

**Project Fiche – 2008 IPA Horizontal Programme
on Nuclear Safety and Radiation Protection**

1. Basic information

- 1.1 CRIS Number:** 2008/020-350
1.2 Title: Establishment of a calibration laboratory for ionising radiation (Secondary Standard Dosimetry Laboratory)
1.3 ELARG Statistical code: 03.64 - Nuclear safety
1.4 Location: Bosnia and Herzegovina

Implementing arrangements:**1.5 Contracting Authority (EC):**

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

1.6 Implementing Agency:

N/A

1.7 Beneficiary

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Financing:

1.8 Overall cost (VAT excluded): EUR 510 000

1.9 EU contribution: EUR 400 000

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: 3 years following the end date for contracting.

2. Overall Objective and Project Purpose

2.1 Overall Objective:

To improve health protection of individuals against the dangers of ionising radiation notably in the medical sector in line with the Council Directive 97/43 Euratom.

2.2 Project purpose:

- Building a national metrology infrastructure for calibrating ionising radiation sources through the design, equipping, certification and operation of a Secondary Standard Dosimetry Laboratory (SSDL);
- Application for membership in the IAEA/WHO Network of SSDLs.

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 to the acquis.

The proposal for a Council Decision on the principles, priorities and conditions contained in the European Partnership with Bosnia and Herzegovina (COM (2007) 657 final) specifies under the heading "European Standards" that Bosnia and Herzegovina should "improve and implement the legal framework for standardisation, metrology, accreditation and certification of products to bring it into line with EU standards and best practice; further approximate technical regulations with those of the acquis; enhance the capacity of the quality infrastructure and institutions...".

The 2007 progress report of the European Commission on Bosnia and Herzegovina stated that "at present the situation in the field of nuclear safety and radiation requires significant improvement in terms of coordination and organisation of the activities at the level of Bosnia and Herzegovina, equipment, modernisation of facilities, technical capacity and human resources".

2.4 Link with MIPD

The MIPD action entitled "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. In most Beneficiaries in the Western Balkans management of sealed radioactive sources, for example, dismantling of radioactive lightning rods and operation of centralised storage facilities remains a key issue. Moreover management of radioactive waste in hospitals may require investments and training of the personnel". Therefore this project proposal which deals with the enhancement of calibration services of ionising radiation sources is fully in line with the MIPD activities.

2.5 Link with National Development Plan:

Not applicable

2.6 Link with national/ sectoral investment plans

Strategy for development of metrology system in Bosnia and Herzegovina;

Strategy for development of the Institute of Metrology of Bosnia and Herzegovina;

Action Plan of Bosnia and Herzegovina accession to the World Trade Organisation (WTO);

Action plan for implementation of the Central European Free Trade Agreement (CEFTA).

3. Description of project

3.1 Background and justification:

Bosnia and Herzegovina is a non-nuclear power country using ionising radiation sources in different fields of industry, medicine and science. However there are no adequate and functional calibration facilities in this country. Ionising radiation sources are calibrated abroad, most often at manufacturer's premises, which is a quite costly and time-consuming procedure.

The Institute of Metrology is in charge of establishing a comprehensive measuring system in Bosnia and Herzegovina with its traceability. However this Institute does not have any laboratory facility for calibrating ionising radiation sources.

Based on the outcome of an assessment carried out recently by the International Atomic Energy Agency (IAEA), there would be two old calibration facilities that might be upgraded in order to become the national Secondary Standard Dosimetry Laboratory (SSDL) that would comply with the IAEA requirements. These facilities are located in Travnik and Banja Luka.

It is important to note that the Banja Luka facility was accredited in the former Yugoslavia to perform calibration for radiation protection purposes. The accreditation has stopped in 1992, but the testing and calibration activities of dosimeters are continuing.

A priori, the Banja Luka facility has been selected by the Institute of Metrology to accommodate the future national SSDL. However in order to do so, a new irradiation room has to be constructed through domestic funding. In addition, the building has to be refurbished and modernised.

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

The project will contribute to better control doses to patients through an appropriate calibration of the irradiating equipment in compliance with the requirements of Article 8 of the Council Directive 97/43 Euratom. It will also improve the reliability of the measurements involving ionising radiation in the field of radiation protection, environmental monitoring of the radioactivity, medical establishments, sectors of the industry using radiation sources, and regulatory bodies in charge of inspection of the controlled areas. To become sustainable this project should also comprise a training component of the personnel that could be organised jointly with the International Atomic Energy Agency (IAEA). There is no direct cross border impact.

3.3 Results and measurable indicators:

Results and measurable indicators in relation with activity 1:

1. A new irradiation room in the Testing and Calibration Laboratory in Banja Luka constructed;

Results and measurable indicators in relation with activity 2:

1. Appropriate legislation/regulations in the field of metrology involving ionising radiation sources drafted;
2. A new irradiation room in the Testing and Calibration Laboratory in Banja Luka constructed;
3. A list of equipment needed to equip the SSDL including technical specifications identified;
4. Procurement procedure for the purchase of equipment successfully implemented;

5. Installed equipment of the SSDL in operation;
6. Educational programme for personnel in charge of operating the SSDL established and attendance certificates for trainees granted;
7. Application to get membership in the IAEA/WHO network of SSDLs started.

Results and measurable indicators in relation with activity 3:

The delivery of pieces of equipment in full compliance with the identification of the needs and the determination of technical specifications performed under activity 1.

3.4 Activities:

Activity 1: One works contract for the refurbishment of the Cajavec MDU building and the reconstruction of the irradiation room (to be supported by the Institute of Metrology of Bosnia and Herzegovina).

Activity 2: One service contract concerning technical assistance to be provided to the Institute of Metrology

This activity will consist of assisting the Institute in order to:

- Analyse the criteria for establishing an SSDL in Bosnia and Herzegovina that could become eventually member of the IAEA/WHO network;
- Define and implement a refurbishment programme for the building and the room that will accommodate the SSDL;
- Draft appropriate legislation/regulations in the field of metrology involving ionising radiation sources in full compliance with EU acquis and best practices;
- Propose an organisational structure for operating the SSDL.
- Design the SSDL based on the IAEA recommendations, international basic safety standards and the Council Directive 96/29 Euratom;
- Define the technical specifications of the equipment to be purchased for the equipping of the SSDL;
- Install the equipment;
- Set-up a training programme for the personnel in charge of operating the SSDL;
- Establish a maintenance programme of the equipment;
- Prepare an application for the SSDL to get a membership in the IAEA/WHO network.

Activity 3: One supply contract for the delivery of equipment.

3.5 Conditionality and sequencing:

The implementation of this project requires the establishment and functioning of a regulatory body in charge of radiological issues in Bosnia and Herzegovina since part of the project will consist of drafting regulations on metrology of ionising radiation. Delivery of equipment for the operation of the SSDL must comply with the requirements of the regulatory body.

In addition, the procurement procedure for purchasing the equipment cannot start as long as a refurbishment programme for the building and the room that will accommodate the SSDL has not been completed.

3.6 Linked activities:

This project is actually linked to the IAEA project BOH/6/007 that is entitled "Establishment of Calibration Service".

3.7 Lessons learned

The project must follow the recommendations of the IAEA concerning the siting of the SSDL and the design of the facility. The reconstruction of the irradiation room is a prerequisite to equip the SSDL.

4. Indicative Budget (amounts in €)

Activities	TOTAL COST	SOURCES OF FUNDING										
		EU CONTRIBUTION				NATIONAL PUBLIC CONTRIBUTION				PRIVATE		
		Total	% *	IB	INV	Total	% *	Central	Regional	IFIs	Total	% *
Activity 1												
Contract 1	110 000	0	0			110 000	100				0	0
Activity 2												
Contract 2	150 000	150 000	100	150 000	0	0				0	0	
Activity 3												
Contract 3	250 000	250 000	100		250 000	0	0			0	0	
TOTAL	510 000	400 000	78,5	150 000	250 000	110 000	21,5			0	0	

Amounts net of VAT

* expressed in % of the Total Cost

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

Contracts	Start of Tendering	Signature of contract	Project Completion
Contract 2	1 st Q 2009	3 rd Q 2009	4 th Q 2010
Contract 3	1 st Q 2010	2 nd Q 2010	4 th Q 2010

6. Cross cutting issues

6.1 Equal Opportunity

Not applicable

6.2 Environment

Not applicable

6.3 Minorities

Not applicable

ANNEXES

- 1- Log frame in Standard Format
- 2- Amounts contracted and Disbursed per Quarter over the full duration of Programme
- 3- Description of Institutional Framework
- 4 - Related laws, regulations and strategic documents:
- 5- Details per EU funded contract

ANNEX 1: Logical framework matrix in standard format

LOGFRAME PLANNING MATRIX FOR Project Fiche	Programme name and number: 2008 IPA Horizontal Programme on Nuclear Safety and Radiation Protection	2008/020-350
Establishment of a calibration laboratory for ionising radiation (Secondary Standard Dosimetry Laboratory)	Contracting period expires: 2 years following the date of conclusion of the Financing Agreement	Disbursement period expires : 3 years following the end date for contracting
	Total budget : EUR 510 000	IPA budget: EUR 400 000

Overall objective	Objectively verifiable indicators	Sources of Verification	
To improve health protection of individuals against the dangers of ionising radiation notably in the medical sector in line with the Council Directive 97/43 Euratom.			
Project purpose	Objectively verifiable indicators	Sources of Verification	Assumptions
<ul style="list-style-type: none"> Building a national metrology infrastructure for calibrating ionising radiation sources through the design, equipping, certification and operation of a Secondary Standard Dosimetry Laboratory (SSDL); Application for membership in the IAEA/WHO Network of SSDLs. 	<p>Operation of the SSDL in full compliance with the IAEA requirements</p> <p>Procedure started</p>	<p>Visit of the Secondary Standard Dosimetry Laboratory on the spot</p> <p>Documentation provided to the IAEA/WHO network</p>	A new irradiation room has been reconstructed at the Banja Luka laboratory facility and the building that should accommodate the SSDL is refurbished through domestic funding
Results	Objectively verifiable indicators	Sources of Verification	Assumptions
<ul style="list-style-type: none"> Appropriate legislation/regulations in the field of metrology involving ionising radiation sources drafted; A new irradiation room in the Testing and Calibration Laboratory in Banja Luka constructed; A list of equipment needed to equip the SSDL including technical specifications identified; Procurement procedure for the purchase of equipment successfully implemented; Installed equipment of the SSDL in operation; Educational programme for personnel in charge of operating the SSDL established and attendance certificates for trainees granted; Application to get membership in the IAEA/WHO network of SSDLs started. 	<p>Draft regulations transmitted to the Regulatory body</p> <p>Visibility of the facility</p> <p>Technical specifications for the equipment to be procured ready</p> <p>Tendering procedure Launched</p> <p>Testing of the facility</p> <p>Content of the educational programme. Organisation and attendance in training courses</p> <p>Application forms drafted</p>	<p>Progress reports, exchange of correspondence with the regulatory body</p> <p>Visit on the spot, documentation provided by the supervising ministry for the reconstruction of the irradiation room</p> <p>Progress reports, preparation of the procurement procedure</p> <p>All documentation related to the tendering procedure</p> <p>Documentation related to the reception of the equipment, progress reports, results of the first testing of the facility</p> <p>Progress reports, consultation of attendance certificates for trainees</p> <p>Progress reports, exchange of correspondence with the IAEA/WHO network</p>	<p>A fully operational regulatory body must be in place</p> <p>Budgetary means have been made available in due time in order to enable the reconstruction of the irradiation room</p> <p>Technical specifications of the equipment to be installed are right</p> <p>Availability of a sufficient number of trainees</p>
Activities	Means	Costs	Assumptions
<ul style="list-style-type: none"> Analyse the criteria for establishing an SSDL in Bosnia and Herzegovina that could become eventually member of the IAEA/WHO network; 	Part of a technical assistance contract/Contacts with the IAEA/WHO network	EUR 20 000	

<ul style="list-style-type: none"> • Draft appropriate legislation/regulations in the field of metrology involving ionising radiation sources in full compliance with EU acquis and best practices; 	Part of a technical assistance contract/Contacts with the Regulatory body	EUR 20 000
<ul style="list-style-type: none"> • Propose an organisational structure for operating the SSDL; 	Understanding of the current legislation/regulations	EUR 10 000
<ul style="list-style-type: none"> • Design the SSDL based on the IAEA recommendations, international basic safety standards and the Council Directive 96/29 Euratom; 	Part of a technical assistance contract/contacts with all stakeholders of the facility	EUR 20 000
<ul style="list-style-type: none"> • Define the technical specifications of the equipment to be purchased for the equipping of the SSDL; 	Part of a technical assistance contract	EUR 30 000
<ul style="list-style-type: none"> • Install the equipment; 	Part of a technical assistance contract	EUR 15 000
<ul style="list-style-type: none"> • Set-up a training programme for the personnel in charge of operating the SSDL; 	Part of a technical assistance contract	EUR 15 000
<ul style="list-style-type: none"> • Establish a maintenance programme of the equipment; 	Part of a technical assistance contract	EUR 10 000
<ul style="list-style-type: none"> • Prepare an application for the SSDL to get a membership in the IAEA/WHO network. 	Part of a technical assistance contract	EUR 10 000
<ul style="list-style-type: none"> • Supply of the equipment 	Supply contract	EUR 250 000

ANNEX II: Amounts (in M €) Contracted and disbursed by quarter for the project

Contracted	Q3 2009	Q4 2009	Q1 2010	Q2 2010	Q3 2010	Q4 2010	Q1 2011	Q2 2011	Q3 2011
Contract 2	0.15								
Contract 3				0.25					
Cumulated				0.40	0.40	0.40	0.40	0.40	0.40
Disbursed									
Contract 2	0.09		0.03		0.03				
Cumulated	0.09	0.09	0.12	0.12	0.15	0.15	0.15	0.15	0.15
Contract 3				0.15	0.05	0.05			
Cumulated				0.15	0.20	0.25	0.25	0.25	0.25
Total cumulated	0.09	0.09	0.12	0.27	0.35	0.40	0.40	0.40	0.40

ANNEX III: Description of the Institutional Framework

The Institute of Metrology of Bosnia and Herzegovina is a national institution of Bosnia and Herzegovina established under the Council of Ministers of Bosnia and Herzegovina. It is in charge of setting up a comprehensive measuring system in Bosnia and Herzegovina with its traceability to the International System of Units, SI. The scope of jurisdiction of the Institute of Metrology of B&H is clearly stated in the Law (Official Gazette of BiH, No. 43/2004). It is stated, under the article 7 item i, of the same Law, that the Institute is in charge of international cooperation agreements in the metrology field, the Institute participates in the work of international organisations and the Institutes represents Bosnia and Herzegovina within the framework of their activities.

The development of a reliable measurement system in Bosnia and Herzegovina is essential for the full implementation of the Law on Metrology of Bosnia and Herzegovina (Official Gazette of BiH, No. 19/2001), the Law on Measurement Units of Bosnia and Herzegovina (Official Gazette of BiH, No. 19/2001), the Law on the Establishment of the Institute for Metrology of Bosnia and Herzegovina (Official Gazette of BiH, No. 43/2004) and for future integration within EU. Metrology is an interdisciplinary and an interdepartmental activity and one of key prerequisite for progress and normal operational of the state, and its international performance as equal in all areas (services, industry, trade, environmental protection, protection of health, food, agriculture, traffic, telecommunications, science, sport, taxation activities, jurisdiction, police...).

The Institute of Metrology started the preparation of “Strategy of the Development of the Metrology System in Bosnia and Herzegovina”. The metrology sector in Bosnia and Herzegovina is associated with several transitional processes, as establishing and development of adequate institutional structure and metrology infrastructure, harmonising the metrology system with EU practice and requirements with regard to legal, organisational and technical requirements.

Trends in legal metrology lead towards a global measurement of system, which relays on uniform system of units on one side and removal of technical barriers to trade on the another side, which was promoted by WTO between its country members. This indirectly entails the requirement of national technical regulations in the field of metrology. Mutual cooperation, mutual confidence and mutual recognition are three steps towards achieving international harmonization in legal metrology. Confidence in testing and metrological competence is an absolute prerequisite for the metrological system to function. Each product should be tested before its placement at the market.

The BiH institutions using ionising radiation sources for medical, industrial and scientific purposes shall have the possibility to verify the proper functioning of these sources via the calibration of the relevant instruments, dose-rate meters and dosimeters. The verification and calibration of measuring devices and the accuracy of the measurements is requested by the national “Law of metrology” in BiH.

Objective and accurate data of ionising radiation measurements are needed to provide the traceability of ionising radiation measurements at the international level.

The national laboratory for ionising radiation should provide traceability of the measuring instruments used at:

- Institutions for health care of the personnel exposed to ionising radiation;
- Laboratories in charge of checking the quality of water, air, soil, food, etc.;
- National body inspection for radiation protection and radiation safety;

- Industry;
- Monitoring laboratories for environmental control;
- civil defence purposes, etc.

ANNEX IV: Reference to laws, regulations and strategic documents:

- Nuclear Safety and Radiation Protection action of the multi-country MIPD programme.
- The Federal Law of Protection from Ionising Radiation and Radiation Safety (1999) of Bosnia & Herzegovina.
- The Law on Radiation Protection and Radiation Safety and amendments (2001 and 2003) of the Republika Srpska of Bosnia & Herzegovina.
- Law on Radiation Protection and Nuclear Safety in Bosnia and Herzegovina (came into force on 28 November 2007) – Articles 1, 2, 8, 13, 14 and 15 regulate in detail issues of importance for measurement of ionising radiation.
- Law (Official Gazette of BiH, No. 43/2004) which states that under Article 7 that the Institute of Metrology is in charge for international cooperation agreements in the measurement field, as well as for the participation in the work of international organisations.
- Law on Metrology of Bosnia and Herzegovina (Official Gazette of BiH, No. 19/2001).
- Law on Measurement Units of Bosnia and Herzegovina (Official Gazette of BiH, No. 19/2001).
- Law on the Establishment of the Institute for Metrology of Bosnia and Herzegovina (Official Gazette of BiH, No. 43/2004).

ANNEX V: Details per EU funded contract

The Contractor is expected to fulfill all the activities listed in section 3.4 with the support of local companies established in Bosnia & Herzegovina. The Contractor will prepare all technical specifications for the subsequent supply contract to be launched.

The project will be tendered, awarded and implemented in accordance with the PRAG.