

COOPERATION BETWEEN THE INSTITUTE OF NUCLEAR PHYSICS AND THE JAPAN ATOMIC ENERGY AGENCY IN THE FRAMEWORK OF A FOLLOW-UP TRAINING COURSE ON ENVIRONMENTAL RADIOACTIVITY MONITORING

Within the framework of the Instructor Training Program sponsored by Ministry of Education, Culture, Sports, Science and Technology, Japan, the Nuclear Human Resources Development Center (NuHRDeC) of the Japan Atomic Energy Agency (JAEA) has been conducting “Instructor Training Courses” (ITC) since 1996, the purpose of which is to train instructors in three areas: Reactor Engineering, Nuclear/Radiological Emergency Preparedness and Environmental Radioactivity Monitoring under the current program. The Republic of Kazakhstan is joining the program since 2010. These courses are held annually in Japan, during which participants from Asian countries (Kazakhstan, Bangladesh, Indonesia, Malaysia, Mongolia, Philippines, Thailand, Turkey and Vietnam) receive the necessary basic knowledge as instructors. The duration of the course depends on the chosen direction and varies from 3 to 5 weeks. Upon completion of the ITC courses, participants return to their country and, in collaboration with NuHRDeC, JAEA, conduct “Follow-up Training Courses” (FTC) for students and young professionals in their country, making the most of the knowledge and experience gained at the ITC. A course coordinator from Japan comes to each participating country to assist in conducting the course and provide a lecture on the chosen direction.

In 2024, a Follow-up Training Course in the field of Environmental Radioactivity Monitoring was conducted on the basis of the RSE “Institute of Nuclear Physics” of the Ministry of Energy of the Republic of Kazakhstan (INP), which attracted the attention of not only students of higher educational institutions and young specialists of the Institute, but also specialists from non-governmental sectors.

The instructors in this course were leading specialists of the INP, Al-Farabi Kazakh National University and NuHRDeC, JAEA. The lectures were focused on radioecology issues, including: individual dosimetric control, gamma-spectrometric measurements using the HPGe detector, comprehensive analysis of uranium-containing materials, biological effects of doses, behavior of radionuclides in the environment, theoretical foundations of methods of concentration and separation of natural radionuclides, the role of information technology in ensuring the processes of environmental research and analysis of research results. Two separate lectures were devoted to the experience of ensuring radiation safety in Japan: “Tritium monitoring technology and information of ALPS treated water released from the Fukushima NPS accident site into the Ocean” and “Environmental radiation monitoring program on operational situation of nuclear facilities in Japan”. In addition, there were introductory lectures on the activities of the INP in the field of radioecology, the program of integrated monitoring of the territories of the former Azgir test site, the experience of ensuring Nuclear and Radiation safety at the Institute’s facilities.

Practical exercises were also organized, including field researches of dose rates and soil sampling. The participants of the course had an introductory excursion to the basic analytical laboratory of the Center for Integrated Environmental Research of the INP, equipped with equipment and materials to determine the specific activity of natural and artificial radionuclides and elements in various environmental objects.

The effectiveness of these courses is confirmed by the results of pre- and post-tests. And in order to improve the work of the course, a survey of participants is conducted, whose suggestions and comments help to increase the level and effectiveness of the course. The course participants highly appreciated the new knowledge, which will be useful to them in their work, new projects and research in the future.

Section

Radiation ecology and methods of analysis (Section 3)

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Track Classification: The V International Scientific Forum “Nuclear Science and Technologies”: Radiation ecology and methods of analysis (Section 3)