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Monitoring NORM and Other Pollutants in Bosnia and Herzegovina

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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 Tusnica coal mine separation site was monitored for NORM.

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, Tuzla 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.

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 no 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.

These activities were organised within the framework of the IAEA TC project BOH/7/002, Indoor and Outdoor Monitoring of Naturally Occurring Radioactive Material.

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