

SPECIFIC TERMS OF REFERENCE

Feasibility Study for the Establishment of Centres of Excellence in Montenegro

FWC BENEFICIARIES 2009 - LOT N° 9 Culture, Education, Employment and Social

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List of abbreviations:

CoE	Centre of Excellence
CSA	Coordination and support actions
FP7	Seventh Framework Programme of the EU for research and technological development
FTE	Full time equivalent, better just "full time" !
GERD	Gross expenditure on research and development
REGPOT	Research potential under the Seventh Framework Programme for research and technological development
RTD	Research and Technological Development
SME	Small and medium-sized enterprise
S&T	Science and technology
SWOT	Strengths, weaknesses, opportunities and threats

1 BACKGROUND

This study on the Establishment of Centres of Excellence in Montenegro aims to assess the feasibility of establishing Centres of Excellence (CoE) in Montenegro to be subsequently supported by the Montenegrin Ministry of Science, as a main policy instrument for investing in high quality research. More intensive and stable financial support to such centres is expected to lead towards the definition of strong poles of the future Montenegrin innovation system. The national legal framework defining Centres of Excellence has been finalised and the law was adopted by the Parliament of Montenegro at the end of 2010. Moreover, the National Strategy for Scientific Research Activity 2008-2016 provides the strategic framework.

Due to limited financial resources and insufficiently developed research policies, the Montenegrin Ministry of Science has not yet funded long term research programmes, focusing, instead, on short-term research projects identified through a bottom-up approach. This kind of financing allowed for the basic maintenance of research activities, mainly at the University of Montenegro during the past, with the reproduction of scientists as needed for the development of the higher education system. Such a funding basis can neither motivate scientists to dedicate fully to scientific research nor create favourable conditions for nurturing talent, pursuing important research projects, or networking at national and international level. Identification of institutions or teams with a potential to develop into local, regional or European centres of excellence in research would enable the Government of Montenegro to direct substantial public funds towards these areas, on the basis of which private investment could potentially be attracted, with a possibility of providing a sound basis for endogenous growth. Achieving this will not be automatic or immediate; it will require significant reorganisation of the public research institutions, and the full impact will take several years to materialise.

In several EU countries the development and promotion of Centres of Excellence (or Centres of Competence) has shown very good results in raising the quality of scientific research, the development of human resources and the definition of economically prosperous areas of science and technology that influence the economic development of these countries¹.

Within the OECD project for the Western Balkans “Regional Competitiveness Initiative” which started in 2010, a regional mapping exercise on human capital development and innovation was carried out. A list of potential areas for policy action and support in the area of enhancing innovation absorption capacity for firms in the Western Balkans was produced and the Centres of Competence were recognised as one of the relevant support measures.

There is no typical centre of excellence based RTD, and different countries adopt different models of financing, depending on the analysis of the existing potential and the current needs.

Apart from informing on the feasibility of the establishment of centers of excellence in Montenegro, this study should also inform about which areas and models of the funding of Centres of Excellence would be the most effective for the present level of development of research and innovation in Montenegro.

¹ Examples are available on ERAWATCH <http://cordis.europa.eu/erawatch/index.cfm>

The model should be in line with the Law on scientific-research activity, where the CoE is directed to:

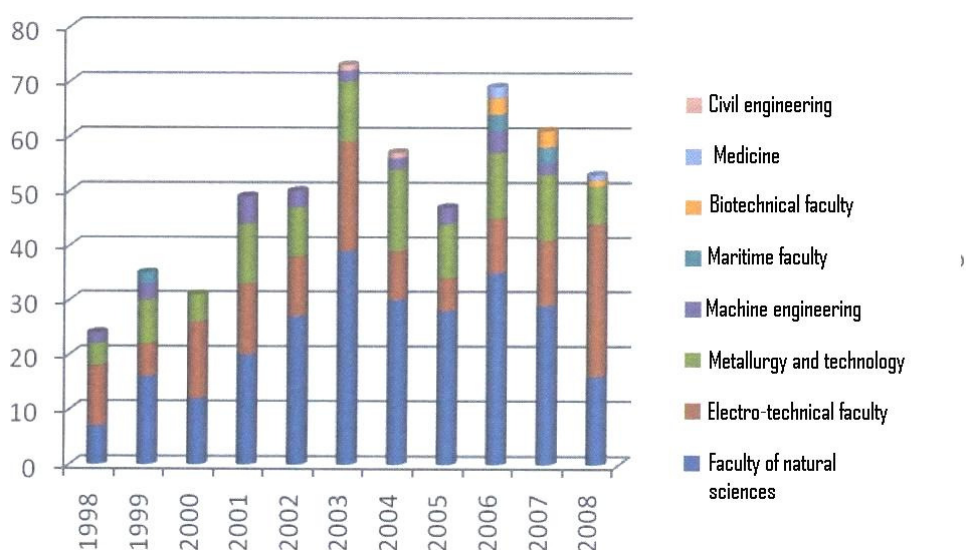
- Establish a strong connection between knowledge, research and innovation, i.e. strong tie between research and economy;
- Focus research programmes toward interdisciplinary topics and the results of applied and basic research;
- Create capacity to ensure dynamic, flexible and attractive working atmosphere which can result in high achievements at the individual and team level work;
- Support a programme for stimulating the creation of a new generation of talents in science and technology; and
- Seek to realize dynamic partnerships with bodies of public administration and local governments.

Only sporadically and driven by individual scientists' vocation and talent, research activities in Montenegro have risen to the levels of world class outputs. These nuclei of excellence exist in a few research institutions, and their number of publications is proportionally higher compared to other countries of the region. According to the analyses of the Scientific Council² and the working group on science and technology of the Montenegrin Academy of Sciences and Arts³, the need for establishing centres of excellence is recognised, in order to stimulate the development of internationally recognized research teams and to commercialise their research results.

Figures about investment in research and human resources in Montenegro are as follows: GERD in 2009 was 0.1% of GDP. 1.462 employees were working in research institutions, constituting 0.88% of the employed work force. The estimate is that this number includes 313 full-time researchers.

According to the number of publications the top three broad fields of science in Montenegro, are engineering, medicine and physics with astronomy.

The number of publications coming from faculties of the University of Montenegro from 1998-2008 (*ISI Web of Knowledge list*) is given in the figure below.⁴

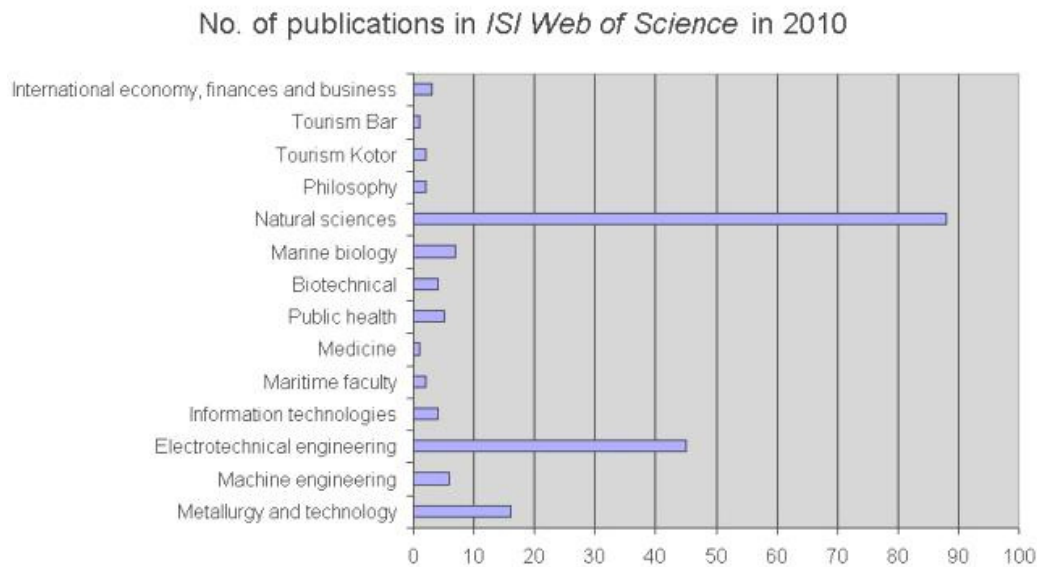


² see the Strategy of Scientific Research Activity

³ see the development document: Montenegro in the XXI century

⁴ Source: "Montenegro in the XXI century – in the era of competitiveness"; MASA 2010.

According to a survey of research institutions in Montenegro about their research activities in 2010⁵, the scientific output at the research institutions (faculties and institutes) has been increasing. The figure below shows the number of publications per faculty / institute in 2010.



According to the same survey, there is a low level of cooperation among research institutions and between public research and business sectors. The main forms of cooperation are companies (e.g. electrical hydro-plants, telecommunication companies) mentoring very few master and doctoral researchers from the companies, as well as consultancy services of faculty/institute researchers for companies (food and beverage companies, telecommunications). Among the obstacles to better commercialisation of research results, the research institutions state the inexistence of bridging infrastructure and initiatives to connect research and business, lack of incentives for the business sector to invest in research, overload of university professors with teaching and administrative work, low level of investment in research, undeveloped private sector in the country, etc.

2 DESCRIPTION OF THE ASSIGNMENT

The direct beneficiary of this assignment will be the Ministry of Science of the Government of Montenegro and the research institutions funded by the Government of Montenegro.

The final beneficiaries will be the members of the research community of Montenegro.

2.1 Global objective

To improve the competitiveness of Montenegrin economy through modernisation of the research system according to the national legislation and in line with the process of integration into the European Research Area and the Innovation Union (in line with the Flagship Initiative of the Europe 2020 Strategy).

2.2 Specific objective

The specific objective of this assignment is to assess the feasibility of the establishment of Centres of Excellence in Montenegro, in the framework of the newly adopted law on scientific-research activity and the integration of Montenegro into ERA, by

⁵ carried out by the Ministry of Science from December 2010 to January 2011

- assessing the feasibility of a Centre of Excellence in a Western Balkans and EU context with regards to the capacity of science in Montenegro and its competitiveness in the region, taking into consideration similar activities in the Western Balkans and other countries with comparable research system (and taking into consideration the size of the country),
- assessing opportunities of Centres of Excellence to generate new talents in science and technology,
- exposing areas of weakness in the current research context - including the training of young researchers - and exploring options for invigorating and improving research capacity building,
- identify likely international partners (i.e. leading research institutes, universities or firms located in the Western Balkans or the EU) in different areas with which the research institutes in Montenegro could cooperate,
- identifying areas of the private sector in Montenegro with the potential to partner with research institutions,
- assessing the funding needs of such a programme.

2.3 Requested services, including suggested methodology

The Consultant will be asked to provide following services:

- 1) Assessment of Montenegrin research institutions**
 - including staff, qualifications, research areas, quoted publications in recent years, funding areas, connections with other research centres in the region, Europe and worldwide, regional competitiveness
 - e.g. through survey of documents, meetings with stakeholders, analysis of ongoing and completed national and international projects (e.g. SEE-ERA.NET, WBC-INCO.NET, FP7-REGPOT, OECD 'Investment Compact Programme', etc.), project proposals (e.g. to FP7 that may have potential but were not funded because they were not competitive);
- 2) Desk research on comparable research systems where Centres of Excellence were successfully implemented, incl. identification and description of good practices in the region and in Europe, and especially in the small states context;**
- 3) SWOT analysis of research capacities of the research institutions in Montenegro, including (a) the identification of specific management, organisational and institutional gaps that need to be resolved prior to injecting additional public resources into the research institutes; and (b) an in-depth assessment of the top 2-3 research institutes with a description of the methodology used in the SWOT Analysis;**
- 4) An analysis and description of cooperation opportunities for research teams with the business sector by reviewing the potential of national, bilateral or multilateral projects for commercialisation on national and international level, taking into consideration operational and financial aspects (incl. the assessment of ongoing Coordination and Support Action Projects related to research-enterprise cooperation, e.g. TEMPUS WBCVMnet);**

- 5) On the basis of the above an assessment of the potential and/or requirements to meet the following key features of the concept of Centres of Excellence⁶ :
- The existence of a "critical mass" of high level scientists and/or technology developers;
 - A well-identified structure having its own research agenda;
 - Capability of integrating connected fields and to associate complementary skills;
 - Capability of maintaining a high rate of exchange of qualified human resources;
 - A dynamic role in the surrounding innovation system (adding value to knowledge);
 - High levels of international visibility and scientific and/or industrial connectivity;
 - A reasonable stability of funding and operating conditions over time (the basis for investing in people and building partnerships);
 - Sources of finance which are not dependent over time on public funding.

The desk research will include, but not be limited to, the main reference documents such as the relevant legal framework in Montenegro, and documents related to research institutes in the Balkans and in EU Member States, e.g.:

- Law on scientific-research activity
- Strategy for scientific-research activity of Montenegro 2008 – 2016
- National Programme for Integration to the EU
- Montenegrin economic and fiscal programme 2009 – 2012
- Europe 2020 Strategy and other relevant EU policy documents
- Montenegro in the XXI century in the area of competitiveness
- Strategy of research activity of the University of Montenegro
- Strategy for development of SME (2011 - 2015)
- SME Business climate survey
- Reports of the OECD 'Investment Compact Programme'
- REGPOT and IDEAS projects and project proposals to FP7 from Montenegro with analyses of evaluators' reports
- Abstracts and, if relevant, reports of national research projects in the past 5 years
- Report on scientific publications of Montenegrin researchers in the past 2 years
- Reports on University – enterprise cooperation of the TEMPUS WBC VMnet project

For the performance of the services the Consultant shall:

- closely liaise with the EU Delegation to Montenegro and the Ministry of Science to develop a detailed operational workplan, identify in detail the methodology⁷ and questionnaires in the form of an Inception Report to be approved by the EU Delegation and endorsed by the Ministry of Science;
- identify a sample of institutions, organisations, projects and companies to be visited. Such a sample will be identified in consultation with the EU Delegation, the Ministry of Science, the Ministry of Economy, and the Directorate for SMEs;

⁶ as defined in the context of the European Research Area

⁷ Incl. assessment techniques, data collection and processing methods, analysis and interpretation of quantitative and qualitative information

- closely liaise throughout the assignment with all key stakeholders, such as the Ministry of Science, relevant research institutions, the Ministry of Economy, the Directorate for the Development of SMEs, the Ministry of Finance, the Chamber of Commerce and the EU Delegation;
- prepare an assessment (incl. SWOT analysis), the identification of potential cooperation areas between research and the business sector, and suggestions related to the establishment of Centres of Excellence in Montenegro (incl. sustainable funding opportunities);
- prepare an aide mémoire for the debriefing of the EU Delegation and the Ministry of Science;
- prepare a proofread draft report;
- prepare a consolidated final report (following quality control by the Contractor) with findings, and realistic, feasible recommendations in line with EU procedures and policies, and incorporated comments and suggestions from consultations with the EU Delegation and Ministry of Science;
- carry out any other task related to this assignment as deemed necessary by the EU Delegation.

2.4 Required outputs

The required outputs of the assignment will be

- an **inception report** with a detailed operational workplan and methodology, the list of site visits, and organisations/institutions to be met;
- an **aide mémoire** for the debriefing;
- a consolidated **final report** (following quality control by the Contractor) with findings and realistic, feasible recommendations, in line with the EU procedures and policies, and incorporated comments and suggestions from consultations with the EU Delegation and the Ministry of Science.

3 EXPERTS PROFILE

This section outlines the requirements for the experts. It is the Consultant's responsibility to respond to them with a proposal for two experts who meet the minimum requirements of these skills and experience profiles, and who are able to deliver all outputs as described in the ToR.

The Proposal may not result in an increase of working days, budget or variant solution outside the flexibility described in this chapter.

3.1 Number of requested experts per category and number of days per expert

The Consultant shall assign two senior experts for a total of 131 working days (over 4 months): one **Team Leader** for 66 days and one **Senior Expert No. 2** for 65 working days.

3.2 Profile required

One of the two experts should cover knowledge of EU funding instruments for research and science (available for Montenegro).

Expert 1, Team Leader

Qualifications and skills:

- A Higher Education degree (preferably PhD) in a field relevant for the specific work the expert has to carry out (such as e.g. economy or educational planning) or a minimum of 15 years of professional experience in an area related to the assignment;
- Excellent command of written and spoken English;
- Knowledge of the local language is an advantage.

General professional experience:

- At least 10 years of professional experience in the sector of research, development and innovation, with a minimum of 5 years in the design and/or evaluation of research, development and innovation policies and programmes;
- Participation in at least one research programme as Team Leader of a group of experts with supervision and coordination tasks;
- Experience in at least one EU funded technical assistance project related to (a) research programme(s) in an EU Member State.

Specific professional experience:

- Proven work experience in the area of research, development and innovation and in setting up, management and / or evaluation of Centres of Excellence (Centres of Competence)
- A minimum of 3 years experience in planning and funding science/research policies/strategies/programmes.
- Experience in setting up partnerships between research and private sector.

Expert 2, Senior Expert No. 2

Qualifications and skills:

- A Higher Education degree (preferably at least an MA) in a field relevant for the specific work the expert has to carry out (such as e.g. economy or educational planning) or a minimum of 10 years of professional experience in an area related to the assignment.
- Fluency in English;
- Local language proficiency preferred

General professional experience:

- At least 10 years of professional experience in the sector of research, development and innovation, in the design and/or evaluation of research, development and innovation policies and programmes;

Specific professional experience:

- Proven work experience in the area of research, development and innovation and in setting up, management and / or evaluation of Centres of Excellence (Centres of Competence)
- Experience in research management

- Experience in research activities in other Western Balkan countries

3.3 Working language(s)

The working language will be **English**. Whenever necessary interviews with beneficiaries and other stakeholders may be conducted in the local language and require expert translation into English and vice versa. Interpretation services are to be provided by the Consultant as part of reimbursable costs.

Some document translation will be required and provided by the beneficiary.

4 LOCATION AND DURATION

4.1 Starting period

The indicative starting date for the assignment is 7 July 2011.

4.2 Foreseen finishing period

The indicative end date of the assignment is 31 October 2011.

4.3 Planning

Activity	Indicative dates	Location	Workdays
<u>Inception Phase</u>		Podgorica	<i>In total: 4</i>
Commencement date Experts' arrival in Podgorica First briefing session with the EU Delegation and the Ministry of Science to allow the experts to become familiar with the tasks related to this assignment, analyse the ToR and put forward any questions	07.07.2011		4
<u>Desk and Field Work</u>		Podgorica & Home base*	<i>In total: 112</i>
Desk research, interviews, field visits, preparation of Aide Memoire (short report on main findings of max. 10 pages)			100
Submission of Aide Memoire	23.09.2011		
Debriefing	26.09.2011		2
<u>Reporting</u>		Home base*	<i>In total: 15</i>
Preparation of proofread Draft Report Submission of Draft report	05.10.2011		14
Period of submission of comments by EU Delegation and Ministry of Science	10.10.2011		
Revision of Final Report and submission of the consolidated Final Report following quality control by Contractor	14.10.2011		1
End of contract	31.10.2011		

* Not more than 10% of these days may be spent in the experts' home country(-ies).

Per diems will not be paid for working days at home base.

4.4 Location(s) of assignment

The assignment will be performed in Podgorica, with intercity trips to Kotor, Niksic and Bar, if required.

5 REPORTING

5.1 Content

During the assignment the following reports are expected:

- An **Inception Report** to describe the approach to be taken in the delivery of outputs and achievements of objectives. All activities should be listed and briefly described. A section should be dedicated to research methods and an indicative workplan (including the planning of site visits to institutions, organisations, projects and enterprises).
- A **weekly feedback** to function as an early warning system should difficulties be encountered during implementation
- An **Aide Memoire** (a short report on main findings of max. 10 pages)
- A proofread **Draft Report**
- A consolidated **Final Report** (not more than 30 pages in Arial 11) with Annexes, to be submitted only after quality control by Contractor.

5.2 Language

Reporting language is UK English.

The Executive Summary shall be translated into local language.

5.3 Submission/comments timing

As described above (section 4.3): Comments by Beneficiary and Contracting Authority on Draft Report within 1 week.

5.4 Number of report(s) copies

All outputs and reports will be presented in written form, in electronic format (using MS Office or fully compatible software) and in hard copy (six copies, of which four will be for the beneficiary and two for the Contracting Authority).

Reports shall be submitted to the Contracting Authority, which will then distribute to beneficiaries, as follows:

- 2 copies to the Ministry of Science
- 1 copy to the Ministry of Economy
- 1 copy to the Ministry of Foreign Affairs and European Integration

6 ADMINISTRATIVE INFORMATION

6.1 Other authorized items to foresee under 'Reimbursable'

The framework contractors shall include the following provisions in their financial offers under Reimbursable Costs:

- Costs for return travel for the Experts – 4 round trips
- Per diems
- Translation Services
- Intercity trips

6.2 Tax and VAT arrangements

An arrangement exists for exempting from payment of VAT for certain project expenditures.

6.3 Interim payment(s) modalities, if any (only for a rider)

N/A

6.4 Others

N/A