

...Bosnia and Herzegovina is grateful to the IAEA for its significant contribution to the country and increased awareness of the safety culture.





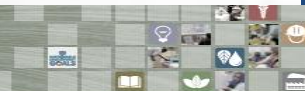
International Conference on the IAEA Technical Cooperation Programme

Sixty years and beyond: Contributing to development

30 May–1 June 2017
Vienna, Austria

#Atoms4Dev2017







International Conference on the IAEA Technical Cooperation Programme

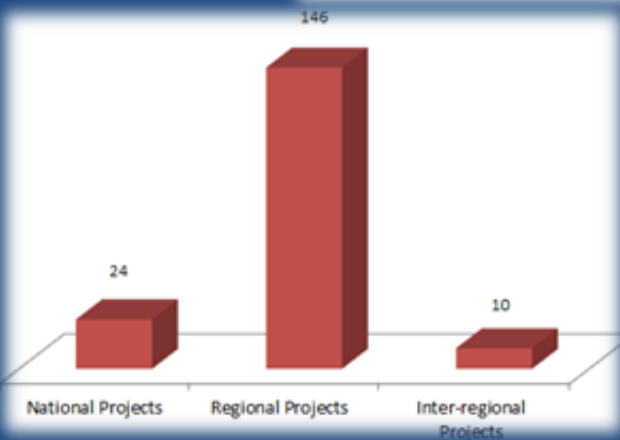
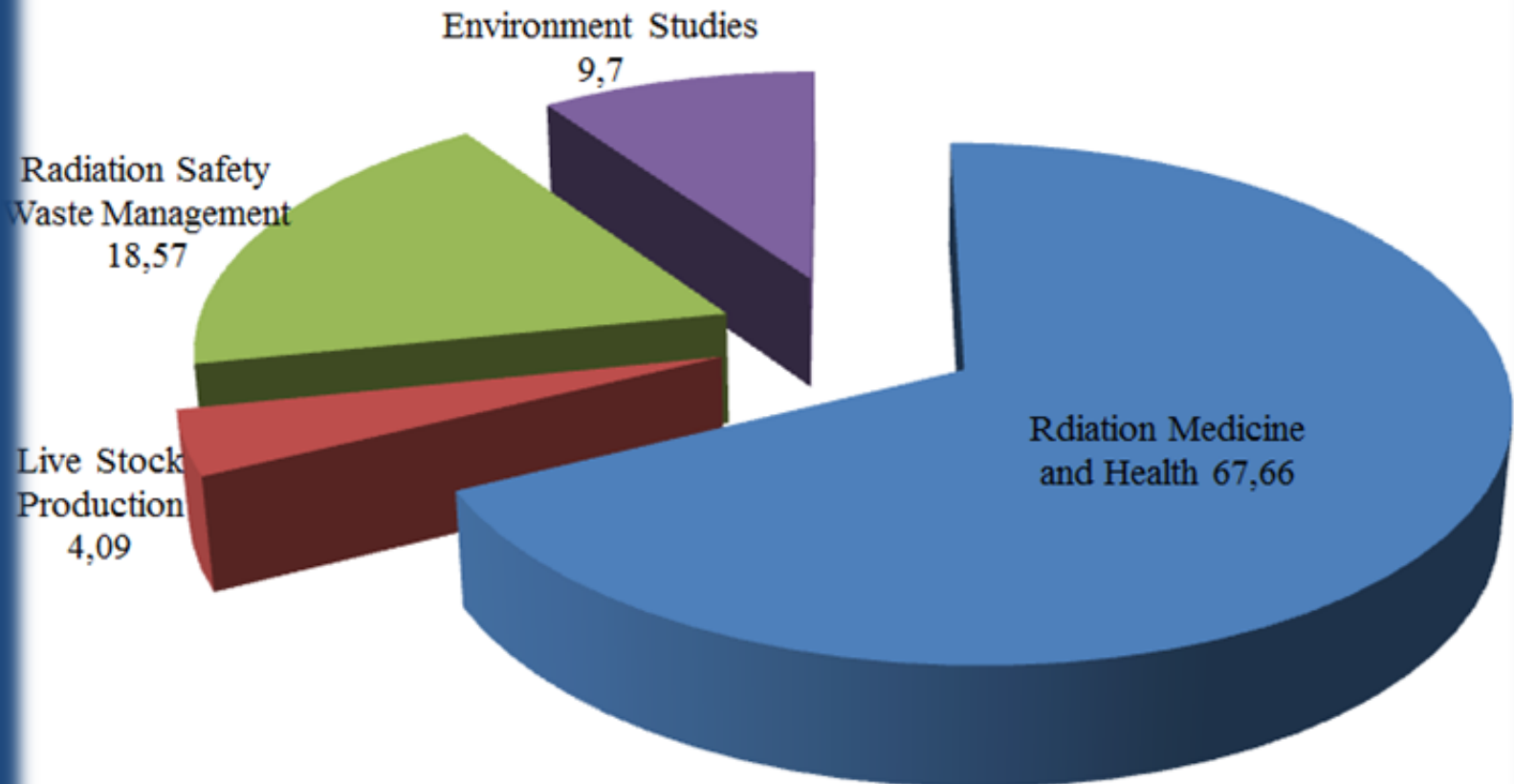
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National Projects from 2005 to 2017 (%)





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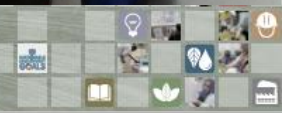
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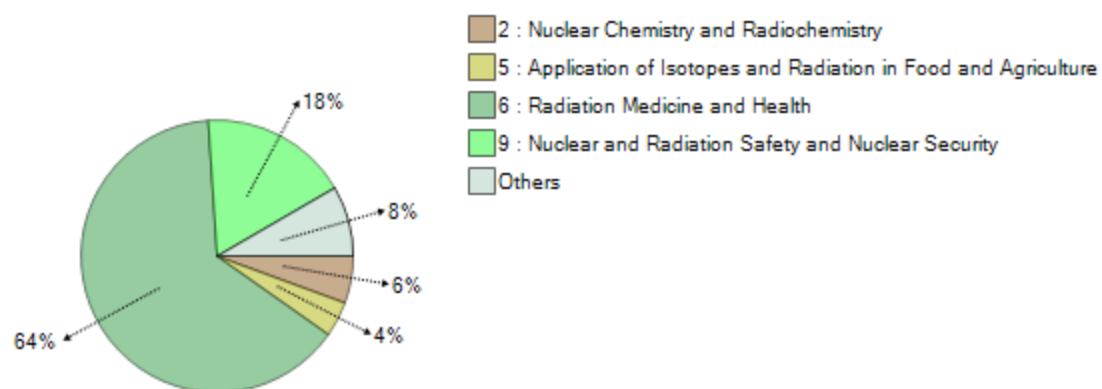
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Fellows and Scientific visitors with nationality : Bosnia and Herzegovina

Show sub field of activity

Field of Activity	Fellows	Scientific visitors	Total
0 : General Atomic Energy Development	0	3	3
1 : Nuclear and Atomic Physics	0	3	3
2 : Nuclear Chemistry and Radiochemistry	6	6	12
3 : Fuel Cycle and Waste Management	1	0	1
4 : Nuclear Engineering and Technology	4	0	4
5 : Application of Isotopes and Radiation in Food and Agriculture	7	2	9
6 : Radiation Medicine and Health	102	36	138
7 : Application of Isotopes and Radiation in Biology and Environmental Studies	1	0	1
8 : Isotope Hydrology and Applications of Isotopes and Radiation in Industry	6	0	6
9 : Nuclear and Radiation Safety and Nuclear Security	13	25	38
Total	140	75	215





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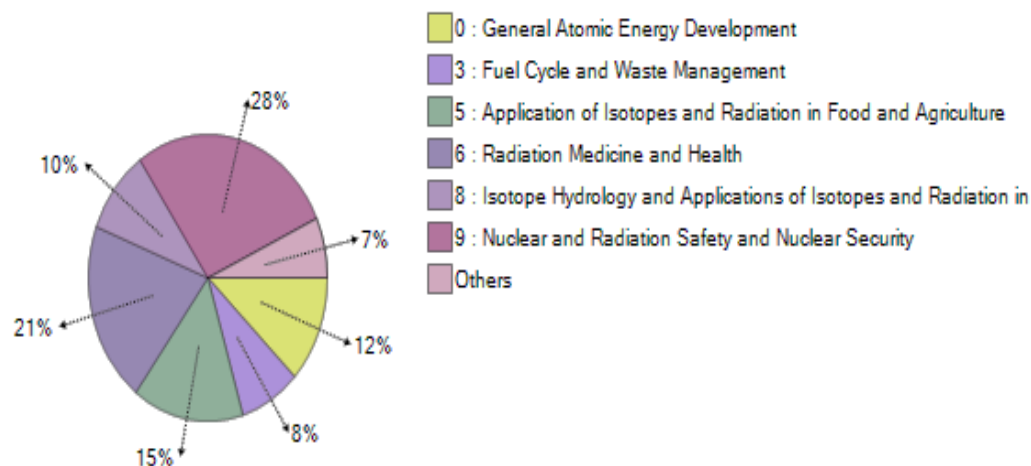




Experts where duty country is Bosnia and Herzegovina

Show sub field of activity

Field of Activity	International experts	National experts	Meeting participants	Total
0 : General Atomic Energy Development	29	4	20	53
1 : Nuclear and Atomic Physics	9	0	0	9
2 : Nuclear Chemistry and Radiochemistry	9	0	0	9
3 : Fuel Cycle and Waste Management	11	0	25	36
4 : Nuclear Engineering and Technology	3	0	0	3
5 : Application of Isotopes and Radiation in Food and Agriculture	13	0	53	66
6 : Radiation Medicine and Health	70	0	20	90
7 : Application of Isotopes and Radiation in Biology and Environmental Studies	2	0	7	9
8 : Isotope Hydrology and Applications of Isotopes and Radiation in Industry	12	1	29	42
9 : Nuclear and Radiation Safety and Nuclear Security	67	0	55	122
Total	225	5	209	439



AEA Programme
Preventing Brucellosis in Bosnia and Herzegovina

The challenge...

The challenge... The economy of Bosnia and Herzegovina depends significantly on agriculture. The country's workforce and contributes 16% of the country's GDP. The economy of Bosnia and Herzegovina depends significantly on agriculture. The country's workforce and contributes 16% of the country's GDP. The economy of Bosnia and Herzegovina depends significantly on agriculture. The country's workforce and contributes 16% of the country's GDP.

The project...

The project...
As the primary source of brucellosis in farm animals, especially sheep and goats, early disease detection using nuclear-related diagnostic platforms as well as the upgrade of epidemiological strategies, became a priority for the State Veterinary Office and the entire veterinary service. An IAEA technical cooperation project supported the upgrade of laboratory capacities and the implementation of standardized protocols. A strategically important epidemiological team competent to design and enforce scientifically justified epidemiological models for the control of brucellosis and other TADs in the country, was designated and trained.



The impact...

The impact... As a result of the project, a disease control strategy based on quantitative epidemiological data has been developed and implemented to enhance Bosnia and Herzegovina's disease control system. Today, samples collected under the established surveillance strategy are screened in screening laboratories, and samples from animal flocks that test positive are sent to reference laboratories. The surveillance results are reported to the competent authorities such as the removal of diseased animals. The new system has improved the Veterinary Service to detect, control or eradicate brucellosis and has established a network of advanced epidemiological units has been set up, and standard techniques and diagnostic protocols are being implemented. As a result of the TC project, Bosnia and Herzegovina is now better able to

As a result of the TC project, Bosnia and Herzegovina is now better able to monitor the incidence of Brucellosis in livestock and population.

Technical cooperation project BOH/5/001: Reducing the incidence of Brucellosis in Humans by Surveillance and Control

Establishing a medical physics training centre in Bosnia and Herzegovina

The challenge...

The challenge... There is a significant gap between the supply and demand for experienced medical physicists in Bosnia and Herzegovina, and continuous education and clinical training is needed. Over the past three years, the number of radiotherapy centres in the country has increased greatly. In 2009 there was only one centre, today there are five. The number of medical physicists employed in the hospitals has doubled in the same period. The Ministry of Health in Bosnia and Herzegovina has been carried out a continuous education programme in order to ensure the development of the infrastructure of the radiotherapy centres.

Since 1997, the clinical training of medical physicists in the technical cooperation programme is almost exclusively through the **MEAS** project. In order to develop a national infrastructure for sustainability and safe medical practices, it was necessary to develop a national infrastructure for training, including a formal curriculum covering radiation imaging, radiotherapy and nuclear medicine.

The project...

The project...
The project aimed to establish a medical radiation physics centre in the Departments of Medical Physics at the Clinical Centre of the University of Sarajevo (KCUH) and the Clinical Centre Banja Luka. The centres would train medical physicists and provide sustainable training as well as continuing professional development in line with internationally accepted standards.

Training for local medical physicists from Sarajevo and Banja Luka was organized in order to prepare for the utilization of quality control (QC) and dosimetry equipment also provided through the project, and to establish avenues for future collaboration.

An expert mission was organized to initiate collaboration with medical physics departments in the region and to advise on the development of medical physics and radiation protection, and related academic and clinical training programmes at both sites, and collected information from other hospitals. These activities provided an evaluation of academic and clinical training programmes in medical physics, identified specific areas for improvement, as well as guidance on the establishment of a framework for future direct cooperation with the institutions in Sarajevo and Banja Luka.



A medical physicist from Saragat discussed the tests for ^{238}U with colleagues from Mining.

The impact...

The impact...
A medical radiation physics centre has been established at **KICUS** and educational training of medical physicists is underway. The project has helped to create a larger professional body of medical physicists and, in cooperation with the Faculty of Sciences at the University of Sarajevo, has established the foundations for education and clinical training in medical physics and radiation protection. Staff and equipment meeting internationally accepted standards are now available for training in all major areas of medical radiation physics: radiotherapy, diagnostic radiology and nuclear medicine. The experience gained in Sarajevo will be used for other centres in the country.

Technical cooperation project BOW/6/012: Establishing a Medical Radiation Physics Centre



IAEA

International Atomic Energy Agency

Atoms for Peace

September 2010

Monitoring NORM and other pollutants in Bosnia and Herzegovina

The challenge...

In Bosnia and Herzegovina, many past and present industrial activities have produced wastes that contain high levels of natural occurring radioactive material (NORM), often in combination with other pollutants such as heavy metals. In addition, around 70% of the country's electricity is generated by coal-fired power plants, which can lead to significant increases in the exposure of workers and the public to NORM and other pollutants. In order to identify if corrective measures to reduce exposure should be implemented, it was necessary to identify and report on occupational activities of concern, and to monitor the environment.

The project...

In the past, several coal and aluminium processing activities were identified and studied as potential sources of environmental radioactivity contamination: the coal burning power plants in Gacko, Kakanj, Tutin and Ugljevik, as well as the aluminium processing industries in Mostar and Zvornik. Given the general lack of data on natural radioactivity in the environment, the project participants critically reviewed the existing data and monitored selected sites/environments affected by the major classes of wastes containing natural radionuclides.



The Tutin coal ash/separation site was monitored for NORM.

With IAEA assistance, stakeholders were trained through fellowships in radioanalytical and sampling techniques, and in environmental assessment procedures. Existing laboratories in the country were upgraded with the provision of essential equipment, and harmonized technical and quality procedures were upgraded and implemented for the determination of radioactive contamination of foodstuffs and the environment.

The impact...

A review of past and present industrial activities that produce wastes with enhanced levels of natural radioactivity has been prepared. Two coal mines and two coal-fired power plants, along with their ash/slag deposits, were identified as NORM contaminated sites. Apart from elevated radon levels, no critical levels of natural radioactivity in the nearby biota and water were found. Measurements indicate an urgent need to initiate remediation actions for radiation hazards in the areas studied. An analysis report was prepared along with specific recommendations to the Government on how to strengthen radioactivity monitoring.

Consumer protection was enhanced as the project contributes indirectly to radioactive safety for imported and exported food goods and to the value of food exports by certifying their radiological quality. The improved laboratories are also now in a position to support activities to address radiological emergencies.

Technical cooperation project B047002: Indoor and Outdoor Monitoring of Naturally Occurring Radioactive Material

Co-137 in Soil Sample



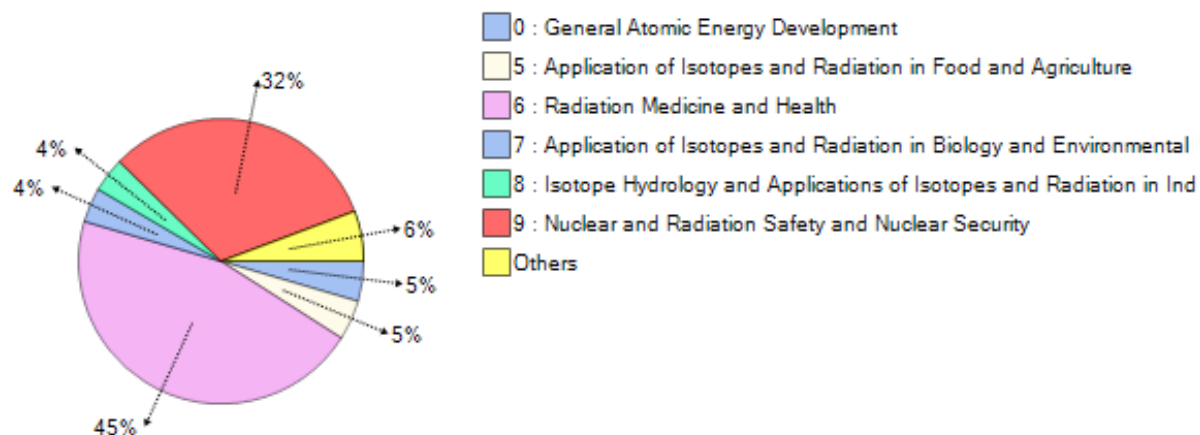
Training in radon measurement



Lecturers/Participants with nationality : Bosnia and Herzegovina

Training Courses

Field of Activity	Lecturers	Participants	Total
0 : General Atomic Energy Development	2	13	15
1 : Nuclear and Atomic Physics	0	2	2
2 : Nuclear Chemistry and Radiochemistry	0	4	4
3 : Fuel Cycle and Waste Management	0	7	7
4 : Nuclear Engineering and Technology	3	3	6
5 : Application of Isotopes and Radiation in Food and Agriculture	0	15	15
6 : Radiation Medicine and Health	2	149	151
7 : Application of Isotopes and Radiation in Biology and Environmental Studies	0	13	13
8 : Isotope Hydrology and Applications of Isotopes and Radiation in Industry	0	13	13
9 : Nuclear and Radiation Safety and Nuclear Security	3	103	106
Total	10	322	332







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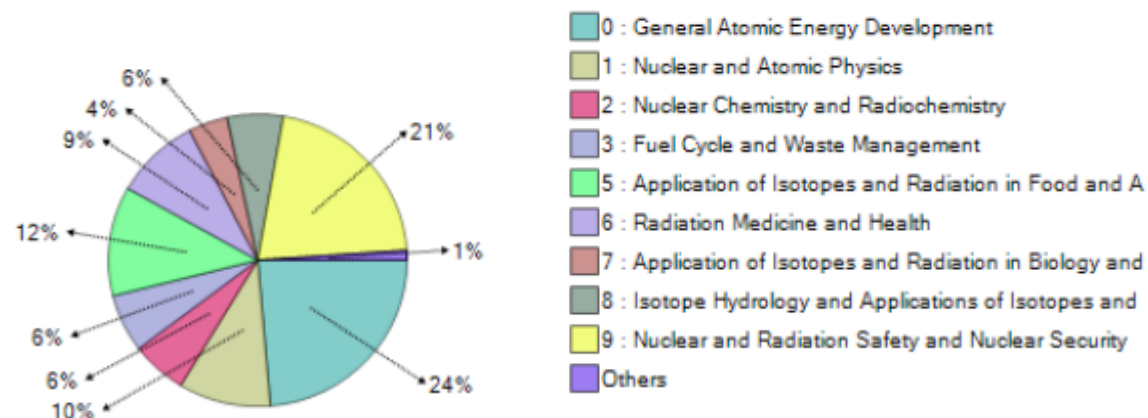
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Experts with nationality : Bosnia and Herzegovina

Meetings

Field of Activity	International experts	National experts	Meeting participants	Total
0 : General Atomic Energy Development	10	0	123	133
1 : Nuclear and Atomic Physics	8	0	48	56
2 : Nuclear Chemistry and Radiochemistry	7	1	26	34
3 : Fuel Cycle and Waste Management	3	0	33	36
4 : Nuclear Engineering and Technology	0	5	1	6
5 : Application of Isotopes and Radiation in Food and Agriculture	0	0	68	68
6 : Radiation Medicine and Health	0	5	47	52
7 : Application of Isotopes and Radiation in Biology and Environmental Studies	0	0	24	24
8 : Isotope Hydrology and Applications of Isotopes and Radiation in Industry	0	21	13	34
9 : Nuclear and Radiation Safety and Nuclear Security	12	8	99	119
Total	40	40	482	562



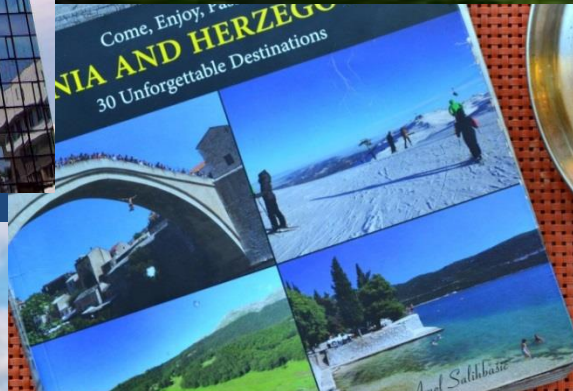




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After the bitter war ended in 1995, Bosnia and Herzegovina was in the process of major reconstruction and in the need of support from international partners. Regarding the peaceful application of nuclear technologies, as well as nuclear safety and security, the situation in Bosnia and Herzegovina was extremely difficult.



We hope that in the near future Bosnia and Herzegovina will become a provider of expertise within the IAEA ...