

The Researchers Report 2012
Country Profile: Bosnia and Herzegovina



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1. National strategies

Bosnia and Herzegovina (BiH) is a potential candidate to enter the European Union. The Stabilisation and Association Agreement (SAA) with the EU was signed in June 2008 encouraging BiH to develop socio-economic policies which include strengthening the role of science in the country and prospects for national economic growth based on domestic knowledge-intensive businesses.

The research system in Bosnia and Herzegovina is decentralised, each entity enjoying decision-making and policy coordination autonomy. The two entities are the Federation of BiH (FBiH) that comprises 10 cantons and the Republika Srpska (RS).

The Governments in BiH has put in place a range of measures aimed at training enough researchers to meet its R&D targets and at promoting attractive employment conditions in public research institutions. The table below presents key programmes and initiatives intended to implement the strategic objectives to train enough researchers to reach BiH's R&D targets, to promote attractive working conditions, and to address gender and dual career issues.

Table 1: National strategies

Measure	Description
Centre for Information and Recognition of Qualifications in Higher Education (CIP/CIR) (2008)	The main duties of the Centre for Information and Recognition of Qualifications in Higher Education are: <ul style="list-style-type: none"> – Information to the Universities in Bosnia and Herzegovina in relation to foreign Universities and Programmes (via the International Information Centres – ENIC.NARIC); – Coordination and international exchange of academic employees, students, and programmes in higher education; – Representation of BiH through international projects and networks; – Information on the recognition of degrees and of diplomas to safeguard the attendance levels at national universities; – Legal advice and information; – Recommendations to the Ministry of the Republika Srpska, to the Ministries of Cantons, and to Brčko District BiH.
EU- Balkan countries Action Plan in Science and Technology (2003)	In June 2003, the EU Thessaloniki Summit approved the Action Plan on Science and Technology for the Countries of Western Balkans. This plan aimed to provide providing special assistance to the countries in the region, including BiH, to increase their participation in the EU's research and technology development (RTD) Framework Programmes and other European funded initiatives and schemes. Nevertheless, BiH does not participate in longer term, more advanced or risky research platforms, such as Integrated Projects, Networks of Excellence or ERA NET.
Framework Law on Higher Education in Bosnia and Herzegovina (Official Gazette of BiH, No 59/07) and its Change and Amendment (Law No. 59/09)	The Law on Higher Education in Bosnia and Herzegovina determines the organisation of the higher education in BiH and the responsibility of the competent authorities in charge of this area. The law also establishes international obligations of Bosnia and Herzegovina, and the method to ensure the quality in the area of higher education. In addition, in the framework of this law, the Centre for Information and Recognition of Qualifications in Higher Education (CIP/CIR) has been established.
Framework Law on Scientific Research Activities and the Coordination of Internal and International Scientific Cooperation of Bosnia and Herzegovina (Official Herald of BiH, No. 43/09)	The Law provides for the creation of a new coordination body, called the Science Council to contribute to the policy development of priority areas in science. The Law also underlines the importance of the need to improve significantly the current S&T information system, including statistical data collection, according to international guidelines as set out by EUROSTAT, OECD and UNESCO.
Memorandum of Understanding (MoU) on science and technology (S&T) co-operation (2008)	In 2008, the Memorandum of Understanding on science and technology co-operation was signed between the EU and BiH granting the country associated status in the 7 th Framework Programme (FP7).
Strategy for the Development of Science in BiH (STI Strategy) (2010-2015)	The Strategy for the Development of Science in BiH covers all aspects of science and research in the country. It includes the following actions to improve research infrastructure: <ul style="list-style-type: none"> – Increase investments in research equipment as well as in the revitalisation of research infrastructure to increase investment in R&D to reach 1.5% of GDP by

Measure	Description
	2015; <ul style="list-style-type: none"> – Enable unlimited access to electronic scientific databases (Science Direct, EBSCO, etc.); – Work on internationalisation and raising the quality of domestic scientific journals with the aim of becoming internationally recognised and to have a journal for each scientific field by 2013; – Strengthen support for the publication of high quality scientific books. The STI Strategy requires other ministries to invest in research, e.g. the ministries of Agriculture, Health, etc.
The Science Council under the Minister of Civil Affairs of Bosnia and Herzegovina (MoCA)¹ (ongoing)	The Science Council advises the minister during the preparation of the annual programmes for scientific research, proposes initiatives for domestic and international projects, comments on the annual programmes of scientific and research activities, carries out internal and manages external evaluations of scientific and research activities, etc. The Council ensures equal representation of all scientific fields in accordance with the 'field of science and technology (FOS) classification in the Frascati Manual' ² .

Source: Deloitte

2. Women in the research profession

Measures supporting women researchers in top-level positions

The Governments in Bosnia and Herzegovina have not put in place concrete measures to promote gender equality in the research profession or to increase the number of female researchers in top-level positions/decision-making bodies.

Quotas to ensure a representative gender balance

The Governments in Bosnia and Herzegovina do not have quotas and/or national targets or other measures to ensure a representative gender balance for researchers.

Maternity leave

Women researchers have the right to paid maternity leave for a year, as well as social and health insurance.

3. Open, transparent and merit-based recruitment

Recruitment system

In BiH, all public institutions are obliged to publish vacancies together with selection criteria in one of the public media. Public authorities require that institutions publish job vacancies in the government gazette, newspapers and on the institution's website. If a specific job position requires foreign experts, a mixed selection panel is established including professionals and HR experts. Job description, duties and responsibilities are the standard requirements published.

By virtue of the Constitution, the area of labour and employment is organised at entity level. In the Republika Srpska, this area is under the jurisdiction of the Ministry of Labour and Veterans. The relevant institution for employment in the Republika Srpska is the Employment Institute. The institute is organised in six regional employment offices, with 58 at municipality level.

Open recruitment in institutions

The table below presents information on open recruitment in higher education and public research institutions.

Table 2: Open recruitment in higher education and public research institutions

Do institutions in the country currently have policies to ...?	Yes/No	Description
– publish job vacancies on relevant national online platforms	No	Each institution publishes job vacancies on its own website.

¹ MoCA coordinates science policy at state level as well as international cooperation through its Department for Science and Culture.

² Available at: http://www.oecd.org/document/6/0,3746,en_2649_34451_33828550_1_1_1_1,00.html

Do institutions in the country currently have policies to ...?	Yes/No	Description
– publish job vacancies on relevant Europe-wide online platforms (e.g. EURAXESS)	Yes/No	Institutions may choose or not to publish vacancies on the BiH EURAXESS portal.
– publish job vacancies in English	No	Job vacancies are not published in English.
– systematically establish selection panels	Yes	Institutions systematically establish selection panels.
– establish clear rules for the composition of selection panels (e.g. number and role of members, inclusion of foreign experts, gender balance, etc.)	Yes	Institutions establish clear rules for the composition of selection panels.
– publish the composition of a selection panel (obliging the recruiting institution)	Yes	Institutions publish the composition of a selection panel.
– publish the selection criteria together with job advert	Yes	Public institutions must publish vacancies together with the selection criteria in one of the existing public media.
– regulate a minimum time period between vacancy publication and the deadline for applying	Yes	Institutions regulate a minimum time period between vacancy publication and the deadline for applying.
– place the burden of proof on the employer to prove that the recruitment procedure was open and transparent	Yes	Institutions place the burden of proof on the employer to prove that the recruitment procedure was open and transparent.
– offer applicants the right to receive adequate feedback	Yes	Institutions offer applicants the right to receive adequate feedback.
– offer applicants the right to appeal	Yes	Institutions offer applicants the right to appeal.

Source: Deloitte questionnaire

EURAXESS Services Network

As part of the BAMONET Project (BiH Researchers' Mobility Network), the BiH EURAXESS Centre created a portal for 'online' delivery of information and services to the wider academic community, especially to researchers. The BiH EURAXESS portal is a unique, free web service providing access to updated and complete information and services.

The portal also provides information and online tools designed for foreign researchers interested in visiting one of the scientific and research institutions in Bosnia and Herzegovina and for national researchers who plan to develop their scientific career either in BiH or in the wider European Research Area (ERA).

The EURAXESS BiH portal gathers useful information on researchers' arrival and stay in BiH, contains a database of all scientific and research organisations in BiH and provides various search tools on job vacancies, research grants and scholarships. In addition, the portal is regularly updated with news and press releases, both on general issues on science and research, as well as activities and events related to the work of the EURAXESS Network in BiH.

The University of Banja Luka publishes all job vacancies on the EURAXESS BiH portal and it is estimated that by the end of BAMONET project, other BiH universities and institutes will be choosing the EURAXESS BiH portal to publish their job vacancies.

As there is no other official website where all publicly funded research jobs are gathered (each institution publishes vacancies on their own websites), the government is looking into solutions to make the EURAXESS portal sustainable once BAMONET comes to an end (in 2013).

4. Education and training

In Bosnia and Herzegovina, R&D jobs are unattractive because of low salaries, lack of social security coverage, limited career incentives and poor employment opportunities. BiH has suffered from the departure of its most expert and highly qualified young people. Scientists that stayed in the country left the R&D sector for better paid jobs in the private sector. This has resulted in a shortage of experienced middle-aged researchers.

The resources for funding longer-term research or researcher mobility are almost non-existent and donor assistance is often short-term, small, and targets concrete investments in certain key areas, such as S&T infrastructure and modernisation of laboratories.

Measures to attract and train people to become researchers

The total number of students in tertiary education for the academic year 2009-10 was 43 928 in the Republika Srpska (RS)³ and 71 610 in the Federation of BiH (FBiH)⁴, compared to 2005-06 numbers of 27 421 (RS) and 62 546 (FBiH).

The number of students in Social Science and Humanities fields has remained constant at around 27 000 whereas the number of graduates in Social Science and Humanities has grown significantly, from 4 069 graduates in 2000, to 5 562 in 2008.

The table below summarises practical measures aiming to attract and train young people to become researchers.

Table 3: Human Resources - Key programmes and initiatives

Measure	Description
'Fund dr Milan Jelić' of the Ministry of Science and Technology of Srpska (2009-present)	The Ministry of Science and Technology of Srpska provides financial support to the most talented students of all three levels of higher education. In the period 2009/10, 101 talented received support; in the period 2011/12, 106 talented students received financial support.
'Programme for young researchers' of the Ministry of Science and Technology of Srpska (2010-present)	The Ministry of Science and Technology of Srpska manages the 'Programme for young researchers' by providing financial incentives to researchers to secure their paid full-time participation in science and research projects, in an effort to increase the number of doctorates in science, technology, engineering and mathematics (STEM) subjects. The Programme provided support to 4 young researchers in 2010 and 8 in 2011. For 2012, the Programme aims to support 6 young researchers.
Scholarships of the Ministry of Education and Culture of Republika Srpska (2008-present)	The Ministry of Education and Culture of the Republika Srpska provides scholarships for students of mathematics, natural sciences and technology, so as to promote their career in these professions where there are shortages of human resources.
'Annual Lump-sum Scholarship for Talented Students of Final Years of Studies at the Higher Education Institutions of the Federation of Bosnia and Herzegovina' (2006 - present)	The Ministry of Education and Science provides approximately 100 scholarships annually in the framework of the Annual Lump-sum Scholarship for Talented Students of Final Years of Studies at the Higher Education Institution of the Federation of Bosnia and Herzegovina.

Source: Deloitte

Funding of doctoral candidates

In Bosnia and Herzegovina, the main funders allocating financial resources via competition-based research grants are: (a) at state level, the Ministry of Civil Affairs of BiH, (b) at entity level, the Ministry of Science and Technology of RS and the Ministry of Education and Science of the FBiH, (c) and at cantonal level, the Ministry of Education, Science, Culture and Sport of Cantons Sarajevo, Tuzla and Zenica-Doboj.

The table below summarises different funding opportunities for doctoral candidates:

Table 4: Funding schemes available to PhD candidates

Funding scheme	Description
Stipend/Grant	<p>The Ministry of Science and Technology of Srpska covers 70% of researchers' funding. The allocation of stipends in 2011 was approximately:</p> <ul style="list-style-type: none"> – 7% in natural science; – 12% in engineering and technology; – 13% in agricultural sciences; – 10% in medical and health sciences; – 46% in social science; – 13% in humanities. <p>The Ministry of Education and Culture of the Republika Srpska provides doctoral students with scholarships/grants to study either in the Republika Srpska or abroad. Out of the total number of</p>

³ Statistical Bulletin, Higher education, Institute of Statistics of RS, no.7, Banja Luka, 2010.

⁴ Statistical Bulletin, Higher education, Federal office of statistics, Sarajevo, 2010.

Funding scheme	Description
	the PhD students who applied for the scholarship/grant, 30% met the criteria and approximately 15% of them ended up receiving the scholarship/grant.

Source: Deloitte

The table below provides information on the total R&D investment in BiH (in EUR million):

Table 5: R&D investments (2007-2010)

Entity	2007	2008	2009	2010
BiH	N/A	0.25	N/A	0.25
FBiH	1.7	2.22	2.7	N/A
SR	1.86	3.1	2.6	2.0

Source: Deloitte

Data: Ministry of Civil Affairs of BiH, Federal Ministry of Education and Science, Ministry of Science and Technology of RS.

In 2011, the Government of the Republika Srpska approved EUR 13 million for the modernization of the two public Universities; the University of Banja Luka (EUR 6 million) and the University of East Sarajevo (EUR 7 million). The project includes providing the state of the art equipment for the research laboratories of these two public universities and also, founding the Research Centre for Biomedicine, Food Technology and Nutrition.

Measures to increase the quality of doctoral training

The Council for Development of Higher Education and Quality Assurance of the Republika Srpska developed the Guidelines for Conduct of Doctoral Studies. Based on these guidelines, the universities in the territory of the Republika Srpska developed and adopted their own Rulebooks for Conduct of Doctoral Studies. The Guidelines for doctoral studies are in line with the European standards for quality assurance.

Skills agenda for researchers

The Governments in Bosnia and Herzegovina has not developed a Skills Agenda and/or any other measure to improve researchers' employment skills and competencies.

5. Working conditions

Education and research institutions have been first evaluated in 2003. The European University Association (EUA) was invited by seven universities in Bosnia- Herzegovina (BiH) to undertake an institutional evaluation of each university. This state-wide series of evaluations was part of a project supported by the European Commission and the Council of Europe, entitled "Modernising the management and governance capacities of the universities in Bosnia-Herzegovina". The purpose of the evaluations was, through a European peer review process, to assist each university in identifying progress already made in the reform of their governance and management structures and systems, to highlight the steps which still needed to be taken, and to contribute to the development of policies and strategies, in order to ensure that the BiH universities become fully integrated into the European Higher Education Area.

Measures to improve researchers' funding opportunities

The governments in Bosnia and Herzegovina provide researchers with financial support to implement science and research projects, contribute to scientific publications⁵, participate in scientific meetings, receive training abroad, etc.

Remuneration

The governments in Bosnia and Herzegovina have not adopted concrete measures to increase researchers' remuneration levels.

⁵ In the Central and Eastern European Online Library (C.E.E.O.L), which provides access to articles from a comprehensive list of 312 humanities and social sciences journals and documents pertaining to Central, Eastern and South-Eastern European issues, Bosnia and Herzegovina is represented in 15 journals, including the Forum Bosnae and STATUS. BiH comes last behind Croatia and Serbia, in both the number of journals (15 compared to 22 from Croatia and 21 from Serbia), and downloaded articles from those journals (3 145 compared to 7448 from Croatia and 5 664 from Serbia).

Source: The Assessment of Social Research Capacities at Universities and Civil Society Organizations in Bosnia and Herzegovina, Sarajevo, 2010.

Researchers' Statute

The governments in Bosnia and Herzegovina do not provide a 'statute' or equivalent to researchers.

'European Charter for Researchers' & the 'Code of Conduct for the Recruitment of Researchers'

The governments in Bosnia and Herzegovina do not actively promote the implementation of the 'Charter & Code' by research institutions and funders in the country.

Autonomy of institutions

At state level, no ministry is in charge of higher education. In the Republika Srpska, a single ministry of education manages the educational sector, including higher education.

In the FBiH, the Federal Ministry of Education has transferred the authority for education to the ten cantons, so that each canton has its own ministry of education, which is also in charge of higher education. Out of 10, only five cantons have universities and these are: Sarajevo, Tuzla, BiHac, Zenica and two Universities at Mostar (University "Dzemal Bijedic" Mostar, and University of Mostar).

Four universities in BiH are loose associations of autonomous faculties and other institutions (Sarajevo, BiHac, University "Dzemal Bijedic" Mostar and University of Mostar) and the other four are integrated universities where in total there are 140 faculties and academies. The public universities are the main beneficiaries of research funding through the competitive grants by the various competent ministries in the entities and cantons.

In BiH there are nine private universities; three in FBiH and six in RS. In total, there are 140 faculties and 10 academies. As far as research institutes are concerned there are 21 in RS (15 public and 6 private) and 30 in FBiH (20 public and 10 private). There are two academies of science: The Academy of Science and Arts of BiH (active in the territory of the FBiH) and the Academy of Science and Arts of Republika Srpska.

According to the Law on Higher Education of the Republika Srpska which applies to the Republic of Srpska territory, the higher education institutions enjoy full autonomy to recruit teachers and other academic staff. Regarding teachers' and researchers' salaries, they are defined by the Law on Wages of Employees in Education Field of Republika Srpska which does not predict any differentiation salaries according to performance.

Career development

Since 2004, the Ministry of Science and Technology of Srpska has introduced specific criteria for academic qualifications and universities developed their own evaluation criteria for awarding scientific and educational titles.

6. Collaboration between academia and industry

In Bosnia and Herzegovina, the involvement of the industry sector accounts only for providing financial resources towards the practical application of the R&D results.

7. Mobility and international attractiveness

Measures aimed at attracting and retaining 'leading' national, EU and third country researchers

Bosnia and Herzegovina has not promoted concrete measures to attract and retain 'leading' national, EU and third-country researchers.

Nevertheless, BiH's academic community has signed numerous bilateral agreements on international cooperation with foreign institutions from, for example, Austria, Croatia, Egypt, Italy, Slovenia, Switzerland, (mutual agreements between faculties/colleges, universities, institutes, etc.) that also cover the field of science and research, as well as joint projects. This type of cooperation agreement mainly involves individual participation of BiH researchers in research projects. The greatest involvement in this type of cooperation is in the biomedical and technical sciences.

The table below summarises key bilateral agreements between BiH and other countries to promote international cooperation.

Table 6: Bilateral agreements to promote international cooperation

Measure	Objectives
Agreement between BiH Council of Ministers and Republic of Serbia in Area of Education, Culture and Sport (2010)	The Agreement supports the following activities: <ul style="list-style-type: none"> – Establishment and development of cooperation between educational institutions; – Exchange of experts, teachers and graduate students; – Participation in symposia, conferences and similar gatherings in the field of education; – Approval of scholarships for students, post-graduates as well as exchange of teachers and scholars; – Exchange of publications and information.
Agreement on Equivalences in University Education with Austria	The Agreement is based on the 'Agreement between the Republic of Austria and the Federal Socialist Republic of Yugoslavia on Equivalences in University Education' (1979) with the intention of promoting exchanges in the sciences and cooperation in the field of university education
Cooperation Agreement with Slovenia (1999)	Bosnia and Herzegovina has signed a Cooperation Agreement with Slovenia on the promotion of cooperation activities in the areas of science and technology is an example of successful bilateral activities. Every two years the programme launches competitive calls for co-financing of joint research projects. Project criteria are: importance of research results for economic and social development of BiH, scientific value and/or research applicability, potential opportunities for participation in EU research projects, use of the research results for commercial purposes. On average, every year, 20-30 teams apply to these calls. The Joint Committee for Scientific and Technological Cooperation of BiH and Slovenia evaluates the proposals and retains the best for financing.
Request for Determination of Equality of the University Diplomas	Between BiH and Croatia, former Yugoslav Republic of Macedonia, Italy, Liechtenstein, Montenegro, Serbia and Slovenia.

Source: Deloitte

Inward mobility (funding)

The major difficulty in promoting mobility patterns is the lack of a specific institution, or any type of formal organisation dealing with mobility issues as well as the insufficient infrastructure for exchange and dissemination of information related to researcher mobility.

One of the major administrative barriers to researchers' mobility is the process of recognition of foreign degrees in Bosnia and Herzegovina, regardless of the nationality of the person.

The table below summarises some efforts on behalf of the Ministry of Civil Affairs to promote researcher inward mobility.

Table 7: Measures supporting researchers' inward mobility

Measure	Description
Development of Bosnia and Herzegovina's Network of Mobility Centres (BAMONET) (2010-2013)	The objective of the project is to develop a network of mobility centres for researchers at public universities. The role of these centres will be to offer quality and consistent services and personalised assistance to mobile researchers, especially researchers from Europe and worldwide, who want to start or continue their scientific career in BiH. The project is funded by the European Commission through the 'People' programme of FP7. The participants are the Ministry of Civil Affairs (project coordinator), the University of Banja Luka ('Bridgehead' partner) and the University in Sarajevo (partner). The EURAXESS Centre BiH was set up as part of this project, as were two other service centres (one at the University of Banja Luka and the other at the University of Sarajevo). They communicate with other public universities. The intention of the project is to expand this network to other universities and institutions, both public and private, interested in science and research.
EURAXESS Centre BiH (2011)	The EURAXESS Centre BiH at the University of Banja Luka is the starting point for the establishment of one official institution to deal with diploma recognition issues.

Source: Deloitte

Finally, the budget of the Republika Srpska covers all the relevant costs of the inward mobility of teachers at public universities.

Outbound mobility

Bosnia and Herzegovina is facing a brain drain. Official statistical data showing the number of professionals and researchers who have left the country or data on inward mobility funding are not available. Researchers return to BiH only if there is no possibility of extending their research abroad, or when they are obliged to return when a project comes to an end.

Researchers' outbound mobility (similar to inward mobility) is very limited and usually occurs as part of the framework of EU-funded research projects or other donors. Within the scope of the various projects, researchers have the chance to spend some time in another country in order to meet specific project goals, work further on capacity building or educate researchers in some fields where there are skill shortages.

In cooperation with the academic world, the Ministry of Education and Culture of the Republika Srpska has developed the Rulebook on Co-financing of Mobility Programmes (for academic staff and students) and Projects of Student Organisations. The objective of this document is to encourage and promote researcher mobility.

Promotion of 'dual careers'

The governments in Bosnia and Herzegovina do not actively promote policies/measures supporting researchers' dual-careers.

Portability of national grants

In Bosnia and Herzegovina, publicly funded grants or fellowships are portable to other EU countries only for local students.

Access to cross-border grants

In Bosnia and Herzegovina, national grants or fellowships are not open to non-residents.

Measures encouraging inter-sectoral mobility

The governments in Bosnia and Herzegovina have not promoted any concrete measures encouraging researchers to move from the public to the business sector and vice-versa.