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Co-ordination of Research Policies with the Western Balkan Countries

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Report on ongoing CSAs and national initiatives as regards S&T priority setting in the WBC

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Executive Summary

Two CSAs (Coordination and Support Actions), SCORE and BAFN (identified under T1.4 in Work Package 1) which already perform S&T priority setting exercises have been screened. Their methodologies for priority setting have been recorded and assessed.

Secondly, S&T priority setting exercises in the Western Balkan countries (WBC) at national level have been surveyed as regards their input in the WBC-INCO.NET priority setting process.

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0. Abbreviations

CSA	Coordination and Support Action
FP	Framework Programme for Research and Technological Development
GSRT	General Secretariat For Research and Technology
ICT	Information Communication Technologies
NCP	National Contact Point
RTD	Research and Technological Development / Research and Technology Development
S&T	Science and Technology
WBC	Western Balkan Countries
WP	Work Package
ZSI	Centre for Social Innovation, Vienna

1. Preliminary results of the screening and monitoring of CSA's, a comparison study

This chapter includes the preliminary results of the screening and monitoring of selected CSAs which already perform S&T priority setting exercises.

1.1. Methodology

GSRT had sent an official letter to the coordinators of the identified CSAs, informing them about the purposes and the aim of this screening exercise asking for their contribution. A relevant questionnaire had been sent together with the letter trying to formulate the methodology that was followed in each case concerning the priority setting. Extensive interviews had been implemented with the key persons involved in the S&T priority setting processes. After the recording process a comparison exercise of the different methodologies had been followed and finally an assessment.

1.2. Introduction

Two thematic projects targeted to the better integration of the WBC into the European Research Area had been identified:

SCORE- Strengthening the strategic cooperation between the EU and West Balkan Region in the field of **ICT research (http://www.score-project.eu)**

Balkan Agro Food Network- Support the opening of the European Research Area by developing a sustainable network in **agricultural and food sector** in the Western Balkan **(http://www.europartnersearch.net/bafn)**

Both projects performed S&T priority setting exercises. In both projects' surveys were not included Croatia and Montenegro

1.3. Common Approach

The 2 projects have a common approach. More specifically, they

- are financially supported by the European Union under the FP6
- include partners from the WBC and the EU countries
- aim at defining future research priorities that will enhance RTD co-operation in the area of Information & Communication Technologies (ICT) or the area of agri-food sector between the WB region and the EU
- develop a Policy Paper or a Position Paper with "*Recommendations"* for shaping EU scientific co-operation with the Western Balkan Region.

1.4. Common Methodology

The 2 projects have a common methodology. More specifically, they determined research priorities from a national perspective in each WBC. The consultation process was not prolonged to the definition of joint priorities across national borders in the WBC region. Moreover in both projects a combination of "expert consultation" and "open consultation" was used.

1.5. The research priority setting step by step

In the following table are presented the steps that were followed from the two projects towards the research priority priorities setting.

SCORE	BAFN
A consultation document which includes also a set of questions was prepared	A document including the description of the current policies in each WBC and a SWOT analysis of the research area
A panel of approx. 15 expert stakeholders was formed per country	Expert List Settlement
A Consultation Workshop was held in each country in order to consolidate the findings	One expert panel meeting in each WBC was organized (min. 8 stakeholders, research and industrial community) .
First version of the ICT Strategic Research Agendas (one per country)	A report was elaborated for each expert panel meeting
Open consultation with targeted mailing lists and publication at the SCORE project's website	Large Internet Based Survey
The final ICT Strategic Research Agendas (one per country) constitute the basis for the development of the "Policy Paper"	A synthesis report and a "position paper" were prepared

Table 1: Steps of priority setting

1.6. The research priority setting in figures

In the following table is presented the number of experts/answers involved in the research priority setting exercise.

SCORE	**BAFN**
During the expert consultation phase, a total of **68 ICT experts** were consulted	Consultation of: researchers from the WBC (**115 answers**) NCP (**14 answers**) members of the Programme Committee (**7 answers**)
During the open consultation phase, a total of **181 ICT stakeholders** were consulted	

Table 2: Number of experts/answers involved

1.7. Deliverables

For the SCORE project the results are the "Commonly accepted research priorities and objectives that reflect the actual socio-economic needs and research capabilities of the Western Balkan countries and correlates them with the ICT Challenges of FP7."

In total, 13 ICT priorities were defined and divided into 2 groups:

a) Feasibility/ readiness including: Social Importance, Economic Importance, Strategic Importance & Research and Technological Opportunities

b) Attractiveness/ potential including: Application Capacity (absorption potential of application sectors) and Research & Technology Capacity (production potential of R&D)

In the table that follows are presented these ICT research priorities

Finally, the next table presents the ICT research priorities for the period 2008-2013 identified by all countries, based on their final Strategic Research Agendas.

	ALBANIA		BOSNIA-HERZEGOVINA		FYROM		SERBIA	
ICT Research Priorities	Readiness	Potential	Readiness	Potential	Readiness	Potential	Readiness	Potential
ICTs for Government & eGovernment	✓		✓		✓		✓	
ICTs for Enterprises & eBusiness	✓		✓		✓		✓	
Internet & Broadband Technologies	✓			✓	✓		✓	
Software Engineering		✓		✓	✓		✓	
ICTs for Learning & eLearning		✓	✓		✓			✓
ICTs for Health & eHealth		✓	✓			✓		✓
Mobile Technologies					✓		✓	
ICTs for Agriculture						✓		✓
Digital Content & Digital Libraries		✓				✓		
Distributed Systems		✓						
Embedded & Pervasive Systems								✓
Network Technologies		✓						
Knowledge Technologies						✓		

Table 5 – Entire list of ICT research priorities among Western Balkan countries (2008-2013)

Table 3: List of ICT priorities among WBC (source SCORE project)

For the BAFN project the results are:
12 priorities recommended by WBC researchers in two groups:

6 areas for which cooperation would help to develop existing research capacity:

Food technology

Plant science

Animal science (animal breeding, animal husbandry and animal nutrition)

Food safety

Fishery and to medicinal plants
Biodiversity with the preservation of indigenous species and traditional food products.

6 areas for which cooperation would help to answer future needs:

- Research in typical national food products, biodiversity conservation
- Research on zoo noses which have influence in human health and in animal production
- Quality systems on food technology
- Sources of food allergens
- Food safety: chemical contaminants in food, food allergens and toxins in food
- Dietary supplements

Additionally 6 priorities were recommended by EU representatives..

Finally in summary 4 scientific areas were recommended suitable for the cooperation between the European Union (EU) Member States and the Western Balkan Countries (WBC):

1) Biodiversity: conservation of genetic resources & indigenous species

2) Food safety: chemical contaminants in food, food allergens and toxins in food

3) Animal science: animal husbandry and zoonose

4) Food biotechnology: nutrition and dietetics

1.8. Risks analysis

The risk analysis of the two screened methodologies had identified the following points:

- *The content of the consultation document and the questionnaire that is distributed to the panel experts for their contributions.*

The consultation document provides an overview of the thematic research environment in each country, the European research collaboration dimension, taxonomy and a set of questions for consultation. The abovementioned document and questionnaire could guide or influence the experts.

Moreover, there is limited information available and low quality of information in some fields.

- *The identification and selection of the panel experts for the targeted consultation (representing research, industry and policy-makers).*

There is a lack of expertise/know-how in some fields. The experts should specify to what extent they are able to rate different research topics based on their expertise. Scores with a high degree of expertise should be counted more in the aggregate scores.

Experts used to have specific interests and own priorities in their mind. Many times there is a conflict of interests between experts.

- *The open consultation process (based on prepared databases – direct and indirect stakeholders).*

The stakeholders usually support their own interests.

- *The joint research priorities in the WBC region are a synthesis of individual procedures (expert panels, open consultation) in each WBC.*

Joint multilateral workshops with stakeholders from the WBC are needed.

2. The WBC perspective on priority setting, existing approaches. An on-going survey

This chapter includes the WBC perspective on national priority setting processes.

2.1 Introduction

In order to identify the S&T priority setting processes at national level in the WBC, GSRT circulated a questionnaire. It included 11 questions and it had been addressed to the policy makers in the relevant Ministries in the WBC. Feedback was provided by Croatia, Montenegro, Former Yugoslav Republic of Macedonia, Serbia, Bosnia-Herzegovina and Albania.

2.2. Questionnaire

The questionnaire included the following questions:

- Q0. Do you have national S&T priorities?
- Q1. If YES in which depth your national priorities have been defined (i.e. Information Communication Technologies (ICT) – ICT solutions – e-business?)
- Q2. Is the definition of your national S&T priorities the outcome of a national initiative? If NOT under whose supervision and support was it implemented?
- Q3. Could you describe the methodology that your national S&T priorities came up? (i.e. Policy makers' decision, National foresight exercise, national surveys and studies, SWOT analysis, national panel of experts, international panel of experts, thematic conferences or workshops, open consultation etc)
- Q4. Could you identify which were the key issues that influenced your national S&T priorities setting? (i.e. Economic Importance, Strategic Importance, Research & Technological Opportunities, Application Capacity (absorption potential of application sectors, Research & Technology Capacity (production potential of R&D)
- Q5. Could you describe some lessons learnt from your national S&T priorities setting (i.e. lack of expertise/know-how in some fields by experts, potential conflicts of interest between experts etc)
- Q6. Are your national priorities described in an official document? (i.e. legal document, action plan, operational programme etc)
- Q7. Are your national priorities influenced by the priorities of FP6 & FP7?
- Q8. Are your national priorities influenced by your bilateral co operation with other countries and the "demands" of the counterparts?
- Q9. How often do you update your national priorities?
- Q10. Do you apply your national priorities (as your national research strategy) in all your national programmes and calls? Are there any deviations?
- Q11. Do your national priorities influence your educational system? (i.e. support of labs or PhDs that are in line with these priorities).

In Annex 1 are presented the completed questionnaires.

2.3 Identified national S&T priorities

Croatia, Montenegro, Former Yugoslav Republic of Macedonia, Serbia and Albania have already defined their S&T priorities.

In Bosnia & Herzegovina, during this year, the Ministry of Civil Affairs is planning to work on a Strategy for development of science in the country including the S&T priorities. This process has to involve somehow the two entities and ten cantons of the country, each one of which has competencies in relation to science.

2.4. Comparable National S&T priorities

The S&T priorities are quite similar in the WBC. For example in the following table there are comparable priorities in two selected countries

• **Montenegro**	• **Former Yugoslav Republic of Macedonia**
▪ ICT	▪ Sustainable growth and EU Integration
▪ Biotechnology	▪ Biotechnology
▪ Renewable Energy Sources	▪ High- Quality Food Production
▪ Materials	▪ Water resources management
▪ Tourism	▪ Energy Sector
▪ National History	▪ New Materials
▪ Cultural Heritage	▪ Environmental protection
▪ Environment	▪ Health
▪ Infrastructure and Transport	▪ Earth Science and engineering

Table 4: Comparable priorities in two selected countries

In Annex 2 are presented the national S&T priorities of the WBC.

2.5 The definition of the national S&T priorities is the outcome of a national initiative

In the table that follows national initiatives for defining research priorities in the WBC are presented.

Croatia	National Initiative
Montenegro	The outcome of the National Strategy of Scientific Research Activities
Former Yugoslav Republic of Macedonia	Mainly national initiative supported by EU, World Bank, NATO, UNESCO, IAEA, etc.
Serbia	The main S&T priorities are the results of the national legislation.
Albania	National Initiative

Table 5: National initiatives for defining research priorities in the WBC

2.6. Common methodologies

The table that follows describes the methodologies followed by the particular countries concerning the setting of S&T priorities. Mainly policy makers and scientific councils are involved in this process

Croatia	Policy makers' decision and National Foresight Exercise, National panel of experts
Montenegro	National surveys and kind of SWOT analysis, done by the group of national experts, in the process of reviewing other national strategic documents, like

	Spatial Plan, National Strategy of Sustainable Development, National Strategy for Higher Education, the draft of National Strategy of Energy Efficiency. One of the strongholds of the methodology for setting S&T priorities are the self-evaluation process and process of international, external evaluation of the University of Montenegro, which is the most prominent institution in S&T. These provided comprehensive screening of actual S&T human capacities and infrastructure.
Former Yugoslav Republic of Macedonia	Policy makers' decision and national Panel of Experts
Serbia	The main body responsible for creating and monitoring the Strategy is the **S&T National Council**. This is the highest body in the national S&T system. The Council, which has been established in April 2006, is composed of 17 members who are academics, university professors, scientists and businessmen. The Government adopts the Strategy on the proposal of the Ministry of Science.
Albania	Open consultation. All the scientific community is called to express and to discuss the priorities. Finally the Council of Higher Education and Science decides.

Table 6: Methodologies followed by the WBC countries concerning the setting of S&T priorities

2.7. Key issues that influenced national S&T priority setting

Below, examples of key issues that influenced national S&T priority setting are provided by each of the above WBC Countries. Most countries are driven by common issues.

Croatia	Economic importance, Application capacities

Montenegro	Economic Importance, Strategic Importance and Research and Technological Opportunities, Application Capacity
Former Yugoslav Republic of Macedonia	Economic Importance, Strategic Importance, Research & Technological Opportunities, Application Capacity (absorption potential of application sectors, Research & Technology Capacity, production potential of R&D)
Serbia	Creating a new, competitive and open economy which will allow Serbia to speed up the process of economic and social growth. Science and technology can propel us in the right direction and help us take advantage of the existing possibilities for fast, yet sustainable, development
Albania	Economic Importance, Strategic Importance, Research & Technological Opportunities, Application Capacity

Table 7: Examples of key issues that influenced national S&T priority setting

2.8. Lessons learnt from national S&T priority setting

Examples of some restraining factors concerning the S&T priority setting are presented in the table that follows.

Croatia	None
Montenegro	Lack of some important parallel documents to rely on such as the Strategy of technological development or the Strategy of national development. Combined with the evident lack of experience and expertise in priority setting, it was one of the most difficult obstacles in the process. The situation of conflict of interests between the experts and policy makers was very evident because of the fact that

	we suffer of some overloaded scientific fields (in terms of human capacities) which are not among the priorities. There are a lot of experienced and high qualified researchers in sectors which are not amongst their national priorities. These are usually some technical fields with very restricted list of scientists with certain demands toward the research community, especially in the way of setting priorities and the future funding system.
Former Yugoslav Republic of Macedonia	Lack of mechanisms and tools for evaluation and bench-marking and lack of awareness for the need of setting-up strategic priorities and lack of inter - ministerial and inter-institutional collaboration in this regard.
Serbia	None
Albania	Lack of arguments; lack of expertise /know-how in some fields by experts.

Table 8: Examples of some restraining factors concerning the S&T priority setting

2.9. The national priorities are described in official documents

There are official documents which describe the national S&T priorities.

Croatia	Science and technology policy 2006 – 2010
Montenegro	National Strategy of Scientific Research Activities.
Former Yugoslav Republic of Macedonia	National Programme for S&T Development, 2006- 2010 National Strategy for ICT Development 2007-2010 Strategic Plan for 2008-2010 of the Ministry of Education and Science

	Laws of Science and Technological Development and Innovation
Serbia	The Law on the Ministry (through activities of the Ministry of Science), Law of the Ministry of S&R activities and the Strategy of S&T priorities which is a consist part of the Law
Albania	For each priority a national document is prepared by experts.

Table 9: Official documents which describe the national S&T priorities

2.10. The national priorities are influenced by the priorities of FP6 & FP7

In the table below, the strong influence of FPs in the identification of the national priorities in the WBC countries is shown.

Croatia	Partly
Montenegro	In a certain way, but the FP priorities were not crucial for the national setting of priorities.
Former Yugoslav Republic of Macedonia	Yes, becoming associated country in FP7, the Ministry has fully adjusted the national science policy to the priorities of it.
Serbia	One of the goals of the Ministry of Science is using the S&T potential for the integration into European Research Area. According to this, the Ministry actively participates in the mentioned Programmes, especially in the parts of the programmes which are mainly connected with the national priority setting: strengthening the regional and European cooperation, fostering institutional reforms, institution building and S&T infrastructure development, improving human capacity building and

	international mobility, fostering innovation potential in the countries through academia-industry relationships.
Albania	No

Table 10: Influence of FPs in the identification of the national priorities in the WBC countries

2.11 The national priorities are influenced by bilateral co-operation with other countries

The following table describes for each of the countries to what degree national S&T priorities are influenced in case there is co-operation with other countries.

Croatia	Partly
Montenegro	No
Former Yugoslav Republic of Macedonia	National priorities are influenced mainly by regional and EU cooperation
Serbia	Priorities at the bilateral level are the result of the national priorities which are common for both countries.
Albania	Yes

Table 11: National S&T priorities are influenced in case there is co-operation with other countries

2.12 The national priorities are updated every 3-5 years

Below, the frequency of the updating concerning the national S&T priorities is presented. The table is for the countries above

Croatia	Periodically (every 4 years)
Montenegro	This is the very first time that Montenegro

	has set up its priorities
Former Yugoslav Republic of Macedonia	Approximately every 3-4 years
Serbia	Every five years
Albania	Every three years

Table 12: Frequency of the updating concerning the national S&T priorities

2.13 The national priorities are implemented in national programmes and calls

Examples of domination of national S&T priorities in the calls of the national programmes are given in the table below.

Croatia	In principle
Montenegro	The Ministry has made some efforts to envisage the national priorities through its calls by a system of funding in terms of quantity and type of eligible costs within the different fields. Yet it is not completely done, because of the aforementioned situation of overloaded fields which are not the priority fields but need some balanced treatment at national level.
Former Yugoslav Republic of Macedonia	Put many efforts to implement the defined national priorities in national programmes, but lack of funds, inefficient S&T and out dated infrastructure facilities, development mechanisms of knowledge transfer and research results in the business sector, inconvenient distribution of researchers by sector (the number of researchers in the business sector is very poor), small investments in applied research and innovation; low level of private investment in R&D sector, unsatisfactory ratio of young researchers, serious brain –drain, etc.
Serbia	The National Programmes are the key factor for implementing national priorities. The National Programme consists of:

	The Basic Research Programme, The Human Resources Development Programme and International R&D Co-operations Programme.
Albania	Yes

Table 13: Examples of domination of national S&T priorities in the calls of the national programmes

2.14. The national priorities influence the educational and research system

The table below describes to what degree the educational and research system of every country is influenced by the national S&T priorities.

Croatia	Yes
Montenegro	Not completely for the moment, but it should be envisaged for the future at least through the funding system.
Former Yugoslav Republic of Macedonia	Yes, especially by the approval of the new Science and Technology Laws conditions will be provided for establishment of better links between the science and university education and modernization of research activity in general.
Serbia	National priorities influence the Research System by supporting the Labs and Research Centres through different Programmes of Institutional building and S&T infrastructures development at the national and international level. From the other side, the Ministry supports Education System through funding the best PhD students during the period of PhD studies.
Albania	Yes

Table 14: The educational and research system of every country is influenced by the national S&T priorities

2.15. Preliminary Conclusions

The WBC:

- Are aware of the importance and most of them have defined their national S&T priorities which are included in their legal documents
- Have used various methodologies in the definition process
- Key issues that influenced their national S&T priorities setting were the Economic Importance, Research & Technological Opportunities and Application Capacity
- In some cases have found difficulties or obstacles in the national S&T priority setting procedure
- Their national priorities are influenced by the priorities of FP6 & FP7 and in some cases by the bilateral co operation with other countries
- Apply their national priorities (as national research strategy) in their national programmes and calls
- In many cases the national priorities influence the educational and research system

ANNEX 1: Results of questionnaire on priority setting in the WBC

ALBANIA

S&T priority setting exercises on a national level

Q0. Do you have national S&T priorities?
Yes

Q1. If YES in which specification your national priorities have been defined (i.e. Information Communication Technologies (ICT) – ICT solutions – e-business- ?)
Human Science and Albanology; ICT; Environment and Diversity; Agriculture and Food; Health; Materials; Water and Energy .

Q2. Is the definition of your national S&T priorities, the outcome of a national initiative? If NOT with whose support were they selected?
Yes

Q3. Could you describe the methodology that your national S&T priorities came up? (i.e. Policy makers' decision, National foresight exercise, national surveys and studies, SWOT analysis, national panel of experts, international panel of experts, thematic conferences or workshops, open consultation etc)
Open consultation. All the scientific community is called to express and to argument the priorities. Then is Counsil of Higher Education and Science to decide.

Q4. Could you identify which were the key issues that influenced your national S&T priority setting? (i.e. Economic Importance, Strategic Importance, Research & Technological Opportunities, Application Capacity (absorption potential of application sectors, Research & Technology Capacity, production potential of R&D, etc.)
Economic Importance, Strategic Importance, Research & Technological Opportunities, Application Capacity

Q5. Could you describe some lessons learnt from your national S&T priorities setting (i.e. Lack of expertise /know-how in some fields by experts, potential conflicts of interest between experts /policy makers etc.)
Lack of arguments; lack of expertise /know-how in some fields by experts

Q6. Are your national priorities described in an official document? (i.e. legal document, action plan, operational programme etc.)
Yes. For each priority is prepared by experts a national document.

Q7. Are your national priorities influenced by the priorities of FP6 & FP7?
No.
Q8. Are your national priorities influenced by your bilateral co-operation with other countries and the "demands" of the counterparts?
Yes

Q9. How often do you update your national priorities?
Each three years.

Q10. Do you implement your national priorities (as your national research strategy) in all your national programmes and calls? Are there any deviations? Matching of public/private research capacities?
Yes.

Q11. Do your national priorities influence your educational and research system? (i.e support of labs or research centres or PhDs that are in line with these priorities)
Yes. In all projects we support labs and PhD.

BOSNIA

S&T priority setting exercises on a national level

In this year Bosnia and Herzegovina, Ministry of Civil Affairs is planning to work on Strategy for development of science in Bosnia and Herzegovina. Bosnia and Herzegovina is composed of two entities and 10 cantons which have competencies in relation to science. We are in a contact with lower level institutions and we expect some answers on priority settings in science from them.

CROATIA

S&T priority setting exercises on a national level

Q0. Do you have national S&T priorities?
YES

Q1. If YES in which specification your national priorities have been defined (i.e. Information Communication Technologies (ICT) – ICT solutions – e-business- ?)
For Croatia, the priorities that enable globalization of knowledge, scientific propulsion, economic effiiency based on the values of a humane society and those

that directly support a rapid progress of basic ectors of the economy, are the most promising. In those areas priorities such as *biotechnologies, new ynthetic materials, nanotechnologies* and others will be recognized. Within these priorities Croatia hould dentify, encourage and develop highly specialized niches, through which it would become recognizable in the global knowledge society and be of importance in the world market. Full support should also be given to other areas for which the industry expressed interest and readiness to invest through its R&D projects. The technological area is not taken into account here, but the expression of economic interest to invest in particular areas, such as industrial design or data visualization. Certain areas should also be included within the priority areas, namely those which are not directly linked to economic competitiveness, but are important in the circumstances of rapid changes in the international environment, globalization, and the perspective of Croatia's EU accession.

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The following research themes are relevant:

• fundamental knowledge about man and society, necessary for Croatia's national development

• development of understanding of humanity, national identity and distinction

• preservation of natural wealth and cultural heritage, including linguistics research

• research with the purpose of increasing the effectiveness of the state apparatus and of developing a modern democratic society

• understanding and grasping social processes and risks that the new technologies bring, global economic growth, changes in the demographic structure and increased complexity of governing modern societies

• research with the purpose of developing national security and positioning Croatia in the international arena

• knowledge-driven fundamental research

Q2. Is the definition of your national S&T priorities, the outcome of a national initiative? If NOT with whose support were they selected?
YES

Q3. Could you describe the methodology that your national S&T priorities came up? (i.e. Policy makers' decision, National foresight exercise, national surveys and studies, SWOT analysis, national panel of experts, international panel of experts, thematic conferences or workshops, open consultation etc)
Policy makers decision and National Foresight Exercise, National panel of experts

Q4. Could you identify which were the key issues that influenced your national S&T priority setting? (i.e. Economic Importance, Strategic Importance, Research & Technological Opportunities, Application Capacity (absorption potential of application sectors, Research & Technology Capacity, production potential of R&D, etc.)
Economic importance, Application capacotoes

Q5. Could you describe some lessons learnt from your national S&T priorities setting (i.e. Lack of expertise /know-how in some fields by experts, potential conflicts of interest between experts /policy makers etc.)
No

Q6. Are your national priorities described in an official document? (i.e. legal document, action plan, operational programme etc.)
Yes, “Science and technology policy 2006 – 2010”

Q7. Are your national priorities influenced by the priorities of FP6 & FP7?
Partly

Q8. Are your national priorities influenced by your bilateral co-operation with other countries and the “demands” of the counterparts?
Partly

Q9. How often do you update your national priorities?
Periodicylly (every 4 years)

Q10. Do you implement your national priorities (as your national research strategy) in all your national programmes and calls? Are there any deviations? Matching of public/private research capacities?
In principle

Q11. Do your national priorities influence your educational and research system? (i.e support of labs or research centres or PhDs that are in line with these priorities)
Yes

FORMER YUGOSLAV REPUBLIC OF MACEDONIA

S&T priority setting exercises on a national level

Q0. Do you have national S&T priorities?
Yes, We have defined priority areas:
- Sustainable growth and EU Integration
- Biotechnology

- -High- Quality Food Productio
- Water resources management
- - Energy Sector
- - New Materials
- - Environmental protection
- - ICT
- - Health
- - Earth Science and engineering
-

Our national S&T priorities are:

- Modernization and improvement of S&T and providing integrated research policy;
- Increase of the Gross Expenditures (GERD) for R&D to 1,8% of GDP , until 2010 – by Government Decision;
- Increase and strengthening the capacity the Macedonian research community for better participation in the ERA in general, and in certain EU Programmes: FP7, COST, and EUREKA
- Capacity building of NCP-s for the above mentioned programmes
- Support and motivation on the business sector for increase of their investment in R&D by tax deduction and tax incentives, foreign investment attraction, etc.
- Defining the criteria for evaluation of the centers for network of excellence
- Providing conditions for establishment of data bases for researchers, R&D projects (local and international projects) and bibliography

Q1. If YES in which specification your national priorities have been defined (i.e. Information Communication Technologies (ICT) – ICT solutions – e-business- ?)

National Development Plan 2007-2009

National Programme for S&T Development, 2006- 2010

Laws of Science and Technological Development and Innovation

National Strategy for ICT Development 2007-2010

Strategic Plan for 2008-2010 of the Ministry of Education and Science

Programme for the development of entrepreneurship and competency of SMSs in 2008

Q2. Is the definition of your national S&T priorities, the outcome of a national initiative? If NOT with whose support were they selected?

Mainly national initiative supported by EU, World Bank , NATO, UNESCO, IAEA, etc.

Q3. Could you describe the methodology that your national S&T priorities came up? (i.e. Policy makers' decision, National foresight exercise, national surveys and studies, SWOT analysis, national panel of experts, international panel of experts, thematic conferences or workshops, open consultation etc)

- Policy makers' decision and national Panel of Experts

Q4. Could you identify which were the key issues that influenced your national S&T priority setting? (i.e. Economic Importance, Strategic Importance, Research & Technological Opportunities, Application Capacity (absorption potential of application sectors, Research & Technology Capacity, production potential of R&D, etc.)

- Economic Importance, Strategic Importance, Research & Technological Opportunities, Application Capacity (absorption potential of application sectors, Research & Technology Capacity, production potential of R&D

Q5. Could you describe some lessons learnt from your national S&T priorities setting (i.e. Lack of expertise /know-how in some fields by experts, potential conflicts of interest between experts /policy makers etc.)

Lack of mechanisms and tools for evaluation and bench-marking and lack of awareness for the need of setting-up strategic priorities and lack of inter - ministerial and inter-institutional collaboration in this regard

Q6. Are your national priorities described in an official document? (i.e. legal document, action plan, operational programme etc.)

Yes,

National Programme for S&T Development, 2006- 2010

National Strategy for ICT Development 2007-2010

Strategic Plan for 2008-2010 of the Ministry of Education and Scinece

- Laws of Science and Technological Development and Innovation

Q7. Are your national priorities influenced by the priorities of FP6 & FP7?

Yes, becoming associated country in FP7, the Ministry has fully adjusted the national science policy to the priorities of it.

Q8. Are your national priorities influenced by your bilateral co-operation with other countries and the “demands” of the counterparts?

Our national priorities are influence mainly by regional and EU cooperation and in this direction we are open for “demands” of other countries on the bilateral level

Q9. How often do you update your national priorities?

Approximately in every 3-4 years

Q10. Do you implement your national priorities (as your national research strategy) in all your national programmes and calls? Are there any deviations? Matching of public/private research capacities?

We put all our efforts to implement the defined national priorities in our national programmes, but due to lack of fund, inefficient S&T and out dated infrastructure facilities, development mechanisms of knowledge transfer and research results in the business sector, inconvenient distribution of researchers by sector (the number of researchers in the business sector is very poor), small investments in applied research and innovation; low level of private investment in R&D sector, unsatisfactory ratio of young researchers, serious brain –drain , etc

Q10. Do your national priorities influence your educational and research system? (i.e support of labs or research centres or PhDs that are in line with these priorities)

Yes, especially by the approval of the new Science and Technology Laws will be provided of conditions for establishment of better links between the science and university education and modernization of research activity in general .

MONTENEGRO

S&T priority setting exercises on a national level

Q0. Do you have national S&T priorities? Yes

Q1. If YES in which specification your national priorities have been defined (i.e. Information Communication Technologies (ICT) – ICT solutions – e-business- ?) ICT, Biotechnology, Renewable Energy Sources, Materials, Tourism, National History, Cultural Heritage, Environment, Infrastructure and Transport

Q2. Is the definition of your national S&T priorities, the outcome of a national initiative? If NOT with whose support were they selected?

It is the outcome of the National Strategy of Scientific Research Activities, through the process of identifying the national capacities and needs in different fields, as well as the potential enhancing of competitiveness, based on the existing conditions. Beside that, the priorities are defined through the real labour market needs, as well as the economic needs and existing human capacities.

Q3. Could you describe the methodology that your national S&T priorities came up? (i.e. Policy makers' decision, National foresight exercise, national surveys and studies, SWOT analysis, national panel of experts, international panel of experts, thematic conferences or workshops, open consultation etc)

The process started with national surveys and kind of SWOT analysis, done by the group of national experts, in the process of reviewing other national strategic documents, like Spatial Plan, National Strategy of Sustainable Development, National Strategy for Higher Education, the draft of National Strategy of Energy Efficiency. One of the strongholds of the methodology for setting S&T priorities are the self-evaluation process and process of international, external evaluation of the University of Montenegro, which is the most prominent institution in S&T field. These provided comprehensive screening of actual S&T human capacities and infrastructure.

Q4. Could you identify which were the key issues that influenced your national S&T priority setting? (i.e. Economic Importance, Strategic Importance, Research & Technological Opportunities, Application Capacity (absorption potential of application sectors, Research & Technology Capacity, production potential of R&D, etc.)

The key issues influencing priority setting were: Economic Importance, Strategic Importance and Research and Technological Opportunities, Application Capacity

Q5. Could you describe some lessons learnt from your national S&T priorities setting (i.e. Lack of expertise /know-how in some fields by experts, potential conflicts of interest between experts /policy makers etc.)

One of the most significant lessons was the lack of some important parallel documents we could rely on like Strategy of technological development or Strategy of national development. Combined with the evident lack of experience and expertise in priority settings, it was one of the most difficult obstacles in the process. The situation of conflict of interest between the experts and policy makers was very evident because of the fact that we suffer of some overloaded scientific fields (in terms of human capacities) which are not among the priorities. These are usually some technical fields with very referent list of scientists with certain demands toward the research community, especially in way of setting priorities and future funding system.

Q6. Are your national priorities described in an official document? (i.e. legal document, action plan, operational programme etc.)

The national priorities are described in the National Strategy of Scientific Research Activities.

Q7. Are your national priorities influenced by the priorities of FP6 & FP7?

They are influenced in a certain way, but the FP priorities were not crucial for the national setting of priorities

Q8. Are your national priorities influenced by your bilateral co-operation with other countries and the “demands” of the counterparts?

No

Q9. How often do you update your national priorities?

This is the very first time that Montenegro has set up its priorities as the independent country.

Q10. Do you implement your national priorities (as your national research strategy) in all your national programmes and calls? Are there any deviations? Matching of public/private research capacities?

Ministry of Education and Science is responsible for national, bilateral and multilateral S&T funding. Starting from this year, Ministry has made some efforts to envisage the national priorities through its calls by system of funding in terms of quantity and type of eligible costs within the different fields. Yet it is not completely done, because of the aforementioned situation of overloaded fields which are not the priority fields but need some balanced treatment on national level.

Q11. Do your national priorities influence your educational and research system? (i.e support of labs or research centres or PhDs that are in line with these priorities)

Not completely for the moment, but it should be envisaged for the future at least through the funding system

SERBIA

S&T priority setting exercises on a national level

Q0. Do you have national S&T priorities?

A. 0. Yes, we have the national S&T priorities

Q1. If YES in which specification your national priorities have been defined (i.e. Information Communication Technologies (ICT) – ICT solutions – e-business- ?)
A.1. The modern S&T infrastructure, attractive career opportunities and a stimulating environment, when the innovation and knowledge present the key factor of society development, are the specification of national priorities. According to the mentioned key factors, there are following specification of the national priorities:

1. Programme for basic research: 1. **Physics** (twenty two thematic fields), 2. **Chemistry** (sixth thematic fields), **3. Mathematics and mechanics** (twenty one thematic fields), 4. **Medicine** (sixth thematic fields), 5. **Biology** (six thematic fields), 6. **Earth Sciences**: Astronomy/ seventh thematic fields; Geology /sixth thematic fields; Meteorology/three thematic fields; Geography /seven thematic fields, 7. **Social Sciences**/ ten thematic fields, 8**. Literature and language** (fifteen thematic fields), 9. **History** (five thematic fields): Archaeology (four thematic fields), Ethnology and anthropology (three thematic fields), History of art (five thematic fields) and Musicology (two thematic fields).

2. **Technological Development, Transfer of Technologies and Innovation System Programme:**

2.1. Technological Development: Information technology, Technology materials and chemical technology, Mechanical engineering and industry of software, Traffic and Civil Engineering, Biotechnology and Technology of energetic/ Efficiency of Energy, Biotechnology with agronomic industry, protection and use of waters in Serbia

2.2 Transfer of Technologies and Innovation System: establishment of a sustainable bridge between research organizations and industry, based on knowledge, for a more important application of results of scientific and development research in economy and for assure methods for a direct transfer of knowledge and technologies into the enterprises

2.3. International Science and Technological Cooperation Programme: priorities focused on the integration to the European research area and regional and bilateral cooperation development.

2.4. Human Resources Development in Science Programme: priorities focused on the improving human capacity building and international mobility

Q2. Is the definition of your national S&T priorities, the outcome of a national initiative? If NOT with whose support were they selected?

A. 2. According to the national policy defined in the Law of the Ministries, the Ministry plays a decisive role in all main strategic decisions, such as creation of a S&T strategy and policy as well as R&D programmes, setting up of rules and procedures for all R&D activities financed and promoted by the Ministry, certification of R&D organisations and researchers, negotiation, building-up and financing of international bilateral and multilateral S&T cooperation, co-financing of technological development projects and programmes for and with industrial and other public companies, research in the field of nuclear energy and nuclear safety. Based on the mentioned, the main S&T priorities are the results of the national legislation.

Q3. Could you describe the methodology that your national S&T priorities came up? (i.e. Policy makers' decision, National foresight exercise, national surveys and studies, SWOT analysis, national panel of experts, international panel of experts, thematic conferences or workshops, open consultation etc)

Policy maker's decision

A. 3. Ministry of Science suggests the Strategy which adopt the Government. The legal procedure for the Strategy creating is following:

The Strategy is defined in **the National Law of S&R activities**. According to the Law, the main strategy activities are: the current state of the scientific research activities analyzing, defining the aims and priorities of S&T development which should be achieved on the national level, defining the funding resources which should be allocated from the national fund for the S&T activities, defining the scientific areas and disciplines which should be developed and funded, as well as the scientific and technology needs and other defined activities focusing on the plan of the Strategy realization. The main Body responsible for the creating and monitoring of the Strategy is **S&T National Council**. This is the highest body in the national S&T system. The Council, which has been established in April 2006, composed of 17 members who are academics, university professors, scientific and businessman.

The Government adopts the Strategy on the suggestion of the Ministry of Science.

Q4. Could you identify which were the key issues that influenced your national S&T priority setting? (I.e. Economic Importance, Strategic Importance, Research & Technological Opportunities, Application Capacity (absorption potential of application sectors, Research & Technology Capacity, production potential of R&D,

A. 4. According to the general goal of the Ministry of Science, the key issue that influenced on national S&T priorities setting is creating a new, competitive and open economy which will allow Serbia to speed up the process of economic and social growth. Science and technology can propel in the right direction and help take advantage of the existing possibilities for fast, yet sustainable, development

Q5. Could you describe some lessons learnt from your national S&T priorities setting (i.e? Lack of expertise /know-how in some fields by experts, potential conflicts of interest between experts /policy makers etc.)

A. 5.

Q6. Are your national priorities described in an official document? (I.e. legal document, action plan, operational programme etc.)

A. 6. Legal document: the Law on the Ministry (through activities of the Ministry of Science), Law of the Ministry of S&R activities and the Law on the Innovation activities

Q7. Are your national priorities influenced by the priorities of FP6 & FP7?

A. 7. one of the goals of the Ministry of Science is use the S&T potential for the integration into European Research Area. According to this, the Ministry active participate in the mentioned Programme, especially in the part of the programme which are mainly connected with the national priorities setting: strengthening the regional and European cooperation, institution building and S&T infrastructure development, improving human capacity building and international mobility, fostering innovation potential in the countries through academia-industry relationships.

Q8. Are your national priorities influenced by your bilateral co-operation with other countries and the "demands" of the counterparts?

A. 8. Priorities on the bilateral level are the result of the national priorities which are common for both of countries.

Q9. How often do you update your national priorities?

A. 9. Five years.

Q10. Do you implement your national priorities (as your national research strategy) in all your national programmes and calls? Are there any deviations? Matching of public/private research capacities?

A. 10. The National Programmmes are the key factor for the implementation national priorities. The following National Programme consist: The Basic Research Programme, Technological Development, Transfer of Technologies and Innovation System Programme, The Human Resources Development Programme and International R&D Co-operations Programme.

Q11. Do your national priorities influence your educational and research system? (I.e. support of labs or research centers or PhDs that are in line with these priorities)

A. 11. National priorities influents to the Research System by supporting of the Labs and Research Centres through different Programmes of Institutional building and S&T infrastructures development on the national and international level. From the other side, the Ministry supports Education System through funding the best PhD students during the period of PhD studies.

ANNEX 2: National S&T priorities in the WBC

Croatia	• fundamental knowledge about man and society, necessary for Croatia's national development • development of understanding of humanity, national identity and distinction • preservation of natural wealth and cultural heritage, including linguistics research • research with the purpose of increasing the effectiveness of the state apparatus and of developing a modern democratic society • understanding and grasping social processes and risks that the new technologies bring, global economic growth, changes in the demographic structure and increased complexity of governing modern societies • research with the purpose of developing national security and positioning Croatia in the international arena • knowledge-driven fundamental research
Montenegro	ICT, Biotechnology, Renewable Energy Sources, Materials, Tourism, National History, Cultural Heritage, Environment, Infrastructure and Transport
Former Yugoslav Republic of Macedonia	- Sustainable growth and EU Integration - Biotechnology - High-Quality Food Production - Water resources management - Energy Sector - New Materials

- Environmental protection
- ICT
- Health
- Earth Science and engineering

Serbia

1. **Physics** (22 thematic fields), 2. **Chemistry** (six thematic fields), **3. Mathematics and mechanics** (21 thematic fields), 4. **Medicine** (six thematic fields), 5. **Biology** (six thematic fields), 6. **Earth Sciences**: Astronomy/ seven thematic fields; Geology /six thematic fields; Meteorology/three thematic fields; Geography /seven thematic fields, 7. **Social Sciences**/ten thematic fields, 8**. Literature and language** (15 thematic fields), 9. **History** (five thematic fields): Archaeology (four thematic fields), Ethnology and anthropology (three thematic fields), History of art (five thematic fields) and Musicology (two thematic fields).

2. **Technological Development, Transfer of Technologies and Innovation System Programme:**

2.1. Technological Development: Information technology, Technology materials and chemical technology, Mechanical engineering and industry of software, Traffic and Civil Engineering, Biotechnology and Technology of energetic/ Efficiency of Energy, Biotechnology with agronomic industry, protection and use of waters in Serbia

2.2 Transfer of Technologies and Innovation System: establishment of a sustainable bridge between research organizations and industry, based on knowledge, for a more important application of results of scientific and development research in economy and for assure methods for a direct transfer of knowledge and technologies into the enterprises

2.3. International Science and Technological Cooperation Programme: priorities focused on the

	integration to the European research area and regional and bilateral cooperation development. **2.4. Human Resources Development in Science Programme:** priorities focused on the improving human capacity building and international mobility
Albania	Human Science and Albanology; ICT; Environment and Diversity; Agriculture and Food; Health; Materials; Water and Energy