EDUCATION AND RESEARCH IN WESTERN BALKAN REGION:

An assessment of countries' experiences and their performance in EU funded programmes

(Case study: Albania, Kosovo and Serbia)

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List of Abbreviations

Al – Albania
BiH – Bosnia and Herzegovina
COST – European Cooperation in Science and Technology
CPC – Centre for Political Courage
EC – European Commission
EHEA –European Higher Education Area
EU – European Union
ERA – European Research Area
FP7 – Seventh Framework Programme for Research and Technological Development
FYROM – The Former Yugoslav Republic of Macedonia
GDP – Gross domestic product
HDI – Human Development Index
HEI – Higher Education Institution
HERAS – Higher Education, Research and Applied Science
IIR – Integrated and Interdisciplinary Research
IF – Innovation Fund
KA2 – Capacity Building in Higher Education
KESP – Kosovo Education Strategic Plan
KO – Kosovo[1] *
SMEs – Small and medium-sized enterprises
ME – Montenegro
MEST – Ministry of Education, Science and Technology
MSCA – Marie Skłodowska-Curie Actions
NRP – National Research Program
OECD – Organisation for Economic Co-operation and Development
PhD – Philosophies Doctor
UP – University of Pristina
RS – Serbia
R&D – Research and Development
WBC – Western Balkan Countries
WB – World Bank
WoS – Web of Science

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.

Introduction

This regional study is a product of "Creating synergy in Western Balkans for strengthening education, research and science" project supported by Western Balkan Fund (WBF) , implemented by European Movement Albania(EMA) in partnership with Balkans Policy Research Group (BPRG) and European Movement Novi Sad, Serbia. It presents a general overview of education and research field by presenting the current situation in all Western Balkan Region through a comparative approach, trying to access previous experience of the last decade and current performance of the countries, obstacles and results of respective countries engaged in EU programs dedicated to research like Horizon 2020, MSCA, Erasmus + (Jean Monnet, KA1, KA2) and COST.

On one hand, this research identifies and provides a comprehensive map of all state structures, adopted national strategies, programmes, national legislation and budget tackling the areas of research and education. It gives a clear view of current situation in all Western Balkan regions in general, focusing on Albania and Kosovo, including Serbia is as a positive experience. On the other hand, the study comes as a necessity to evaluate and analyse the results achieved so far in the absorption of EU funds dedicated to scientific research, education, technology and innovation in the Balkan Region. Over the years, there have been different levels of fund's absorption by the countries of the Western Balkans, which is a phenomenon that requires an in-depth analysis in order to understand these differences. The research scrutinises the shortcomings and hindering factors leading to a modest participation of Western Balkan countries as partners or leaders in the projects.

The challenges of Western Balkan Countries towards developing the quality of human and infrastructural capacities in the field of science, technology development and innovation are evident despite the constant efforts that have been done in this respect. In general, the countries of the region have given a modest financial support from their national budgets. This investment was 0.87% of GDP or 866,5 Million USD PPPs (2017) for Serbia, followed by FYROM and Montenegro. Public investment in research and innovation in BiH and Albania are very low, while Kosovo* has extremely low values (0.1%). In addition due to its special political status Kosovo, does not have the same membership status in EU programs as well, as the rest of the Balkan countries. This contributes to disadvantages and to unequal conditions either of competitiveness or to performance in general for researchers from Kosovo.

Besides scientific-research activity in WB countries is based on the need for wider inclusion into the European Research Area (ERA), Framework Programs of the European Union (Horizon 2020), on the introduction of international quality measures, as well as the increased investment into scientific-research activity. As it is stated in Joint Science Conference (Austria 2016) *"Science, research and higher education are a driving force for innovation and economic development and contribute decisively to the emergence of an open society when this activity respects the basic principles of academic excellence and self-governance"*[2].

Methodology

The regional research consists of four main parts: i) the first one offers a general analysis of all Western Balkan countries, opportunities, capacities in the field of education and science, programs and achieved results; ii) provides a brief assessment of Serbian case; iii) presents the situation in Albania; iv) tackles the case of Kosovo. The team of experts from the partner organisations have emphasized that being a broad and multifaceted field; the study has a narrower and more modest focus in the given analysis.

The study is based on the analysis of both primary and secondary data. The design of the first chapters of the study is based on qualitative methodology analysing the legal framework, policy documents, studies and statistical analysis on EU programs dedicated to education, research, scientific publications, and the number of researchers, budgets, infrastructure indicators and trends desk research. A special focus is given to Serbian experience.

The third chapter of the study takes on a special focus on scientific research in Albania. The study is focused on the main support programmes of science and research in Albania, national priorities of science, research actors

2 Joint statement - 2ND Joint Science Conference Western Balkans Process / Berlin Process Vienna-Austria, 22 – 24 May 2016 pg.2 online:http://akad.gov.al/ash/pdf/kuadri_rajonal/jsc2_joint_statement_29%20June.pdf

involved and some successful project etc. The methodology used to retrieve information regarding scientific research in Albania was based on primary and secondary sources. As primary sources, there have been used semi-structured interviews with 15 key stakeholders in the level of p*olicy-making stakeholder*s (Ministry of Education, Sport and Youth; Agency of Scientific Research and Innovation NASRI, Academy of Sciences of Albania) in *Higher Education Institutions stakeholders* (4 Public HEIs, 4 Private HEIs and the Erasmus+ office) and *3 think-tank organizations* were conducted from June to September. The total number of the interviewers is 17 (see annex). The interview was organised in two sets of questions: A number of question posed to all stakeholders in order to confront their views on key issues and a group of questions specifically addressed to the role and position of each of the stakeholders. As secondary sources for the study there are considered all publications and reports that are related to the subject of this study. The processing of interview data is done analytically and comparatively.

The third part of the study deals with scientific research in Kosovo. The methodology used to retrieve information regarding scientific research in Kosovo was based on primary and secondary sources. As per primary sources, 51 professors of the University of Pristina were interviewed about the difficulties they face conducting scientific research, especially with students in Master's and PhD levels. The interviews were conducted online to gather a larger number of respondents and the professors were randomly selected. The answers were coded and converted to quantitative and qualitative data. As per secondary sources, related policy documents and evaluation reports were analysed.

I. Education and research in Western Balkan countries in the context of European Integration

The research sector in the Western Balkans is characterized by lagging scientific performance, resulting from the insufficient supply of inputs, human resources, research funding, and facilities and a regulatory regime that does not encourage performance[3]. To improve the situation in the region, different initiatives were undertaken by the EU in cooperation with WBC during the last decade. Collaboration between EU and WBC started in1993. At that time, the Council meeting in June endorsed an Action Plan in Science and Technology aiming to contribute to the reinforcement of the S&T capacities of each country and of the region as a whole[4]. Between 2005 and 2013, Western Balkans' governments were supported by EU funds (predominantly through the coordination and support actions of the Framework Program) in their intentions to integrate into the ERA and rebuild the once-strong cooperation in R&D within the region[5].

In June 2011, the World Bank signed an agreement with the European Commission (EC) to provide technical assistance for the development of the Western Balkans Regional R&D Strategy for Innovation (WBRIS-TA)[6]. The strategy aims to strengthen the region's research capacity, enhance intraregional cooperation, promote collaboration with business sectors, explore possibilities for financing R&D from EU funding schemes and other external sources, and help integrate the region into the European Research Area (ERA) and Innovation Union. Within the Western Balkans Regional R&D Strategy for Innovation were set out four objectives, which constitute the main guidelines of the reform programme. Addressing of these goals is important as these issues still remain for entire region even in 2018. The objectives are:

- *Improving the research base and the conditions for excellence in research;* This objective is based on three strategic directions: a) Slowing down the brain drain, supporting a "brain gain," and investing in human capital. b) Improving access to modern research facilities and availability of research funding. c) Reforming the incentive regime for researchers' performance[7].
- *Improving cooperation and technological transfer between research institutions and economy;* collaboration and technology transfer has to be done through: a) improving the incentive regime for collaboration between research institutes and the private sector. b) Providing "soft" support for collaboration and technology trans-

3 http://www.worldbank.org/content/dam/Worldbank/document/eca/Western-Balkans-Research&Innovation-Overview.pdf
4 European Commission, Roadmap for EU –Enlargement Countries S&T cooperation, Oct 2017. Pg.1 online:https://ec.europa.eu/research/iscp/pdf/policy/enlarge_roadmap_2017.pdf
5 WBRIS Strategy - Western Balkans Regional R&D Strategy for Innovation October, 2013 pg.6
6 The WBRIS-TA was implemented between December 2011 and October 2013 under the joint coordination of the Regional Cooperation Council, the European Commission, and government officials from Albania, Bosnia and Herzegovina, Croatia, the former Yugoslav Republic of Macedonia (FYR Macedonia), Kosovo*, Montenegro, and Serbia (the Project Steering Committee).
7 WBRIS Strategy - Western Balkans Regional R&D Strategy for Innovation October, 2013 pg.8

fer. c) Rationalizing access to and enhancing the performance of science and technology parks and incubators[8].

- *Creation of business innovation and innovative start-up companies;*
- *Strengthening the governance of research and development policies.* The governance of research and innovation systems can be improved by: a) Finalizing the institutional reforms of universities and research institutes. b) Enhancing institution building for efficient management of research and innovation policy. c) Deepening regional cooperation[9].

In order to ensure continuity of reforms in the field of research and innovation sectors of the Western Balkans and to facilitate the management of joint programmes, the Western Balkans Research and Innovation Centre – WISE[10] was funded. The creation of WISE was part of action plan of regional cooperation in Western Balkans Regional R&D Strategy for Innovation but also this commitment was pushed by other initiatives like Berlin Process initiated in 2014.
Agreement establishing WISE was signed by ministers of the Western Balkan countries on 18 September 2015[11].

Education and science represent a component of Berlin Process starting from 2014, which is a joint initiative of 14 European countries and the European Commission. It supports the efforts to integrate the region into the European Union and foster regional cooperation. The Process covers areas such as resolution of bilateral disputes, endorsement of rule of law, connectivity and economic development as well as strengthening the cooperation in education, science (research and innovation) and inter-societal dialogue. As a result of Berlin Process on regional cooperation in education, science (research and innovation) was established RYCO[12] (Paris 2016) and one year later, in 2017, in Trieste summit[13] the Western Balkans Research Foundation was created with an envisaged budget of 70 million Euros[14]. There are positive developments in South Eastern Europe and the Western Balkans in regional cooperation; in particular there is progress regarding the connectivity within the region and between the region and the EU. There are other important initiatives and instruments, such as:

South East Europe 2020 Strategy (SEE 2020 Strategy). Inspired by the Europe 2020 strategy[15], the economies of South East Europe endorsed their own 2020 vision at the 2011 Ministerial Conference held at the Organization for Economic Co-operation and Development (OECD) in Paris. The Regional Cooperation Council (RCC) was mandated to develop the South East Europe 2020 Strategy as a regional response to Europe 2020. The SEE[16] 2020 Strategy (November 2013) reflects the determination of all the governments in South East Europe to embrace the bold policy approaches required to attain the levels of socioeconomic growth necessary to improve the prosperity of all its citizens and to facilitate eventual integration with the European Union (EU).

The EU Strategy for the Danube Region[17] (EUSDR) (2014–2020). It is one of the EU macro-regional strategies, adopted by the European Council in 2011, which was created with a view to connect existing policies and initiatives in order to achieve the common interests of countries in the region. Inclusion in this strategy of Serbia, BA, Montenegro has created opportunities for these countries to pursue efforts and advancement in many areas, including scien-

8 Ibid, pg.9
9 Ibid, pg.11
10 See: Agreement on the Western Balkan Research and Innovation Centre WISE http://www.mvep.hr/files/file/dokumenti/ugovori/150925-04wise.pdf
11 See Western Balkans Regional R&D Strategy for Innovation October, 2013 pg.7
12 Regional Youth Cooperation Office (RYCO) is an international organization established by the Western Balkans 6 participants - Albania, Bosnia and Herzegovina, Kosovo*, Montenegro, Macedonia and Serbia, which aims to promote the spirit of reconciliation and cooperation between the youth in the region through youth exchange programs.
13 See: http://www.perform.network/en/news-and-events/82_western-balkans-research-foundation-to-be-established EU Member States and leaders of the region decided to start the process of establishing the Western Balkans Research Foundation as a self-governing international institution, following the proposal made by the 3rd Joint Science Conference of the Western Balkans Process, held in June 2017, in Paris. They welcomed the willingness of the Italian Government to host the Foundation in Trieste. The Foundation is intended to award personal grants to junior scientists willing to build up excellent research teams and labs and groups in the Balkans, and support mobility with European counterparts in order to better link EU research with the Western Balkans. See: https://europa.rs/trieste-western-balkans-summit-2017-declaration-by-the-italian-chair/?lang=en
14 Report "Berlin Process Series", THE BERLIN PROCESS 2014-2018, Cooperation and Development Institute, Feb 2018. pg.34 online: http://cdinstitute.eu/web/wp-content/uploads/2018/03/The-Berlin-Process-2014-2018.pdf
15 See: https://www.rcc.int/files/user/docs/reports/SEE2020-Strategy.pdf pg.9
16 Throughout this document the working regional definition of 'South East Europe' is taken to include Albania, Bosnia and Herzegovina, Croatia, Kosovo*, Montenegro, Serbia and The Former Yugoslav Republic of Macedonia.
17 The participating countries are: Austria, Bulgaria, Croatia, Czech Republic, Germany, Hungary, Romania, Slovakia, Slovenia, Bosnia and Herzegovina, Montenegro, Serbia, Moldova and Ukraine.

tific research and technology, meanwhile the nonparticipation of Albania, Kosovo and FRYOM (due to geographic reasons) creates a gap between different parts of the region.

The EU Strategy for the Adriatic and Ionian Region (EUSAIR) (2014–2020[18]). Also nonparticipation of Kosovo and FRYOM is another missing opportunity for further advance in regional cooperation and development.

To summarize, all this regional initiatives aimed to achieve a better and stronger integration of existing policies and initiatives with a view to achieve the common interests of the WB region. The above mentioned initiatives successful implementation is crucial for cooperation between regional countries and education and scientific research development.

1.1 Scientific research field legal and institutional framework in the Balkan Countries

Legal framework

All the Western Balkan Countries during the last decade have worked to improve legal framework on education, scientific research and technology. All these attempts are part of the integration process that has started for this region is more than two decades. Almost all countries of the region embraced the Bologna Process to ensure comparability in the standards and quality of higher-education qualifications at European, regional and national level. Albania, Bosnia and Herzegovina, The Former Yugoslav Republic of Macedonia Serbia and Montenegro (initially as Serbia-Montenegro, in 2007 as Montenegro) have full membership in the Bologna Process/ European higher education area since 2003[19]. Although Kosovo is not officially part of the Bologna Process all national legislation in the field of education have served to a better implementation of the Bologna Process and aim to make operational the Bologna reform with its objectives and principles in the HE sector of Kosovo[20]. In the context of this process in the above-mentioned countries the Law on Higher Education and Science was improved significantly offering more autonomy to universities in order to achieve a better administration.

Only during the last 3 or 4 years countries like Montenegro (2014), Albania (2015), Serbia (2017) or FYROM (2018) have approved new laws in the field of Higher Education and Research trying to adapt to the principles on which the European Higher Education Area (EHEA) and the European Research Area ("ERA") are based on. Other countries like Bosnia and Herzegovina and Kosovo* already have the legal framework. Albania is the only country that doesn't have a Law on Scientific and Research Activity coherent to the new developments. The new Law on Science, Technology and Innovation expected to reform the remaining legal framework since 1994. This is a disadvantage comparing to other countries of the region. In 2016 with the Executive Order No 298 dated 01.06.2016 there was established by the Minister of Education and Sport the Working Group to Draft the Law on Science & Technological Development[21] the process is still on. There are many delays in the process of completing the legal framework by drafting bylaws- for example the Law no.80/2015 on Higher Education has took a long period of more than 3 years to be completed.

This situation has created difficulties especially in financial management in Higher Education Institutions, reducing the possibility of better performance in academic and research activity. There are new elements conducted in Albanian law no. 80/2015 on Higher Education which are related to scientific research in categorization of the academic staff. Referring to Article 59, paragraph 2, which states that "Academic staff may be of educational and/ or scientific-research orientation" this is an improvement in orientating the institutional way the *academic staff t*oward research activity. According to critics coming from academia the new Law on Higher Education (2017) in Serbia gave more government control and less institutional autonomy also the law tries strengthen the cooperation with industry Council of Employers. Also relating to scientific research is introduces a new category of teaching staff[22]. Article 62 defines Teaching and non-teaching staff as:

18 The participating countries are: Croatia, Greece, Italy, Slovenia, Albania, Bosnia and Herzegovina, Montenegro and Serbia.
19 See: http://www.ehea.info/pid34249/members.html
20 See: https://supporthere.org/page/higher-education-kosovo
21 Progress Report Albania(Period: June 2016 – June 2017)WB Steering Platform on research and innovation, Brussels, Belgium 25 June 2018. pg.1
22 http://www.mrk.hu/wp-content/uploads/2018/05/New-initiatives-in-the-Serbian-higher-education-system-%E2%80%93-Prof.-Vladimir-Bumba%C5%A1irevi%C4%87.pdf

- The teaching staff of a higher education institution shall comprise the persons that perform teaching, scientific, research and artistic work.
- The teaching staff in the sense of this Law shall consist of teachers, researchers and associates.
- The non-teaching staff of a higher education institution shall comprise the persons that perform professional, administrative and technical work[23].

Even is too late for these countries the categorization of the academic staff is a big step in creating opportunity for more time dedicated to research and scientific work within the HEI. Based on the study conducted by SPHERE the data shows that 90% of researchers across the region have teaching responsibilities, and salaries are commonly perceived as being only for teaching activity[24].

Recently all the countries have approved strategic documents in the field of education and in Science, Technology and Innovation. We can mention Albanian National Strategy of Scientific Research, Technology and Innovation 2017-2022 which is in the beginning of its implementation. According to Albania progress report (2018) "The Strategy is designed and supported on the principles of ERA –European Research Area[25]"

According to the ERA Progress Report 2016 the Strategy on Scientific and Technological Development of the Republic of Serbia for the period 2016-2020 – Research for Innovation' which is not fully aligned with the ERA priorities[26]. Conclusion: for all Western Balkan Countries remains a crucial challenge the implementation of legal framework and respecting ERA principles.

Institutional framework

In many Western Balkan countries, education, research and innovation are funded and administered by different ministries[27]. From the countries of the region only Montenegro has a ministry dedicated exclusively to science named Ministry Of Science. The Ministry of Education of Montenegro is responsible for planning, implementing and reviewing the policy of education at all levels[28].

Despite the little differences in naming the ministry the field of education, science and technology are part of the same entity. The main actor of the research system in Albania is the Ministry of Education, Sports and Youth and there is no ministry dedicat4ed exclusively to science. Recently based on the Law No80/2015 (article 8) is funded Council of Higher Education and Science as an advisory body for the MESY responsible for implementation of policies as well as quality development and promotion in higher education. The main implementing agency is the Agency of Scientific Research and Innovation NASRI (formerly known as ARTI) under the Ministry of Education, Sports and Youth. In Serbia the Ministry of Education, Science and Technological Development (MESTD) governs the functioning and development of science and technology.

A very important body in Serbia related to research is the Committee for Science and Technological Development which is in charge of proposing laws that regulate the area of science, technology and innovation. National council for scientific and technological development is the supreme professional and advisory body in national S&T system. It issues previous opinions on the relevant acts, laws, programmes, strategies, etc. Also in Serbia there is a National Agency for the Regional Development (NARD) and Innovation Fund (IF) of the Republic of Serbia which are limited extent also relevant innovation policy institutions, although their main activities are in funding innovation activities on the operational level. There is a different structural situation in Bosnia and Herzegovina. There is an "Umbrella" ministry named Federal Ministry of Education and Science which have only a coordinative role[29], in fact the entire structure of education reflects the state constitution. Kosovo also have a Ministry of Education, Science and Technological Development which involves a Department of Science and Technology responsible about then implementation of the policies of the Government of Kosova and MEST aiming to the creation of a good infrastructure, institutional and financial basis for the development of science, science researches as well as

23 https://www.google.com/search?q=Law+on+science+serbia&ie=utf-8&oe=utf-8&client=firefox-b#
24 Research Capacity in the Western Balkans; SPHERE, Report, Dec 2017, pg.3
25 Progress Report Albania(Period: June 2016 – June 2017)WB Steering Platform on research and innovation, Brussels, Belgium 25 June 2018. pg.1
26 European Research Area- Progress Report 2016, Country Snapshot, pg.5
27 Research Capacity in the Western Balkans; SPHERE, Report, Dec 2017, pg.16
28 www.mps.gov.me
29 https://eacea.ec.europa.eu/national-policies/eurydice/content/bosnia-and-herzegovina_en

the encouraging of the modern development of technology in Kosovo's economy[30]. Kosovo and BiH have a Council dedicated only to science which functions divided from the education sector. Meanwhile other countries have this institution mixed. In Kosovo is the Department of Science and Technology which perform the same responsibilities as the Agency of Scientific Research and Innovation of Albania or the National Agency for the Regional Development of Serbia meanwhile BiH, Montenegro and FRYOM don't have such agencies.

In all Balkan Countries the legal framework encourages the institutions of public education at university level to generate additional revenues via external funds, projects, donations and by providing services through cooperation with industry and society.

Table 2: Institutional Framework in WBC for Education and Science

WBC	Albania	Kosovo*	Serbia[31]	BiH[32]	Montenegro	FYR Macedonia
GOVERNEMENTAL BODIES	Ministry of Education, Sport and Youth	Ministry of Education, Science and Technology	Ministry of Education, Science and Technological Development	Federal Ministry of Education and Science	Ministry of Science; Ministry of Education	Ministry of Education and Science
	The Council of Higher Education and Research scientific	National Science Council	The Committee for Science and Technological Development; National Council for Higher Education of Serbia	Council for Science	Council for Scientific research activity; Council of Higher Education	National Council for Higher Education, Science, Innovation and Technology
EXECUTIVE BODIES	Agency of Scientific Research and Innovation NASRI	Department of Science and Technology	National Agency for the Regional Development (NARD) and Innovation Fund	Agency for Scientific Research (not yet founded) Agency for Development of Higher Education and Quality Assurance	Agency for Scientific Research (not yet founded)	National Agency for European Educational Programmes and Mobility (not with the same purpose like NASRI)
SCIENTIFIC INSTITUTIONAL INFRASTRUCTURE	Academy of Sciences of Albania; Universities; Research Centers, Institutes	Academy of Sciences and Arts of Kosovo; The Institute of Albanology; Institute of History Universities	Serbian Academy of Sciences; scientific institutes; Centre of scientific excellence; Universities; research institutes.	Academy of Sciences and Arts of BiH universities and research centres Independent research groups	Montenegrin Academy of Sciences and Arts; Scientific research institutions; Higher education institutions; Other legal and natural persons	Macedonian Academy of Sciences and Arts; Universities (state and private); Research units; Independent research groups

30 https://masht.rks-gov.net/en/shkenca-teknologjia
31 The Ministry of Science was merged into the Ministry of Education, Science and Technological Development on 14 March 2011
32 http://www.fbihvlada.gov.ba/english/ministarstva/obrazovanje_nauka.php

1.2 Funds and programmes supporting the scientific research in the Balkan Countries

At national level

The quality and significance of scientific research in any society could be used as mirrors of its prosperity. It is argued that the most favourable pattern of growth should be based on a parallel progress in control of scientific policies on one side and in the excellence of scientific and basic education on the other[33]. The key indicators of investment in education and research are related with investment in education and research as a percentage of GDP and gross domestic expenditure on research and development per capita GERD there are also other indicators but these are not included in this study. To have a wide panorama of the entire education system we have included in this part even the HDI index focusing on Education Dimension.

In national level the budget dedicated to education and science in generally distributed by (except ME), Ministry of Education etc. as the main governmental body. Respective Ministry divide the budget in the three levels of education system, and apart the budget dedicated to Academy of sciences and specialized Agencies or other bodies responsible for national projects. In Higher Education Institutions the funding source is form State budget, student tuition fees, income from services rendered or generated by third parties, donations, scientific activities, international projects, bilateral or multilateral agreements, funding from special funds. Scientific research is an integral part of the university curriculum and the majority worlds' universities have the scientific research as one of the basis of their university work. The core of the funding that universities receive is allocated to teaching and mainly linked to student numbers, making it difficult to achieve a good balance between research and teaching.

Human Development Report 2016 reveals that public expenditure on education in OECD countries is around 5.1 percent of GDP and in the least developed countries it is around 3.3 percent of GDP[34]. Also data shows that there is a notable difference around 0.9% between Serbia (4.4 % of GDP) and Albania (3.5 of GDP) for government expenditure education. Public spending in the Education Sector in Kosovo grew steadily from 3.3% of GDP in 2007 to 4.7% of GDP in 2014, which makes Kosovo comparable to other countries in the Region[35].
Based on Education Dimension of this HDI all WBCs- reveals low performance especially for BiH and FYROM which are ranked on 81 and 82 place in HDI global rank for 2016 (Table 3). If we compare the data between HDR 2016 and HDR 2018 the current situation in WBC seems to become better in same aspects. Comparing Human Development Index between WBC and EU members' state data shows that there is a considerable gap that has to be addressed (Germany in the 5 place, HDI is 0.936).

Relating to public expenditure on education Serbia is - 0.4 point from 2016 while Albania remains stable with the same contribution on education 3.5. In Global ranking the BiH has moved 4 points up being in 2018 in the 77th place. In regional level Montenegro and Serbia have the highest percentage of youths around 30-34 years old that have finished the tertiary education, while Albania is in the last place when only 20.9% of the population of 30-34 year olds hold a tertiary degree, compared to 39.9%[36] (2017) in the EU. In entire region there is a slight increase of population between 30-34 years old that have finished the tertiary education from 2012 till now (see table 4).

Table 3 WBC data on Education Index 2016-2018

	Country	HDI	Education Index		Government expenditure on education (% of GDP)		HDI Rank (from 189 countries in global level)	
1	Montenegro	0.814	0.797	0.790	n.a.	n.a.	48	50
2	Serbia	0.787	0.760	0.778	4,4	4.0	66	67
3	Albania	0.785	0.715	0.745	3,5	3.5	75	68
4	BiH	0.768	0.694	0.718	n/a	n.a.	81	77
5	FRYOM	0.757	0.673	0.691	n.a.	n.a.	82	80
	Year	2018	2016	2018	2016	2018	2016	2018

Source: Human Development Report 2016[37]; 2018[38] (released on 14 September 2018)

33 Strategies for the Scientific Progress of the Developing Countries in the New Millennium: The cases of Serbia, Slovenia and South Korea;VukUskoković, Dragan P. Uskoković, MilicaŠevkušić. Online: http://www.sti-studies.de/ojs/index.php/sti/article/view/22

34 http://hdr.undp.org/sites/default/files/2016_human_development_report.pdf pg.61

35 Kosovo, Education Strategic Plan 2017-2021, Government of Kosovo, Pristina (2016), pg 28.

36 http://appsso.eurostat.ec.europa.eu/nui/submitViewTableAction.do

37 Note: The UN publishes a Human Development Index every year. It consists in three components: the Education index, GDP Index and Life Expectancy Index. These measure the educational attainment, GDP per capita and life expectancy respectively. The HDI index emphasizes that people and their capabilities should be the ultimate criteria for assessing the development of a country, not economic growth alone. Kosovo is not member of UN.

38 Note: Data presented here are 2018 Statistical Update, released on 14 September 2018.

Table 4: Educational attainment: percentage of 30-34 years old having completed tertiary or equivalent education

Year/Country	2012	2013	2014	2015	2016	2017
Montenegro	24,6 %	28,0 %	28,3%	31,0%	33,9 %	:
FYROM	21,7 %	23,1 %	24,9 %	28,6 %	29,1 %	:
Albania	16,8 %	15,7 %	16,7 %	22,1 %	20,9 %	:
Serbia	24,7 %	25,4 %	27,0 %	28,9 %	29,9 %	:
BiH	16,5 %	15,7 %	18,9 %	17,2 %	23,1 %	23,8 %
Kosovo	:	:	:	:	:	:

Source of data Eurostat Last update: 29.06.18

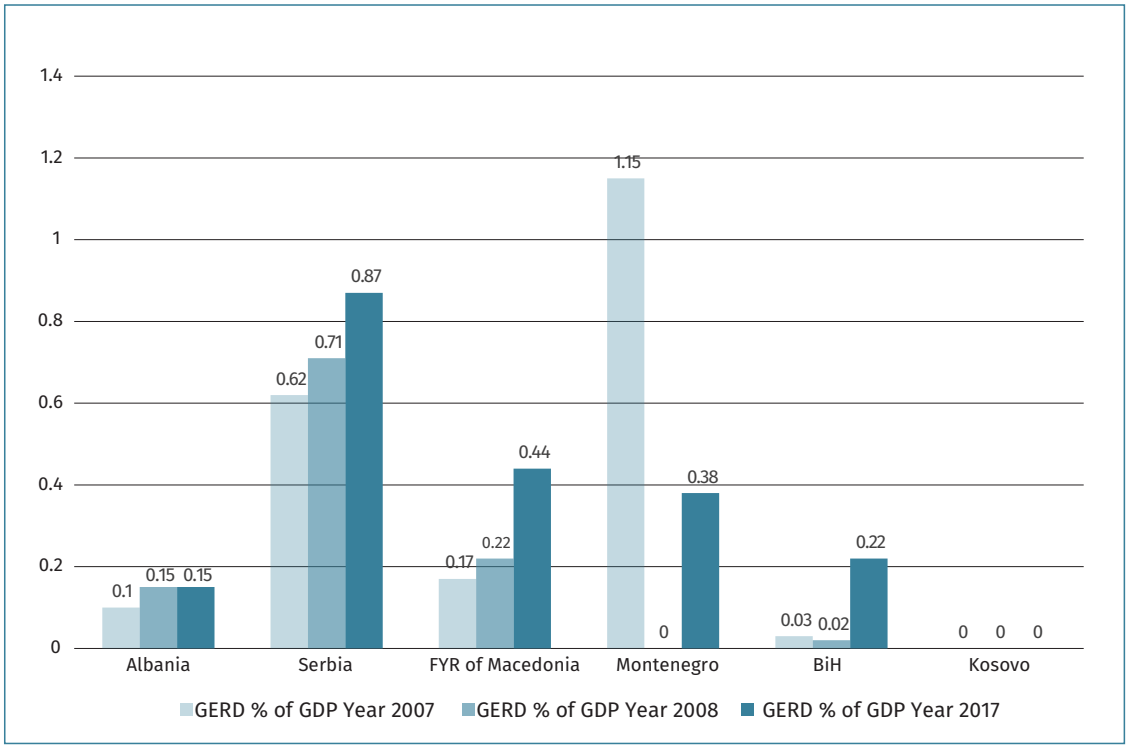
The actual financing framework for public higher education institutions in Kosovo is using the same approach, which determines mostly input-based funding[39].Public higher education institutions in Kosovo may receive funding from the following sources: allocations made by MEST and the Council for Research; tuition and other fees paid by students; income from commercial and other services; donations, gifts and endowments, and contracts with local, international, public or private bodies involved in teaching, research and consultancy activities.

In Montenegro there is no core funding for research, but the Ministry of Science, established in 2010 relatively modest funds for research projects on a competitive basis, for scientists from both public and private universities[40]. Only in Montenegro certain private university programs may be financed if the Council of Higher Education recommends to the Government that those programs are of public interest; The budget consists mainly of the academic and administrative staff salaries and some minor expenses for equipment.

The higher education financing in Serbia is under the mandate of the Ministry of Education, Science and Technological Development, which allocates funds directly to public higher education institutions and controls the spending of their respective funds[41]. An exception of the general situation of the financing the education and research is Bosnia and Herzegovina. Education in BiH is largely financed by public funds of the entities, cantons, BD and the municipal budgets, depending on the jurisdiction. This means that, in terms of location BiH has thirteen separate budgets for education: the two entities, one in BD and ten cantonal budgets[42]. In Montenegro funding of higher education are administered by the Government and are roughly divided into the following categories:- direct funding, reflected by the annual budget of the public university and by the financing of certain study programs and the associated students of private universities, indirect funding, reflected by the grants and loans allocated to the selected student population based on merit criteria;- occasional capital investments aimed to the infrastructure improvement for the public universities and its students (buildings, sport hall, etc.).
Countries like Montenegro and Serbia for academic promotion have included the requirements for research output as a condition. Through this action they tend to motivate the academic staff for research projects[43]. Investment in research and development for the entire region are in low level under 1 % in the best case with Serbia 0.87 % (see Graf.1) and lag behind the EU average which is around 2.04%[44]

39 Kosovo - Overview of the Higher Education System; EC Feb.2017 pg.9
40 Montenegro - Overview of the Higher Education System; EC Feb.2017 pg.5
41 Serbia, Overview of the Higher Education System, EC Feb 2017. pg.3
Online source:https://eacea.ec.europa.eu/sites/eacea-site/files/countryfiche_serbia_2017.pdf
42 Bosnia and Herzegovina, Overview of the Higher Education System, EC Feb 2017. pg.6 https://eacea.ec.europa.eu/sites/eacea-site/files/countryfiche_bosniaherzegovina_2017.pdf
43 Research Capacity in the Western Balkans; SPHERE, Report, Dec 2017, pg.3
44 https://ec.europa.eu/eurostat/statistics-explained/index.php/R_%26_D_expenditure

Graphic.1 WBC Gross domestic investments in research and development 2007, 2008, 2017



For more than one decade Serbia has the highest values among Western Balkan Countries in gross domestic investments in research and development. In 2017 it was 0.87% of GDP ore 866, 5 Million USD PPPs (see annex 3), followed by FYROM and Montenegro. Public investment in research and innovation for BiH and Albania are very low.

Table.5 WBC Gross domestic investments in research and development 2007-2017

Country	GERD % of GDP Year 2007	GERD % of GDP Year 2008	GERD % of GDP Year 2009	GERD % of GDP Year 2010	GERD % of GDP Year 2011	GERD % of GDP Year 2012	GERD % of GDP Year 2013	GERD % of GDP Year 2014	GERD % of GDP Year 2015	GERD % of GDP Year 2017
Albania	0,1	0,15	n/a	n/a	n/a	n/a	n/a	0.15	n/a	0,15
Serbia	0,62	0,71	0,87	0,74	0,72	0,91	0,73	0,77	0,86	0,87
FYROM	0,17	0,22	0,2	0,22	0,22	0,33	0,44	0,52	0,45	0,44
Montenegro	1,15	n/a	n/a	n/a	0,32	n/a	0,37	0,36	0,38	0,38
BiH	0,03	0,02	0,02	n/a	n/a	0,27	0,32	0,26	0,22	0,22
Kosovo	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Source: https://www.innovationpolicyplatform.org[3]/

Funds at the European level are composed of programs that not only fund excellence science but also help to increase human and infrastructural capacities and increase co-operation and exchange among researchers in the European area and beyond. The lack of financial resources in the budgets at all WBC and in all levels of governments drives the researchers to look for funding sources outside of their countries. The advancing political framework for international S&T co-operation on the one hand, and the growing demand for funding on the other hand, push the research community to turn more and more toward opportunities provided by the EU before in the FP6, FP7 and now in HOROZON 2020 also in ERASMUS+, COST programs etc. The membership in these programs however,

is not an automatic benefit, as the opportunity must be managed to leverage research capabilities.

ERASMUS +

Erasmus+ (European Region Action Scheme for the Mobility of University Students) is the EU's programme to support education, training, youth and sport in Europe from January 2014. The overall budget of Erasmus + programme is €14.7 billion. Also for funding actions with third countries (partner countries) € 1.68 billion have been made available through the EU's external action budget.

In framework of this programme we will analyse three components:

Key Action 1- This action provides opportunities for individuals to improve their skills, enhance their employability and gain cultural awareness.

Key Action 2- This action enables organisations to work together in order to improve their provision for learners and share innovative practices.

Jean Monnet activities - under this activities is provide support and funding to academic institutions to promote excellence in European integration studies in higher education. This action also aims to foster dialogue between the academic world and policymakers in order to enhance EU policies for higher education.

All the WBCs have previous experience since the beginning of the 90's in the frame of TEMPUS programme and the experience gathered in the frame on TEMPUS created the human capacity for similar programmes. Tempus programme (2007 – 2013) now as Erasmus+ (2014 – 2020) have played a significant role for "regional research excellence", also with regard to equipment. However, issues relating to pre- and co-financing were frequently quoted as obstacles to using EU funds[45]. The results of WBC in the framework of this programme are very good. By all the WBC only FYR Macedonia is a Program Country, and has a National Agency for European Educational Programmes and Mobility, whereas Serbia[46] is in process. Representatives form Erasmus +National Office Albania[47], explained that within the framework of this program in different components, the performance in entire region is increasing every year. There is an intensification of international mobility within the community of academic staff, students and administrative staff of HEIs. Also he stated that "Different from Horizon 2020, the Erasmus + projects have high level return of the benefits", which means that despite the entrance ticket that each country has to pay the return is 5 or more times higher[48]". In the table below are the results in Balkan Level.

Table.6 Western Balkans 2015 – 2016 selection results

International Credit Mobility KA.1
Western Balkans 2016 selection results[4]

	Applications	Selected Projects	Success Rate	Grant Awarded (EUR)	Participants Awarded	Participants Incoming (to EU)	Participants Outgoing (from EU)
Albania	114	77	68 %	3852000	1127	760	367
Bosnia and Herzegovina	153	82	54 %	4775000	1418	902	516
Kosovo * UN resolution	75	40	53 %	1933000	605	416	189
Montenegro	70	42	60 %	1109000	346	224	122
Serbia	232	138	59 %	8058000	2561	1599	962
Total Region	370	236	64 %	19727000	6057	3901	2156

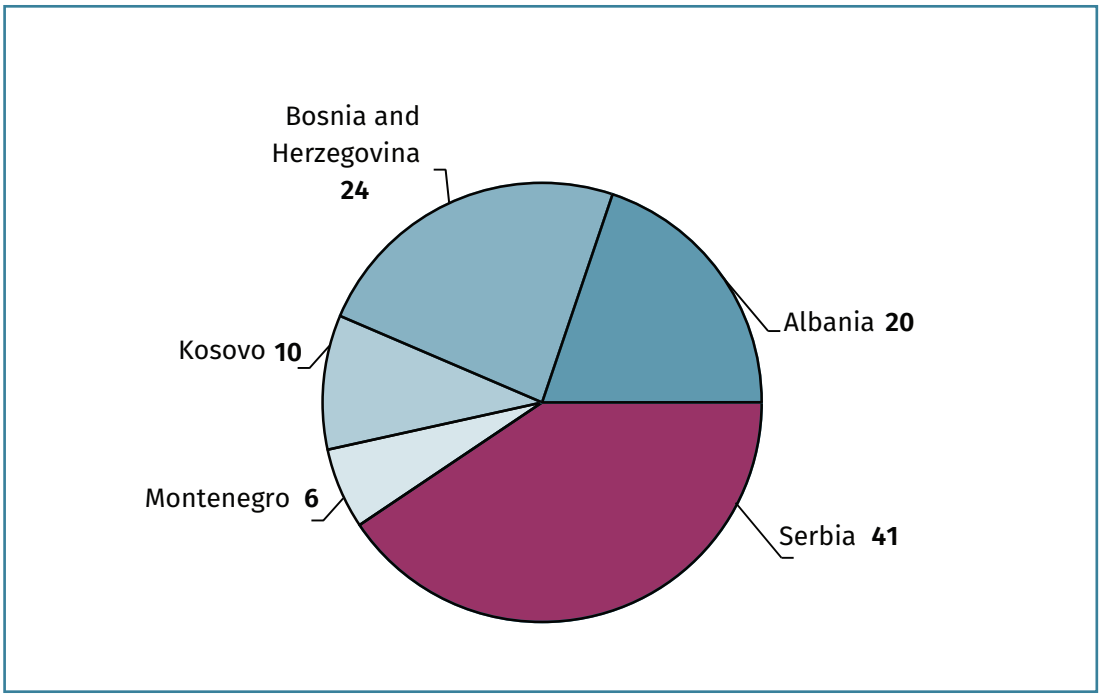
45 Research Capacity in the Western Balkans; SPHERE, Report, Dec 2017, pg.2

46 The recognition of Serbia as a Programme Country is subject to the following conditions: The availability of the appropriations provided for in the draft budget for 2019 after the adoption of the budget for 2019 for Serbia. Amendment to the Agreement between European Union and Republic of Serbia on the participation of the Republic of Serbia in "Erasmus+": the Union programme for education, training, youth and sport.

47 Mr.Oltion Pengu Erasmus +National Office Tirana specialist (interviewed on 28 Aug 2018)

48 Ibid

Graphic 2: Percentage Share of Awarded Grant 2016



In the framework of the Erasmus+ program for the KA2 (CBHE) component, the data show an intensification of regional co-operation between Higher Education institutions. The EU program format through the necessity of partnering for the projects implementation has encouraged and developed the network.

Table.7 WBC- Number of applications submitted by country in CBHE

Programme Countries	Applications coordinated by each country	Applications in which the country is involved as coordinator or partner*
Serbia	43	83
Albania	13	65
Bosnia and Herzegovina	7	59
Kosovo*	6	29
Montenegro	1	46

Interesting is the fact that in the Erasmus + Jean Monnet Activities a researcher from Albania was the first researcher in the Region that won a Jean Monnet Network as a lead with the total value of 295,092 Euro.

Table.8 Erasmus + Jean Monnet Activities

Erasmus + Jean Monnet Activities Period 2014-2017

Country	Number of financed Project	Total Grant
AL	7	496,155.00
BiH	3	80,996.00
FRYOM	1	46,620.00
Serbia	10	241,584.00

In the framework of Jean Monnet programme Albania has the highest values of grants awarded, but Serbia has the highest number of financed projects (10 projects).

European Cooperation in Science and Technology– COST

Another important program is of EU is European Cooperation in Science and Technology– COST. It is supported by the EU Framework Programme for Research and Innovation Horizon 2020. COST is an intergovernmental framework consisting of 37 Member States and a Cooperating State. This programme allows researchers from these countries to embark upon networking opportunities by participating in science and technology networks called COST Actions.

Within this programme, researchers set up their interdisciplinary research networks in Europe and beyond. In the frame of this programme funds are provided for organising conferences, meetings, training schools, short scientific exchanges or other networking activities in a wide range of scientific topics. COST anticipates and complements the activities of the H2020, constituting a "bridge" towards the scientific communities of COST Inclusiveness Target Countries[49]. The main focus of the COST programme is to open spaces where people and ideas can grow; we unlock the full potential of science. Albania became full member of COST programme on 25-26 April 2018[50]. The President of the COST Association Prof. Dr. Sierd Cloetingh has stated: "The admission of Albania as a full COST member underpins the key role of COST in implementing the inclusiveness policy in the Western Balkans. Through this step, Albanian researchers will be able to take a proactive role in proposals for future COST Actions".

The Albanian research community is currently taking part in around 10% of the running COST Actions. According to the data received by National Agency of Scientific Research and Innovation (NASRI) the number of COST action is 36[51]. On the other hand the ex-former Yugoslavia was one of the founding members of COST in 1971 and in 2007, Serbia became an independent member. In Serbia the national COST Office is hosted by the Ministry of Science and Technological Development. Bosnia and Herzegovina is COST member since May 2009.Since that first proposal, Bosnia and Herzegovina is now involved in 23 Actions. Montenegro becomes member on May 2015 while Former Yugoslav Republic of Macedonia is member since 2002. All the mentioned countries are COST full members only Kosovo*is as a COST Near Neighbour Country[52]. For many scientists from undeveloped countries, COST is probably the only way to connect to fellow colleagues from developed countries, increasing collaboration. Below are selected data for COST actions' budget transferred to WBC. Serbia is the most successful compared to other regional countries.

Table. 9 COST actions' budget[5]

Year/Country	2012	2013	2014	2015
Serbia	370.058	531.087	671.221	86.504
FYR Macedonia	134.448	247.394	233.885	312.662
BiH	31.437	87.905	103.725	131.738
Montenegro	-	-	-	-
Albania	-	-	-	-
Kosovo	-	-	-	-

Source: Data collected by Country Fact sheets doc. Available on:www.cost.eu

As it is presented in Table 10 the most important actor participating in COST actions are Higher Education Institutions & Associated Organizations, as the main actor of developing research and innovation.

Table 10 Organizations/Institutions participant in COST Action

	Higher Education & Associated Organizations	Government/ Intergovernmental Organizations except Higher Education	Business enterprise	Private Non-Profit without market revenues, NGO	Standards Organization
Serbia	94%	5%	1%	1%	1%
BiH	90%	5%	3%	2%	-
Montenegro	90%	10%	-	-	-
FYR Macedonia	93%	5%	1%	1%	-
Albania	-	-	-	-	-
Kosovo	-	-	-	-	-

Source: Data collected by Country Fact sheets doc. Available on:www.cost.eu

49 https://h2020-albania2018.service-facility.eu/docs/presentations/horizon2020-costs.pdf pg.4
50 See: www.cost.eu
51 National Agency of Scientific Research and Innovation, contact person Julian Zajmi Expert, Multilateral Relations Unit, International Programs Directory.
52 http://www.cost.eu/about_cost/strategy/international_cooperation/nnc

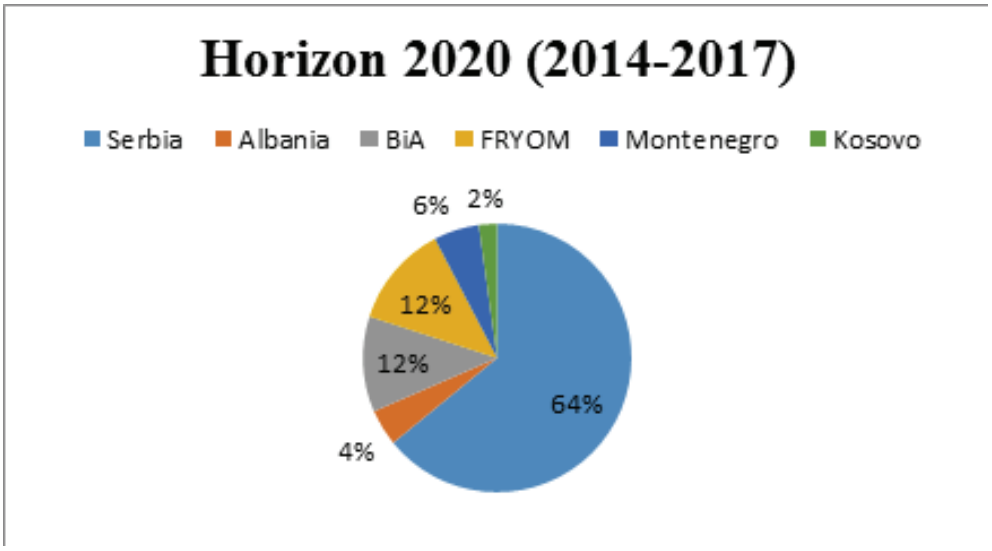
Horizon 2020

Horizon 2020 is the EU framework for research and innovation. It is the biggest multination program of its kind with a budget of almost €80 billion (2014-2018) and it is opened to the world. It funds research in all areas of science and innovation. Researchers, universities, companies and institutes from all over the world are welcome to participate in research initiatives[53].The research and innovation landscape in the region is very heterogeneous. In all these countries, the level of public and private sector investment in research, development and innovation (RDI) is low, below the level needed to enable the economies to move up the ladder of the value chains.

EU funded projects for awareness raising, research priority setting and training in project management and the rules of the FP7 programme and from 2014 Horizon are helping to speed up the progress, but more efforts will be needed to reduce the gap between the EU member states and the Western Balkans. Albania, Serbia, FYROM, BiH and Montenegro are associated countries in this program. All "Enlargement countries" except Kosovo* were associated to FP7 and renewed association to Horizon 2020[54]. According to the comparative data related to FP7 and Horizon 2020 for the entire period results that Serbia is the most advanced in the region with Albania and Kosovo in the other end of the scale[55].

According to the statistical data the EC Framework Programme 7 (FP7), in the period from 2007 – 2013, 319 institutions in the Republic of Serbia (of which 51 companies) participated in the implementation of 236 projects. From that number, the Republic of Serbia has been the coordinator of 42 projects (refer to Annex 3). The total value of contracted and completed projects is more than €60 million. From October 2015, the financing of 75 projects with participation of 103 institutions from Serbia (out of which 28 partners from the industry) has been approved.

Data provided by the National Agency for Scientific Research and Innovation (NASRI) at the regional level for the year 2017, the number of applied projects reaches the number of 1,161, out of which have passed the evaluation phase 1,006 projects and have been funded 91 projects. After Serbia for a good performance, compared to other regional countries is ranked Macedonia where from 286 applications have been able to provide funding for 27 of them. If we refer to Albania, the situation appears at low levels in both applications process and at the funded projects, so the number of applications is around 140 projects and only 6 of them have been funded. During 2015 – 2016 the number of Albanian applicants is increased to 146, from 66 applicants in the 2014-2015 period. However, the number of successful candidates remains comparatively low[56]. Private sector participation in the programme remains very low[57].
Kosovo*as a third country from 44 applications it results that only 6 of them have managed to be funded. Montenegro has only 7 funded projects out of 99 applications.



53 https://ec.europa.eu/programmes/horizon2020/en/
54 European Commission, Roadmap for EU –Enlargement Countries S&T cooperation, Oct 2017. Pg.4 online:https://ec.europa.eu/research/iscp/pdf/policy/enlarge_roadmap_2017.pdf
55 European Commission, Roadmap for EU –Enlargement Countries S&T cooperation, Oct 2017. Pg.4 online:https://ec.europa.eu/research/iscp/pdf/policy/enlarge_roadmap_2017.pdf
56 "National Strategy of Scientific Research, Technology and Innovation 2017-2022" DCM 710, pg.18
57 See: EC, Albania Progress report 2017, pg.77

Table. 11 WBC participation in Horizon 2020 (2014-2017)

Horizon 2020	Serbia	Albania	BiA	FRYOM	Montenegro	Kosovo
Number of projects	234	16	42	45	20	8
Role as coordinator	29	0	5	4	3	0
Amount in Euro	60.285.253	1.970.156	3.886.309	5.280.063	1.393.382	676.035

Under the Horizon 2020 program for the period 2014-2017 Albania has the lowest number of projects and the role of Albanian institutions in these projects is limited as a participant only. So far, there has been no project won and run by Albanian institutions. The above data shows that Albania and Kosovo have the lowest level of absorption of funds under the Horizon 2020 program, which represents a pure scientific research program. This means that Albanian and Kosovo's researchers need significant financial support in order to be qualified and to participate in deep exchange of experiences between regional and European scientific researchers.

H2020 - Marie Skłodowska-Curie Actions (MSCA)

The Marie Skłodowska-Curie actions (MSCA) provide grants for all stages of researchers' careers - be they doctoral candidates or highly experienced researchers - and encourage transnational, intersectional and interdisciplinary mobility.

There are 5 types of MSCA:

- *Co-funding of regional, national and international programmes that finance fellowships involving mobility to or from another country*
- *Individual fellowships (IF): support for experienced researchers undertaking mobility between countries, optionally to the non-academic sector*
- *Research networks (ITN): support for Innovative Training Networks*
- *The European Researchers' Night (NIGHT)*
- *International and inter-sectorial cooperation through the Research and Innovation Staff Exchanges (RISE)*[58]

In the framework of this program and its component the situation in the Balkan countries reveals as in table. Data shows that Serbian Researchers are in 4 components with the highest number of researchers involved in MSCA actions, followed by BiH and Albania. Different from the rest of the region Kosovo is in the group of third countries. Researchers from Montenegro and Kosovo have the lowest number of participants involved in MSCA actions.

Table.12 WBC- MSCA-action 2014-2018[6]

MSCA-action	RS researchers involved	AL researchers involved	Montenegro researchers involved	BiA researchers involved	FRYOM researchers involved	Kosovo*
COFUND	10	n/a	n/a	2	1	n/a
Individual Fellowship (IF)	29	2	1	1	3	n/a
ITN	39	11	5	15	3	1
NIGHT	n/a	n/a	n/a	n/a	n/a	n/a
RISE	65	10	1	10	6	n/a
total	143	23	7	28	13	1

Source: Data are processed by the author

The number of applications submitted by Serbian researchers is 426 followed by FRYOM with 73 applications and then is BiH and Albania. Serbian researchers in framework of this programme have absorbed 4.24 million € meanwhile Albanian researchers only 0.08 million €.

58 https://ec.europa.eu/programmes/horizon2020/en/h2020-section/marie-sklodowska-curie-actions

Table.13 H2020 - Marie Skłodowska-Curie Actions (MSCA) results 2014-2018[7]

Country	RS	BiH	AL	FYROM	MNE	Kosovo[8]
No of applicants	426	52	26	73	24	10
Number of researchers funded by MSCA	143	28	23	13	7	1
Number Of Projects	24	6	1	2	1	1
Number of country organisations in MSCA	35	7	3	2	3	1
EU budget awarded to organisations (EUR million)	4.24	0.59	0.08	0.13	0.08	N/A
Success rate of applicants	12.34 %	17.65 %	13.64 %	2.99 %	14.29 %	10%

Source: Data are processed by the author

Academic institutions are the more active than other organisations in Serbia, in Bosnia and Herzegovina and Albania non-academic institutions have performed better then academic institutions. Data shows that SME-s in Serbia and BiH shows interest being part of MSCA actions. While in Albania, FYROM, Montenegro and Kosovo the participation of SMEs is zero.

Table.14 WBC- Participating in MSCA by type of organisation 2014-2018

Type of Organisation	Total for RS	Total for BiH	Total AL	Total for FYROM	Total for Montenegro	Total for Kosovo
Academic	32	2	1	2	1	0
Non-Academic	16	7	2	0	2	1
Private for Profit	10	6	1	0	0	0
SMEs	5	5	0	0	0	0

Source: Data processed by the author

1.3 Capacities to absorb scientific research funds

All the factored analysed in above sections indicate that there are some positive changes regarding the research, education and science fields and challenges that have to be addressed. The improvement is more visible in legal and institutional framework and is notable the missing part of financial support to complete the legal and structural obligations. The data of European funds absorption capacities by the WBC researchers identifies some main summarizes challenges:

1. *Modest investment in education, research and development at national level as one of the key obstacles.* In entire region national investment in education sector are low. In 2018 in Serbia the government expenditure on education was 4% and in Albania 3.5 % while in EU28 it is around 5.1%[59]. Also national investments in R&D are low in all countries of the region and they don't pass 1% of GDP. For example Serbia invests 0.87% of GDP (2017), while other countries of the region are between 0.15% of GDP (2017) (Albania) - 0.44 % of GDP (FYROM, 2017) (see table 5). The mentioned above data show that the GDP percentage of WBC are notably below the EU average of 2.04%[60]. Comparing to the countries of the region, Serbia has allocated the highest budget in the field of education and research.
2. *Low capacity in human resources in research and development*. Statistics on the number of researchers vary from different sources. According to *Roadmap for EU – Enlargement Countries S&T cooperation (2017)* data, countries like Serbia, Montenegro and FYROM has the higher R&D human resource per million habitants, while Albania remains in the last place. There is a notable difference in human resource in regional level comparing to EU data where the number of researchers in R&D is 3.485 (per million people: World Bank, 2015)[61]. In general, scientific research activities, needs time and are costly. This means that despite the numbers of researchers that has to be increased also financial support and work time for research is needed to improve the situation.

59 https://ec.europa.eu/eurostat/tgm/table.
60 https://ec.europa.eu/eurostat/
61 https://data.worldbank.org/indicator/SP.POP.SCIE.RD.P6?end=2015&start=2015

Table 15 R&D human resources in WBC

Country	Population/millions	R&D personnel per million habitants	Researchers per million habitants
Serbia	7.11	2.030	1.381
Albania	2.89	262	157
BiH	3.84	366	217
FYROM	2.07	754	676
Montenegro	0.62	847	647
Kosovo	1.79	n/a	n/a

Source: Roadmap for EU – Enlargement Countries S&T cooperation, Oct.2017 pg.4

3. Higher Education System in WBC has considerable changes or differences in numbers of HEI and other aspects. There are 240 public and private HEIs, 586 faculties and 5,213 study programmes (tab. 16). Higher education institutions in the Western Balkans comprise a variety of different types of organisations, including academies, colleges of applied studies and universities. A notable change in the HE systems in the Western Balkans has been the entry of large numbers of private HEIs, although their size is on average smaller than that of public HEIs. According to this EC Report (2016) *"From University to Employment". While the number of students in the HE system has almost tripled over the last decade the quality of HE provision has failed to improve in tandem*[62].

In general, in HEIs researchers prepare very few international grant proposals, largely because they receive little or no support from own institutions. Most international collaborations are highly personalized and depend exclusively on the efforts and commitment of individual researchers. This limits their impact, and also their scale-up and sustainability prospects. The success rate results in EU programs for most of WB countries indicate the fact that international research cooperation is low.

Table.16 HEIs in the Western Balkans, 2015[63]

	HEIs	Public HEIs	Private HEIs	Faculties
AL	39	16	23	119
BiH	47	10	37	120
KO	41	12	29	48
FYROM	16	5	11	126
ME	12	1	11	45
RS	85	51	34	128
WB	240	95	145	586

Data on secondary and tertiary on higher education system for 2011 – 2014 reveal low statistics especially for Montenegro and Kosovo. PhD programmes involve extensive scientific research and publication of papers in scientific journals[64].

62 From University to Employment: Higher Education Provision and Labor Market Needs in the Western Balkans Synthesis Report .EC, 2016, pg.13 ISBN 978-92-79-64428-3

63 For the above data see: From University to Employment: Higher Education Provision and Labour Market Needs in the Western Balkans Synthesis Report .EC, 2016, pg.13 ISBN 978-92-79-64428-3

64 Serbia, Overview of the Higher Education System, EC Feb 2017. pg.12 Online source:https://eacea.ec.europa.eu/sites/eacea-site/files/countryfiche_serbia_2017.pdf

Table.17 WBC Statistics Secondary and Tertiary Higher Education System 2012-2014

Country	Secondary and Tertiary Higher Education System	Enrolment			Completion[9]		
		2012-13	2013-14	2014-15	2011-12	2012-13	2013-14
Serbia	Master	4,715	6,077	6,303	30,955	30,231	31,422
	Doctoral	1,882	2,053	2,096	580	759	750
Albania	Master	16,073	20,151	19,255	7,061	9,613	11,366
	Doctoral	1,611	1,367	276	98	303	493
BiH	Master	5,607	5,997	5,447	1,235	1,479	1,768
	Doctoral	619	573	574	218	301	238
Kosovo	Master	576	6,039	7,139	929	1,173	1,387
	Doctoral	146	283	196	20	3	13
Montenegro	Master	2,346	2,249	1,869	1,341	1,563	1,487
	Doctoral	58	40	32	8	7	18
FYROM	Master	545	646	433	131	216	197
	Doctoral	3	56	38	10	120	89

4. Out-dated and inadequate infrastructure (scientific laboratories, bibliotheca, research centres) doesn't help the researchers to be competitive, motivated and productive. According to World Bank report (2013) "*The research sector in the Western Balkans is characterized by lagging scientific performance, resulting from the insufficient supply of inputs, human resources, research funding, and facilities and a regulatory regime that does not encourage performance*"[65]. In general, in Balkan Countries except Serbia, research infrastructure is technologically out-dated and inadequate for conducting modern research. National funding for purchasing new, but also for maintaining existing equipment and supply of consumables, is very scarce. Serbia has made good use of IPA funding and might be a good example for others to follow[66].
5. Insufficient scientific research work in higher education institutions. Referring to data on scientific publication the performance of region is low (see table 18). Although recognised as an important aspect of higher education development, the scientific research work is not fully integrated into regular activities of higher education institutions at regional level. Serbia has a relatively higher level of participation of researchers in international scientific publication in high quality journals when compared to others in the region. A high level of academic staff affirmed in scientific field and known in regional and European level is needed to be successful in getting EU funds. Further attempts are needed by academic staff and financial support by HEIs for internationalisation of academic staff.

Table No. 18 Scimago Journal & Country Rank 1996-2017

Rank	Country	Documents	Citable documents	Citations	Self-citations	Citations per document	H index[11]
54	Serbia	71566	67575	500904	105256	7	172
94	Macedonia	10728	10211	84509	9178	7,88	97
96	Bosnia and Herzegovina	9503	9014	52008	6423	5,47	79
119	Albania	4106	3889	23592	2097	5,75	57
124	Montenegro	3345	3184	15959	3198	4,77	45

Despite the challenges faced that are common in entire region, improvements are done in different aspects. Academicians and researchers in entire region have increased the collaboration between them. Cooperation in

65 http://www.worldbank.org/content/dam/Worldbank/document/eca/Western-Balkans-Research&Innovation-Overview.pdf. pg.9
66 EC, IPA II- INDICATIVE STRATEGY PAPER FOR SERBIA(2014-2020) ADOPTED ON 19/08/2014

framework of projects and networks is increased and this is evident in participation of EU programs like Erasmus, Cost and Horizon 2020. Facilitations created by EU programs have intensified motilities and exchanges between researchers of the region and EU.

II. Best practices from the region, case of Serbia

Serbia is the largest country in Western Balkan region with a population of 7,186,862 habitants. In the last decade Serbia has made progress in the area of education, research and development. High education institutions in Serbia have started reforming the high education system since 2000. On the national level, legal regulations for education, research, science, and innovation were adopted as well as some relevant strategic documents. In 2012 the Strategy on Scientific and Technological Development of the Republic of Serbia for the period 2016-2020 was approved. The main priorities of the European Research Area roadmap were incorporated in the new strategy. In September 2017 a new law on education was passed.

In Serbia there are 8 public universities with 100 faculties and 11 privately owned universities with more than 60 faculties. Also, there are 47 public and 22 privately owned colleges of applied sciences.[67]. Universities are generally strong in research but their performance is very uneven. In recent years the University of Belgrade has improved its position in the Academic Ranking of World Universities[68]: in 2012 it was within the 401 – 500 range, in the 2013 to 2015 period it moved ahead to the 301 – 400 positions range and in 2016 it is already in the 201 – 300 positions range. The Belgrade University's position in mathematics and physics is even better (on 151 – 200 position range). Universities in Novi Sad, Niš and Kragujevac are also strong in teaching and research as well[69]. During the first year of the programme implementation (Horizon 2020), for the first time a researcher from the Republic of Serbia received a grant from the European Research Council intended for exceptional research ideas/projects that push the boundaries of research[70]. Researchers from Serbia already participate in numerous programmes of international cooperation. A significant volume of international cooperation is shown through the fact that in more than 35% of the scientific papers indexed in the WoS, at least one of the authors is a foreign author. Information and communication technologies, food, agriculture, fishery and biotechnology, as well as environmental protection, including climate changes are some of areas in which Serbian researchers are most successful[71]. The analysis of the results clearly shows that the Republic of Serbia has significant potential in the field of science and research, which can be the basis of further economic and social progress of the country. At the regional level based on the applications and projects finance from European Union funds reveals the fact that in comparison with other regional countries, Serbia is the most successful country regarding the funds absorbing. The factors influencing in Serbia as a positive case are as following:

1. *Advancement in integration process of Serbia in EU. Serbia is seen as a front-runner country in Balkan.* The European Prospective of Serbia during the last two decades has been progressively increased. On March 2012 the European Council grants candidate status to Serbia and two years later January 2014 the accession negotiations were formally opened. Every year, the EU donates around €200 million from IPA (Instrument for Pre-Accession) to Serbia for projects in all areas push forward the integration process. In June 2014 Serbia took over the management of EU funded projects. Some of the projects the EU has funded in Serbia were recognized by the European Commission as best examples of good practice; others won international or regional awards[72]. From 2014 till now 12 out of 35 chapters have been opened, two of which are provisionally closed. All this attempts are reflecting also in education, research and development. According to the last (2018) progress report "Serbia is at a good level of preparation in the area of science and research. Some progress was made with regard to innovation policy and participation to the EU programmes for research"[73].
2. *Adaption of legal and institutional Framework on education, research and technology field with principles of European Higher Education Area (EHEA) and participation in European Research Area is an advantage. Till now*, only Serbia and Montenegro are part of European Research Area.

67 Policy Mix Peer Review Report on Serbia; Danube-INCO.NET pg.12
https://danube-inco.net/object/document/18797/attach/D4_32__Policy_Mix_Peer_Review_Serbia_final.pdf
68 http://www.shanghairanking.com/World-University-Rankings/University-of-Belgrade.html
69 Ibid
70 Strategy on Scientific and Technological Development of the Republic of Serbia for the period 2016 – 2020 pg 43
71 Ibid
72 "Growing Together; Most Successful EU Funded Projects in Serbia", EU Info Centre in Belgrade, January 2015, pg.3
73 Serbia Progress Report (2018), EC, pg.76

3. *Serbia has the highest percentage of investment in Education, R&D in WBC. Serbian budget allocations for science have marked a significant growth in the gross amount, from the modest sum of EUR 28 million in 2001, to about EUR 100 million in 2008. During that seven-year period, the salaries of researchers grew multifold, and almost 30 million Euros were invested in capital equipment for scientific research work*[74]. In 2017, the Gross domestic expenditure on R&D relative to GDP was 866,5 (Million USD PPPs) comparing to 2011 were GERD was 662,0 (Million USD PPPs) there is a notable increase of budget dedicated to R&D (see Annex C). The budget allocation for education has a decrease of 0.6 % from 2012 were the public expenditure on education relative to GDP (%) was 4.5%, while in 2016 the Public expenditure on education relative to GDP (%) was 3.9%[75]. Although comparing to other countries in the region the budget allocation *is higher.* Recently, in framework of National Program of Basic Research and Program of Technological Development are included the financing of 773 research projects. Another action in 2017 was the financing of up to 200 PhD scholarships for students who are involved in scientific research projects. Young researchers - students of doctoral academic studies are financiered supported for participation in scientific research projects also inclusion of researchers - returnees from abroad is another action[76]. In March 2018 the Center for the Promotion of Science was established. With main objectives related to: Researchers' capacity building for the scientific culture awareness; Stimulation and development of communication between Scientific and Research organizations and the state and local administration through exchange of values and best practice; Development of a various science promotion programs based on scientific culture and scientific literacy among all citizens of the Republic of Serbia.
4. *The quality of Higher Education Institutions*: According to Shanghai Ranking the University of Belgrade is among top 300 universities in the world[77]. Also referring to World University Rankings, Serbian higher education institutions are on top of regional ranking (see. annexes). University of Belgrade is ranked in 1028 world rank, while others university of region lag behind (university of Tirana is in 4387 world rank). This comes as results of a variety of factors, such as: a) Old institutional tradition – The University of Belgrade is founded in 1808[78] and is the oldest university in the region.
   a. Research infrastructure - In the last decade noticeable improvements have been made, partially due to EU actions. Interestingly, while IPA and FP's such as the PF7 REGPOT brought objectively a much higher investment in framework of TEMPUS and Erasmus+. Research infrastructure in Serbia is better than in other countries in the region[79].
   b. The highest number of academician and research staff per population in region. Academicians from Serbia have the highest number of mobility abroad especially with EU universities. Serbian academic staff has the highest number of scientific publication among region. According to ERA progress Report for Serbia (2016) "The country's publications per 1 000 researchers are 30 % below the EU-28 average... However, Serbia has shown strong growth in recent years in terms of publications, exceeding the annual growth in the EU-28 over 2005-2014 by 4.6 percentage points[80]". This element creates opportunities for Serbian academics increasing credibility and affirmation for collaboration at regional and European level.
   c. Serbia has included the requirements for research output as a condition for academic promotion. Through this action they tend to motivate the academic staff for research projects.

III. Albania

3.1 General Overview

Albania, as the most of the European countries has the scientific research field integrated within Higher Education Institutions. In the last decade, HE and research institutions are undergoing a multifunctional reforming process to achieve alignment with the European standards. From political changes the law for higher education in Albania has gone through a chain of developments. Starting from 1994 the law for higher education has undergone to 4 main reviews. The Law no.9741/2007 was important as it brought changes as a result of its adaptation to the principles of the Bologna Process, including the Albanian Higher Education in the European system.

74 See: https://www.euraxess.rs/serbia/information-assistance/research-funding
75 Serbia Progress Report (2018), EC, pg.97
76 Serbia Progress Report (Period: June 2017 – June 2018) WB Steering Platform on research and innovation, Brussels, Belgium 25 June 2018.
77 http://www.shanghairanking.com/World-University-Rankings/University-of-Belgrade.html
78 http://www.bg.ac.rs/en/
79 https://supporthere.org/sites/default/files/western_balkan_report_final_-_2018_07_02.pdf
80 European Research Area, Progress Report for Serbia (2016), pg.3

The liberalisation of HE proved to be a profound transformative process with positive and negative consequences. In general it created more opportunities, competitiveness and a diversity of options to choose for students and academics and also challenges concerning quality and control of education and research process[81]. Beyond the positive aspects, the Law no.9741/2007 also brought problems in higher education, especially with the uncontrolled addition of private higher education institutions. Thus, in 2014-2015 a reform in higher education and scientific research was carried out. As a consequence in 2014, 18 private HEIs from 44 were closed and other 13 suspended. Three branches of public HEIs and 1 public HEI were closed as well. Furthermore, no new quotas for admission to Doctoral studies were given to public HEIs from 2013 till now.

The latest Law on Higher Education was adopted in 2015; it was the Law no. 80/2015 and the reorganizing process of the scientific research system through the Academy of Sciences reformation has created for the moment only a modern institutional framework, which creates the premises for a faster scientific research development and quality improvement in HEIs. The current structure in the framework of the Higher Education new law aims to develop and disseminate the knowledge through teaching, scientific and research activity and service delivery, influencing the further development of the country's economy and democratic and civic standards. It aims also to further increase the autonomy of higher education institutions as in the institutional aspect, academic, organizational and financial aspect.

Although three years have passed since the adoption of the law, many issues that have to do with the by-laws and the vacuum created in scientific research at HEIs remain to be solved. This period was accompanied by a public debate between the academic community and Ministry of Education Sport and Youth. In 2016, in the framework of the work on the drafting of the National Strategy of Scientific Research, Technology and Innovation 2017-2022, a census was held for the identification and evaluation of the research capacities in the country. In the same time have started the process of institutional reform of Scientific Research and the new Law on Science, Technology and Innovation expected to reform the remaining legal framework since 1994 amended in 1998. The reform process is subject to the institution of the Academy of Sciences as the main institution for scientific research in Albania.

With new legal developments, it is intended to curb a negative phenomenon such as brain drain.
Albania has experienced a massive "brain drain" and a collapse of its research infrastructure facilities. According to a recent study by UNDP was estimate that "there must be at least 2,500 Albanian PhDs and PhD candidates in developed OECD countries. For a small country like Albania, this pool of researchers is not insignificant, and represents around 40 % of Albanians who have a PhD and an estimated more than 25 % of the academic potential of the country. This ever-growing reservoir of Albanian 'brains' may and ought to be mobilized for the benefit of the socio-economic development of the country, particularly if specific conditions are in place"[82].

A factor that is giving positive impetus to higher education and constitution in Albania is the inclusion of Albania in the European integration processes. As a candidate country for EU membership, Albania has been actively involved in regional cooperation and co-signed the Western Balkan Regional R&D Strategy for Innovation adopted in October 2013. The European Commission recently issued the 2018 report on Albania, part of the Western Balkans strategy, and have recommended to the Council to start EU accession negotiations with the country.
For the first time Albania, has been institutionally part of the 7th Framework Program of the European Union for Scientific Research and Innovation FP7 2007 – 2013. Participation in FP7 programme was made possible by financing from the state budget a sum of around 200,000 euro that were ¼ contribute of Albania and the rest was financed by EU funds CARDS/IPA[83].

In the 2014 year, Albania has signed an Agreement with the European Commission to participate in the Horizon 2020 Scientific Research and Innovation Framework Program that followed the FP7 previous program[84]. Albania has benefited by EU programs and regional financial assistance to build scientific research capacities, improving

81 PERFORM (2017), Research Report "Understanding Current Practices of Science Communication in Serbia and Albania: Recommendations for Enhancing Effectiveness" Pg.12

82 http://www.al.undp.org/content/dam/albania/docs/Brain_Gain%20web.pdf Gëdeshi, I. King R., UNDP (March 2018). "Research Study into Brain Gain: Reversing Brain Drain with the Albanian Scientific Diaspora" pg.29-31

83 RevistaMjedisi Sot Nr.122 pg.11-12

84 Law No.132/2014 "For the ratification of Agreement between the Republic of Albania and the European Union for participation of the Republic of Albania in the framework program "Horizon 2020 - research and innovation program" with proposal of Council of Ministers of Albania". Article 1 Albania shall participate as an associated country in the "Program", based on: Regulation (EU) no. 1291/2013, for the creation of the "Horizon 2020 Framework for Research and Innovation (2014-2020)"

research infrastructure and attempted structural reforms in education and research field. According to the 2017 EU Progress Report[85] on recent developments regarding research and innovation cooperation, country preparations in the area of science and research are still at an early stage, but there has been some progress in the last year.

3.2 National priorities of science and research in Albania

Main research policy documents are "National Strategy of Scientific Research, Technology and Innovation 2017-2022" and "Law no. 80/2015"On Higher Education and Scientific Research in Higher Education Institutions in the Republic of Albania". The legal framework will be completed with adoption of a new law on Academy of Science and the law on Science and Technological Development. *Expected Results to be achieved until 2022:*

1. The reformation of the scientific research institutional system;
2. Increasing STI investments based on public funds and other alternative sources up to 1% of GDP by 2022.
3. Addressing the retention and brain circulation issue and the inclusion of Albanian Scientific Diaspora.
4. Increasing cooperation between the scientific research community and business, and monitoring the quality of scientific research[86].

The research system in Albania responsible for the before mentioned priorities/results is composed by several bodies as listed: The Academy of Science; The Ministry of Education, Sport and Youth; National Agency for Scientific Research and Innovation, Universities (Public & Private); National Research Centers; Public Centers/ Agencies of Development and Technology Transfer; Centers/Agencies/Institutes and other private entrepreneurships dealing with research, development, technology and knowledge transfer fields. According to the Ministry of Education, the process of establishing research centres of excellence is ongoing.

Based on the National Strategy for Development and Integration 2013–2020 (NSDI II) , there are the priority sectors for research which are deemed important for meeting societal challenges and for stimulating growth and productivity to absorb high unemployment.

- ICTs;
- agriculture (veterinary, zoo-technical), food and biotechnology;
- social sciences and Albanology;
- biodiversity and environment;
- water and energy;
- Health and materials science.

In these 6 priority areas that meet the country's strategic development priorities will be funded for the period 2018-2020 National Research and Development Projects through the National Agency for Scientific Research and Innovation. The National Agency for Scientific Research and Innovation (NASRI) is coordinating and guiding structure which cooperates with institutions in the field of science and technology for sustainable development of the country, in line with national priorities, development of scientific and technological policies and management of Research and Development (R&D) institutes.[87] To stimulate academia-industry cooperation in the innovation field, one of the funding criteria for the National Research and Development Projects will be for those project proposals that have cooperation agreements with the business sector[88].

Despite support from the government for these profound structural changes, the goals have not been realized and overall research performance remains low. The strategy which came into force only a year ago is on the beginning phase of implementation and it will take time to see the results. It is imperative that the strategy for the future development of the HE system should be closely coordinated and integrated with economic and industrial strategies.

3.3 Scientific Research Institutions, actors involved

The Academy of Sciences of Albania (ASA) is the most important science institution in the country, founded in 1972. The ASA includes the most outstanding scientists – academicians engaged in research institutes or research centres, or other science organizations in Albania or abroad. ASA has 29 Regular Members, 11 Associated Academician Members and 26 Honorary Members. The ASA has 2 sections: the Section of Albanology and Social Sciences and

85 EC Albania Progress Report 2017, pg 77
86 NSSRTI 2017-2022 document pg.35-36
87 https://www.euraxess.al/albania/albania-network-and-about-us
88 http://www.arsimi.gov.al/strategjia-e-specializimit-inteligjent/

the Section of Natural Technical Sciences. Parts of the structure are: the Unit of Technological Research and Innovation Projects, the Section of Foreign and Public Relations, the Scientific Library and Publications.[89]

The activity of the Albanian Academy of Sciences is performed in accordance with the law "On the Academy of Sciences of the Republic of Albania", no. 9655, dated. 11.12.2006, as amended by Law no. 9853, dated 26.12.2007, Law no. 9949, dated 07.07.2008 and Law no. 10271, dated 22.04.2010, approved by the Assembly of Albania. To stimulate research, information, monitoring and experience dissemination in terms of research, technology transfer, technology development and innovation, the Academy of Sciences has the Research, Technology and Innovation Development Projects Unit (RTIDPU) as a support structure.

A reform of the research system is still on the process. Draft law "On the Academy of Sciences of the Republic of Albania" is under consultative process. There are some good incentives in the new draft law, like the Youth Academy (article 20). The draft law provides the functioning of the Youth Academy as an advisory and collaborative body at the Academy of Sciences in order to encourage the scientific research activity of young researchers and establishing a communication and promotion bridge with them. The new draft law was discussed and approved in principle and article by article with the leaders and representatives of ALLEA-All European Academies and The Academy of Sciences Leopoldina[90].

Currently in Albania there are 38 HEIs, of which 14 are public universities and 24 are non-public universities. In addition, realize research activities for the line ministries and other institutions around 20 other institutes, centres and national services with research nature[91]. Based on Decision no.27 date 29.12.2017 "Interior academic and administrative structure in Public Higher Education Institutions" there are two units dealing with research: a) Scientific research unit; b) Project unit. These units are responsible to help other academic staff to conduct research work or project. The outcome is still limited, although positive signs are from different universities as will be presented later in the next chapters. Much work has to be done and criticism is coming from different actors. According to member of MESY; "...the institutions responsible for the research as the Ministry, the Institute, the Centre and the Agency, for decades, do not take any product of this category. The problem of scientific research in the country are not the specific names of institutions, but the whole system of science and its profitability, compared to the countries of the region" [92]. Based on World Ranking of HEIs, Albanian HEIs are in the last place in the region. Serbian HEIs tops the ranking in the region with three Serbian universities in the first three places (see: Annex D). University of Tirana is ranked in the 4,387th global position, while University of Belgrade is ranked in the 1,028th global position. This figure shows a big difference between two universities and systems of HEIs.
In accordance to the Law No 80/2015 there are two important public bodies responsible for funding research in Albania:

1. National Agency of Scientific Research and Innovation (NASRI)
2. National Agency for Higher Education Financing (NAHEF)

The current legal framework entrusts the National Agency for Scientific Research and Innovation (NASRI) to fund research in the country. The funding mechanism will be implemented through National Research and Development Projects and bilateral and multilateral scientific cooperation projects.
National Agency for Higher Education Financing (NAHEF) is a public institution under the authority of MESY responsible for allocating public funds to support the activities of public higher education institutions; to provide scholarship support for excellent students who achieved high grades in the secondary and tertiary Higher Education System; to support the students enrolled in study programmes designated as priority areas and students from disadvantaged social groups. NAHEF sets also the allocation criteria for public funds. Ministry of Education, Sport and Youth approves the criteria and distribution formula for such funds and defines annually the priorities for each main area of study[93].

Within the new law of HE, doctoral studies are designed as individual programmes intended to promote independent research in the field provided by the basic unit or the main unit. Higher education institutions, which

89 http://akad.gov.al/ash/
90 http://akad.gov.al/ash/pdf/RELACION_SHPJEGUES_I_PROJEKTLIGJIT.PDF pg.5
91 For more info see: National Strategy of Scientific Research, Technology and Innovation 2017-2022" DCM 710, pg.11
92 http://www.panorama.com.al/akademia-dhe-reforma-ne-sistemin-e-shkences/
93 https://eacea.ec.europa.eu/sites/eacea-site/files/countryfiche_albania_2017.pdf

meet the criteria for offering doctorate studies, apply for funding to National Agency of Scientific Research and Innovation or other institutions.

NASRI give financial support to programs and projects of Science, Technology and Innovation (STI), in accordance with the priorities defined by the Council of Ministers, based on the assessment made by the relevant commissions. The agency develops application procedures for the preliminary evaluation, monitoring, and final assessment of the programs and projects of STI.
NASRI is in charge to monitor and evaluate activities of STI, at the national level. It offers technical assistance to all of the institutions in regard to investments in the field of STI.
Recently with the Decision No. 165, date 21.3.2018 "For the evaluation process methodology of the higher education institutions basic units research-scientific activities", article 4 entrust NASRI to evaluate scientific research once every 4 years. Main criteria to evaluate research-scientific institutions are as following:

a. Bibliometric criteria
b. Impact criteria of scientific research activity, including projects financed by EU programmes;
c. Infrastructure criteria;
ç. Human capacity criteria;
d. Internationalisation criteria;

3.4 Main support programmes of education and research in Albania

For more than one decade the public expenditure on education relative to GDP (%) in Albania does not exceed 3.3%. according to European Commission Report (2018) in 2015 and 2016 the public expenditure on education relative to GDP was (3.1%[94]). The new legal framework is innovative in terms of funding from the state budget of public institutions of higher education and research. Finally, Decision no. 75, dated 12.2.2018 "On the approval of the financial model of public institutions of higher education and scientific research" defines this grant in the form of grants, giving the unexpended funds the opportunity to spend for the coming year. HEI grant and scientific research comprised of:

a. Development Policy Grant for Public Institutions of Higher Education, up to 10% of the total annual grant;
b. The teaching grant, which is not less than 85% of the total annual grant;
c. The grant of scientific research and creative activities, which is 5% to 10% of the total annual grant.

The inclusion of a grant for scientific research is a positive innovation for research as a whole. And yet, the amount spent is very low if we compare it with other countries in the region.
According to, representatives of MESY in Commission on Education and Public Information declaration: *"Financing for Higher Education and Scientific Research in 2018 has an increase over 2017". The new law on higher education now defines another financing formula and is detailed: from about 6.2 million Euro (7.8 billion ALL) for higher education and for the other curriculum, that of scientific research, is foreseen also the development policy for higher education grant of about 408 thousand Euro (510 million AL), for teaching, as it is titled in the new law of higher education of about 5.3 million Euro (6,65 billion ALL) and the research scientific activity grant of about 384 thousand Euro(480 million ALL) (including the fund of excellence); Current expenditures amount of about 5.7 million Euro (7.1 billion ALL) and capital expenditures amount of about 540 thousand Euro (672 million ALL)*[95].

The Higher Education Financing Formula for 2018 takes into account first cycle students and those that continuing undergraduate programs that have been set by the law on higher education and does not take into account the "Master Professional" or the Scientific Program or in the 3rd cycle "Doctorate"[96].

94 EC, Albania 2018 Report, pg.104
95 The Assembly of Albania, Commission on Education and Public Information Tools, report 14.11.2017, time 10:30, pg. 6-7-8 online: http://www.parlament.al/Procesverbale
96 Ibid

Table 19 HE, Scientific Fund and Academy of Science Budget 2017

Programme	Total of Current expenditures (in millions LEK)	Capital Expenditures			Total budget expenditure (in millions LEK)
		Interior financing (in millions LEK)	Foreign financing (in millions LEK)	Total of capital expenditure (in millions LEK)	
Higher Education	6.313.001	230.000	100.000	330.000	6.643.001
Scientific Fund	315.800	50.000	0	50.000	365.800
Academy of Sciences	100.000	2.000	0	2.000	102.000
Total	6.728.801	282.000	100.000	382.000	7.110.801
Source:http://www.financa.gov.al/buxheti-2017/					

The elements of scientific research support are linked to[97]:

- Aspects of financing national research and development projects;
- Excellence Fund for Young Scientists;
- Science internationalization thanks to the EU research programs of Innovation Horizon 2020 participation and the increase of regional and international co-operation;
- The implementation of bilateral or multilateral scientific cooperation agreements and the academic mobility programs,

Until now, the support given by former Agency for Research, Technology and Innovation (ARTI), now the National Agency of Scientific Research and Innovation (NASRI) has been insignificant. If we refer to the 2010 cooperation experience with Slovenia where are funded 10 joint scientific projects with the researchers of the two countries only in the first phase and due to the lack of funding these projects were not realized[98]. A discouraging fact is the extremely low number of financed bilateral project by the executive agency.

This is the fourth consecutive year of contribution for the excellent students through the "Excellence Fund" administered by Ministry of Education, Sport and Youth. The total fund till now reached 600.000.000 All. This founding scheme is an opportunity aiming to support talented and excellent students to study abroad in prestigious universities of the world, according to Times Higher Education ranking[99].

EU fund absorption

Since 1992, Tempus programme opened the door to the European academic community and offered Albanian lecturers opportunities to connect with their counterparts in the region and in Europe[100]. TEMPUS is the European Union's programme which supports the modernisation of higher education in the EU's surrounding area.
Since 1992, all Albanian public universities and some private ones have participated in 141 Tempus projects in total. The overall budget of Tempus that Albania has benefited since 1992 is 36.75 million Euros.
Two overall long-term processes, the Stabilisation and Association Agreement and the building of the European Higher Education Area, have shaped Tempus cooperation in Albania since 2000 and the dynamics of both have led to the updating of higher education priorities on a yearly basis.[101]. Albania fully participates in Erasmus Key Action 2 "Capacity Building of Higher Education Institutions" through capacity building projects, Jean Monnet Programme

97 National Strategy of Scientific Research, Technology and Innovation 2017-2022. pg.13
98 National Strategy of Scientific Research, Technology and Innovation 2017-2022, pg 20-21
99 See: http://www.arsimi.gov.al/fondi-i-ekselences/ also, Decision of the Council of Ministers no. 483, dated 16.07.2014 "On the financial support of excellent students and civil servants of the state administration (the excellence fund)" and the Instruction of the Minister of Education and Sports no. 16, dated 01.08.2014 "On the determination of criteria, measures and procedures for beneficiaries of the Excellence Fund for excellent students and civil servants "changed.
100 http://erasmusplus.al/?page_id=1152
101 Ibid

and also benefit from a Special Mobility Strand (SMS)[102].
The best results of Albanian researchers are in framework of Erasmus+ components. The interviews identified some key factors as listed:

1. The previous experience in framework programme Tempus in which the researchers were acquainted with or had applied before
2. Having in focus is the capacity building component, mobility not research/science
3. Simple procedure comparing to Horizon 2020
4. Motivation, cooperation and competition through public and private HEIs (the trend to apply to these programs is increased),

Table. 20 Albania data on Erasmus + KA2 2015-2017

KA2- Capacity Building in Higher Education' 2015, 2016, 2017			
Year	**Applications as partners**	**Applications as coordinator**	**Selected projects CBHE**
2015	22	2	5
2016	36	9	6
2017	52	13	6
Total	110	24	17

Based on above data, it results there are 17 financed projects on KA2 component for 2015-2017. The total number of Albanian institutions partners in these 17 projects is 57 considered at national level (see table 20). Two public higher education institutions are project coordinator institutions, Agricultural University of Tirana and "Aleksander Moisiu" University of Durres. University of Tirana (public HEI) has the largest participation in 9 CBHE projects followed by European University of Tirana, a private HEI being involved in 7 CBHE projects.

Table. 21 Planned mobility's to/from Albania year 2015/2016[12]

	Learner	Staff	Total for year 2015	Learner	Staff	Total for year 2016
Incoming (to EU)	323	234	557	442	318	760
Outgoing (from EU)	135	206	341	134	233	367
Total	458	440	898	576	551	1127

Participation of Albanian institution in Horizon 2020, 2014-2018 results with a total number of contributions is 19 while the amount is equal to 2˙011˙553 €. Albania has the lowest number of projects and the role of Albanian institutions in these projects is limited as a participant only. Below are listed the Albanian institutions participant in H2020.

Table. 22 Albanian institutions part of Horizon 2020 (2014-2018)

No	Institution	No of projects	Amount in euro	Role
1	AGJENCIA KOMBETARE E PLANIFIKIMIT TE TERRITORIT	1	227˙796.00	participant
2	QENDRA E KERKIMEVE HISTORIKE DHE ANTROPOLOGJIKE	1	161˙075.00	participant
3	QENDRA NDERUNIVERSITARE E SHERBIMEVE DHE RRJETIT TELEMATIK	1	16˙000.00	participant
4	CO-PLAN INSTITUTI PER ZHVILLIMIN EHABIITATIT	1	27˙000.00	participant
5	INSTITUTI PER RUAJTJEN E NATYRES SHQIPTARE SHOQATA	1	47˙562.00	participant

102 http://www.schumanassociates.com/newsroom/412-country-digest-western-balkans-albania-2

No	Institution	No of projects	Amount in euro	Role
6	QENDRES SPITALORE UNIVERSITARE NENETEREZA TIRANE	1	35˙000.00	participant
7	UNIVERSITETI POLITEKNIK I TIRANES	1	35˙700.00	participant
8	QENDRES SE SHENDETIT DHE MIREQENIES KOMUNITARE	1	69˙250.00	participant
9	AGJENCIA KOMBETARE E KERKIMIT SHKENCOR DHE INOVACIONIT	1	20˙350.00	participant
10	PER SHERBIMIN GJEOLOGJIK SHQIPTAR	1	19˙453.00	participant
11	DREJTORIA E PERGJITSHME E POLICISE ASP	1	42˙270.00	participant
12	UNIVERSITETI POLIS SHPK	1	13˙500.00	participant
13	AGJENCIA E KERKIMIT TEKNOLOGJISE DHE INOVACIONIT	1	27˙875.00	participant
14	MINISTRIA E BUJQESISE DHE ZHVILLIMIT RURAL	1	10˙625.00	participant
15	TELECOMMUNICATION AND COMPUTER NETWORKING TNC SHPK	1	36˙000.00	participant
16	OPERATORI SISTEMIT TE TRANSMETIMITOST - SHOQERI ANONIME	1	54˙250.00	participant
17	TURGUT OZAL EDUCATION SHA	1	321˙375.00	participant
18	UNIVERSITETI I MJEKESISE TIRANE	1	817˙050.00	participant
19	BASHKIA SHKODER	1	29˙422.00	participant
Total	**19**	**2˙011˙553**		

Source: https://www.fabiodisconzi.com/open-h2020/per-country/al/index.html

There are manifold factors influencing the lack of applications in Horizon2020 programmes *coming from Albanian researchers, as below:*

1. *Lack of support from HEIs*. In the framework of this programme the requirements for project proposals are very stringent, and there are few structures within HEIs to support the researchers. The format of project proposal in Horizon 2020 requires a good and interdisciplinary team of experts. Further cooperation and collaboration is needed between professors and academic of different fields of expertise.
2. *Lack of motivation*. Securing competitive research grants presently has no influence on career progression and salaries, and; *consequently this has a negative impact on the motivation to develop research proposals.* This situation could be addressed through revised research metrics.
3. *Lack of knowledge.* Most of researchers lack the knowledge and skills to apply successfully for international research project grants, such as H2020, MSCA. In general in HEIs researchers prepare very few international grant proposals, largely because they don't receive little or no support from own institutions. Albanian institutions are unfamiliar with these processes. Staff may have good ideas, but it lacks the ability not only in writing research projects, but also cannot cope with administration, management of funds and financial auditing from EU. Another fact is that a considerable number of professors and academicians have few acquiring experience or research skills with European standards.
4. *Lack of internationalisation.* Albania has a relatively low level of participation of researchers in international scientific publication in high quality journals when compared to others in the region (see tab.18). Participation

and application as part of consortium in Horizon 2020 needs a high level of academic staff affirmed in scientific field and known in regional and European level. Further attempts are needed by academic staff and financial support by HEIs for internationalisation of academic staff.

5. *Lack of research trainings.* Training sessions for research applications and management would be desirable, which so far very few researchers attended, due to the limited number of courses available, but also due to limited interest, resulting from the generally low support to research and researchers. National Agency for Scientific Research and Innovation is the only institution that organizes information days and Capacity Building Workshops on H2020. If we refer to statistics from June 2016 – June 2017 NASRI has organized about 30 INFO Days and training sessions on H2020 EU Program on Research and Innovation and 3 Capacity Building Workshops on H2020[103]. The number of Capacity Building Workshops on H2020 is extremely low considering the necessity of academic staff to participate in these activities. In the longer term, support units are needed, and their staff would have to be trained properly.
6. Bureaucratic procedures within HEI and research institutions. According to the General Director of National Agency of Scientific Research and Innovation: "financial management from the beneficiary part might be a problem, also bureaucratic procedures (the Rector's permission and administrative issues), and uncertainties in staff cost related to project awarded by the academic staff are obstacles too"[104].

3.5 Main challenges and recommendations

From the interviews conducted with the groups of interest, there were some problems related to higher education and scientific research in the country. The problems are of all kinds, legal, institutional, structural, financial. And all of this reflects the low absorption capacity of the EU's findings on scientific research by Albanian scholars.

All issues are evidenced by the low number of applications and the success rate of applications by scientific research institutions in Albania, or individual studios. Below are some of the main problems that affect the quality of scientific research in Albania and have been tried to provide recommendations or suggestions for a different approach that would affect the improvement of basic conditions to bring about scientific research in Albania at least of the region and beyond.

- **Incomplete legal framework.** The new law on higher education for the first time incorporate research and science. This is a positive aspect of the law. Although this, the law on higher education is still uncompleted. There is a need to review and amend all bylaws, in order to provide an effective environment for the implementation of higher education in Albania in accordance with the new legislation. The new law necessitates the amendment and harmonisation of statutes and regulations of all higher education institutions within a certain period of time. The process has gone very slowly and it has created a vacuum, specifically on the PhD programmes. We can mention the Decision No.112, date 23.2.2018 "For the criteria definitions of "Doctor" degree award and state standards for the "Associated Professor" and "Professor" academic award" was approved after 3 years of the Law No 80/2015.

Recommendation:

- There must be accelerated the work for drafting the new Law on Science of Technological Development.

- **Reforms often not supported financially / lack of the necessary financial and human resources to support reforms**. The undertaken reforms are extended in time and are not supported with human resources and funds; there are significant steps to be undertaken by the respective institutional bodies to provide the required support. Low investment in research and development is found to be one of the key obstacles. In 2015 the country had a population of 2.892 million (estimated) and a GDP (2014) of 10.274 billion Euros (provisional). Albania, according to unofficial figures, in 2015 national investment on R&D was about 0.4 % of GDP[105].

Recommendation:

- Increasing of budget / Investment based on public funds and other alternative sources at 1% of GDP till 2022[106].

103 Progress Report Albania (Period: October 2016 – June 2017) WB Steering Platform on research and innovation, Brussels, Belgium. Pg.3-4
104 The interview with Mr. Geron Kamberi was conducted on 10 July 2018
105 SPHERE (2017) Report, Harnessing the potential; Research Capacity in the Western Balkans, pg.35
106 Realization of the second objective part of National Strategy of Science, Technology and Innovation 2017-2022, see pg.36

- **Low capacity in infrastructure.** The low infrastructure capacity of the research units across HEIs, Institutes, Academies and a low number of scientific researchers is a major problem facing research in Albania. Approximate number of researches in Albania is in the range 3200-3500 persons. This is referring only to the academic staff in public institutions. The number could rise up to 4000 researches including non public universities, although there are no official data available. There is also a lack of specific curricula in HEIs to provide deeper information in scientific research. Missing linkage between scientific research integration of the knowledge's with university curricula. Universities and other research institutions in Albania face also infrastructural barriers in development of science. According to the census conducted in 2016, universities lack and inadequate research infrastructure (laboratories, offices, libraries etc);

Recommendation:

- Improve the capacities of higher education and other scientific institutes in order to strengthen the performance and attractiveness of R&D. Raise awareness within universities and research institutions about the European Charter for Researchers and the Code of Conduct for the Recruitment of Researchers; (The European Charter for Researchers is a set of general principles and requirements which specifies the roles, responsibilities and entitlements of researchers as well as of employers and/or funders of researchers. General Principles and Requirements have to do with research freedom, ethical principles, professional responsibility and attitude, etc; The code of conduct for the recruitment of researchers consists of a set of general principles and requirements that should be followed by employers and/or funders when appointing or recruiting researchers. These principles and requirements should ensure observance of values such as transparency of the recruitment process and equal treatment of all applicants...etc.[107])
- Improve of support infrastructure such as laboratories, libraries and other logistic needs.
- HEIs should have institutional strategies for internationalization (European University of Tirana and very few institutions have developed strategic documents and policies related to the process of internationalization[108]).

- **Research methodology out-of-date.** According to interviews researching methods used by Albanian researchers are not updated with the contemporary developments; here has contributed the lack of infrastructure to access to online libraries and the latest articles or publications in related disciplines; To get access to online scientific publishing houses is costly and often unaffordable for universities or individual researches.

Recommendation:

- Intensive financial and infrastructural support is required in order to provide qualitative research products;
- Signed agreements with partner universities or scientific libraries to access journals or scientific articles;
- Update and advance the infrastructure and technology for teaching, research and scientific;
- Training / specialisation of academic staff on new teaching and scientific research methodologies.

- **Limited cooperation.** Weak connections and exchange with universities in the region or the EU countries; Few academic or institutional initiatives to lead or be part of bigger research projects within the region or at a European level. More over research does not go forward with the desired rhythms because scholars are not organized among them. The number of scientific publications in cooperation with colleagues from the region is very limited and mostly in individual basis.

Recommendation:

- Increase of mobility and institutional cooperation among higher education institution in the region and other partners;
- Increase bilateral agreements between HEIs, nationally, regionally and internationally; (University of Belgrade has around 131 cooperation agreements while University of Tirana around 55 cooperation agreements[109])
- Organising common scientific conferences to create bridges and contacts within the region;
- Exchange of knowledge's for best practices in the region.

107 https://euraxess.ec.europa.eu/jobs/charter/code
https://euraxess.ec.europa.eu/jobs/charter/european-charter
108 Interview with Lutjona Lula – UET, (15 August 2018)
109 http://bg.ac.rs/files/en/international/Agreements_Cooperation.pdf
http://www.unitir.edu.al/index.php?option=com_content&view=article&id=63&Itemid=82&lang=en

- Establishment of joint peer review of project proposals become established as a method of evaluating and benchmarking scientific performance in the region.

- **Financial support**. There is no financial support for scientific publications, scientific conferences, scientific congresses, scientific symposiums etc. Despite increase of salaries and budged for higher education for the last two consecutive years, Albania has one of the lowest levels of salaries in Balkan region.

Recommendation:
- HEIs must give financial support and academic promotion as a result of research work;
- The accomplishment of salaries of the higher education system with those of homolog institutions in the region.

- **Categorization in academic teaching staff and research staff**. So far, in the institutions of scientific research in general and higher education, in particular, there has been an increasingly problematic in relation to the division of tasks between the teaching staff and the one dealing with the proper scientific research. With the new law, bylaws, and instructions from the Ministry of Education, it is intended that scientific researchers at universities be relieved from the teaching curriculum to focus more on scientific research. According to the guidelines of the line ministry, a separation between the academic staff is stipulated, whereby the scientific researches foresee a reduction of the teaching load to 35%. This would most likely enable the research workers to focus on research.

Recommendation:
- Staff motivation toward participation in projects; they have high load in teaching and less time is spent on research.
- Develop strategies within HEIs to increase the number of scientific publications by staff in international indexed journals.

- **Brain-drain problems**. Albania has experienced a massive "brain drain" and a collapse of its research infrastructure facilities. According to a recent study by UNDP was estimate that "there must be at least 2,500 Albanian PhDs and PhD candidates in developed OECD countries. For a small country like Albania, this pool of researchers is not insignificant, and represents around 40%of Albanians who have a PhD and an estimated more than 25%of the academic potential of the country.

Recommendation:
- The Albanian government needs to identify and locate Albanian academics and researchers in OECD countries and create a database. Such a databank should contain the social and demographic data of the person, their degree, field of study, university of graduation and current job position;
- Universities should be part of these initiatives in order to ensure a certain interest and long-term approach to bringing back and utilizing such capacities in the formulation of appropriate and attractive curricula and education projects[110].
- Enforcement of Brain-gains programs, financial support such as 'excellence fund' in order to stop this phenomenon;
- Encouraging of scientific Diaspora academic staff to exchange knowledge's in the field of research with universities in Albania.

110 http://www.al.undp.org/content/dam/albania/docs/Brain_Gain%20web.pdf Gëdeshi, I. King R., UNDP (March 2018). "Research Study into Brain Gain: Reversing Brain Drain with the Albanian Scientific Diaspora" pg.60-61

Successful projects in Albania

Within the framework of this study, two Albanian researchers who have been successful with their projects in fundraising in EU programs were interviewed. The projects are awarded under the Erasmus + component of KA2 and Jean Monnet activities.

1. Project Leader in Capacity Building in Higher Education For the first time a Public Higher Education Institution - "Aleksander Moisiu" University become a Project Coordinator (Leader) in framework of Capacity Building in Higher Education component. The project "Development and Implementation of Multimedia and Digital TV Curricula" has a total value of 748,241.00 EURO. The project will be implemented by 8 partners within three years. There are three partners from EU (Slovenia, Estonia and Czech Republic), two from Kosovo and three from Albania. The coordinator of the project is PhD. Albana Halili . This achievement was mentioned in the European Commission Report (2018) for Albania emphasising that the "participation in the Erasmus+ programme has been further improved, especially in CBHE, where two Albanian higher education institutions participated as project coordinators for the first time" . Jean Monnet Activities - Jean Monnet Network (the first Jean Monnet network awarded in Balkan Region)
2. For the first time a researcher and a private Higher Education Institution – The "New York Tirana" University successfully awarded a "Jean Monnet network" project with a total value of 295,092 Euro. The leader of "Democratization and Reconciliation in the Western Balkans" project is the University of New York Tirana in partnership with the Institute for Central-Eastern and Balkan Europe, the University of Dubrovnik, the Sarajevo School of Science and Technology and the European Movement in Serbia. The project will be implemented with 3 years. The coordinator of the project is PhD. Eltion Meka . The two Albanian researchers have been graduated abroad, respectively PhD. Albana Halili in Turkey at Middle East Technical University and PhD. Eltion Meka in Rutgers University-Newark USA.

IV. Kosovo

4.1 Introduction

Scientific Research in Kosovo is mainly regulated by the Law No. 04/L-135 on Scientific Research Activities. In addition, it is locally guided by the National Research Programme of the Republic of Kosovo (2010), the Strategy on Scientific/Artistic Research and Development Activities 2011-2015 and Kosovo Education Strategic Plan (KESP) 2017-2021 – the first two documents, although slightly imperative to this field, have not been updated from the relevant actors in Kosovo, thus no funds from the budget of Kosovo are allocated to implement these documents. NRP has enumerated five research priorities: (1) Environment, Energy and Natural Resources; (2) Agricultural Production and Food Safety; (3) Medical Research; (4) Development of a Knowledge Based Society; (5) Linguistic, Historic and Cultural Studies - Information and Communication Technologies is considered as an inter-connected priority to all the above-mentioned fields. These five research priorities were selected based on these six criteria[111]:

- Relevance to economic and social development of the country,
- Number and quality of human resources for within the country and Diaspora,
- Condition of research infrastructure,
- Contribution to preservation and promotion of national identity of Kosovo,
- Potential to achieve research results and apply them within the country and abroad,
- Existing international cooperation in a field.

Eligible entities for scientific research in Kosovo, based on the Law on Scientific Research Activity, are: Academy of Sciences and Arts of Kosovo; the Institute of Albanology; Institute of History and Universities. These entities are responsible to research and publish up-to-date studies that are compatible with the Kosovo's law on scientific research. In the absence of a database that collects and saves all scientific research studies in Kosovo, there are

111 The National Research Program of the Republic of Kosovo 2010-2015, pg. 10.

no sufficient or consistent data to determine the current state of scientific research in Kosovo. Based on Kosovo's Progress Report[112], there are 175 published reports in worldwide known journals.

Kosovo has different sources of funding for scientific research: local and international. Locally, scientific research in Kosovo is mainly funded by the government; however, government spending on scientific research is only around 0.1%, a substantially low rate[113], even though, by law, the rate should be 0.7%[114]. Internationally, Kosovo is working towards integration in European Research Area (ERA) and it has recently joined European Cooperation in Science and Technology and is a member of COST from April, 2018. Currently, the main sources of funds mentioned in the Progress Report are two long term bilateral projects with Austria (HERAS) and USA (TTL) that amount up to 11 million Euros.

Erasmus+

Kosovo signed the Agreement between the European Union and Kosova on Kosova's Participation in ERASMUS+, Program of the Union for Education, Training, Youth and Sport just recently on June, 2018[115]. Thus, due to the short longevity of this agreement, the updated data and support on Erasmus+ are vague. However, based on the database Erasmus+ Project Results Platform, from the year 2014 there are a total of 215 projects in Kosovo supported by Erasmus+ adding the amount up to 12,307,095.75 Euros[116]. In most of these projects Kosovo was the participating country, and out of 215 projects, Kosovo was the coordinator country in only 8 of them and the total sum of Euros for these 8 projects was 2,161,927.00.

Horizon2020

Horizon2020 was launched in Kosovo in 2013 and it will be available to Kosovar researchers up to 2020. Kosovo has a third-party country status in the EU Research Programme, and even though the EC wanted to bring Kosovo as an Associate Partner in the Programme, there are no allocated funds from Horizon2020 for Kosovo. Hence, the researchers from Kosovo should go through the application process and compete for funds with countries across Europe. In Horizon2020, there were 62 eligible proposals sent from Kosovo reaching a total of 7.52 million euros requested. Out of these 62 proposals, 11 of them were retained[117]. The EU contribution for Kosovo ended up being 0.67 million Euro for 8 projects and 9 participations of at least one partner from Kosovo; this amount is the lowest provided to Western Balkans[118]. Whereas, from Marie Skłodowska-Curie Actions only one project is funded[119].

4.2 Scientific Research Policy

Scientific Research Policy in Kosovo is designed mainly based on the Kosovo Education Strategic Plan (KESP) 2017-2021 and National Research Programme of the Republic of Kosovo (2010). These two documents depict the main objectives of the policies, and the actions for each respective objective. Both strategies focus on scientific research development and treat it as a mean to the socio-economic development of Kosovo. The mutual objectives in both strategies are: research infrastructure including building of new laboratories and procurement of modern equipment; human capacity including professional and eligible scientific researchers; internationalization including cooperation with worldwide institutions and publications in well-known international journals; and linkage between science and socio-economic development including the generating of studies that meet the socio-economic dynamism in Kosovo.

112 Kosovo's Progress Report on recent developments regarding research and innovation cooperation in/with Western Balkans(Period: October 2017 – June 2018),pg. 2.
113 Education Strategic Plan (KESP) 2017-2021, pg. 18
114 Law on Scientific Research Activities: https://www.kuvendikosoves.org/common/docs/ligjet/Law%20on%20Scientific%20Research%20Activities.pdf
115 Draft Law on Ratification of the Agreement Between the European Union and Kosova on Kosova's Participation in ERASMUS+, Program of the Union for Education, Training, Youth AndSport, was approved in the 56-meeting of the Goverment of Republic of Kosova with the decision no. 05/56 dt. 13.07.2018.
116 Erasmus+ Project Results Platform, advanced search data: Erasmus+, Tempus, Kosovo*. Retrieved from: http://ec.europa.eu/programmes/erasmusplus/projects/#search/keyword=kosovo&programmes[0]=31046216&programmes[1]=eve000_educ_epp_temp&countries[0]=XK&matchAllCountries=false
117 Horizon2020 interactive data, retrieved on October 23, 2018: http://ec.europa.eu/research/participants/portal/desktop/en/projectresults/index.html
118 DG RTD – International Cooperation; pg. 40, Retrieved from: https://h2020-pristina2017.teamwork.fr/docs/presentations/module-1-kosovo.pdf
119 H2020 - Marie Skłodowska-Curie Actions (MSCA). Country fact sheet: Kosovo * UN resolution (XK), pg. 1.

National Research Programme of the Republic of Kosovo

NRP enlists five objectives in terms of scientific research development needed to support the socio-economic development in Kosovo. All five objectives are interrelated and should be developed systematically.

Objective 1: *Development of human capacity for research activities.*T his objective aims to develop high quality doctoral programs and provide support for youth to complete PhD studies in higher education and worldwide research institutions.

Objective 2: *Development of research infrastructure.* This objective aims to establish the National Research Infrastructure Program to direct government funding in developing the necessary infrastructure based on the national priorities. Also, this objective aims to create transparency in terms of accessibility to funding given to all research institutions.

Objective 3: *Internationalization of scientific research activity.* This objective aims to enhance the joint research projects between Kosovo and other countries, and provide support for Kosovar researchers to publish reports in international journals. Also, this objective aims to develop a brain-gain program by providing funding for Kosovar researchers living abroad.

Objective 4: *Strengthening the links between science and society and economy for enhancing economic and social development.* This objective aims to bring together representatives from science and business to create an innovation programme that would fit the agenda of both parties.

Objective 5: *Excellence in research and scientific activity.* This objective aims to recognise the most prominent researchers in Kosovo yearly and establish the centre for scientific excellence.

Kosovo Education Strategic Plan (KESP) 2017-2021

KESP is the education strategic policy plan that regulates the education system in Kosovo. Since higher education institutions are one of the eligible entities for scientific research in Kosovo, KESP prioritizes the promotion of scientific research in the 7th objective related to higher education. In the 7th objective, the three below-mentioned expected results are related to the development of scientific research in higher education institutions. To reach each expected result, the strategy includes education policies and activities described below, respectively (KESP, 2017).

*7.4.Advance the infrastructure and technology for teaching, research and scientific as well as artistic work.*To reach this objective, the strategy asks for the drafting of an infrastructure needs assessment for the laboratories and equipment needed for scientific research, and provision of institutional support for the development of the required infrastructure. Also, it requires the development of plans, rules and regulation for maintenance of equipment.

*7.7.The number of scientific publications in international indexed magazines authored by the academic staff increases by 25% every year.*To reach this objective, the foreseen activities in the strategy are to analyze and develop action plans for research activities; to support the publication of reports in internationally indexed journals; to provide access to international electronic libraries and to establish a national scientific researcher registry to register the studies developed in Kosovo.

7.11.Increased participation in international higher education and scientific research programmes. To reach this objective, the strategy asks for financial support of 50 project proposals for applications to European programmes: Erasmus+ and Horizon 2020, and hold 50 informative sessions to inform the relevant actors about the research opportunities to EU programs[120].

To implement these objectives, KESP has accounted for €7,600,000 budget from the government of Kosovo mainly for capital investment; whereas, the budget of Kosovo for 2018 foresaw 3,921,500-euro capital investments in higher education in total[121]. In 2017, there were a total of 1,950,000-euro capital investments[122]. This amount is lower than anticipated since it entails other capital investments as well, and thus the implementation of this strategy is stagnating.

120 Education Strategic Plan (KESP) 2017-2021, pg. 91.
121 Law on Kosovo's Budget for 2018,pg. 39
122 Law on Kosovo's Budget for 2017, pg. 28

4.3. Scientific Research Institutions

In the absence of an established national scientific research registry that would keep track of the studies published by Kosovar researchers, the data and information presented, in regards to scientific research publications, is deficient. The information is collected separately from different sources that show the approximate number of research studies in Kosovo. Since the Law on Scientific Research Activities classifies Academy of Sciences and Arts of Kosovo; the Institute of Albanology; Institute of History and Universities as eligible entities for scientific research in Kosovo, all these entities were researched to find the scope of their published studies. The Institute of Albanology in Kosovo has published "The publications of Institute of Albanology 1968 – 2012" which contains all publication titles from the year 1968 up to 2012 – there is no updated similar report. The section 'Special Publications' enumerates 51 publications from year 2010-2012 and are all related to Linguistic, Historic and Cultural Studies – the fifth priority set by NRP.

The Kosovo Academy of Sciences and Arts has published a similar report on 2015. The report, "Academy's Editions 1976-2015", contains all publication titles from the year 1976. From year 2010 – 2015, there are approximately 65 research studies published from the Institute. Most of these studies are related to Linguistic, Historic and Cultural Studies – the fifth priority set by NRP. Around 7% of these studies are related to Environment, Energy and Natural Resources, the 1st priority in NRPK, and one of the studies is related to Food Safety, 2nd priority. The Institute of History does not have any report in terms of their publications.

Universities are the other eligible entities to conduct scientific research; moreover, scientific research and published studies in international journals are the basic job requirements for professors in UP (Statute of UP, 2004) ad professors, in general[123]. Taking this into account, the analysis of scientific research in Kosovo is done through looking at the publications in Web of Science (WoS) and Scopus[124] – international indexed journals. The table below shows the number of overall publications in Kosovo in 14 science fields, the overall co-publications and the overall Danube Region co-publications.

Science Metrix fields (most important)	KO-overall publications	share	Ko co-publications	share	KO-Danube Region co-publications	share
Agriculture, Fisheries & Forestry	25	2.73%	20	4.55%	15	4.95%
Biology	20	2.28%	14	3.18%	13	4.29%
Biomedical Research	103	11.72%	46	10.45%	37	12.21%
Chemistry	21	2.39%	16	3.64%	11	3.63%
Clinical Medicine	317	36.06%	164	37.27%	116	38.28%
Earth & Environmental Sciences	31	3.53%	9	2.05%	9	2.97%
Economics &Business	18	2.05%	10	2.27%	5	1.65%
Enabling & Strategic Technologies	56	6.37%	33	7.50%	22	7.26%
Engineering	68	7.74%	23	5.23%	19	6.27%
Historical Studies	15	1.71%	10	2.27%	10	3.30%
Information & Communication Technologies	47	5.35%	16	3.64%	7	2.31%
Mathematics& Statistics	23	2.62%	11	2.50%	7	2.31%
Physics & Astronomy	15	1.71%	9	2.05%	10	3.30%
Social Sciences	68	7.74%	31	7.05%	11	3.63

Science Metrix fields in Kosovo's (co-)publications, 2003-2013 (Source: WoS+Scopus)[125]

The table also shows that Kosovo has published 826 scientific research studies for 10 years, from 2003-2013. The

123 Law on Higher Education in Kosovo
124 and 15Lampert, D. (2015). Co-publication and co-patenting analysis among countries in the Danube Region.
125 Lampert, D. (2015). Co-publication and co-patenting analysis among countries in the Danube Region.

most publications fall under the third priority set by NPR - Medical Research – with approximately 420 publications for 10 years (Lampert, 2015). The priorities envisaged in this table are consistent to the priority spheres in Horizon2020[126]. The published related articles based on priorities are:

- 1st priority - Environment, Energy and Natural Resources: approximately 24 articles;
- 2nd priority - Agricultural Production and Food Safety: approximately 31 articles;
- 4th priority - Development of a Knowledge Based Society: approximately 79 articles from combined fields; and
- 5th priority -Linguistic, Historic and Cultural Studies: approximately 15 articles.
- The inter-connected priority - Information and Communication: approximately 47 related articles. Relative to these data, MEST in year 2017 has given three grants (EUR 23,535) for small projects and all three topics are related to medical research[127].

4.4. Scientific Research Implications

The main difficulties in conducting scientific research in Kosovo are insufficient funding support, lack of human resources and poor national and international collaboration between institutions and organizations. The insufficient funding leads to poor infrastructure, lack of laboratories and materials to conduct experiments, and lack of incentive for commercialized research. In terms of infrastructure, there is lack of sufficient space/laboratories and outdated equipment; lack of utilization of new equipment because of the absence of adequate training on the usage of the new equipment[128]. Moreover, "research institutions in Kosovo believe that the lack of finance to start new firms is the most important barrier cited by the organizations for knowledge transfer/research commercialization"[129].

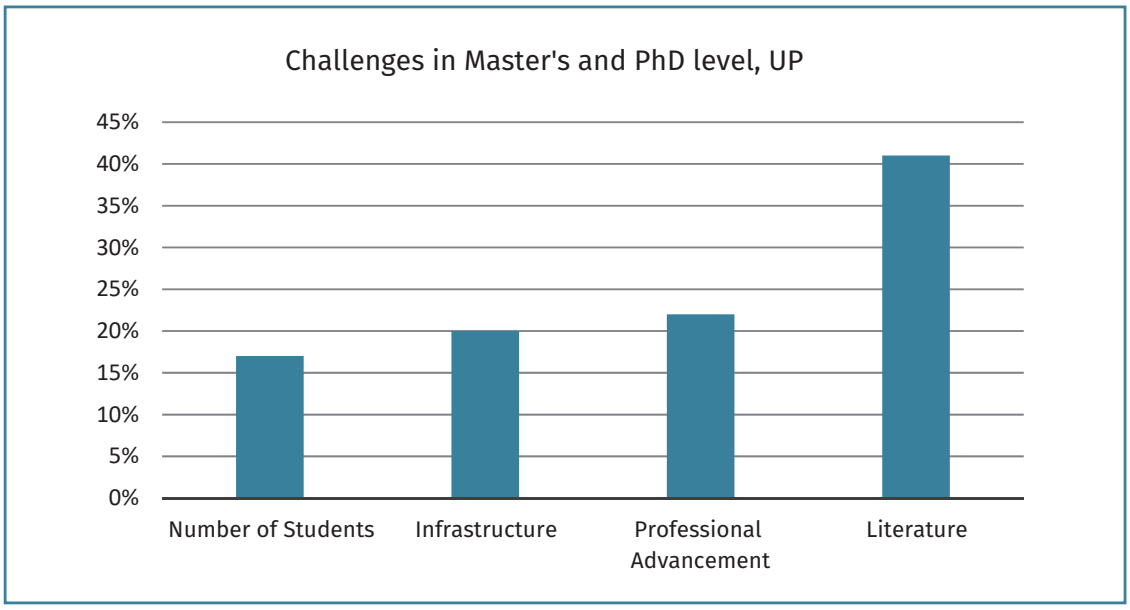
Human resource in scientific research is scarce due to professional non-advancement, brain drain and lack of funds. Per the OECD survey with research institutions, all institutions declared that there is a market shortage of scientific researchers and even when there are available researchers, there is lack of funding to hire them[130]. In addition, the local collaboration between the institutions and relevant organizations (business, technological) for exchange of knowledge and resources is not satisfactory. International collaboration faces difficulties as well; mainly Kosovo does not have the capacity to implement international research projects and there are co-financing and administrative difficulties involved[131].

Interviews in the University of Pristina

To gather a clearer picture in terms of scientific research at the University of Pristina (UP), 51 professors that teach in Master's and PhD level were interviewed about the difficulties they face conducting scientific research in UP. 51 qualitative responses provide sufficient data to convert the responses in quantitative data since there also is an inter-connection between the responses. Hence, the answers were coded in four categories: (1) High number of students; (2) Infrastructure – laboratories, equipment; (3) Professional Advancement – professional capability of the staff to conduct scientific research and (4) Literature – Albanian literature and access to electronic libraries. After coding each response to the related category, the results shown in the table below were derived.

126 Horizon2020 Work Programme for Research and Innovation 2018-2020; pg. 29
127 MEST: Decisions on Small Research Project Grant(2017)
128 WB, Western Balkans Regional R&D Strategy for Innovation, pg. 7
129 WB, Western Balkans Regional R&D Strategy for Innovation, pg. 17
130 OECD, Assessment of the Kosovo Innovation System, pg. 67
131 WB, Western Balkans Regional R&D Strategy for Innovation, pg. 28

Graph: Difficulties faced by the Professors at UP for conducting scientific research, interviews



The graph shows that, corresponding to World Bank's and OECD's report, infrastructure and professional advancement – human resources – are classified difficulties for scientific research. The professors claim that there is an absence of laboratories and equipment to conduct experiments to meet the worldwide competition in scientific research. Also, they claim that they need professional training and mentoring themselves to be able to conduct up-to-date scientific research. These claims are also backed up by the report Overview of the Higher Education System from EC[132].

The high number of students in Master's level specifically is one of the other difficulty that 16% of the professors' face; this in turn affects the mentoring time the professors spend with their mentee students. Professors claim that there is not enough time for them to mentor their students in their thesis (scientific research studies) since they have a lot of mentee students. In addition, the absence of updated literature in Albanian is another issue for conducting scientific research. The absence of literature in Albanian is a vicious cycle, reports in Albanian cannot be generated if there is an absence of materials in Albanian while the materials in Albanian would be enriched through Albanian publications. Although foreign language barriers are an issue at UP, professors claimed that their non-access to online libraries is another difficulty they face towards scientific research since they do not have access to worldwide scientific reports. To clarify this claim, the Department of Higher Education at MEST during a short meeting claimed that the Government had paid access to online libraries for professors for two years but they have barely used it. This might be because of lack of communication and transparency from the policy-makers to inform the professors of the availability of online libraries[133].

4.4.1. Information and Transparency

There is no set official system to communicate the government opportunities in regards to scientific research. Usually, the organizations and institutions that grant funding for scientific research post the calls for applications online in their websites. Searching the website of MEST, there is no clear link on the grants provided for scientific research, although KESP asks for financial support from the ministry. UP website has a Research Projects Supporting Unit with the main aim of gathering funds for research. Currently, this Unit has published four links where researchers can gather funding[134] that are exclusively from Germany.

During the conducted interviews at UP, the professors also claim dissatisfaction in terms of transparency for the research opportunities UP has. Respondent 23 claims that there is no transparency in the distribution of funds, by saying:

> *23. "budget allocation at departmental level is very incorrect [unfair] and more budget is allocated to those that are closer to management."*

Also, respondent 39 claimed that they have no support from the respective faculty in terms of funds for the equip-

132 Overview of the Higher Education System, pg. 23
133 Needs Assessment Presentation in MEST by Gresa Statovci, September 2018
134 Research Projects Supporting Unit (UP): https://www.uni-pr.edu/page.aspx?id=2,16

ment needed to conduct the experiments, by saying:

> *32. "faculty of applied sciences requires more funding for scientific research in the laboratory or [to conduct] experiments. We do not have any support from the Faculty for these necessities."*

As per the international open calls for grants, they are usually posted online when open to public and the targets and objectives are clearly stated[135].

4.4.2. Implementation, Monitoring and Evaluation

Even though NRP and KEST include substantial education policies to improve scientific research in Kosovo, the three policy cycles - implementation, monitoring and evaluation - do not reach the desired level by remaining under-developed[136]. Although both documents include activity plans and objectives which is a good strategy for the process of implementation, the latter is poor and does not meet the set aims. There is no consistent system in evaluating and monitoring the implementation of these policies; all the evaluations are conducted in an unsystematic manner.

In 2014, Centre for Political Courage (CPC), published the evaluation report on "The state of implementation of the National Research Program in the Republic of Kosovo"[137]. This report evaluates the scope of meeting the objectives of NRP up until the year 2014 – there is no consistent reporting of this kind for later years. The findings of this report show that the implementation stage of the NRP policies is slightly poor. For instance, first, to improve the human resources difficulty, it was planned for 50 researchers to be supported by the government to pursue their PhD studies abroad by 2015, while in 2014 zero researchers gained this support. Second, to improve the infrastructure, it was planned for 10 laboratories to be built by 2015 from the government support, while zero laboratories were built – 20 laboratories were built with the support of the international organization Erasmus+. Thirdly, to improve the internationalization of scientific research, it was planned for the government to support a considerable number of researchers to publish in worldwide known journals, while only 8 researchers were supported by MEST to publish in international journals.

Even after these findings, there is no consistent evaluation report that would also serve as a monitoring mechanism. Hence, the scientific research in Kosovo not only lacks in the implementation phase – mainly because lack of funding and weightiness from the Government of Kosovo - but it also remains under-developed in evaluation and monitoring phase. This in turn, has a negative impact in the development of this sphere.

4.5. Policy Recommendations for Kosovo

The previous sections show that although Kosovo has designed policies to improve scientific research in Kosovo, the main stagnation lays in the implementation and evaluation/monitoring phase. Hence, the policy recommendations in this brief are considerably related to the implementation and evaluation/monitoring phase.

4.5.1. Options/Alternatives

1. **Provide scientific research funds to support researchers.** This policy is self-evident since most of the issues concerning the under-development of scientific research in Kosovo are based on the insufficient funding. For this policy to be successful, the Government should provide 0.7%, at least, from the local annual budget[138] and be transparent towards the grant opportunities the researchers will have. The activities to meet this objective, as planned in NRP, are: establishment of up-to-date Doctoral programmes and individual PhD and post-doc grants for research. This policy can be better implemented by the drafting of a Law on Research Funding. This alternative might have these policy constraints:

Budget: NRP calculated the expenditure of EUR140,000 per year to implement these activities. This sum can be covered from the local annual budget.
Time: The establishment of Doctoral Programs takes time due to the accreditation, but for research grants and proposals there is no time constraint.
People: Human resources in one of the constraints in scientific research, so it remains a policy constraint since

135 HERAS Kosovo: https://www.heraskosovo.org/research-grants/
136 WB, Western Balkans Regional R&D Strategy for Innovation, pg. 30
137 CPC, The state of implementation of the National Research Program in the Republic of Kosovo, pg. 4
138 Law on Scientific Research Activities:
https://www.kuvendikosoves.org/common/docs/ligjet/Law%20on%20Scientific%20Research%20Activities.pdf

there might not be eligible researchers to use the grants.
Political Capital: The generating of funds from the annual budget requires for political will and support. Since up until now, only 0.1% of the budget were provided for scientific research, it can be assumed that there are other budget priorities in the Government of Kosovo.

2. **Provide additional funding to build new modern laboratories and buy new equipment.** This policy is also derived from the difficulties the scientific research sphere entails. Building new modern laboratories and buying new equipment is vital to the commercialization of research studies; hence, making them meet the worldwide competition and being useful in fostering innovation in Kosovo. The activities to meet this objective, as planned in NRP, are: the funding of national research-infrastructure network, funding of equipment, and access to online libraries. Like the first alternative, the Government should provide funds to meet this policy alternative. This alternative might have these policy constraints:

Budget: NRP calculated the expenditure of EUR1,450,000 per year to implement these activities. The cover of this expenditure from the government, considering the trend of funding in scientific research, is questionable.
Time: No time constraint – the procurement of these materials and services does not require a lot of time.
People: Human resource is also an issue for this alternative since there is lack of expertise in using the new and modern equipment. Hence, this will take additional time for training professors and money (EUR10,000 based on NRPK).
Political Capital: As the above alternative, the implementation of this policy requires for a lot of political will to agree to provide more funding from the Government.

3. **Establish a transparent scientific research information system.** This system should include two components: (1) the call for applications and grant opportunities in Kosovo from all the institutions and (2) publication of the titles and scientific research reports written by Kosovar researchers. This policy meets the requirement of transparency and will serve as a data-gatherer for the studies published. In addition, it will also serve as a monitoring and evaluation mechanism for the scientific research publications. This alternative might have these policy constraints:

Time and budget: The establishment of this system does not require a lot of time and based on NRP it requires EUR100,000 for the first year and EUR50,000 for the following years for managing and maintenance purposes.
People and Political Capital:This policy alternative does not have major human resources or political capital constraints.

4. **Launch a collaborative innovation program between the institutions, businesses and international consortiums.** Since there is a mismatch between the scientific research reports/innovation and businesses[139], a collaborative specific innovation program should be launched. Moreover, this program should also include the international consortiums which will enhance the internationalization and collaboration/assistance from the international sphere. This alternative might have these policy constraints:

Budget: The launching and implementation of this program could cost up to EUR1,000.000based on NRP.
Time: There are no time constraints.
People: Professional and eligible human capital is needed for the implementation of this program; hence, this remains the biggest policy constraint.
Political Capital: Despite the budgetary requirement, this policy does not have another political capital constraint since it is in line with the objectives of the development of Kosovo.

4.5.2. Recommendations/Solutions

- Establish a transparent scientific research information system which includes two components: (1) the call for applications and grant opportunities in Kosovo from all the institutions and (2) publication of the titles and scientific research reports written by Kosovar researchers.
- Establish a working and managing group for the launching of a collaborative R&D innovation program between the institutions, businesses and international consortiums. This program should have specific goals and activities set yearly, and be monitored and evaluated consistently.

139 Bartlett, W et al. pg. 58

- Draft a needs assessment for the modern laboratories and equipment needed to conduct practical up-to-date experiments. The needs assessment should include the budget required, the follow-up trainings and rules/regulations for the usage of new laboratories and equipment.
- Establish a brain-gain fund and program to attract foreign researchers and especially Kosovar researchers working abroad to conduct scientific research studies related to Kosovo.
- Develop a consistent quality assurance and evaluation process which evaluates and monitors the grantees and the compatibility of their studies towards the national scientific research objectives.
- Set graduation criteria for PhD students and professors not only based on how much they publish but where they publish, i.e. every department creates a curated list of the accepted conferences for advancement/graduations, with the top conferences weighting more.
- Organize awareness and advertising campaigns to attract national and international Master's students to pursue PhD programs. Additionally, establish of up-to-date Doctoral programmes that match with Kosovo's socio-economic dynamism.

Annexes:

A. List of interviewed institutions:

Institutions
Ministry of Education, Sport and Youth
Agency of Scientific Research and Innovation
Academy of Sciences of Albania
HEI (Private)
European University of Tirana
University of New York Tirana
“Marin Barleti” University
Polis University
HEI (Public)
University of Tirana
“Aleksander Moisiu” University
“Aleksandër Xhuvani”, University
Agricultural University of Tirana
Think-tank organizations
Albanian Institute of Public Affairs (AIPA)
IDRA
Perform
National Erasmus+ Office Albania

Table. 1 Legal Framework in WBC for Education and Science

WBC	Albania	Kosovo	Serbia	BiH[16]	Montenegro	FYR Macedonia
LEGAL FRAMEWORK	Law no. 80/2015 "On Higher Education and Scientific Research in Higher Education Institutions in the Republic of Albania"; A working group is established Order No.297 date 1.06.2016 for the preparation of the law on science and technological development. Law on Academy of Science no. 9655 (2006).	Law on [17]Higher Education in the Republic Kosovo No.04/L-037 (2011); Law No. 04/L-135 on Scientific Research Activities. (2013)	The Law on Higher Education of the Republic of Serbia (Official Gazette of the Republic of Serbia, No 88 /2017); Law on Scientific and Research Activity ("Official Gazette of the Republic of Serbia", No.110/05, 50/06 – correction, 18/10 and112/15)	Framework Law on University (Higher) Education in Bosnia and Herzegovina "Official Gazette BIH" no.59/2007: Framework Law [18]on Basics of Scientific-Researching Activity and Coordination of Internal and International Scientific-Researching Cooperation of Bosnia and Herzegovina No. 43/09	Law on Higher Education (2014); Law on scientific research activity No. 80 of 31 December 2010;	Law on Higher Education (May 2018); Law on Scientific Research Work 53/2016
STRATEGIC DOCUMENTS	National Strategy of Science, Technology and Innovation 2009–2015 (2009); National Strategy of Science, Technology and Innovation 2017-2022	National Research Programme of the Republic of Kosovo (2010)Strategy on Scientific/ Artistic Research and Development Activities 2011-2015 Kosovo Innovation Strategy 2016-2020	Strategy for education development in Serbia 2020 (2012); Strategy on Scientific and Technological Development of the Republic of Serbia for the period 2016-2020 – Research for Innovation(2016)	Strategy of educational development of RS for a period 2015 - 2020 (in 2015); Strategy for the development of science in BA 2010-2015	Strategy of Development and Financing of Higher Education in Montenegro 2011-2020 Strategy of Scientific-Research Activity (2017–2021) with the Action Plan (2017); National Roadmap for the European Research Area (ERA) (2016); Montenegrin Research Infrastructures Roadmap (2014–2020) (2015);	Innovation Strategy of the Republic of Macedonia for 2012-2020 National Programme for Development of Education 2005-2015

Annex B.

B. Human Development Index (Period 1980-2013)[19]

HDI Rank (from 187 countries in global level)	Country	1980	1985	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013
51	Montenegro	..	..	..	..	..	0.717	0.730	0.744	0.757	0.768	0.774	0.774	0.774	0.774
77	Serbia	..	..	0.646	0.668	0.686	0.691	0.692	0.693	0.697	0.697	0.695	0.695	0.695	0.695
84	The former Yugoslav Republic of Macedonia	..	..	..	..	..	0.597	0.603	0.609	0.636	0.639	0.642	0.642	0.642	0.642
86	Bosnia and Herzegovina	..	..	..	..	..	0.653	0.651	0.648	0.652	0.649	0.650	0.655	0.655	0.655
95	Albania	0.541	0.528	0.537	0.529	0.565	0.595	0.596	0.598	0.600	0.601	0.602	0.609	0.609	0.609

Annex.C

Country	GERD % of GDP	GERD, Million USD PPPs	GERD % of GDP	GERD, Million USD PPPs	GERD % of GDP	GERD, Million USD PPPs	GERD % of GDP	GERD, Million USD PPPs	GERD % of GDP	GERD, Million USD PPPs	GERD % of GDP	GERD, Million USD PPPs	GERD % of GDP	GERD, Million USD PPPs	GERD % of GDP	GERD, Million USD PPPs	GERD % of GDP	GERD, Million USD PPPs
	Year 2007	Year 2008	Year 2009	Year 2010	Year 2011	Year 2012	Year 2013	Year 2014	Year 2015	Year 2017								
Albania	0,10	20,0	0,15	38,5	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a		n/a	n/a	n/a	n/a	n/a
Serbia	0,62	512,8	0,71	630,4	0,87	751,2	0,74	657,2	0,72	662,0	0,91	835,5	0,73	697,9	0,77	738,5	0,86	845,6
FYR of Macedonia	0,17	36,0	0,22	50,6	0,20	44,7	0,22	51,5	0,22	55,4	0,33	82,3	0,44	115,6	0,52	143,5	0,45	129,7
Montenegro	1,15	89,8		n/a	n/a	n/a	n/a	n/a	0,32	27,9	n/a	n/a	0,37	34,6	0,36	34,7	0,38	37,7
BiH	0,03	8,3	0,02	6,5	0,02	7,30	n/a	n/a	n/a	n/a	0,27	96,9	0,32	122,1	0,26	102,6	0,22	88,6
Kosovo	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Source:https://www.innovationpolicyplatform.org/

Note: The Innovation Policy Platform (IPP) is jointly developed by the OECD and the World Bank to support policy analysis in the field of science, technology and innovation.

Table 23 Comparative breakdown of projects received by WBC for FP7 and Horizon 2020

Western Balkan Countries

	Serbia				Albania				Bosnia and Herzegovina				The FYROM				Montenegro				Kosovo			
	No of Institutions (applicants)	No of contributions	Role (coordinator/participant)	Amount in EUR	No of Institutions (applicants)	No of contributions	Role (coordinator/participant)	Amount in EUR	No of Institutions (applicants)	no of contributions	Role (coordinator/participant)	Amount in EUR	No of Institutions (applicants)	no of contributions	Role (coordinator/participant)	Amount in EUR	No of Institutions (applicants)	no of contributions	Role (coordinator/participant)	Amount in EUR	No of Institutions (applicants)	no of contributions	Role (coordinator/participant)	**Amount in EUR**
FP7	136	319	41 as coordinator	34˙380˙631	21	38	1 as coordinator	1˙898˙160	30	47	4 as coordinator	2˙294˙093	44	99	14 as coordinator	7˙143˙921	13	51	9 as coordinator	3˙133˙222	2	2	0	**92˙400**
Horizon 2020	115	234	29 as coordinator	60˙285˙253	15	16	0	1˙970˙156	34	42	5 as coordinator	3˙886˙309	27	45	4 as coordinator	5˙280˙063	12	20	3 as coordinator	1˙393˙382	7	8	0	**676˙035**

Source: https://cordis.europa.eu/projects/result_en?q=(contenttype%3D%27project%27%20OR%20/result/relations/categories/resultCategory/code%3D%27brief%27,%27report%27)%20AND%20relatedRegion/region/euCode%3D%27AL%27 https://www.fabiodisconzi.com/open-h2020/per-country/al/index.html

Table 24 Erasmus +, KA2- Capacity Building in Higher Education Albania (period 2015-2017)

	Public HEI														Private HEI							Other Institutions		
	University of Tirana	Agricultural University of Tirana	Polytechnic University of Tirana;	University "AleksanderMoisiu" of Durres	University "LuigjGurakuqi" of Shkodra	University "AleksanderXhuvani" of Elbasan	University "Fan Noli" of Korca	University "Ismail Qemali" of Vlora	University of Sports in Tirana	University of Arts in Tirana	University of Medicine in Tirana	University Pavaresia in Vlora	University "EqeremCabej" of Gjirokastra	European University of Tirana	EPOKA University	POLIS University	Albanian University	University of New York Tirana	Marin Barleti University	UNIZKM	Ministry of Education and Sports	Albanian Radio Television	CHAMBER OF COMMERCE & INDUSTRY TIRANA
Partner institution in financed projects	9	4	4	3	3	3	3	2	1	1	1	1	1	7	3	2	1	1	1	1	3	1	1
Total no: 57 as Partner institutions in 17 financed projects KA2	36	16	5																				
Coordinator	2	0	0																				

Source: Erasmus + Office Albania; web:http://erasmusplus.al/

Annex D.

Albania

Ranking	World Rank	University	Presence Rank*	Impact Rank*	Openness Rank*	Excellence Rank*
1	4387	University of Tirana	3790	5656	9247	4250
2	4667	Epoka University	1136	7038	5645	4895
3	5133	Agricultural University of Tirana	14417	13148	4760	4121
4	5484	Polytechnic University of Tirana	11351	11585	9066	4076
5	6856	University of Vlora	10130	13141	7310	4895
6	7014	University of New York Tirana	16557	13217	5998	5051
7	8811	University Europian i Tiranes	5535	14274	6107	5562
8	9017	University Eqrem Çabej Gjirokaster	17784	17161	6932	4895
9	11144	Universiteti Bedër	3192	12968	8497	6008
10	12314	Center of Albanological Studies	14876	9911	10778	6008
11	12339	University Luigj Gurakuqi Shkoder	7837	13748	8864	6008
12	12917	University Aleksander Xhuvani Elbasan	12186	14932	8246	6008
13	12951	University Aleksandër Moisiu Durres	11822	13735	9384	6008
14	13635	Canadian Institute of Technology	19898	14263	9247	6008
15	14444	University Marin Barleti	14776	16673	8474	6008
16	14955	University of Medicine Tirana	13729	18399	7310	6008
17	16354	University POLIS /	12169	15390	10778	6008
18	16487	Università Nostra Signora del Buon Consiglio Tirana	7471	15836	10778	6008
19	16557	Fan Noli University Korçe	8123	15896	10778	6008
20	17581	Universiteti Metropolitan Tirana	7739	20500	8910	6008
21	18140	University of Arts	3999	18138	10778	6008
22	18889	University Luarasi	13943	18393	10778	6008
23	18927	Academy of Sports and Physical Education Vojo Kushi	16557	20946	9512	6008
24	19078	Academy of Film & Multimedia MARUBI	19445	18199	10778	6008
25	21377	University Pavaresia	18653	21026	10778	6008
26	22333	Nehemia University Pogradec	21266	21920	10778	6008
27	22648	Mediterranean University of Albania	22140	22281	10778	6008
28	24073	Albanian University (University Ufo Dental)	18896	24135	10778	6008
29	24548	Aldent University / Universiteti Aldent	21174	24521	10778	6008
30	24860	Tirana Business University	19129	24986	10778	6008
31	25699	ISSAT Institute / SHLUP ISSAT	25714	25440	10778	6008
32	26485	Shkolla e Lartë Private e Edukimit	23272	26488	10778	6008
33	26506	International University of Tirana	27681	25901	10778	6008
34	26615	Private Professional College New Generation	26322	26430	10778	6008
35	27954	University College of Business	16819	27985	10778	6008

Serbia

ranking	World Rank	University	Presence Rank*	Impact Rank*	Openness Rank*	Excellence Rank*
1	1028	University of Belgrade	284	996	10778	353
2	1096	University of Novi Sad /	452	1813	1602	1059
3	1519	University of Niš	770	3358	1921	1265

Macedonia

ranking	World Rank	University	Presence Rank*	Impact Rank*	Openness Rank*	Excellence Rank*
1	1628	Ss Cyril and Methodius University Skopje	713	2426	2387	1724
2	3457	University Goce Delcev Stip	1099	7682	2836	3547
3	4138	South Eastern European University	1804	8463	4705	4121

Bosnia and Herzegovina

ranking	World Rank	University	Presence Rank*	Impact Rank*	Openness Rank*	Excellence Rank*
1	1676	University of Sarajevo / Univerzitet u Sarajevu	250	1872	1380	2331
2	3411	University of Banja Luka / Univerzitet u Banjoj Luci / Универзитет у Бањој Луци	985	7257	3956	3404
3	3579	International University of Sarajevo	421	6876	4070	3805

Montenegro

ranking	World Rank	University	Presence Rank*	Impact Rank*	Openness Rank*	Excellence Rank*
1	3348	University of Montenegro	1529	5927	10475	2138
2	10006	University of Donja Gorica	4744	13570	5423	6008
3	11224	Mediterranean University Montenegro	6518	13150	8038	6008

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- http://www.mrk.hu/wp-content/uploads/2018/05/New-initiatives-in-the-Serbian-higher-education-system-%E2%80%93-Prof.-Vladimir-Bumba%C5%A1irevi%C4%87.pdf
- http://www.perform.network/en/news-and-events/82_western-balkans-research-foundation-to-be-established
- https://supporthere.org/page/higher-education-kosovo http://www.ehea.info/pid34249/members.html
- https://ec.europa.eu/eurostat/statistics-explained/index.php/R_%26_D_expenditure
- https://ec.europa.eu/research/fp7/index_en.cfm?pg=understanding
- https://h2020-albania2018.service-facility.eu/docs/presentations/horizon2020-costs.pdf
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- http://www.shanghairanking.com/World-University-Rankings/University-of-Belgrade.html
- Policy Mix Peer Review Report on Serbia; Danube-INCO.NET
- https://danubeinco.net/object/document/18797/attach/D4_32__Policy_Mix_Peer_Review_Serbia_final.pdf

140 The participating countries are: Croatia, Greece, Italy, Slovenia, Albania, Bosnia and Herzegovina, Montenegro and Serbia.

- http://www.schumanassociates.com/newsroom/412-country-digest-western-balkans-albania-2
- https://www.euraxess.rs/serbia/information-assistance/research-funding
- http://www.arsimi.gov.al/fondi-i-ekselences/
- http://www.financa.gov.al/buxheti-2017/
- http://www.parlament.al/Procesverbale

(Footnotes)

1. The Ministry of Science was merged into the Ministry of Education, Science and Technological Development on 14 March 2011
2. http://www.fbihvlada.gov.ba/english/ministarstva/obrazovanje_nauka.php
3. Note: The Innovation Policy Platform (IPP) is jointly developed by the OECD and the World Bank to support policy analysis in the field of science, technology and innovation.
4. Source: the above data: Erasmus +National Office Tirana, contact person Oltion Pengu
5. Country fact sheets, 36 Member States and1 Cooperating State, Data collected in August 2016 ,
6. https://ec.europa.eu/research/mariecurieactions/resources/document-libraries/msca-country-profile-associated-countries-2018_en
7. https://ec.europa.eu/research/mariecurieactions/sites/mariecurie2/files/msca-country-profile-kosovo-2018_en.pdf
8. In MSCA Kosovo is in the group of third countries
9. For the above data see: From University to Employment: Higher Education Provision and Labor Market Needs in the Western Balkans Synthesis Report .EC, 2016, ISBN 978-92-79-64428-3
10. SCImago, (n.d.). SJR — SCImago Journal & Country Rank [Portal]. Retrieved Date you Retrieve, from http://www.scimagojr.com https://www.scimagojr.com/countryrank.php
11. The h-index is an author-level metric that attempts to measure both the productivity and citation impact of the publications of a scientist or scholar. The index is based on the set of the scientist's most cited papers and the number of citations that they have received in other publications. The index can also be applied to the productivity and impact of a scholarly journal as well as a group of scientists, such as a department or university or country.
12. Source: the above data: Erasmus +National Office Tirana, contact person Oltion Pengu specialist
13. The interview with PhD. Albana Halili was conducted on 31 July 2018
14. Albanian 2018 Report, EC, Strasbourg 17.04.2018, SWD (2018) 1511 final, pg.85
15. The interview with PhD. Eltion Meka was conducted on 16 August 2018
16. http://www.cip.gov.ba/en
17. https://masht.rks-gov.net/uploads/2015/06/02-ligji-per-arsimin-e-larte-anglisht.pdf https://www.kuvendikosoves.org/common/docs/ligjet/Law%20on%20Scientific%20Research%20Activities.pdf
18. Note: In Republic of Srpska (RS), the field of science and research and its functioning is regulated by a revised Law on science and research (Official Gazette of Republika Srpska", No. 112/07), as a field of the general interest for RS.
19. http://hdr.undp.org/en/content/education-index

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