

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

**1. Basic information**

- 1.1 CRIS Number:** 2009/021-640  
**1.2 Title:** Strengthening technical capacities in monitoring radionuclides into the environment  
**1.3 ELARG Statistical code:** 03.64 – Nuclear Safety  
**1.4 Location:** Bosnia and Herzegovina

**Implementing arrangements:**

**1.5 Contracting Authority:**

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

**1.6 Implementing Agency:**

Not applicable

**1.7 Beneficiary:**

Ms Draženka Malićbehović  
**Ministry of Civil Affairs**  
 Sector for Health  
 Trg BiH 1, 71000-Sarajevo  
 Bosnia & Herzegovina  
 Tel: 0038733492523  
 Fax: 0038733492621  
 E-mail: [drazenka.malicbegovic@mcp.gov.ba](mailto:drazenka.malicbegovic@mcp.gov.ba)

**Financing:**

- 1.8 Overall cost (VAT excluded)<sup>1</sup>:** EUR 350 000  
**1.9 EC Contribution:** EUR 295 000  
**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

---

<sup>1</sup> 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. Overall Objective and Project Purpose

### 2.1 Overall Objective

To contribute to align Bosnia and Herzegovina with the Community *acquis* (EURATOM treaty and the EURATOM Council Directives) that is related to the monitoring of the radioactivity into the environment.

### 2.2 Project Purpose

To contribute to the enhancement of the technical capacity of the Institutes of Public Health of the Federation of Bosnia and Herzegovina and the Republic of Srpska to undertake regular environmental radioactivity monitoring activities (air, soil, water and food chain).

### 2.3 Link with AP/NPAA/EP/SAA

The sectoral policies of the European/Accession Partnership with Bosnia and Herzegovina (2006/55/EC) in the field of environment mention the strengthening of the administrative capacity and alignment with the *acquis*.

The Stabilisation and Association Agreement between Bosnia and Herzegovina, and the European Communities and Member States stipulates under Article 107 that "Cooperation shall focus on priority areas related to the Community *acquis* in the field of energy, including as appropriate, nuclear safety aspects...".

### 2.4 Link with MIPD

The IPA Multi-beneficiary Multi-annual indicative Planning Document (MIPD) 2009-2011<sup>2</sup>, *section 2.3.3.11 - Nuclear Safety and Radiation Protection*, mentions that "all IPA eligible beneficiaries are facing radiological issues that are connected with the use of radionuclides for industrial and medical applications". It also specifies that "radioactive contamination of the environment by depleted uranium as a legacy of the war in Bosnia and Herzegovina also requires assistance". It concludes that "radiological issues in the IPA beneficiaries should be addressed with the view to eventually transposing the *acquis* in the nuclear domain, including the international conventions to which the European Community is a party. This transposition would require a number of legislative and regulatory actions and would affect current management practices of radionuclides and radioactive materials".

### 2.5 Link with National Development Plan

Not applicable

### 2.6 Link with national/sectoral investment plans

Not applicable

---

<sup>2</sup> Include reference

### 3. Description of project

#### 3.1 Background and justification

In Bosnia and Herzegovina the national programme for monitoring the radioactivity into the environment has not yet been properly established. This activity is being performed by the Institute for Public Health of the Federation of Bosnia and Herzegovina, and the Institute for Public Health of the Republic of Srpska within provisional monitoring programmes designed by the Institutes themselves.

In November 2007 a national "Act on radiation protection and nuclear safety in Bosnia and Herzegovina" (Official Gazette of Bosnia and Herzegovina, No. 88/07) was promulgated defining the State Agency for Radiation Protection and Nuclear Safety as the national regulatory body. According to article 16 (Radiation safety and nuclear safety regulations) "the Agency Director shall issue the regulations on the safety of ionising sources, including the requests on professional, medical, and public exposure, as well as the requests for emergency situations pertaining to the implementation of this Act". These new regulations must be in line with the International Basic Safety Standards for Protection against Ionising Radiation, and with the Euratom Council Directives on radiation protection. Up to date regulations on exposure of population to ionising radiation as well as on the monitoring of the radioactivity into the environment have not been drafted since the State Agency is not yet operational.

Currently the Institutes for Public Health of the Federation of Bosnia and Herzegovina and the Republic of Srpska perform activities of monitoring of the radioactivity in environmental and food samples in accordance with their provisional monitoring programmes. These programmes are not mutually harmonised, the representative regions for environmental sampling, in particular for food and cattle food, are not well defined and regulated, the control of the imported food is scarce, not systematically performed and insufficient, the control of the export food is at the customer request. In addition source monitoring-control of the discharges from laboratories where unsealed sources are used has not been performed. Specific monitoring of all the sites where depleted uranium was used has not been performed. These provisional programmes need to be reviewed and harmonised with Euratom Council Directives, i.e.

- 2000/473/Euratom, EU recommendations on the application of the Article 36 of the Euratom Treaty concerning the monitoring of the levels of radioactivity in the environment for the purpose of assessing the exposure of the population as the whole;
- 90/143/Euratom, Commission recommendations on the protection of the public against indoor exposure to radon;
- 98/83/EC, Council Directive on the quality of water intended for human consumption;
- 1635/2006, Commission Regulation laying down detailed rules for the application of Council Regulation (EEC) No 737/90 on the conditions governing the import of the agricultural products originating in third countries following the accident at the Chernobyl nuclear power-station.

The environmental monitoring programme should be comprehensive and appropriate for the local area, rapid in response and capable of sampling and measuring dose rates or activity levels in case of emergencies.

The Institutes for Public Health of the Federation of Bosnia and Herzegovina and the Republic of Srpska have limited equipment capabilities for the radioactivity analysis of a large number of samples of different origin. The Institute for Public Health of the Federation of Bosnia and Herzegovina is lacking of equipment for the preparation of samples, and measuring devices for the analysis of beta emitting radionuclides. The Institute for Public Health of the Republic of Srpska is in need of a high efficiency gamma spectrometer. The Faculty of Sciences of Sarajevo needs equipment for the determination of alpha emitting radionuclides, namely uranium isotopes. Compliance with the provisions of the monitoring programme can only be established if the Institutions from Bosnia and Herzegovina have proper equipment and educated personnel.

Hence this project will benefit several institutions: State Regulatory Agency for Radiation and Nuclear Safety of Bosnia and Herzegovina; Ministry of Health and Social Welfare of Republic of Srpska; Ministry of Health of the Federation of Bosnia and Herzegovina; District Brčko Government - Department of Health; Institute of Public Health of Republic of Srpska; Institute for Public Health of the Federation of Bosnia and Herzegovina; and University of Sarajevo, Faculty of Sciences

### **3.2 Assessment of project impact, catalytic effect, sustainability and cross border impact**

The project will enable a better monitoring of the radioactivity into the environment through the harmonisation of sampling procedures and chiefly through the establishment of a national monitoring programme. In this way, possible risks of exposure to ionising radiation should be limited. It has also a catalytic effect since this project should open up to new regulations, intervention levels and possibly remediation of contaminated territories.

It is sustainable on account of the fact that monitoring of the radioactivity into the environment is required by the Community acquis in the field of radiation protection and in particular by the Euratom Treaty.

To ensure sustainability this project comprises a training component intended for the personnel who has to understand the new technologies/working processes.

There is no direct cross border impact.

### **3.3 Results and Measurable Indicators**

#### Results in relation with activity 1:

- The programme of environmental monitoring of radioactivity incorporated into radiation protection system of Bosnia and Herzegovina;
- Sampling/measurements campaign (including measurement of depleted uranium) in line with the national radioactivity monitoring programme established;
- Radiation levels and radionuclide concentrations in some critical places of the environment determined, and corresponding exposure of the members of the public estimated;
- Generic or specific intervention levels related to the radioactive contamination of the environment and foodstuff determined;
- Staff trained;

- Technical specifications for the equipment needed drafted.

#### Results in relation with activity 2:

- Equipment and measuring devices purchased, installed and operational (staff trained).

#### Measurable indicators in relation with activity 1:

- New national radioactivity monitoring programme in use;
- The radioactive contamination level of at least three heavily contaminated areas with depleted uranium will be known
- Number of radiation sampling/measurements activities;
- Intervention levels on the radioactive contamination of the environment and foodstuff drafted, quantified, and approved by the regulatory body ;
- measurements;
- Number of staff trained;
- Tender file for equipment available.

#### Measurable indicators in relation with activity 2:

- Provisional acceptance certificates signed:
- Equipment supplied to institutions;
- Number of staff trained.

### **3.4 Activities**

Activity 1: One service contract for technical assistance to be provided to the beneficiary institutions. This activity will consist of assisting local experts in order to:

- 1.1. Evaluate the current provisional programmes of radioactivity monitoring performed by the Institutes of Public Health of the Federation of Bosnia and Herzegovina and the Republic of Srpska to assess whether these programmes are in line with the Euratom Council Directive 96/29 and the EU recommendations 2000/473/EU;
- 1.2. Design the national programme for the monitoring of the radioactivity into the environment, including the definition of the monitoring network, sampling media, types of measurements and periodicity harmonised with relevant EU regulations (2000/473/Euratom, 90/143/Euratom, 98/83/EC, 635/2006);
- 1.3. Design of the source monitoring programme related to uranium content in selected environmental and food samples in areas where depleted uranium was spread into the environment;
- 1.4. Identification of the necessary equipment and measuring devices to be purchased, installed and operated in order to implement the monitoring programme;
- 1.5. Determination of the technical specifications of the equipment and measuring devices for the subsequent procurement activities.

Activity 2: Two supply contracts for the delivery of equipment and measuring devices, including the training to the staff on the use of the equipment. A priori (to be confirmed

by the recommendations of the service contract), the following equipment and measuring devices should be supplied:

- 2.1. Scintillation counter (ca EUR 80 000), (Institute for Public Health of the Federation of Bosnia and Herzegovina);
- 2.2. Muffle furnaces (ca EUR 20 000) (Institute for Public Health of the Federation of Bosnia and Herzegovina);
- 2.3. Gamma spectroscopy system: HPGe (rel. eff. 50%), (ca EUR 50 000) (Institute for Public Health of the Republic of Srpska);
- 2.4. Quality Assurance software for gamma spectroscopy (ca EUR 10 000) (Institute for Public Health of the Republic of Srpska);
- 2.5. Alpha spectrometry system (ca EUR 50 000) (Faculty of Sciences-Sarajevo);
- 2.6. Electrodeposition apparatus (ca EUR 5 000) (Faculty of Sciences-Sarajevo).

### **3.5 Conditionality and sequencing**

The implementation of this project requires a fully operational State Agency for Radiation Protection and Nuclear Safety as a regulatory body in charge of radiation protection in Bosnia and Herzegovina.

The project should be in line with the results of the 2007 IPA-funded regional project on the “assessment of the needs and proposed actions in order to perform the monitoring of the radioactivity into the environment in Albania, Bosnia and Herzegovina, Croatia, the former Yugoslav Republic of Macedonia, Montenegro, Serbia, as well as Kosovo<sup>3</sup>”.

Research activities are excluded from the programme.

Activity 2 should be implemented at least six to eight months after the starting of activity 1.

### **3.6 Linked activities**

There is an on-going IAEA project on indoor and outdoor monitoring of naturally occurring radioactive material (BOH/7/002) that is partly covering the same domain. This project also plans the delivery of equipment to the Institutes for Public Health.

As mentioned earlier, there is an IPA-funded regional project on the “assessment of the needs and proposed actions in order to perform the monitoring of the radioactivity into the environment in Albania, Bosnia and Herzegovina, Croatia, the former Yugoslav Republic of Macedonia, Montenegro, and Serbia, as well as Kosovo”. This project should give a comprehensive picture about the needs of Bosnia and Herzegovina in the field of monitoring of the radioactivity into the environment. The results of this project should be made available during the first Quarter 2010.

---

<sup>3</sup> under UNSCR 1244/99

### 3.6 Lessons learned

Projects (contracts) carried out so far in the nuclear safety / radiation protection sector showed the great risk of certain components not being contracted due to the extreme complexity of the sector concerned. This is particularly the case for the supply contracts.

In addition, previous experience in the implementation of nuclear safety and radiation protection projects in Bosnia and Herzegovina showed that this country has some difficulties to identify counterparts. As a result, contractors may be faced with difficulties to gather all potential national stakeholders and to define a work plan that is agreeable to everybody. However, the fact that a Bosnia and Herzegovina nuclear regulatory body is expected to be fully operational by the end of 2009 would contribute to solve most of the difficulties met so far with stakeholders.

### 4. Indicative Budget (amounts in EUR)

			SOURCES OF FUNDING										
			TOTAL EXP.RE	TOTAL PUBLIC EXP.RE	IPA COMMUNITY CONTRIBUTION		NATIONAL PUBLIC CONTRIBUTION					PRIVATE CONTRIBUTION	
ACTIVITIES	IB ( )	INV ( )	EUR (a)=(b)+(e)	EUR (b)=(c)+(d)	EUR (c)	% (2)	Total EUR (d)=(x) +(y)+(z)	% (2)	Central EUR (x)	Regional/ Local EUR (y)	IFIs EUR (z)	EUR (e)	% (3)
Activity 1	x		135 000	135 000	135 000	100							
Contract 1- Service	x		135 000	135 000	135 000	100							
Activity 2		x	215 000	215 000	160 000	75	55 000	25	55 000				
Contract 2 – Supply		x	160 000	160 000	160 000	100							
Contract 3 – Supply		x	55 000	55 000			55 000	100	55 000				
TOTAL IB			135 000	135 000	135 000	100							
TOTAL INV			215 000	215 000	160 000	75	55 000	25	55 000				
<b>TOTAL PROJECT</b>			<b>350 000</b>	<b>350 000</b>	<b>295 000</b>	<b>84</b>	<b>55 000</b>	<b>16</b>	<b>55 000</b>				

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 – Technical assistance	Q2 2010	Q3 2010	Q1 2012
Contract 2 – Supply	Q2 2011	Q3 2011	Q1 2012
Contract 3 – Supply	Q2 2011	Q3 2011	Q1 2012

## 6. Cross cutting issues

### 6.1 Equal Opportunity

The project will benefit both women and men through improvements in environmental protection and safety. 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

Upgrading the technical capacities in monitoring radionuclides into the environment will decrease the risk of environment pollution and risk of public exposure.

### 2.7. 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)

## ANNEXES

## 1- Log frame in Standard Format

LOGFRAME PLANNING MATRIX FOR Project Fiche	Programme name and number: 2009 IPA Horizontal Programme on Nuclear Safety and Radiation Protection	
Strengthening of the capacities in monitoring of radionuclides in environment	Contracting period expires: 2 years following the date of conclusion of the financing agreement	Disbursement period expires: <b>1 year following the end date for execution of contracts</b>
	Total budget : <b>EUR 350 000</b>	IPA budget: <b>EUR 295 000</b>

Overall objective	Objectively verifiable indicators	Sources of Verification	
Development of an adequate environmental radioactivity monitoring and reporting system, compatible with requirements laid down in Article 35 of the EURATOM-Treaty, which attributes to member states the responsibility for the permanent control of the radioactivity in the air, water and soil on their national territory.	Bosnia and Herzegovina State Agency for Radiation Protection and Nuclear Safety reports on environmental radioactivity in Bosnia and Herzegovina.	IAEA reports European Commission Reports	
Project purpose	Objectively verifiable indicators	Sources of Verification	Assumptions
To contribute to enhancement of the technical capacity of the Institutes of Public Health of the Federation of Bosnia and Herzegovina and Republic of Srpska to undertake regular environmental radioactivity monitoring activities (air, soil, water, and food chain)	Institutes of Public Health of the Federation of Bosnia and Herzegovina and Republic of Srpska conduct regular radioactivity monitoring according to Article 35 of the EURATOM-Treaty	IAEA reports European Commission Reports Bosnia and Herzegovian State Agency for Radiation Protection and Nuclear Safety reports	Fully operational State Agency for Radiation Protection and Nuclear Safety

Results	Objectively verifiable indicators	Sources of Verification	Assumptions
<p>Results in relation with activity 1:</p> <ul style="list-style-type: none"> <li>• The programme of environmental monitoring of radioactivity incorporated into radiation protection system of Bosnia and Herzegovina;</li> <li>• Sampling/measurements campaign (including measurement of depleted uranium) in line with the national radioactivity monitoring programme established;</li> <li>• Radiation levels and radionuclide concentrations in some critical places of the environment determined, and corresponding exposure of the members of the public estimated;</li> <li>• Generic or specific intervention levels related to the radioactive contamination of the environment and foodstuff determined;</li> <li>• Staff trained;</li> <li>• Technical specifications for the equipment needed drafted.</li> </ul> <p>Results in relation with activity 2:</p>	<ul style="list-style-type: none"> <li>• New national radioactivity monitoring programme in use;</li> <li>• The radioactive contamination level of at least three heavily contaminated areas with depleted uranium will be known</li> <li>• Number of radiation sampling/measurements activities;</li> <li>• Intervention levels on the radioactive contamination of the environment and foodstuff drafted, quantified, and approved by the regulatory body ;</li> <li>• measurements;</li> <li>• Number of staff trained;</li> <li>• Tender file for equipment available.</li> </ul> <p>Launching of tendering procedures for procurement</p> <p>Number of staff trained;</p> <p>Tender file for equipment available.</p> <p>Provisional acceptance certificates</p> <p>Equipment supplied to institutions</p> <p>Number of staff trained</p>	<ol style="list-style-type: none"> <li>1. State Agency for Radiation Protection and Nuclear Safety report on national radioactivity monitoring programme</li> <li>2. PHI report on design of the radioactivity monitoring programme</li> <li>3. PHI reports on results of the radioactivity monitoring programme</li> <li>4. PHI reports on intervention levels on the radioactive contamination of the environment</li> <li>5. State Agency for Radiation Protection and Nuclear Safety report-final report</li> </ol> <p>6. Training (fellowship) reports</p>	

<ul style="list-style-type: none"> <li>• Equipment installed and operational (staff trained)</li> </ul>		<p>7. Supply contracts</p> <p>8. Six provisional acceptance certificates</p>	
<b>Activities</b>	<b>Means</b>	<b>Costs</b>	<b>Assumptions</b>
<p>Activity 1: One service contract for technical assistance to be provided to the beneficiary institutions. This activity will consist of assisting local experts in order to:</p> <p>1.1 Evaluate the current provisional programmes of radioactivity monitoring performed by the Institutes of Public Health of the Federation of B&amp;H and the Republic of Srpska to assess whether these programmes are in line with the Euratom Council Directive 96/29 and the EU recommendations 2000/473/EU;</p> <p>1.2 Design the national programme for the monitoring of the radioactivity into the environment, including the definition of the monitoring network, sampling media, types of measurements and periodicity harmonised with relevant EU regulations (2000/473/Euratom, 90/143/Euratom, 98/83/EC, 635/2006);</p> <p>1.3 Design of the source monitoring programme related to uranium content in selected environmental and food samples in areas where depleted uranium was spread into the environment;</p> <p>1.4 Identification of the necessary equipment and measuring devices to be purchased, installed and operated in order to implement the monitoring programme;</p> <p>1.5 Determination of the technical specifications of the equipment and measuring devices for the subsequent procurement activities;</p>	<p>Service contract (technical assistance)</p>	<p>EUR 135 000</p>	

<p>Activity 2: Supply Deliver equipment, install and train staff</p>	<p>Supply contract (IPA) Supply contract (Bosnia and Herzegovina)</p>	<p>EUR 160 000 EUR 55 000</p>	<p>The selection of the pieces of equipment to be purchased should be specified in the recommendations of the service contract that should precede the supply contract.</p>
--	---	-----------------------------------	---

**ANNEX II Amounts contracted and disbursed per Quarter over the full duration of the project (EC funded)**

<b>Contracted</b>	<b>Q3 2010</b>	<b>Q4 2010</b>	<b>Q1 2011</b>	<b>Q2 2011</b>	<b>Q3 2011</b>	<b>Q4 2011</b>	<b>Q1 2012</b>
Contract 1- Service	135 000						
Contract 2- Supply					160 000		
<b>Cumulated</b>	<b>135 000</b>	<b>135 000</b>	<b>135 000</b>	<b>135 000</b>	<b>295 000</b>	<b>295 000</b>	<b>295 000</b>
<b>Disbursed</b>							
Contract 1- Service		54 000	13 500	13 500	13 500	13 500	27 000
Contract 2- Supply					96 000		64 000
<b>Cumulated</b>		<b>54 000</b>	<b>67 500</b>	<b>81 000</b>	<b>190 500</b>	<b>204 000</b>	<b>295 000</b>

**Annex III Description of Institutional Framework**

In accordance with The Act on Radiation Safety and Nuclear Safety in Bosnia and Herzegovina the establishment of the State Regulatory Agency for Radiation Protection and Nuclear Safety in full has to be done. The Act on Radiation Safety and Nuclear Safety in Bosnia and Herzegovina regulates the system of control over sources of ionising radiation, the protection of humans, present and future generations, as well as of the environment, from exposure or potential exposure to ionising radiation. Within its scope it is stated that the purpose of the Act is to “establish and maintain a regulatory programme for ionising radiation sources, and thereby ensure compatibility with international standards on safety of radiation sources and for protection against ionising radiation”.

Institutes for Public Health of Federation of Bosnia and Herzegovina and Institute for Public Health of Republic of Srpska are authorized by the Federal Ministry of Health and Ministry of Health of Republic of Srpska for radiation protection issues, and acts as technical services in accordance with the authorization.

**Annex IV Reference to laws, regulations and strategic documents:**

Law on Radiation Protection and Nuclear Safety in Bosnia and Herzegovina

**Annex V Details per EC funded contract**

Contract 1: A service contract for an amount of EUR 135 000 will be concluded following a tender that will be launched in Q2 2010. The Contractor is expected to fulfil all the activities listed in section 3.4 for activity 1 with the support of local partners established in Bosnia and Herzegovina. Technical specification for the equipment to be purchased under the supply contract will be drafted through technical assistance component.

Contract 2: A supply contract for an amount of EUR 160 000 will be concluded following a tender that will be launched in Q2 2011.

Activities 1 and 2.1 of the project will be tendered, awarded and implemented in accordance with the PRAG.

Contract 3: A supply contract for an estimated amount of EUR 55 000, fully financed by the beneficiary will be launched in Q2 2011 (parallel co-financing).