

**Project Fiche – 2009 IPA Horizontal Programme
on Nuclear Safety and Radiation Protection**

1. Basic information

Background:

- 1.1 CRIS Number:** 2009/021-640
1.2 Title: Strengthening radiation protection and nuclear safety through capability upgrading of CETI
1.3 Sector: 03.64 – Nuclear Safety
1.4 Location: Podgorica (Montenegro)

Implementing arrangements:

1.5 Contracting Authority:

The European Community represented by the Commission of the European Communities for and on behalf of Montenegro

1.6 Implementing Agency:

Not applicable.

1.7 Beneficiary

Centre for Ecotoxicological Research of Montenegro (CETI)

Address: Put R. Ivanovica 2, MNE-81000 Podgorica, Montenegro,
Tel: +382-81-658090
Fax: +382-81-658092
E-mail: juceti@cg.yu

Project managers:

Ms. Ana Misurovic, Director
Tel: +382-20-658090
Fax: +382-20-658092
Mob. +382-67-620626
E-mail: anajuceti@t-com.me

Mr. Tomislav Andjelic, Head of department
Tel: +382-20-658090
Fax: +382-20-658092
Mob. +382-67-617711
E-mail: tomo.a@t-com.me

Mr. Nikola Svrkota, Head of dosimetry unit
Tel: +382-20-658090
Fax: +382-20-658092
Mob. +382-67-279346
E-mail: nsvrkota@t-com.me

Financing:**1.8 Overall cost (VAT excluded)¹:** EUR 138 000**1.9 EC contribution:** EUR 105 000**1.10 Final date for contracting:** 2 years following the date of conclusion of the financing agreement**1.11 Final date for execution of contracts:** 2 years following the end date for contracting**1.12 Final date for disbursements:** 1 year following the end date for execution of contracts**2. Overall Objective and Project Purpose****2.1 Overall Objective**

To improve radiation protection and nuclear safety in Montenegro.

2.2 Project purpose

To upgrade the technical capabilities of the Centre for Ecotoxicological Research of Montenegro (CETI).

Through this upgrading, it will be possible to broaden the certification/accreditation of CETI activities, so as to fully cover the radiation protection and nuclear safety area which is of relevance in Montenegro.

2.3 Link with AP/NPAA/EP/ SAA

The 2007/49/EC Council Decision of 22 January 2007 on the principles, priorities and conditions contained in the European Partnership with Montenegro specifies that a nuclear regulatory body should be in place and that appropriate legislation in the field of nuclear safety and radiation protection should be laid down. It also mentions that actions should be undertaken in order to facilitate the ratification of the international nuclear safety conventions to which EURATOM is already a contracting party. Since the CETI is the TSO of the Montenegrin regulatory body, its upgrading is in line with the enhancement of the technical capacity of the latter.

2.4 Link with MIPD

The IPA Multi-beneficiary Multi-annual indicative Planning Document (MIPD) 2009-2011², *section 2.3.3.11 - Nuclear Safety and Radiation Protection*, includes among its objectives “enhance the technical competence and administrative capacity of the national radiation safety authorities and other relevant public organisation”. Since the CETI is the Technical Support Organisation of the Montenegrin nuclear regulator, enhancement of its technical capabilities is fully in line with the Multi-beneficiary MIPD.

2.5 Link with National Development Plan

Not applicable.

2.6 Link with national/sectoral investment plans

¹ The total cost of the project should be net of VAT and/or other taxes. Should this not be the case, the amount of VAT and the reasons why it should be considered eligible should be clearly indicated

² Include reference

Not applicable.

3. Description of project

3.1 Background and justification

Montenegro is a 'non-nuclear' country, which means that use of radiation sources is limited to simple medical and industrial applications. The Public Institution Centre for Ecotoxicological Research of Montenegro (CETI) in Podgorica was founded by the Government of Montenegro in 1997 as a support institution for environmental monitoring including radiation protection. CETI Department for Radiation Protection and Monitoring (DRPM) performs most of the measurements, monitoring and expertise services in this field in the country. More information about CETI-DRPM (foundation, aims, current state of activities, future plans) is given in Annex III.

When analysing the existing radiation protection (RP) infrastructure and services in Montenegro, CETI-DRPM will appear as the principal stakeholder - having most of the necessary equipment, well qualified staff and efficient organisational structure. However, when comparing the existing capabilities (Annex III) with the desired level, some enhancement of the technical capabilities is still needed in two main areas:

-Monitoring of radioactivity in the environment and Certification/accreditation

In this field, the following equipment would be required:

- The CETI's system for Gamma Spectrometry is based on 2 Ortec's HPGe detectors of GEM type. Theoretically, energy range of this detectors starts with 40 keV, but these detectors have one major disadvantage because of high "noise" in low energy region, so the analysis of photo peaks in the region up to 100 keV is not reliable. To overcome this CETI needs to upgrade the existing gamma spectrometry system. With this upgrade CETI would be in position to have a system, which would be fully operational because all parts of the system would have its backup. If some of the system parts would mal-function the gamma spectrometry would not cease to function. This is very important for a system of preparedness/ response to radiological/nuclear emergency situations.
- The final step in upgrading CETI's performance in radiation protection and nuclear safety should be broadening the certification and accreditation of all methods/activities in place.

- Professional, patient and public exposure control and preparedness/ response to radiological/nuclear emergency situations

- The Personal thermo luminescent (TLD) dosimetry service was established in 2006 and is, so far, the only one in Montenegro. This is an important segment of radiation protection practice and of CETI activities as TSO to EPA: the nuclear regulator of Montenegro. CETI is authorised for these activities by the Ministry of Health and Ministry of Environmental Protection. The Personal thermo luminescent (TLD) dosimetry service is accredited as a method by the Accreditation body of Montenegro. There is a Harshaw 4500 TLD Reader and a set of 900 TLD cards (badges). From 2006, CETI contracted the services of the TLD control for all medical and other institutions in Montenegro. This service should be strengthened by additional equipment.

- One of the important activities of CETI is the control of imported goods. As Montenegro does not possess stationary portal monitors at its borders, CETI covers border controls by mobile teams equipped with hand held radiation measuring systems. This is also part of system of preparedness/ response to radiological/nuclear emergency situations primarily in terms of prevention of illicit trafficking of radioactive or nuclear materials. As CETI covers all Montenegro border crossings, CETI needs additional 5 (five) RadEYE type PRD and 2 (two) RadEYE AB 100 hand held radiation detectors.

3.2 Assessment of project impact, catalytic effect, sustainability and cross border impact (where applicable)

The upgrading of the technical capacity of the Montenegrin technical support organisation to the nuclear regulatory body should result in an improved control of the exposure to ionising radiation of workers and patients. It will allow the regulatory body to know whether the regulations in the field of radiation protection are respected and wherever necessary whether they should be enforced. It has a catalytic effect since a better understanding of the radiation risks of the Montenegrin population should open up to new regulations, reinforcement of the radiation protection measures in Montenegrin medical establishments as well as in some sectors of the industry. It has also a training component that should make the project sustainable. To a limited extent it has a cross-border impact since the delivery of hand held detectors should improve the measures taken by the police and customs to prevent and combat illicit trafficking of nuclear materials and radiation sources.

3.3 Results and measurable indicators:

Results in relation with activity 1:

- Measuring equipment of gamma emitters in a low energy range, purchased and installed in CETI's premises;
- Operation of an accredited and certified laboratory for the monitoring of the radioactivity into the environment;
- CETI users of the equipment properly trained.

Measurable indicators in relation with activity 1:

- Decreasing of sources of radioactive pollution of the environment.

Results in relation with activity 2:

- Hand held radiation detectors, purchased and delivered to mobile control CETI teams;
- Environmental TLD cards purchased and delivered to CETI;
- Measuring equipment for QC/QA controls of CT scanners purchased and delivered to CETI;
- CETI users of the equipment properly trained.

Measurable indicators in relation with activity 2:

- Increased number of detection of illicit trafficking of nuclear materials and radiation sources;
- Improved databases of radiation sources and individual/collective exposures as a result of the use of new equipment;
- Number of certificate attendances for trainees.

3.4 Activities***Activity 1: Supply contract, N° 1 in the field of Monitoring of the radioactivity in the environment and Certification/accreditation, including training of staff to use equipment***

- Activity 1.1: Ortec HPGe detector GEMX type with beryllium window, with additional equipment (GEMX50 – 83 detector, CFG – SV – GMX stream line vertical cryostat, Dewar 30 l, Cre 1 Cooling rod extension, NS919 E Multichannel Bufer, NS 672 Amplifier, Dual 5 kV detector HV supply, Von Gahlen Model VG-BB-98/19A detector housing), cca EUR 95 000.
- Activity 1.2: Certification and accreditation of CETI's methods/ activities in radiation protection and nuclear safety, cca EUR 10 000.

Activity 2: Supply contract N°2 in the fields of Professional, patient and public exposure control and preparedness/ response to radiological/nuclear emergency situations, including training of staff to use equipment

- Activity 2.1: 100 4 elements environmental TLD cards (type TLD 100/200, consist of two CaF₂: Dy – TLD 200 and LiF: Mg, Ti – TLD100), cca EUR 7 000.
- Activity 2.2: Additional equipment for RTI Barracuda multimeter (CT Ionisation chamber for RTI “Barracuda”, CT Phantom set, Case for CT Phantom set, MAS-3 mA and mAs probe for “Barracuda”, MPD Panoramic holder, ORTIGO Barracuda software, Bluetooth adapter for Barracuda), cca EUR 13 000.
- Activity 2.3: 5 (five) RadEYE type PRD and 2 (two) RadEYE AB 100, hand held radiation detectors cca EUR 13 000.

3.5 Conditionality and sequencing

Not applicable.

3.6 Linked activities

The International Atomic Energy Agency (IAEA) has provided Montenegro with some support over the last years through the following projects:

- Strengthening radioactive waste management;
- Improvement of radiotherapy;

- Upgrading a persistent organic pollutant laboratory towards accreditation for environmental monitoring.

3.7 Lessons learned

There is no specific lesson to be learnt from past IPA projects in Montenegro. In 2008 a similar project consisting of supplying CETI with some other types of equipment has been programmed. The technical specifications of this equipment are currently being drafted so that procurement can take place during the second half of 2009. So far no difficulty has been recorded. The IAEA projects contributed to enhance the technical capability of CETI in a number of areas and notably on radioactive waste management. As a result of the close coordination with IAEA, there is no duplication of projects in this field. The IAEA did not point out any major difficulty in delivering technical assistance and equipment to CETI.

4. Indicative budget (amounts in €)

			SOURCES OF FUNDING									
			TOTAL EXP.RE	IPA COMMUNITY CONTRIBUTION		NATIONAL CONTRIBUTION					PRIVATE CONTRIBUTION	
ACTIVITIES	IB (1)	INV (1)	EUR (a)=(b)+(c) (d)	EUR (b)	%(2)	Total EUR (c)=(x)+(y)+ (z)	% (2)	Central EUR (x)	Regional/ Local EUR (y)	IFIs EUR (z)	EUR (d)	% (2)
Activity 1		x	105 000	105 000	100							
Contract 1 - Supply			105 000	105 000	100							
Activity 2		x	33 000			33 000						
Contract 2 - Supply			33 000			33 000	100					
TOTAL IB												
TOTAL INV			138 000	105 000	76	33 000	24					
TOTAL PROJECT			138 000	105 000	76	33 000	24					

Amounts net of VAT

(1) In the Activity row use "X" to identify whether IB or INV

(2) Expressed in % of the **Total** Expenditure (column (a))

5. Indicative Implementation Schedule (periods broken down per quarter)

Contracts	Start of Tendering	Signature of contract	Project Completion
Contract 1 - Supply	Q2 2010	Q3 2010	Q1 2011
Contract 2 - Supply	Q2 2010	Q3 2010	Q1 2011

6. Cross cutting issues

6.1 Equal Opportunity

The project will benefit both women and men through improvements in radiation protection in the medical sector and the industry. On all activities, both men and women will have equal opportunities to compete for contracts and to work on any related activities.

6.2 Environment

There are substantial environmental gains to Montenegro by accomplishment of this project, since a better monitoring of the radioactivity will improve the quality of the environment and further contributes to sustainable economical development.

6.3 Minorities

On all activities, minorities will have equal opportunities to compete for contracts and to work on any related activities.

ANNEXES

- I- Logical framework matrix in standard format
- II- Amounts (in EUR) contracted and disbursed per quarter over the full duration of the project
- III- Description of Institutional Framework
- IV - Reference to laws, regulations and strategic documents
- V- Details per EC funded contract (where applicable)
- VI - CETI – Background Information
- VII - Endorsement Letter by the Ministry of the Environment

ANNEX I: Logical framework matrix in standard format

LOGFRAME PLANNING MATRIX FOR Project Fiche		Programme name and number: 2009 IPA Horizontal Programme on Nuclear Safety and Radiation Protection	
Strengthening radiation protection and nuclear safety through capability upgrading of CETI		Contracting period expires: 2 years following the date of conclusion of the financing agreement	Disbursement period expires : 1 year following the end date for execution of contracts
		Total budget : EUR 138 000	IPA budget: EUR 105 000
Overall objective	Objectively verifiable indicators	Sources of Verification	
To improve radiation protection and nuclear safety in Montenegro.	Periodic reports	CETI, EU-IPA missions, IAEA missions	
Project purpose	Objectively verifiable indicators	Sources of Verification	Assumptions
To upgrade the technical capabilities of the Centre for Ecotoxicological Research of Montenegro (CETI).	Periodic reports	CETI, EU-IPA missions,	There is endorsement by the Ministry of Tourism and Environmental Protection of Montenegro There is necessary organisational and personal infrastructure in CETI to accommodate the project
Results	Objectively verifiable indicators	Sources of Verification	Assumptions
Activity 1: - Measuring equipment of gamma emitters in a low energy range, purchased and installed in CETI's premises; - Operation of an accredited and certified laboratory for the monitoring of the radioactivity into the environment; - CETI users of the equipment properly trained. Activity 2: - Hand held radiation detectors, purchased and delivered to mobile control CETI teams; - Environmental TLD cards purchased and delivered to	Activity 1: - Decreasing of sources of radioactive pollution of the environment Activity 2: - Increased number of detection of illicit trafficking of nuclear materials and radiation sources - Improved databases of radiation sources and individual/collective exposures as a result of the	CETI, EU-IPA missions, Periodic reports	

<p>CETI;</p> <ul style="list-style-type: none"> - Measuring equipment for QC/QA controls of CT scanners purchased and delivered to CETI; - CETI users of the equipment properly trained. 	<p>use of new equipment.</p> <ul style="list-style-type: none"> - Number of certificate attendances for trainees. 		
Activities	Means	Costs	Assumptions
<p>Activity 1: Supply contract N° 1 in the field of Monitoring of the radioactivity in the environment and Certification/accreditation, including training of staff to use equipment</p> <p>Activity 1.1: Ortec HPGe detector GEMX type with beryllium window, with additional equipment (GEMX50 – 83 detector, CFG – SV – GMX stream line vertical cryostat, Dewar 30 l, Cre 1 Cooling rod extension, NS919 E Multichannel Bufer, NS 672 Amplifier, Dual 5 kV detector HV supply, Von Gahlen Model VG-BB-98/19A detector housing), cca EUR 95 000.</p> <p>Activity 1.2: Certification and accreditation of CETI's methods/ activities in radiation protection and nuclear safety, cca EUR 10 000.</p> <p>Activity 2: Supply contract N° 2 in the fields of Professional, patient and public exposure control, including training of staff to use equipment</p> <p>Activity 2.1: 100 4 elements environmental TLD cards (type TLD 100/200, consist of two CaF₂: Dy – TLD 200 and LiF: Mg, Ti – TLD100), cca EUR 7 000.</p> <p>Activity 2.2: Additional equipment for RTI Barracuda multimeter (CT Ionisation chamber for RTI "Barracuda", CT Phantom set, Case for CT Phantom set, MAS-3 mA and mAs probe for "Barracuda", MPD Panoramic holder, ORTIGO Barracuda software, Bluetooth adapter for Barracuda), cca EUR 13 000.</p> <p>Activity 2.3: 5 (five) RadEYE type PRD and 2 (two) RadEYE AB 100, hand held radiation detectors cca EUR 13 000.</p>	<p>Supply contract (IPA)</p> <p>Supply (Montenegro)</p>	<p>EUR 95 000</p> <p>EUR 10 000</p> <p>EUR 7 000</p> <p>EUR 13 000</p> <p>EUR 13 000</p>	

ANNEX II: Amounts (in EUR) contracted and disbursed by quarter for the project (EC funded)

Contracted	Q1 2010	Q2 2010	Q3 2010	Q4 2010	Q1 2011
Contract 1 - Supply			105 000		
Cumulated			105 000		
Disbursed					
Contract 1 - Supply			90 000		15 000
Cumulated			90 000	90 000	105 000

ANNEX III. Reference to laws, regulations and strategic documents**International norms:**

- [1] INTERNATIONAL ATOMIC ENERGY AGENCY International Basic Safety Standards for Protection against Ionizing Radiation and for the Safety of Radiation Sources. Safety Series 115, IAEA (1996)
- [2] INTERNATIONAL ATOMIC ENERGY AGENCY Legal and Governmental Infrastructure for Nuclear, Radiation, Radioactive Waste and Transport Safety. Safety Standards Series No. GS-R-1, IAEA (2000)
- [3] INTERNATIONAL ATOMIC ENERGY AGENCY Code of Conduct on the Safety and Security of Radioactive Sources. IAEA/CODEOC/2004
- [4] INTERNATIONAL ATOMIC ENERGY AGENCY Independence In Regulatory Decision Making International Nuclear Safety Advisory Group (INSAG) Report 17, IAEA (2003)
- [5] INTERNATIONAL ATOMIC ENERGY AGENCY Regulatory Control of Radiation Sources GS-G-1.5, 2004
- [6] INTERNATIONAL ATOMIC ENERGY AGENCY Legislation and Establishment of A Regulatory Authority for the Control Of Radiation Sources (draft)
- [7] INTERNATIONAL ATOMIC ENERGY AGENCY Application of the International Radiation Safety Standards in Nuclear Medicine (draft)
- [8] INTERNATIONAL ATOMIC ENERGY AGENCY Application of the International Radiation Safety Standards in Radiotherapy (draft)
- [9] INTERNATIONAL ATOMIC ENERGY AGENCY Application of the International Radiation Safety Standards in Diagnostic Radiology and Interventional Procedures using X-Rays (draft)
- [10] INTERNATIONAL ATOMIC ENERGY AGENCY Application of the International Radiation Safety Standards in Industrial Radiography and Industrial Irradiators (draft)
- [11] INTERNATIONAL ATOMIC ENERGY AGENCY Building Competence in Radiation Protection and the Safe Use of Radiation Sources, RS-G-1.4
- [12] INTERNATIONAL ATOMIC ENERGY AGENCY. Safety Report No 20: Training in Radiation Protection and the Safe Use of Radiation Sources
- [13] INTERNATIONAL ATOMIC ENERGY AGENCY Authorization for the Possession and Use of Radiation Sources (draft)
- [14] INTERNATIONAL ATOMIC ENERGY AGENCY Inspection of Radiation Sources and Enforcement (draft)
- [15] INTERNATIONAL ATOMIC ENERGY AGENCY Guidance on the Import and Export of Radioactive Sources. IAEA/GIERS/2005
- [16] INTERNATIONAL ATOMIC ENERGY AGENCY Quality Assurance within Regulatory Bodies. IAEA-TECDOC-1090 (1999).
- [17] INTERNATIONAL ORGANIZATION FOR STANDARDIZATION Quality Management Systems Fundamentals and Vocabulary. ISO 9000: 2000, Geneva (2000).
- [18] INTERNATIONAL ATOMIC ENERGY AGENCY TECDOC-1344 Categorisation of Radioactive Sources (2003)
- [19] INTERNATIONAL ATOMIC ENERGY AGENCY TECDOC-1355 Security of Radioactive Sources (2003)
- [20] INTERNATIONAL ATOMIC ENERGY AGENCY TECDOC 1344. IAEA, Vienna (2003). Notification and Authorization for the Possession and Use of Radiation Sources. IAEA, Vienna (Draft Safety Report).
- [21] INTERNATIONAL ATOMIC ENERGY AGENCY TECDOC 1388, Strengthening Control over Radioactive Sources in Authorised Use and Regaining Control of Orphan Sources. IAEA, Vienna (2004).
- [22] INTERNATIONAL ATOMIC ENERGY AGENCY, Preparedness and Response for a Nuclear or Radiological Emergency, Safety Series No. GS-R-2, IAEA Vienna (2002).
- [23] INTERNATIONAL ATOMIC ENERGY AGENCY, Regulations for the Safe Transport of Radioactive Materials, Safety Series No. TS-R-1, IAEA, Vienna (2000)
- [24] EUROPEAN FOUNDATION FOR QUALITY MANAGEMENT, The EFQM Excellence Model, Brussels (1999).

Domestic regulation:

1. Law on Protection Against Ionising Radiation, promulgated 4th October 1996 (Law 46/96)
2. Law on Organisation of State Bodies of June 2003 (Law 01/332/2).
3. Governmental Decree on the Organisation and Administration of State Bodies of 29th July 2004 (Decree 02/5046).
4. Governmental Decree on the Requirements to be met by Legal Entities for Taking Measurements for the Purpose of Appraising the Degree of Exposure to Ionising Radiation of the Persons Working with Radiation Sources, Patients and Population, Official Gazette of the FRY, No. 45/97 (5 September 1997)
5. Rules of Application of the Ionising Radiation Sources in Medicine and Basic Provisions, Official Gazette of the FRY, No. 32/98 (3 July 1998)
6. Rules Setting the Requirements to be Met by Legal Entities for Systematic Testing of the Radionuclide Content in the Environment, Official Gazette of the FRY, No. 32/98 (3 July 1998)
7. Rules Setting the Requirements for the Marketing and Use of Radioactive Materials, X-ray Machines and Other Devices that Generate Ionising Radiation, Official Gazette of the FRY, No. 32/98 (3 July 1998)
8. Rules Concerning the Limits of Exposure to Ionising Radiation, Official Gazette of the FRY, No. 32/98 (3 July 1998)
9. Rules Concerning the Limits of Radioactive Contamination of the Environment and the Modality of Decontamination, Official Gazette of the FRY, Nos. 9/99 and 19/99
10. Rules Concerning the Requirements to be met by Legal Entities for Carrying Out Decontamination, Official Gazette of the FRY, Nos. 9/99 and 19/02/99
11. Rules Concerning the Modality of and Requirements for the Collection, Safekeeping, Recording, Storing, Processing and Dumping Radioactive Materials, Official Gazette of the FRY, Nos. 9/99 and 19/02/89

Strategic documents:

1. Council Decision on the Principles, Priorities and Conditions contained in the European Partnership with Montenegro, Council of the European Union, January 2007.
2. European Partnership Action Plan, Government of Montenegro, May 2007
3. Framework Agreement between the Government of Montenegro and the Commission of European Communities on the Rules for Co-operation Concerning ex-financial Assistance to Montenegro in the Framework of the Implementation of the Assistance under the Instrument for pre-accession Assistance (IPA), 2008.
4. Instrument for Pre-accession Assistance (IPA), Multi-Beneficiary, Multi Annual Indicative Planning Document (MIPD), 2008-2010.

ANNEX V Details per EU funded contract

The project will be implemented through two supply contracts concerning the purchase, installation and personnel training of the pieces of equipment listed in point 3.4.

Contract 1: A supply contract for an amount of EUR 105 000 will be concluded following a tender that will be launched in Q2 2010.

Contract 2: A supply contract for an amount of EUR 33 000 fully financed by the beneficiary organisation will be launched in Q2 2010 (parallel co-financing).

Activities 1.1 and 2.3 of the project will be tendered, awarded and implemented in accordance with the PRAG.

ANNEX VI. CETI – Background Information

Montenegro is declared “**ecological state**” by the first article of its Constitution, adopted in 1991 and reconfirmed by the new one (as independent country) in 2007. It means that all major decisions and steps taken in the country should be viewed from environmental preservation standpoint firstly. This has proved being much useful and efficient on several occasions when natural and ambient values were endangered by planning e.g. energetic objects (canyon river dams) or dirty industrial facilities, as well as when enlarging the percentage of the state territory under protection as national parks of nature.

The above idea of environmental protection as a basis for sustainable development is adopted as a political orientation - highlighting environment as the most valuable asset of the country. In supporting this orientation, **Centre for Eco-toxicological Research of Montenegro (CETI)** was established in 1998 by the decision of the Government of Montenegro. CETI is founded as a **public institution**, dealing with environmental monitoring and related activities – measurements, assessments, studies, consultancies, communication with media and public information, etc. Being a small country with limited resources, it was the idea that Montenegro concentrates in CETI most of its capabilities in environmental monitoring laboratories, instrumentation and staff. The task for CETI was to perform all environment monitoring programmes for the Ministry of Environment and to provide relevant professional support to and state institutions.

By unanimous opinion, CETI proved to have fulfilled by far the expectations set at the time. Even beyond – despite the fact it was conceived as a budgetary state institution – CETI gradually became self-sustainable, surviving on tiny local market of environmental monitoring and adjacent intellectual services. The government (still the owner) is among clients, with regular annual programs of environmental pollution monitoring.

Not surprisingly – much due to the official ecological attitudes mentioned – sector of tourism in Montenegro is in huge expansion (one of the fastest growing in the world and representing country’s major revenue). For this reason, environmental protection and tourism are situated within the same ministry. Also in this sense, the director of CETI is being appointed by the Government, upon the proposal of the Minister of tourism and environmental protection.

Upon regaining its independence in 2006, Montenegro committed itself to accessing the EU. Obligations set in AP, NAA, EP, SAA and MIPD were accepted and National Strategy for Sustainable Development adopted. Recognizing these tasks, CETI participates on common basis in developing regulatory infrastructure (laws and regulations) for environmental protection in the country. In the near future, CETI will likely be designated

as technical support organization for Environmental protection agency of Montenegro (EPAM), radiation protection services included (establishment of EPAM is decisively supported by the European Agency for Reconstruction and Development, EARD).

Another cornerstone to be emphasized reflects CETI's support to the Ministry of Agriculture, Forestry and Water Resources. Namely, agriculture is another major direction of the sustainable development in Montenegro - healthy and biological food production being particularly in focus. Following accreditations and certificates recently obtained, CETI is entrusted by the Ministry with toxicological control of various segments in this complex process, being designated as national reference laboratory for food residues control. It is intended that these activities gradually become more and more important in CETI's practice.

With Ministry of health, labour and social welfare CETI cooperates on developing Strategy of diminishing environmental pollution sources in Montenegro, following the task given by the Government. With the Ministry of interior, cooperation is about combating illicit trafficking of radioactive and nuclear materials and dealing with radiological and nuclear emergency situations. In the future, cooperation with both ministries should extend to other types of technical support services, particularly in analytical field.

Consequently, CETI can be regarded as one of the essential stakeholders in national strategy towards environmental protection and sustainable economical development based upon.

Besides professional competence, rational organization, devotion of the staff and hard work, the orders of the day in CETI practice include complying with international norms and commitment to highest quality standards. It is open and transparent in its activities.

Current performance capabilities of CETI

Within its scope of activities, CETI is currently capable of covering measurements, monitoring and assessments of practically all segments of the environment:

- Air
- waters (incl. rivers, lakes, sea, underground, potable and waste waters)
- soil and sediments
- biosphere (bioindicators)
- waste (incl. solid, liquid and gaseous ones)
- living and working environment
- production, import, export and trade of human food and animal forage
- construction materials and various consumables
- accidental and emergency situations related to environmental pollution.

In the above, the following parameters can/are being determined up to a high degree of completeness:

- chemical and physical composition, incl. trace elements
- inorganic and organic pollutants/toxicants
- radioactivity and ionizing radiation.

In doing so, CETI disposes of modern equipment, however amortized to a pretty high degree (most of it was purchased when CETI was founded, in late 90's). Staff, some 70 people, is well qualified (most with university degree, however not many with M.Sc. and Ph.D.).

CETI has ISO 9001:2000 certificate from the certification Body of TUV Management Service GmbH, TUV SUD Gruppe, Munich, Germany and is accredited under ISO/IEC 17025 standard from JUAT accreditation body from Belgrade, Serbia). An IAEA expert

mission in 2006 evaluated CETI laboratories with 9.2 (out of 10) for managerial requirements and 9.5 for technical ones.

As to finances, CETI is in a somewhat strange situation. Although 100% owned by the Government, it is fully self sustainable, earning its complete revenues on the market, with no contribution from the state budget. Even the monitoring services performed for the Government (Ministry of the Environment) are subject to market conditions, following an open bidding procedure. Major problems encountered include small and limited market of services in Montenegro, closed markets in the neighbouring countries (difficult to penetrate) and imminent renewing/upgrading of costly equipment.

Department of Radiation Protection and Monitoring

Department of Radiation Protection and Monitoring (DRPM) is in charge of the following:

- monitoring of the radioactivity in the environment (regular monitoring programs of the Government, followed by yearly reports), including gamma-spectrometry, radon, dose-rate and other parameters measurements in air, water, soil, etc. samples at a number of selected locations in the country
- personal and workplace dosimetry
- QC/QA of radiation sources in medicine
- radioactivity control of export/import goods and consumables, including food
- management of radioactive waste storage (low and medium activity)
- national technical support centre in radiological emergency situations

In effectuating these activities, CETI-DRPM disposes of modern equipment, decent laboratory premises and qualified staff. Nuclear spectrometry laboratory is not only by far the most advanced one in Montenegro – it can be regarded as a regional centre of excellence as well. Two low background stationary HPGe gamma-spectrometry systems are in full operation most of the time. There is also a portable HPGe system and a number of in-house and portable NaI detector systems. There is a recently acquired alpha/beta spectrometry system and a multi-sample scintillation counter. Radon measurements are being routinely performed by several standard techniques. There is a modern thermoluminescent dosimetry (TLD) reader system, the only of the kind in the country. A basic radiological emergency kit is also available. CETI disposes of necessary standards and calibration sources for all the above equipment/activities.

In 2000-2002 CETI completed national project of Cape Arza decontamination from depleted uranium (DU). Two UNEP missions late on reported about high professional standards with which this task was done.

In the short and medium term (2008-2011) it is the plan of CETI to further expand and upgrade the above activities, in particular:

- licensing radioactive waste storage and its full operation
- radiation sources in Montenegro database (in RAIS format), including both operational and disused sources
- completion of QC/QA services for medical radiation sources, including both existing and future (planned) medical applications: diagnostic radiology, nuclear medicine, interventional radiology, radiotherapy, brachytherapy, blood products and medical equipment/consumables gamma-sterilization, etc.
- completion of nuclear spectrometry services, in particular for radioactivity monitoring in the environment, by introducing a radio-chemistry unit
- full coverage of professionally exposed workers in Montenegro by TLD personal dosimetry monitoring
- completion of CETI capabilities as a regulatory body technical support organization (TSO), having in mind both existing regulatory system (competences

are within the two ministries: of health and of the environment) and future one (environmental protection agency, EPA)

- enlarging laboratory premises (third floor of the CETI building, currently not used by CETI)
- creating distance radioactivity monitoring system by a network of distance units
- creating conditions for legally/technically proper transportation of radioactive sources in the country (including transit), complying with international norms.
- upgrading the level of 'nuclear law' knowledge of the staff, both for in-house purposes and for advising/services to various stakeholders (government, regulatory authority, users, workers, patients, public)
- certification/accreditation of all methods/activities practiced

ANNEX VII: Endorsement Letter by the Ministry of the Environment

The letter will be sent additionally, when Minister signed the letter.