

Bosnia and Herzegovina

Links with country priorities

The proposed national programme for Bosnia and Herzegovina is in line with the Country Programme Framework signed in 2004. The priorities identified in the CPF are the strengthening of regulatory infrastructure, radioactive waste management, human health and the application of isotope techniques.

The CPF for Bosnia and Herzegovina was signed in 2004 and a revised version is under preparation.

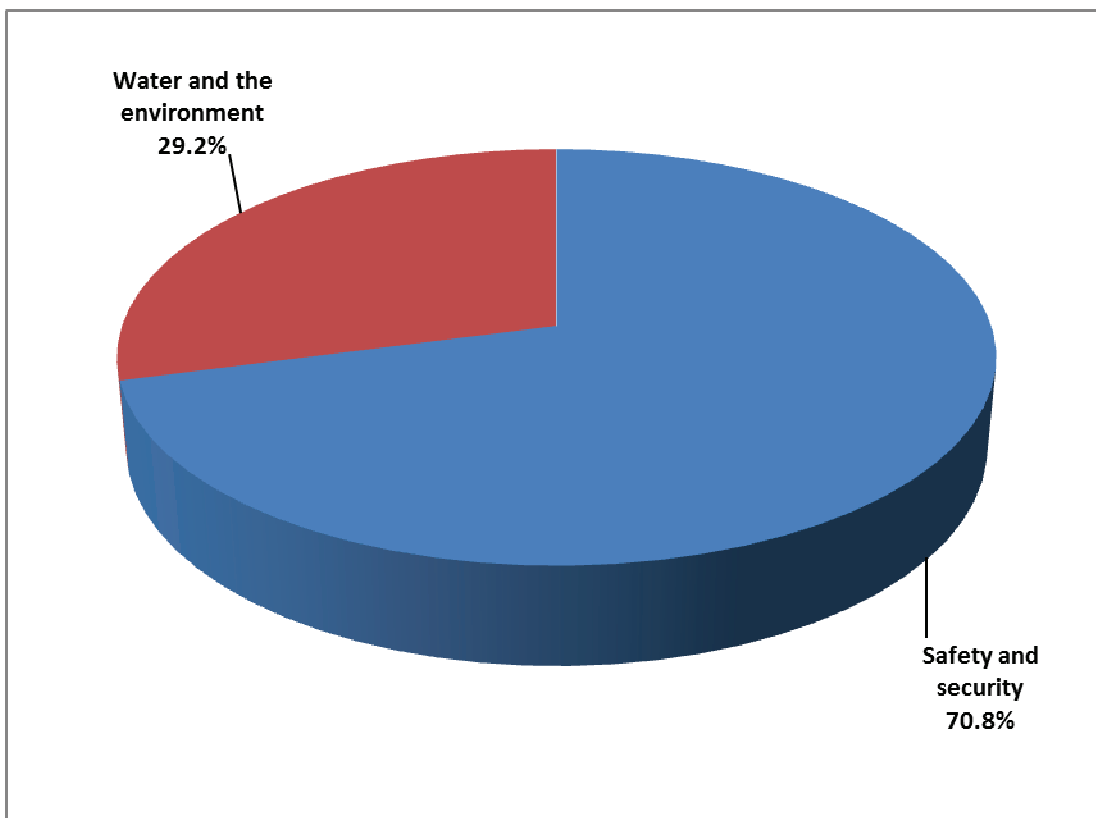
Programme overview

Past cooperation with Bosnia and Herzegovina has focused on the establishment of a national nuclear regulatory body, improved services for human health, specifically radiotherapy and nuclear medicine, and strengthened control of transboundary livestock diseases, especially brucellosis.

The proposed 2014–2015 national programme continues to focus on strengthening the national regulatory infrastructure, specifically for the full implementation of the Basic Safety Standards. In addition, two new projects are focused on radioactive waste management and radiation protection in medicine.

Bosnia and Herzegovina will also participate in regional projects that are relevant to its national priorities.

Proposed New Core Programme for 2014–2015



Project descriptions for the 2014–2015 technical cooperation programme

1. Providing Radioelement Mapping (BOH/7/003) 17 New (Category A)

Overall objective: To improve knowledge of public exposure to ionizing radiation.

Project duration: 2 years

Budget:

CORE FINANCING										
Year	Human Resource Components (Euro)						Procurement Components (Euro)			Total (Euro)
	Experts	Meetings	Fellowships	Scientific Visits	Training Courses	Sub-Total	Equipment	Sub-Contracts	Sub-Total	
2014	17 000	8 000	10 800	6 000	0	41 800	110 000	0	110 000	151 800
2015	0	8 000	0	0	0	8 000	20 000	0	20 000	28 000

NON-AGENCY FINANCING										
Year	Human Resource Components (Euro)						Procurement Components (Euro)			Total (Euro)
	Experts	Meetings	Fellowships	Scientific Visits	Training Courses	Sub-Total	Equipment	Sub-Contracts	Sub-Total	
2014	0	18 000	0	0	0	18 000	5 000	0	5 000	23 000
2015	0	6 000	0	0	0	6 000	7 000	0	7 000	13 000

PROJECT DESCRIPTION

Gap / Problem / Need analysis: Because of the increase of malignant diseases in Bosnia and Herzegovina, there is a high demand for the public to be informed on potentially contaminated soils with depleted uranium, after bombing during the war in the 1990s. It is not known whether there is contamination of soil in the process of exploitation of coal, bauxite and iron rest. Such information cannot be gathered without considerable soil analysis and radioelement mapping of Bosnia and Herzegovina. Radioelement baseline data sets are prerequisites for estimation of the exposure of the population to ionizing radiation. Further, it is an essential component in many research applications in earth and life sciences. According to present knowledge, only the minor part of the country's land mass has been subject to radiometric measurements. Coverage of gamma radiation spectrometry surveys is a result of different projects dealing with a particular issue (NORM, depleted uranium, etc.). Consequently, the information is scarce and deficient. Gathering of radioelement data will be done by gamma ray spectrometry. Up to date, geochemical surveys will be used as 'sample based' surveys. Radioelement data sets will be used to estimate and assess the terrestrial radiation dose to the human population and to identify areas of potential natural radiation hazard.

Stakeholder analysis and partnership: The Institute for Public Health of the Federation of Bosnia and Herzegovina, and the Institute for Public Health of the Republic of Srpska are licenced technical services for environmental radioactivity monitoring. Secondary counterpart: Federal Institute of Agropedology, an entitled institution for the creation of maps of agricultural soil, control of land use, monitoring and control of pollutants (heavy metals), etc. End users include the State Regulatory Agency for Radiation Protection and Nuclear Safety which defines the policy for radiation safety and regulates exposure control from ionizing radiation. Other partners involve the Federal Ministry of Agriculture, Water Management and Forestry, and the Ministry of Agriculture, Forestry and Water Management of the Republic of Srpska, the Federal Ministry of Spatial Planning and the Ministry of Spatial Planning, Civil Engineering and Ecology of the Republic of Srpska, Federal Institute for Geology.

Role of nuclear technology: Gamma ray spectrometry, utilizing laboratory and portable instruments, is a consolidated methodology extensively utilized for investigating and mapping of radioelements and estimating the surface concentrations of radionuclide gamma emitters.

Logical Framework Matrix:

		Indicators	Means of Verifications	Assumptions
Overall Objective	To improve knowledge of public exposure to ionizing radiation.			
Outcome(Specific Objective)	To ensure effective usage of radioelement map of Bosnia and	Reports on sample measurements (250-300 analysis). Created maps of ambient radiation and	Radioelement map of Bosnia and Herzegovina Project report made by Institutes of Public Health	Weak recognition the importance of using such information from the relevant institutions, which

	Herzegovina.	gamma emitting radionuclides spatial distribution		can lead to incomplete utilization of resources.
Output(s)	Project Management Team Operational	Project team operational	Inception report an progress reports	Project team operational
	Education of relevant staff for mapping	Sampling plan approved by Public Health Institutes	Sampling plan approved by Public Health Institutes	Training postponement Not adequate staff trained
	Update equipment for mapping (bigger capacities for large number of samples)	Deliverance and installation of equipment	Reports of technical specification, deliverance and installation of equipment	Equipment purchasing and installation postponement
	Software for upgrading existing equipment	Scientific visits, fellowships	Reports on training including training program and report about efficiency of training	Software purchasing, installation and training postponement
	Identification and quantification of gamma emitting radionuclides in soil	Number of analysis performed Number of dose assessments Number of spatial analysis performed	Reports on gamma ray spectrometry measurements and interpretation of results	Insufficient data on the composition of the soil
	Creation maps of gamma emitting radionuclides	Maps of terrestrial radiation data	Submitted State Regulatory Agency for Radiation and Nuclear Safety	

Major inputs (items with a cost of over Euro 150,000) No elements with a cost of Euro 150,000

2. Strengthening Radiation Protection in Medicine (BOH/9/005) 12 New (Category A)

Overall objective: To upgrade radiation protection in medicine.

Project duration: 2 years

Budget:

CORE FINANCING

Year	Human Resource Components (Euro)						Procurement Components (Euro)			Total (Euro)
	Experts	Meetings	Fellowships	Scientific Visits	Training Courses	Sub-Total	Equipment	Sub-Contracts	Sub-Total	
2014	5 000	0	27 000	6 000	17 500	55 500	57 000	0	57 000	112 500
2015	0	0	21 600	0	49 000	70 600	0	0	0	70 600

NON-AGENCY FINANCING

Year	Human Resource Components (Euro)						Procurement Components (Euro)			Total (Euro)
	Experts	Meetings	Fellowships	Scientific Visits	Training Courses	Sub-Total	Equipment	Sub-Contracts	Sub-Total	
2014	0	0	0	0	0	0	0	2 000	2 000	2 000

PROJECT DESCRIPTION

Gap / Problem / Need analysis: Bosnia and Herzegovina has four million inhabitants and about 1800 radiation exposed workers. More than half of them are members of staff of five major hospitals (clinical centres in Sarajevo, Banja Luka, Tuzla and Mostar and Cantonal Hospital Zenica). In 2011, the State Regulatory Authority issued a Regulation on Radiation Protection for medical exposure and a Regulation on Occupational and Public Exposure. According to the mentioned regulations, all hospitals licensed for radiotherapy, nuclear medicine and diagnostic radiology must have a medical physics and radiation protection department (the medical physics department can cover the tasks of the radiation protection department) as an independent organizational unit. In the five counterpart institutes, 22 out of 27 medical physicists are working. Besides the Medical Physics and Radiation Protection Department in the Clinical Centre in Sarajevo, which was established in 2009, another three medical physics and radiation protection departments were established in Mostar, Zenica and Tuzla in 2012. According to the mentioned regulations, one of the roles of medical physic experts is the training in the field of radiation protection for practitioners and other staff, while the radiation protection department is responsible for radiation protection in hospitals including the tasks of radiation protection experts. New medical physics and radiation protection departments do not have any dosimetry or quality control (QC) equipment in the field of radiation protection or medical physicists trained in the field of radiation protection. Without the support of IAEA planned in the framework of the project, the hospitals in Mostar, Zenica and Tuzla cannot fulfil the requirements of national regulations and international standards in the field of radiation protection. Taking into account all mentioned above,

the proposed project would have a great impact on the upgrade of the radiation protection infrastructure which is a priority included in the current and future draft of the Country Programme Framework (CPF) in Bosnia and Herzegovina.

Stakeholder analysis and partnership: Beneficiaries of the project are the five major hospitals in Bosnia and Herzegovina with a role to make available medical physicists for training and to provide the organization (medical physics and radiation protection departments) in accordance with national legislation. End users are exposed workers, patients and members of the public who will benefit from the upgrade of radiation protection infrastructure in the mentioned hospitals. Another partner is the State Regulatory Agency for Radiation and Nuclear Safety, with the role to support the project by implementation of the regulations in the field of radiation protection (medical exposure and occupational and public exposure).

Role of nuclear technology: The IAEA would provide small equipment for dosimetry in radiation protection for three centres (Zenica, Tuzla and Mostar), scientific literature, dosimetry and equipment for training in the field of radiation protection for two centres (Sarajevo and Banja Luka) as well as training and expert support for local staff (fellowships, training courses, scientific visits and expert missions as lecturers on national training courses in the field of radiation protection). Hospitals in Zenica, Tuzla and Mostar were not included in some previous TC projects which included the delivery of equipment, so for the mentioned hospitals neither dosimetry nor QC equipment in the field of radiation protection was provided by the IAEA. Hospitals in Sarajevo and Banja Luka received substantial equipment in the framework of the TC programme, but as future training centres in the field of radiation protection, the mentioned hospitals need scientific literature, support in translation of radiation protection publications, as well as some QC, dosimetry and equipment for training in the field of radiation protection.

Logical Framework Matrix:

		Indicators	Means of Verifications	Assumptions
Overall Objective	To upgrade radiation protection in medicine.			
Outcome(Specific Objective)	To improve radiation protection in medicine through capacity building in the medical physics and radiation protection departments in five major hospitals in Bosnia and Herzegovina.	Organizational structure and functioning of Services for radiation protection in Bosnia and Herzegovina established according regulation on radiation protection of exposed workers and public which is transposition of Directive 96/29 EURATOM project management team functional	expert missions	
Output(s)	Project Management Team Operational			Commitment of all stakeholders.
	Staff of Medical Physics and Radiation Protection Departments adequately trained.	Number of staff trained	Reports	

Major inputs (items with a cost of over Euro 150,000) No elements with a cost of Euro 150,000

3. Strengthening Radioactive Waste Management (BOH/9/006) 19 New (Category A)

Overall objective: To establish a safe and secure national radioactive waste management system according to the IAEA safety standards and to reduce public exposure and enhance protection of the environment, through collection of radioactive waste from various locations around the country for storage in a fully equipped and operational new central storage and conditioning facility for radioactive waste.

Project duration: 2 years

Budget:

CORE FINANCING										
Year	Human Resource Components (Euro)						Procurement Components (Euro)			Total (Euro)
	Experts	Meetings	Fellowships	Scientific Visits	Training Courses	Sub-Total	Equipment	Sub-Contracts	Sub-Total	
2014	15 000	0	16 200	3 000	0	34 200	0	40 000	40 000	74 200

2015	20 000	0	5 400	24 000	0	49 400	130 000	0	130 000	179 400
NON-AGENCY FINANCING										
Year	Human Resource Components (Euro)					Procurement Components (Euro)				Total (Euro)
	Experts	Meetings	Fellow-ships	Scientific Visits	Training Courses	Sub-Total	Equipment	Sub-Contracts	Sub-Total	
2014	0	0	0	0	6 300	6 300	0	0	00	6 300
2015	0	0	0	0	0	0	0	70 000	70 000	70 000

PROJECT DESCRIPTION

Gap / Problem / Need analysis: Bosnia and Herzegovina has accessed the Joint Convention on October 31, 2012 and now has to fulfill its obligations, including an enhanced regulatory framework, an appropriate storage facility and competent operator, both licensed by the SRARNS. There is no licensed central storage for radioactive waste in Bosnia and Herzegovina, although there are 2 temporary storages with limited capabilities. Storage in Banja Luka is not operational and sources need to be removed to the other safe location. Storage near Sarajevo is operational but almost full. Presently is no adequate possibility for storing spent radioactive sources, orphan sources and other radioactive material. A number of sources have become disused or spent in facilities that stopped using them or went out of a business, 6 temporary storages exist in Bosnia and Herzegovina with such sources. There are also approximately 350 radioactive lightning rods installed around Bosnia and Herzegovina which need to be dismantled, removed and safely stored. Another issue is a high probability of appearance of orphan sources in scrap metal, which cannot be safely stored. Radioactive waste management is one of the priorities of the TC programme in the CPF. Implementation of this project will contribute to a reduction of public and collective dose from spent sealed radioactive sources, as well as enhanced radioactive waste management. There was a national TC project BOH/4/002 Sealed radiation sources management in areas affected by war, which was successfully completed. There is also one on-going national TC project BOH/9/004 "Building Capacity and Strengthening the National Regulatory Infrastructure for the Full Implementation of the Basic Safety Standards" from the 2012 -2013 TC cycle. This project has a wide-scope and only has some inputs on the regulatory aspects of radioactive waste management. There will be no overlap, or very little overlap, between that project and this project concept because this one is focused on enhancing national capacities for and consolidation of radioactive waste in the country.

Stakeholder analysis and partnership: The State Regulatory Agency for Radiation and Nuclear Safety (SRARNS), (responsible to the Council of Ministers of Bosnia and Herzegovina) is a competent authority in the field of radioactive waste management in Bosnia and Herzegovina, and has the responsibility to develop national regulations and guidance in this field. Technical Support Organization, the Public Health Institute of Federation of Bosnia and Herzegovina, will be included in the technical part of implementation of the project, as the operator of a Radioactive Waste facility on the state level. This institute will apply for a license to operate radioactive waste management facility during this project. The outcome of the project will be the establishment of a safe and secure system for radioactive waste management. The whole population will benefit from it, especially people in the areas near the temporary storage in Banja Luka which is not adequate. All facilities that currently have disused radioactive sources and materials, as well as companies with radioactive lightning rods and scrap metal yards, will also benefit from the implementation of this project, as the project will create conditions for removal of dismantled radioactive sources from the facilities.

Role of nuclear technology: The IAEA is expected to provide expert advice on the implementation of the project, as well as other requirements including equipment and training. Use of the IAEA safety standards will be mandatory.

Logical Framework Matrix:

		Indicators	Means of Verifications	Assumptions
Overall Objective	To establish a safe and secure national radioactive waste management system according to the IAEA safety standards and to reduce public exposure and enhance protection of the environment, through collection of radioactive waste from various locations around the country for storage in a fully equipped and operational new central storage and conditioning			

	facility for radioactive waste.			
Outcome(Specific Objective)	To establish an operational central radioactive waste storage facility.	Improvements in the safe management of radioactive waste and in the existing framework for safety of radioactive waste. After project implementation all reported existing radioactive waste (including disused sealed sources) in BOH should have been collected to the licensed central storage facility. This will be wholly documented and reported.	Assessment of impact of training of personnel on waste management practices. Assessment of upgraded waste management facilities in the country. RASIMS and RAIS	Available staff capacities and BOH's government endorsement, especially in defining new location for waste management facility Holders of disused radioactive sources acquired before the establishment of the SRARNS report to SRARNS about all such sources in order for SRARNS to organize their collection
Output(s)	Project Management Team Operational			
	Enhanced Regulatory Framework in Radioactive Waste Management in BOH	Appropriate regulatory framework in place	RASIMS country profile	Availability of appropriate experts for a small non-nuclear country
	Enhanced National Capacities for Radioactive Waste Management	Enhanced capacities for radioactive waste management corresponding to country needs	Operational facilities, Reports	Available operator and regulator staff, new storage site defined
	Licensed Radioactive Waste Management Activities and Facilities according to the IAEA regulation	Licenses for operator of RadWaste is issued	License documents	License application submitted
	Spent Sealed Sources and other Radioactive Waste in BOH adequately stored	All radioactive waste consolidated to the central location	Reports on undertaken activities	Adequate institution/company willing to contract a job, adequate budget approved

Major inputs (items with a cost of over Euro 150,000) No elements with a cost of Euro 150,000