

Screening report

Montenegro

Chapter 25 – Science and Research

Dates of screening meetings:

Explanatory and bilateral meeting: 24-25 September 2012

I. CHAPTER CONTENT

The *acquis* in Chapter 25 – Science and Research – requires Member States to ensure the necessary implementing capacities to pursue the EU objectives and activities in the field of research and technological development. Implementation capacity relates to the existence of conditions necessary for the effective participation in the EU programmes on research and innovation including the necessary administrative capacity and capacity building on research and innovation to facilitate integration into the European Research Area (ERA), contribute to the Innovation Union flagship (IU) and the Europe 2020 strategy in general. In this context, the EU target on investing 3% of GDP in research, strengthening the human capital building, modernising the infrastructure and creating the right framework conditions to contribute to the Innovation Union are important indicators to measure progress.

Member States need to adhere to and implement specific science and research objectives and activities as developed by the open method of coordination. The *acquis* in this chapter does not require transposition of EU rules into the national legal order.

With respect to cooperation on research and innovation both under the EU and Euratom Framework programmes, the EU has concluded a number of bilateral and multilateral agreements on respectively science and technology and nuclear research.

For the implementation of the Seventh EU Framework Programme for research, technological development and demonstration activities (2007-2013) (FP7), the Commission is assisted by specific FP7 Committees. The ERA is governed by the European Research Area Committee (ERAC) and a number of ad hoc governance bodies.

Finally, a number of ad hoc decisions concerning research in specific areas exist, such as on agricultural research governed by the Standing Committee for Agricultural Research (SCAR), the Research Fund for Coal and Steel and actions and undertakings on the basis of Article 185¹ and Article 187² of the Treaty on the Functioning of the European Union (TFEU) aiming at strengthening research efforts on specific research issues or topics.

II. COUNTRY ALIGNMENT AND IMPLEMENTATION CAPACITY

This part summarises the information provided by Montenegro and the discussion at the screening meeting.

Montenegro stated that it can accept the *acquis* regarding Science and Research and indicated that it does not expect any difficulties to implement the *acquis* by accession.

¹ Article 185 of the Treaty on the functioning of the European Union (ex Article 169 TEC) allows the EU to participate in RTD programmes undertaken by several Member States.

² Article 187 of the Treaty on the functioning of the European Union (ex Article 171 TEC) allows the EU to set up any structure necessary for the efficient execution of research, technological development and demonstration programmes. It allows a wide range of possible implementation structures for EU research and development programmes, of which the most prominent is a 'joint undertaking'.

II.a. Policy on Research and Innovation

Institutional framework

The Ministry of Science (MoS) is the main body in charge of science and research in Montenegro both for funding research activities and designing and implementing the strategy on research and innovation activities. The Government is assisted by the Council for Scientific Research Activities which has an advisory role in preparing and proposing science and research strategies to the Government and consults for that purpose with all relevant stakeholders. The Council is an independent body under the administrative management of MoS (and Ministry of Education and Sports) consisting of 11 members: four representatives from the public administration (science, education, economy and finance) and seven experts from different scientific research areas.

National funding

The funding of research activities is governed by the Law on Scientific Research Activities (2008 – 2016) setting the following priorities:

- To develop further Montenegrin scientific research community with the aim of increasing efficiency and developing a knowledge-based society;
- To facilitate integration into European Research Area and strengthen involvement in the EU Framework programmes and other regional and international programmes; and
- To increase the competitiveness of the Montenegrin economy by facilitating access to research and innovation outcomes and enhance links between science, education and economy.

Montenegro has identified ten priority areas for research funding. The areas identified are very similar to the thematic areas specified in FP7. All funding is done on a competitive basis through calls for proposals and evaluated by national and international experts taking into account the relevance, scientific excellence and management of the projects. The duration of the project is three years. The success rate is 52.5% (for calls launched in 2011). The time to grant is four to five months maximum. In addition to funding thematic research, support is granted for specific programmes such as for PhD students and young scientists; procurement of new equipment or regional cooperation.

For the calls published in 2011, the overall budget amounted to €5 million. Besides the funding of research by MoS, also other Ministries (and notably the Ministry of Health, Agriculture and Rural development, Information society and Telecommunications, Sustainable development Development and Tourism, Education and Sports and Culture) finance research activities. In 2012 the MoS has organised joint calls to ensure a better coordination and leverage of the national funding.

International Scientific and Technological Cooperation

Montenegro has concluded scientific and technological cooperation agreements with third countries in particular with its Balkan neighbours and is in the process of concluding more international agreements in the near future. Montenegro has submitted the complete list of its international agreements on Science and Technology (S&T) including a summary of the agreements signed in English.

At regional level Montenegro is cooperating under COST (European Organisation for Science and Technology), EUREKA and NATO.

II.b. Framework Programmes

EU Framework Programme

In the Sixth Framework Programme for Research and Technological Development (FP6), Montenegro participated as part of the State union Serbia and Montenegro as third country. After having gained independence in May 2006, Montenegro participated first in FP7 as a third country and as from 1 January 2008 it became associated to FP7 through a Memorandum of Understanding.

Montenegro has nominated representatives in the main FP7 management committees and has a well-developed network of National Contact Points (NCPs) including representatives from the Ministry, universities and private sector. Montenegro organises at regular intervals FP7 info-days and promotion activities and participates actively in FP7 events organised in the region.

EURATOM Framework Programme

Montenegro stated that it is a non-nuclear country as nuclear energy is not used in the country. The only applications are for medical purposes.

Some nuclear research is carried out at the University of Montenegro (Faculty of Natural Sciences and Mathematics, Department of Physics) involving about 11 researchers.

Montenegro signed in 2008 the Country Programme Framework (CPF) with the International Atomic Energy Agency (IAEA) which led in the subsequent years to development of a legal framework, establishment of a Regulatory body, construction of a National storage for low and intermediate activity radioactive waste and establishment of the Nuclear Medicine department in the Clinical Centre of Podgorica.

Montenegro has expressed interest in cooperation under the Euratom Framework programme for certain activities.

Cooperation with Joint Research Centre

Montenegro is cooperating with the Joint Research Centre (JRC) both in the form of direct and indirect actions.

Rules of Ethics

Montenegro stated that it is complying with the rules of ethics as set in the rules of participation under FP7.

For the research funding at national level, publicly funded research in Montenegro is subject to specific rules of ethics which are set out by the Constitution and the Law on Scientific Research Activities and several other special legal acts, including by the statutes of the three Montenegrin universities (University of Montenegro, University “Mediterranean” and University “Donja Gorica”). Medical research is monitored and reviewed by ethical councils; violations are to be brought before the Council of Honour. How to review the compliance with ethical standards is currently under revision to ensure the most independent and objective review of the ethical standards irrespective of the scientific review.

II.c. Innovation Union including European Research Area

Actions relating to the 3% objective

Montenegro stated that it is fully aware of the importance of investing in research in order to become a knowledge-based society and to increase its economic competitiveness.

The national budget for research is determined by the Law on Budget of Montenegro. The funding for research and innovation (R&I) comes mainly from the MoS and other Ministries, public research institutes and the private sector. The level of investment in research increased from 0.13% in 2010 to 0.43% of GDP in 2011 (or € 13, 3 million) based on the latest report established by the national statistical office MONSTAT.

Montenegro intends to raise the level of investment in research to reach 1.4% in 2016 through efforts at national level. 70% of the expected funding is to come from the public sector and 30% from the private sector. Actions will be taken to stimulate investment by the private sector through tax measures and by stimulating public and private partnership through establishment of the first Centre of Excellence and Scientific and Technological Park in Montenegro. For this purpose, Montenegro concluded a loan with the World Bank.

Improving statistics on science and technology has been identified as a priority area by MONSTAT and is included in the 2012/13 National Programme for support by the Pre-Accession Instrument (IPA) to be implemented in 2014-2015.

Montenegro has nominated a representative in the European Research Area Committee (ERAC) and attends regularly the meetings as an observer.

Actions relating to mobility of researchers

Montenegro stated that it is well aware of the importance to strengthen the human capital building and follows for that purpose closely the actions taken at EU level for that purpose both under the Steering Group for Human Resources and Mobility (SGHRM) and the Human Resources Strategy for Researchers (HR4R). Montenegro has nominated delegates in both ERA Groups responsible for analysing and implementing the human resource strategies.

The number of scientists increased from 800 in 2009 to 1.191 in 2011³. Montenegro has adopted an Action Plan on mobility for the period 2011-2012 aiming at improving outgoing and incoming mobility and at strengthening inter-sectoral cooperation. A further Action Plan (2012-2013) has been adopted by the Government in March 2012 aiming at improving the working conditions for researchers; strengthen cooperation between industry and research and improving training and skills of the researchers.. Montenegro is also engaged in the mapping of the researchers working outside Montenegro (diaspora). Montenegro offers extra funding to research projects that bring in scientists to the country and train scientists and broaden the knowledge base.

All three Montenegrin universities have signed the European charter for Researchers and the Code of Conduct for their recruitment.

The MoS is participating actively in the EURAXESS service network that provides practical assistance to mobility of researchers and their families. The University of Montenegro is the bridgehead organisation and is demonstrating good administrative capacity in the functioning of the national portal.

³ Source: Register of Ministry of Science of Montenegro.

Research infrastructure

Montenegro has started with a national mapping of its research infrastructure and is, as a matter of priority, concentrating efforts on the infrastructure relating to Information and Communication Technologies (ICT), seismology and marine biology.

Montenegro is a member of the European Research Forum on Infrastructures (ESFRI). Montenegro intends to complete the mapping of its research infrastructure according to the ESFRI standards.

Actions relating to Science in Society

A number of specific actions are in place in Montenegro to raise public awareness and improve understanding of the importance which science plays in society. These are mainly carried out by the MoS and the three universities and include the annual Festival “Open Days of Science” as well as the annual Researcher's Night as part of a European action within the FP7 People Programme.

In addition, the MoS annually grant five awards for the achievements in science for young and outstanding researchers.

As far as gender is concerned, around 46% of the total number of scientists is women. However, the employment of women at higher level (top academic posts and management functions) is relatively low (e.g. only in about 21% of the licensed research institute, directors/deans are women). The 2008-2012 Action Plan for achievement of gender equality foresees proposals for measures aimed at promoting women in science.

Actions relating to Innovation Union

The Strategy for Development of Small and Medium-Sized Enterprises (2011-2015) contains several measures aiming at stimulating the private sector to be more competitive including through support for start-ups and creating clusters. A voucher scheme for innovative SMEs has been established granting support to companies wanting to engage in innovative products or/and services, business innovative processes and innovation in the business organisation.

The MoS is supporting innovation through several national instruments such as award for the most successful innovator, creation of a pilot Centre of Excellence to connect knowledge, research and innovation and support for technology oriented companies.

A European Information and Innovation Centre in Montenegro (EIICM) has been established as part of the Enterprise Europe Network (EEN).

Transfer of Knowledge and Intellectual Property Rights (IPR)

Montenegro indicated that it has adopted all laws and regulations on Intellectual Property Rights and is since 2006 a member of the World Intellectual Property Organisation (WIPO).

Scientific research institutions and project managers are obliged to present the result of national funded projects in public. IPR resulting from a publicly funded project are owned by the person that has generated the research result. Montenegro stated that the number of patents given to private sector or researchers is, however, still very low.

Montenegro has adopted a National Strategy on IPR (2012-2015) aiming, amongst others, at raising awareness on the importance of IPR issues and facilitating management of IPR.

Montenegro has nominated its observer in the Working Group on Transfer of Knowledge (a sub group of ERAC).

Bio-economy and Agricultural Research

The land available for agriculture accounts for 38% of the territory and food production represents one fifth of Montenegro's GDP. Research on agriculture is regulated in a separate chapter of the National Law on Scientific Research Activities identifying several specific research activities on biotechnological and agricultural research with as overall aim establishing a bio-economy. For this purpose actions to promote sustainable development and food production are being considered and the promotion and protection of Montenegrin products.

Montenegro is an observer in the Standing Committee on Agriculture Research (SCAR) since 2008.

European Research Fund for Coal and Steel (RFSC)

Montenegro produces around 380,000 tons of crude steel which amounts to around 310,000 tons of finished products annually. There is no production of iron or coke. The coal production amounts to around 1.8 million tons per year. Coal is the only energy resource exploited in Montenegro and dominantly (around 90%) used for electricity generation.

Whilst there is no specific research fund for coal and steel in Montenegro, research is carried out at the University of Montenegro - Faculty of Metallurgy and Technology.

Article 185 and 187 Initiatives

Montenegro recognises the importance of participation in joint programming in research at national and international level. It has already participated in 6 projects and notably in the SEE-ERA.NET (2007-2009) and the SEE.ERA.NET PLUS (2010-2012) both funded under FP7..

Montenegro confirmed its commitment to further strengthen the capacity in joint programming through increased public-private partnerships and involvement of the business sector. Montenegro has expressed interest in the Eurostar undertaking aiming at stimulating research by research intensive and high tech SMEs.

III. ASSESSMENT OF THE DEGREE OF ALIGNMENT AND IMPLEMENTING CAPACITY

Overall, Montenegro has reached a good level of alignment with and capacity to implement the *acquis*. In order to prepare for the full application of the *acquis*, Montenegro will need to ensure continuous and adequate availability of budgetary resources and to continue encouraging the participation of research entities and industry in research projects. Montenegro furthermore needs to undertake actions to increase and improve the research facilities and to ensure coordinated and coherent actions in the different areas of the Innovation Union including the European Research Area.

III.a. Policy on Research and Innovation

Institutional framework

Montenegro is well aware of the importance to design and implement a strategy on research and innovation aiming at strengthening its national research capacity, at increasing its competitiveness and at becoming a knowledge-based society. The Ministry of Science is responsible for policy and funding and enacts laws and rules taking into account the overall institutional framework and advice provided by the Council for Scientific Research Activities.

It has established a national Strategy on Research Activities which contains several actions already fully inspired and in line with EU actions and objectives on research and innovation. The Strategy can be adjusted at regular intervals to take into account new developments and necessary adjustments.

National funding

The Strategy on funding national research is in line with EU objectives. Some reforms are necessary to increase the degree of competitive funding and concentrate research efforts to create more critical mass and leverage both at regional and European level on research issues of mutual interest for Montenegro and the EU such as on climate change aiming at addressing global challenges. This is particularly relevant for the preparation of the participation in the next EU research framework programme "Horizon 2020" (2014-2020).

International Scientific and Technological Cooperation

Montenegro has provided copies of all its international agreements on S&T and expressed willingness to take action in line with the EU strategy on international cooperation aiming at engaging more strategically in research and innovation cooperation with third countries and in closer partnership with the EU and its Member States.

III.b. Framework Programmes

EU Framework Programme

As a country associated to FP7 since January 2008, Montenegro has acquired good knowledge regarding the cooperation in research and innovation under the EU Research framework programme and has established a good administrative capacity allowing to fully take advantage of the cooperation and networking opportunities under the Programme. Further efforts are required to increase scientific excellence in general and increase participation of SMEs in the research and innovation chain and strengthen the human capital building to increase success under the People Programme (Marie Curie actions).

EURATOM Framework Programme

Montenegro has demonstrated some activity and potential on nuclear research and is willing to participate in research cooperation opportunities under the EURATOM framework programme as preparation of its full participation upon accession.

Cooperation with the Joint Research Centre

Montenegro participates since 2008 as observer in the Board of Governors of the JRC. Since 2012, its participation in workshops and applications for JRC posts (as Seconded National Expert or Grant holder) has increased.

Rules of Ethics

Some reform of the review of compliance with the ethical standards will be necessary in order to align it even more with the EU objectives of ensuring an independent and self-standing review of the ethical rules separated from the scientific merits of research projects.

III.c. Innovation Union including European Research Area

Montenegro has started to take actions on all major building blocks of the European Research Area. Some additional efforts are necessary to realise and monitor the implementation of the envisaged Action Plans, in particular on mobility of researchers, mapping of infrastructure, on gender and the realisation of a bio-economy.

Actions relating to the 3% objective

Montenegro needs to adjust its strategy and set realistic targets and take concrete actions to increase the level of investment in research which is still moderately low and requires more efforts to meet the national target of 1.4% by 2016. These efforts should in particular come from the private sector since its share of investment in research is very limited. Montenegro announced a mid-term review of its Strategy on Science Activities before the end of 2012, to re-consider the actions necessary to increase the level of investment in research.

Montenegro understands the need to improve statistics in order to be in a position to set reliable data and monitor its national targets. It is for this reason that improving statistics on science and technology has been identified as a priority area by MONSTAT and is included in the 2012 National Programme for support by the Instrument for Pre-accession Assistance to be implemented in 2013/2014.

Actions relating to mobility of researchers

As member of the SGHRM and HR Strategy Group, Montenegro is closely following the work at EU level on human capital building. Since 2010, it has adopted two Action Plans on Mobility of Scientists aiming at increasing both the number of researchers and the quality of researchers.

Montenegro needs to continue its efforts on diaspora to address the brain drain and ensure brain circulation.

The Euraxess portal is well functioning and the fact that all three universities in Montenegro have adhered to the Charter and Code of Conduct on the recruitment of researchers reflects their commitment to the EU actions and values on mobility of researchers.

Research Infrastructure

Montenegro has started to map research infrastructures in priority areas and declared its willingness to improve the mapping to comply with the standards set at EU level in ESFRI.

Actions relating to Science in Society

Montenegro is well aware of the importance of science in society and has designed several special programmes to promote sciences in schools, higher education and professional life. As regards gender, Montenegro is one of the few countries in Europe that has already achieved gender parity. Further efforts are necessary to promote employment of women in management positions.

Actions relating to Innovation Union

Montenegro is actively considering the framework conditions to contribute to the Innovation Union and will continue the efforts already undertaken. It has a system of innovation vouchers and support for start-up SMEs.

Transfer of Knowledge and Intellectual Property Rights

Montenegro has the basic legislation on IPR in place. It needs to increase awareness and knowledge on the importance of protecting the results of research and innovation efforts.

Bio-economy and agricultural Research

Research on biotechnology and agriculture is already a priority in Montenegro. On that basis, Montenegro is fully prepared to contribute to the EU objectives on the bio-economy and the research agenda on agricultural research. In addition, Montenegro is already participating as an observer in the Standing Committee for Agricultural Research.

European Research Fund for Coal and Steel (RFSC)

Participation in the RFSC is reserved to Member States only. Montenegro has a potential to participate in research actions on steel and coal under the RFSC. To allow Montenegro to become more familiar with the research organised under the RFSC, Montenegro has been invited to propose experts for the evaluation of the call for proposals in 2013.

Article 185 and 187 Initiatives

Montenegro is not yet a formal member of any of the EU Article 185 or 187 initiatives and undertakings but expressed interest in increasing research efforts in areas of strategic importance for Montenegro with a view of joining such initiatives. However, since it has already participated in six projects under FP6 and notably in the SEE-ERA.NET project it already has good experience in joint programming and funding of research projects in areas of common interest at regional level (countries from South East Europe).