

THE ENVIRONMENTAL RESEARCH IN MONTENEGRO

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- NATIONAL REPORT -

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ABSTRACT

The report provides a brief overview of the environmental research in Montenegro with the scope to define and set priorities in term of sub-areas of common regional interest for the enhancing of FP participation. It covers the most important issues, themes and sub-themes in environmental research on national land.

Intification of national strengths thus enabling the definition of potential national priorities.

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I Montenegrin environmental policy framework

Environmental national policy

The environmental policy, as a part of the overall Montenegrin integration process in relevant international frame, initiates changes in sustainable exploitation and management of natural resources, institutional reforms and the fostering of institutional national capacities, harmonization of national legislative with the European ones and establishing of the implementation mechanisms.

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The most important institutions that are in charge for the environmental research and legislation are Montenegrin Academy of Science and Arts, University of Montenegro, research institutes and some other public institutions

The documents focused an environmental research and sustainable policy.

Strategy on scientific – research activities which is adopted in June 2008 and should be implemented during the period of eight years.

Strategy of sustainable development adopted in March of 2007.

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The fields that are covered by the legislative documents

- Law on Spatial Planning and Building of Objects (Official Gazette 51/08)
- Law on Environment Protection (OG 48/08)
- Law on Strategic Environmental Impact Assessment (OG 80/05)
- Law on Environmental Impact Assessment (OG 80/05)
- Law on Integrated Pollution Prevention and Control (OG 80/05)
- Law on Waters (OG 27/07)
- Law on Waste Management (OG 80/05)
- Law on Air Pollution Protection (OG 14/80, 16/80, 27/94)
- Law on Environmental Noise Protection (OG 45/06)
- Law on Communal Activity (OG 12/95)
- Rulebook on the Contents of the Environmental Impact Assessment Analysis (OG 14/07)
- Rulebook on the Quality and Sanitary-Technical Conditions for Release of Waster Waters in the Recipient and Public Sewage, manner and procedure of waster water quality investigation, the minimal number of investigations and the content of the report on waste waters quality (OG 45/08)
- Rulebook on Allowed Concentrations of Hazardous Substances in the Air (OG 4/82, 8/82)
- Rulebook on Emission of Air Polluting Substances (OG 25/01)

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II Economic data for environmental sector

Financing of scientific-research activity

The scale of investment into this area so far was insufficient in comparison with the norms of the community we aspire to.

Previous investments should not be justified by the fact that we are a small and poor country, because the indicator of “% of GDP for S&T” is equally “heavy” for every country.

According to the existing available data being collected by MONSTAT, we can obtain some data from two categories of indicators: Investment into scientific-research activity and Monitoring of those employed in science.

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Ministry of Education and Science has not innovated the procedures and standards for licensing scientific-research institutions and registration into the Register, accordingly there is no clear picture of the degree of the institutional involvement in RTD.

Table 1. Data on investments into GDP

Year	GBAORD				GERD			
	MN	EU-25	Max	Min	MN	EU-25	Max	Min
2002	0,06				0,14			
2003	0,05				0,08			
2004	0,08				0,18			
2005	0,03	0,74	1,5	0,09	0,16	1,86	3,7	0,37
2006	0,03				0,04			

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Table 2. Review of funds allocated for science from the Budget over the Ministry of Education and Science for the period 1997-2004

Year	1997	1998	1999	2000	2001	2002	2003	2004
% of budget	0,42	0,75	0,74	0,60	0,82	0,69	0,33	0,30
% of realization	0,27	0,33	0,26	0,26	0,29	0,40	0,29	0,30

Table 3. Review of distribution of funds of the Ministry of Education and Science for the period 2005-2007

Year	Total €	SR projects (equipment)	SR professional development	International cooperation
2005	722 000	47,00%	46,40%	6,60%
2006	600 000	57,16%	27,67%	15,17%
2007	900 000	57,78%	22,00%	20,22%
2008	1 591 000	83,10%	13,20%	3,70%

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Scope of financing

Highly recommended value 3% of GDP is impossible to reach.

According to some predictions for the Region, it is possible to allocate a minimum of 1% for S&T until 2011. One should be realistic and notice that allocation of 1% in 2011 will be difficult to realize.

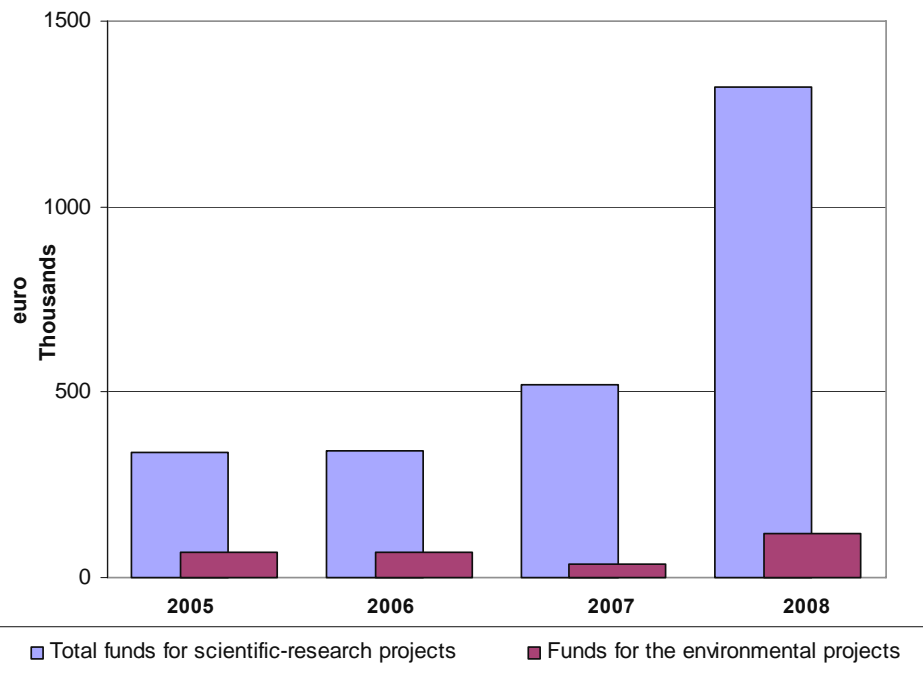
Ministry of Education and Science has allocated to finance scientific-research projects (2005-2008), the part that can be considered as the funding of the environmental projects was 285.569 E or 11,321%.

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Table 4. Overview of the total funds allocated to the scientific-research projects, and environmental projects

	2005	2006	2007	2008
Scientific-research project – total funds, (€)	339.340	342.960	520.020	1.322.000
Environmental projects, (€)	67.072	67.072	34.740	116.985
%	19,77	19,56	9,68	8,85



Slika 1. Total funds for SR projects and environmental projects in period 2005-2008

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Strategy for scientific-research activities of Montenegro predicts a certain growth of investment into the SRA by 2013 (Fig. 2) which predicts the SRA investment of 1,4% GDP with the public participation of 0,8%. That means that also the industry and private sector even in the environmental protection should finance much more then now.

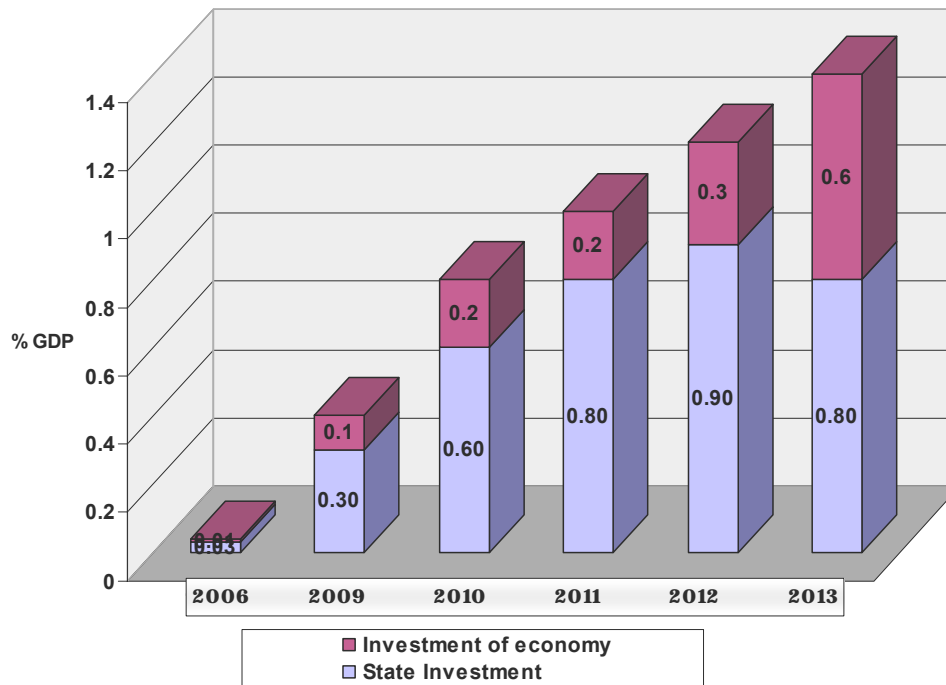


Figure 2. Proposal for growth of investment into SRA by 2013

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Financing of the environmental research was performed not only under the umbrella of Ministry of Education and Science, but also through the funds available within the Ministry of Tourism and Environmental Protection.

Table 5. Budget of the environmental sector in former Ministry of environmental protection and urban planning in period 2002-2006 (mil €)

Environmental sector	2002	2003	2004	2005	2006
Overall incomes	0,829	1,114	0,766		1,500
Overall outcomes	1,007	1,279	0,866	1,082	1,600
% from the total governmental spendings	0,1	0,1	0,1	0,1	0,1

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Table 6. Actual budget of the Ministry of Tourism and Environmental Protection (mil €)

	2006	2007	2008
Budget of the Ministry	2,600	1,800	5,300
Costs on materials and services	1,51	1,53	5,50

Budget for 2009 for the all capital projects (excluded the projects about the plant for the waste waters treatment, building of the headquarters for the Environmental Agency and Integrated management of Skadar Lake) is 9.600.000 €.

Strategic master plan for the management of solid waste predicts the investment of about 62.000.000 € in period 2005-2009, waste waters treatment in Cetinje region of about 28.000.000 € in period 2004-2008

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III Institutional structure

Research infrastructure

No institutions in Montenegro dealing exclusively with the environmental research.

The infrastructural level varies from institution to institution e.g. better research performing and human capacities go along with the higher education and research while the everyday monitoring is basically performed in the public institutions and institutes dominantly market-oriented.

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The institutions that have research equipment

The University of Montenegro:

- Faculty of Natural Sciences (Department of Biology and Physics),
- Faculty of Metallurgy and Chemical Technology,
- Biotechnical Faculty,
- Institute of Marine Biology.

The public institutions:

- Centre for Eco-toxicological Research,
- Hydro-meteorological bureau.

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Human resources

Table 7. The overall number of employees in scientific-research organization, the number of researchers with the academic position and titles and number of research assistants

YEAR	The overall number of employees	Researchers with academic position	Research assistants
2005	1246	633	241
2006	1233	602	282
2007	1344	671	276

Table 8. The breakdown of the researchers' position through the period of time 2005-2007

YEAR	The overall number of researchers	Researches at the University	%	Researches at the institutes	%	Researches in public institutions	%
2005	633	521	82,3	86	13,6	26	4,1
2006	602	486	80,7	89	14,8	27	4,5
2007	671	556	82,9	82	12,2	33	4,9

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There are no precise data about the number of researchers dealing with the environmental research..

Data from 2008 operate with the 16 PhDs, scientific researchers and 12 masters, means less than 5% of the overall number of researchers in Montenegro.

This number should be enlarged by the figures of researchers which participated in environmental programs with the industrial subjects.

The exact data about the published papers in environmental field among the researchers in Montenegro are not available.

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IV Programs and projects in environmental research sector

Projects and programs on National level

Ministry of Education and Science, through the wide-research national call, finance also the environmental research and projects.

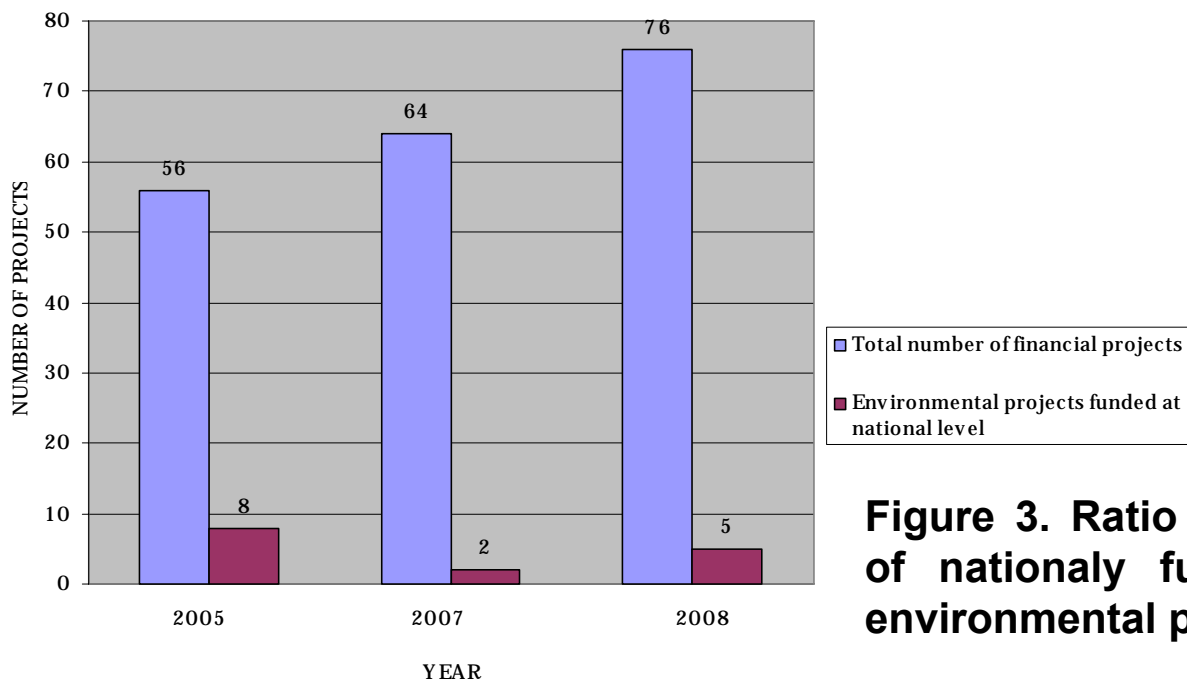


Figure 3. Ratio between the overall number of nationally funded projects and funded environmental projects

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Most of the projects cover the research on the marine and coastal protection, as well as protection of Skadar Lake and the influence of different sediments on the quality of flora and fauna. Some of the technologically oriented projects were also present like the project dealing with the research on the possibility of industrial waste valorization.

All of the projects were performed at the University of Montenegro.

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There are no valid data from the Ministry of Tourism and Environmental Protection about the number of funded projects at national level.

According to the data obtained from the University of Montenegro and Governmental institutions, it can be concluded that aforementioned Ministry has funded the projects dealing with monitoring of Montenegrin biodiversity, coastal protection, marine research, water, soil and air quality.

In 2009, through the international funding, Ministry of Tourism and Environmental Protection will finance the projects about dumps, integrated management of Skadar Lake ecosystem, and treatment of waste waters.

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Financing by the instruments of pre- accession to EU (IPA-funds)

Through five components among which the two are eligible for Montenegro:

- Support for the transition and institutional fostering
- Regional and cross-border cooperation

For 2008 several projects have been delegated in the coordination with European Agency for Reconstruction and Montenegrin Secretariat for European integration. In the first eligible component some of the projects have been delegated, dominantly dealing with the fostering of capacities in the implementation of Law of strategic assessment on environmental impact and Law on integrated pollution control.

- Fostering the capacities in industrial sector
- Fostering the capacities for the establishing of the protected areas network NATURA 2000.

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From 2008 Montenegro has received a significant financial support for the environmental sector. From 2001 the EU support to Montenegrin Development was enabled through the EU program for the reconstruction, development and stabilization (CARDS).

Table 9. CARDS funds in Montenegro in period 2002-2006

Year	Project	Environmental CARDS investment	Total investment
2002	Treatment of waste waters	1,7 mil €	12,0 mil €
2003	Solid waste management	2,7 mil €	12 mil €
2004	Investment in infrastructure	3 mil €	22,5 mil €
2005	Plant for waste waters treatment	1,6 mil €	18,5 mil €
2006	Environmental Agency	1	

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Programs of bilateral cooperation in the environmental field

As the result of bilateral cooperation in 2007 and 2008 Ministry of Tourism and Environmental Protection has signed contracts for 15 projects with 8 European countries.

The projects have covered several sub-themes as follows:

- Environmental management, especially in the coastal zone of Adriatic sea, and region of Skadar Lake,
- Harmonization of national environmental activities with the EU directives,
- Strategic assessment of environmental impact,
- Physical and spatial planning,
- Projects of dumps development,
- Information system in environmental protection.

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Bilateral environmental cooperation under the umbrella of Ministry of Education and Science is concretized only with the Republic of Slovenia.

Table 10. Number of bilateral projects of Ministry of Education and Science in period 2005-2007.

Year	2004/05	2005/06	2006/07
Number of projects	6	2	7

Just 1 out of 15 agreed bilateral projects, according to its content, could be defined as the environmental one.

The funds per project are extremely low, in the range of 500-600 €.

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Cooperation with relevant international Organization (GEF, UNEP, UNDP, UNIDO, UNECE, UNESCO, IAEA, UNCSD)

Montenegro participates and benefit the funds and projects from the following organizations:

- Global Environmental Fond (GEF)
- United Nations Environmental program (UNEP)
- United Nations Development Program (UNDP)
- United Nations Economic Commission for Europe (UNECE)
- United Nations Commission for Sustainable Development
- United Nations Industrial Development Organization

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One of the most prominent projects were carried out and funded by GEF, like:

- Biodiversity issues,
- Climate change,
- International waters issue,
- Soil degradation,
- Persistent organic pollutants (POPs).

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Major environmental research areas in Montenegro according to the main findings and future needs - areas recommended

In the context of regional and sub-regional development it is very important that Montenegro participates in the following organizations:

- European Agency for Reconstruction (EAR)
- European Environmental Agency (EEA)
- Mediterranean Action Plan (MAP)
- Regional Environmental Centre (REC)

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V Future priorities that can also be defined in the frame of Report

- **Cross-border ecosystems management**
- **Water management (lakes and rivers)**
- **Management and protection of marine eco-systems**
- **Climate change**
- **Biodiversity**
- **Persistent organic pollutants**
- **Cleaner production**
- **Sustainable management of chemicals**
- **Sustainable production and consumption**

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VI SWOT analysis of the environmental research in Montenegro

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Strengths

- Proper development of education and learning in all 3 cycles of higher education
- Progressively growing demands for the harmonization with the EU directives
- Progressive extension of available funds and donations
- Government commitment toward the establishing of the conditions for environmental research
- Growing of financing of environmental projects
- Current structure of institutional set-up
- Existing of legislative and national bodies dealing with the RTD

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St Weaknesses

- Lack of legislation and inefficient existing legislation
- Lack of financial resources for equipment renewal
- Low number of research projects and publications
- Lack of national standards in accreditation of RTD institutions
- Lack of the efficient intersectoral links and policies
- Motivation of young scientists

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Opportunities

- Increasing of national and international funding
- Increasing awareness of the position of environmental issues in overall economic development
- Increased scientific support to the policy makers
- Increased knowledge transfer between academia and industrial sector
- Increased frequency of academic mobility
- Increasing networking opportunities

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Threats

- Lack of specialized experienced researchers
- Drop behind in the process of EU integration
- Significant ratio between applied and basic research
- Undefined competences among the public and research institutions.

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VII CONCLUSIONS

With all already defined themes and sub-themes there is a lot of potential for the all kinds of cooperation especially on regional level with the same kind of heritage, geographical and environmental similarities as well as the same problems and lack of funding.

The adequate increase of investment should go along with the popularization of environmental research in general at all levels of public apparatus and academia as well with the adequate statistical follow up.