes the issue of quality research, the concept of what constitutes ‘quality research’ has not been fully developed. Since only a small number of papers are published in foreign international journals (5%), with a negligible percentage for journals with impact factor, the gradually raised quality standards would hopefully encourage researchers to intensify their efforts to publish in international journals. In the 2004-2005 period the Republic of Macedonia constructed a complete national database with publications from scientific journals with impact factors. At the same time, a database of all patent activities in the country was created. In 2010, the Ministry of the Economy developed an Innovation Scoreboard for measuring and evaluating the innovation activities in the country. The results from the research are published in the European Innovation Scoreboard for the Republic of Macedonia in February 2011.

Project evaluation

Public-funded research projects are mainly carried out through the Programme for Scientific and Research Activities (PSRA). The selection of the projects is fulfilled institutionally on the basis of a public competition. All projects are subject to an anonymous review, which could include internal and external evaluation conducted by the CSR. For each project two external experts from the field are nominated, and the evaluations are done in accordance with the rulebooks adopted by the MES on the proposal of the CSR. The positively evaluated project activities and the fulfillment of the project objectives according to the project proposal are mandatory prerequisites for acceptance of the project expenses by the MES. After completion of the projects, their findings are presented to the concerned scientific public. This implies a

certain level of peer review. The evaluation system is upgraded by the solutions laid down in the Law on Scientific and

Research Activities. For this purpose, the law foresees the establishment of a network of national coordinators for different domains and disciplines, in order to achieve the objective evaluation procedures. Moreover, international expertise and the involvement of stakeholders, including the private sector, is foreseen when the projects have a broader public interest. The annual report of the MES for the PSRA, which includes ex-post information for the realization of the projects financed through the programme, could be regarded as a sort of project evaluation.

Programme evaluation

The strategic framework for the development of research policy in the Republic of Macedonia is relatively new, and the timing itself has not allowed for any formal evaluation of its implementation so far. The only published report concerning the evaluation and the impact of the evaluation of the R&D programmes is the general annual report of the MES for the PSRA, which finances main R&D activities on a competitive base. The process of programme evaluation is supervised by the CSR. In addition, the CSR advises the minister during the preparation of programmes for scientific research, proposes criteria for evaluation, analyses the assessments and proposes appropriate changes in the forthcoming programmes. However, the revision and evaluation process of the research programmes still needs to be developed and improved.

Institutional evaluation

Universities as main research performers make self-evaluation of their scientific and research work. The process is monitored by the MES. The universities that have an international orientation and a vision for participation in international associations, like the largest “Ss. Cyril and Methodius” University in Skopje, have external evaluators that adopt standardized tools. As mentioned earlier, the first university ranking was done in 2012.

An indirect criterion for the evaluation of HE institutions is the quality of the personnel employed at the faculties and institutes. The evaluation of individual researchers and professors is carried out for their promotion into a higher scientific grade. According to the new changes in the LHE, the criteria regarding the promotion of professors for different positions requires the professors to have a number of published reviewed articles in international journals or in journals with an impact factor. Even stronger criteria are applied for researchers and university professors that have the intention of becoming a mentor within the new PhD programme, regulated by the LHE from 2008. The accreditation of HEIs and the external evaluation of their educational and scientific research can be considered as another form for

evaluation of HE institutions. This form of evaluation has a very big impact on the educational and scientific work of all HE units. If the criteria are not fulfilled by a specific unit, that unit will not be granted a license to continue working as an HE institution.

Besides self evaluation, which is practiced in the larger state universities, and the final results of the external evaluation carried out by the Evaluation and Accreditation Board, there is still no evidence for the quality assurance of the remaining mechanisms (METRIS, 2011).

Major reforms and trends

The Macedonian research system is state centralized system with little involvement of other stakeholders in development and implementation of R&D policies. Since its independence in 1991 Macedonia has faced a lot of economic problems with enormous influence to the R&D, which was insufficiently funded. The R&D sector was in decrease from 1991 to 2003. R&D expenditures have fallen to the one of the lowest in Europe at 0.23% of GDP. Research sector in Macedonia is still under-funded and dependent on EU and other international funds (ERAWATCH, 2012).

There are five laws comprising R&D: the Law on Scientific and Research Activities, the Law on Encouragement and Support of Technological Development, the Law on the MASA, the LHE and the Law on Industrial Property.

Main sectors recognized by the government as the most important sectors for improvement of national economy are agriculture, tourism, textile, ICT and energy sectors.

In the last two years three important strategies have been developed: the National R&D Strategy for the period 2011-2020, the Innovation Policy of the Republic of Macedonia for the period 2012-2020, and Stop Brain Drain Strategy 2013-2020. The main objective of Macedonia's Innovation Strategy 2012-2020 is to improve the capacity of domestic companies to absorb new technologies (European Commission, 2011). Stop Brain Drain Strategy 2013-2020 is focused on preventing brain-drain and repatriate researchers who have left the country. According to targets of the National R&D Strategy for 2011-2020, expenditures in R&D as percentage of GDP should be 1.8% in 2020, with 50% of the GERD performed by private businesses.

There is also the Program of the Government of the Republic of Macedonia for the period 2011-2015, which stimulates cooperation of companies and researchers in order for developing new technologies. Key priorities in this program are the increase of economic growth and employment through investments in education, science and information technology as elements of a knowledge-based society.

4. Policy & governance

The main actors in the process of policy making in the areas of HE and research in Macedonia are: the Parliament with its Committee on Education, Science and Sport, the MES, HEIs (universities, faculties, institutes, higher schools), and buffer bodies (Rectors` and Inter-University Conferences).

Regarding *external governance* a number of buffer bodies have been established. The National Council for Higher Education, Science and Technology and the Accreditation and Evaluation Board are expert bodies, while Conferences (Rectors` and Inter-University Conferences) are representative bodies. Rectors` Conference is the representative body for public universities (LHE, 2008, art. 48). It is constituted from the rectors of public universities. It is in charge of various topics but predominantly financial. Inter-University Conference is the representative body of public and private universities and representation is based on the respective number of enrolled students. It decides on the topics of mutual (public and private) interests in all domains of decision-making.

Regarding the *internal governance*, in Macedonia the universities succeeded to integrate, and faculties have lost a wide range of their competencies (LHE, 2008, art. 45; Tempus Report, (2010)). They are only departments at the universities, but they preserved a kind of financial autonomy. Faculties elect their Deans, but the election must be confirmed by the rector. There is also the Council of professors with competencies to decide in professional matters.

After enactment of the Law on HE in 2008 the state has become the most influential actor in decision-making processes in the field of HE. State imposes legal solutions and criteria for evaluation and promotion which the academic community evaluate as very tough, made painful financial cuts, changed the laws neglecting the attitudes of the academic community, constantly suppressing the academic community, often ignoring its needs and attitudes. Also the influence of buffer bodies as external, as well as internal HE bodies, at the process of decision-making in the field of HE, used to be stronger until 2008. Academic community and its representatives in various bodies complain that the State (MES, as well as Parliament) jeopardizes the university autonomy and often imposes bureaucratic measures in delicate field which demands fine professional “tuning and balancing” from the side of the academic community.

Both internal as well as external university institutions are included in all important decision-making processes in the field of HE. They are entitled to participate as important actors in the regulation field. They give opinion on all normative acts, on draft of the laws with the right to

initiate them (METRIS, 2011, 6-20). They are entitled to nominate their representatives in various bodies like Accreditation and Evaluation Board, National Council for Higher Education, Science and Technology, Council for Research and Innovation etc.

The main decision-making bodies at universities are: the Council (Senat), Rector with Rector's Board, and Management Board, and they are entitled to govern internally in all important topics of HE. The Council (Senat), as the main governing body, is in charge of decision-making in academic topics, professional standards, etc. The Council has 2 representatives of each Faculty, 1 representative of each institute and 10% of the members are student representatives. Rector is the executive body, mostly in charge with managerial matters and finance, and represents the University. University has Executive Committee constituted of the Rector, Vice Rector, and Secretary General. Rector's Board includes all Deans, the heads of institutions and Vice Rector. Management Board (Univezitetski Savet) is an executive university body which has 11 members: 5 of them are nominated by the Council (Senat) and 6 from outside academic community: representatives of the government, chamber of commerce, city, enterprises and students. This body was created in order to check potential social benefits from university programs (applicability, benefits, employability of various professions etc.). Up to now, this body has modest results because a great part of academics refused to measure the benefits, applicability of programs and employability. That is the reason why the MES obliged each HEI (faculties) to establish a Board for cooperation and trust with public. Before the accreditation of study programs, the faculties have to get the opinion of this board. Creation of the Board for cooperation and trust with public at each faculty is the element of a corporate-pluralist steering model.

There are several conflict areas between the academic community and the Government. Criteria for evaluation and promotion are a field of permanent conflict between the state and HEIs. Until 2008, academic community used the freedom to develop criteria but with the new law the state made provisions neglecting needs and attitudes of the HEIs. Academic community asked *Constitutional Court* to intervene demanding that some provisions of the Law from 2008 be moved out as unconstitutional.

Financing is also a permanent field of conflict between the state and HEIs, although the new Law in this field is still to be made. Cutting of tuition fees in 2011 have raised enormous protest of faculties which have lost their extra money. The MES explained this measure as an

instrument for balancing crises and increasing access to the university. But it was also a measure to control the appetites of faculties (Petkovska, 2011, 58-63).¹²

Macedonia has been going through transitional period since 1991. In the first decade there has been a little changes in the field of higher education. In the field of HE there is an intensive regulatory activity from 2000, with two Laws on HE (2000, 2008) and even 10 changes of the last Law (from 2008 until 2013).

Tradition (50 years of self-management, the traditional autonomy of the university, authority of academics, and influential position of a number of professors in consultation and regulatory processes) influenced that the state had at the beginning of the reform the respect towards the academic community and HE. In that period the steering mechanism had the elements of self-regulation model since academic community could arrange a number of issues alone (accreditation, evaluation, financing, management etc.).

The Law of 2008 changed the political ambience by putting the state in the role of stronger partner introducing sovereign, rationality bounded steering model. State has tight control over universities and colleges, and the role of HEIs is to implement political objectives on HE policy agenda. The consequence is that mistrust and tension between the state and the academic community have increased, resulting even with the open conflict from time to time.

Research capacities of HE

There are no research centres specialized for HE and research, but there are three NGOs dealing with some aspects of HE and research.

Centre for Research and Policy Making is an organization that has a mission to promote good governance and development in Macedonia on the basis of relevant, evidence-based policy research, capacity building and trainings, evaluations, analyses and surveys. This Centre is, among other areas, also devoted to the reform of HE. The Centre has a multi-disciplinary team of analysts, specialized in project management and policy research and analysis. The Centre has published numerous studies, projects and publications concerning HE (discrimination in HE, privatization of HE etc.).

Centre for Regional Policy Research and Cooperation "Studiorum" (CRPRC Studiorum) is a think-tank working on economic and social aspects of the EU integration and globalization processes

¹² Also interview with Deputy Head, HE Sector, MES and National Tempus Office Coordinator, February 19, 2013

that are of essential importance for the Republic of Macedonia and the countries of Southeast Europe. Studiorum had a number of projects in the field of reforms of HE.

Youth Educational Forum (Mladinski Obrazoven Forum) is a NGO with the mission of upgrading the quality of HE and research policy in Macedonia. It has a number of young and enthusiastic staff (permanent and voluntary) and a good network of cooperation in the region, in Europe and in the world. They have a wide scope of activities and projects and are a part of networks (Anticorruption Student Network in South Eastern Europe, ACSN, Transparent Education Network, TAS, covering Euro-Asia region, Global Youth Anticorruption Network with NGOs from all over the world/ Asia, Latin America, Africa etc.).

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Interviews

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- Interview with the director of the National agency for European educational programs and mobility, February 20, 2013