NATIONAL ACADEMY OF SCIENCES OF TAJIKISTAN

CHEMICAL, BIOLOGICAL, RADIOLOGICAL, AND NUCLEAR SAFETY & SECURITY AGENCY







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АГЕНТИИ АМНИЯТИ

NATIONAL ACADEMY OF SCIENCES OF TAJIKISTAN

CHEMICAL, BIOLOGICAL, RADIOLOGICAL, AND NUCLEAR SAFETY & SECURITY AGENCY

STATE REGULATORY AUTHORITY

About Us



«THE STATE REGULATORY AUTHORITY IN THE FIELD OF ENSURING RADIATION SAFETY - THE CHEMICAL, BIOLOGICAL, RADIOLOGICAL AND NUCLEAR SAFETY AND SECURITY AGENCY IS UNDER THE NATIONAL ACADEMY OF SCIENCES OF TAJIKISTAN, FURTHER CALLED REGULATORY AUTHORITY, WHICH CARRIES OUT INTEGRATED STATE POLICY ...».

On 1 November 2001, the Republic of Tajikistan (further – RT) became member of the IAEA and there was a necessity to establish an agency responsible for radiation safety regulation.

Based on Governmental Decision No. 3594 (16.1-2) as of 18 September 2002, initially, the Atomic Energy Agency was established under the Presidium of the National Academy of Sciences of Tajikistan and later based on that structure, it was transformed into the Nuclear and Radiation Safety Agency under the National Academy of Sciences of Tajikistan (further – NRSA NAST) as a separate independent authority (Decree of Presidium of the National

Academy of Sciences of Tajikistan No. 112, as of 25.12.2002) under the Academy of Sciences.

In 2003, according to the Law of the RT "On radiation safety", the Government of the RT has assigned the Chemical, Biological, Radiological and Nuclear Safety and Security Agency under the National Academy of Sciences of Tajikistan (further – CBRN SSA NAST) as State regulatory authority on ensuring radiation safety in the country. According to the Article 6 of the above mentioned law, the CBRN SSA NAST as State regulatory authority carries out single state policy and coordinates the activity of relevant authorities in the country.

According to the Decree of the Presidium of the National Academy of Sciences of Tajikistan No. 117, dated November 5, 2021, the name of the Nuclear and Radiation Safety Agency of the National Academy of Sciences of Tajikistan (ANRS) have been changed to the Chemical, Biological, Radiological and Nuclear Safety and Security Agency of the National Academy of Sciences of Tajikistan (further – CBRN SSA NAST).

THE MAIN AREAS OF CBRN SSA'S ACTIVITIES INCLUDE:

CBRN SSA establishes requirements for the application of the radiation protection principles for all exposure situations and shall establish or adopt regulations and guides for protection and safety, which means:

- for planned exposure situations, each party with responsibilities for protection and safety shall ensure, when relevant requirements apply to that party, that no practice is undertaken unless it is justified;
- for emergency exposure situations and existing exposure situations, each party with responsibilities for protection and safety shall ensure, when relevant requirements apply to that party, that protective actions or remedial actions are justified and are undertaken in such a way as to achieve the objectives set out in a protection strategy;

- for all exposure situations, each party with responsibilities for protection and safety shall ensure, when relevant requirements apply to that party, that protection and safety is optimized;
- for planned exposure situations other than for medical exposure, each party with responsibilities for protection and safety shall ensure that, when relevant requirements apply to that party, specified dose limits are not exceeded;
- the application of the requirements for the system of protection and safety shall be commensurate with the radiation risks associated with the exposure situation.

The CBRN SSA NAST establishes a regulatory system for protection and safety that includes:

- Notification and authorization;
- Review and assessment of facilities and activities;

- Inspection of facilities and activities;
- Enforcement of regulatory requirements;
- The regulatory functions relevant to emergency and existing exposure situations;
- Provision of information to, and consultation with, parties affected by its decisions and, as appropriate, the public and other stakeholders.

The CBRN SSA NAST shall adopt a graded approach to the implementation of the protection and safety system in a such manner, that the application of regulatory requirements is commensurate with the radiation risks associated with the exposure situation.

The CBRN SSA shall ensure the application of the requirements for education, training, qualification and competence in the protection and safety of all persons engaged in activities relevant to protection and safety.

The CBRN SSA NAST shall ensure that mechanisms are in place for the timely dissemination of information to relevant parties, such as suppliers and users of sources, lessons learned for protection and safety from regulatory and operating experience, and from incidents and accidents and related findings. The mechanisms established shall be used, as appropriate, to provide relevant information to other relevant organizations at the national and international level.

The CBRN SSA NAST, in conjunction with other relevant authorities, shall specify requirements for acceptance and performance, by regulation or by the application of published standards, for any manufactured or constructed source, device, equipment or facility that, when in use, has implications for protection and safety.

The CBRN SSA NAST shall make provision for establishing, maintaining and retrieving adequate records in regards to facilities and activities. These records shall include:

- registers of sealed sources and radiation generators;
- records of doses from occupational exposure;
- records related to the safety of facilities and activities;
- records that might be necessary for the shutdown and decommissioning or closure of facilities;
- records of events, including non-routine releases of radioactive material to the environment;
- inventories of radioactive waste and of spent fuel.

The CBRN SSA NAST shall establish mechanisms for communication and discussion that involve professional and constructive interactions with relevant parties for all protection and safety-related issues.

The CBRN SSA NAST, in consultation with the health authority, shall ensure that provisions are in place for ensuring protection and safety in the handling of deceased persons or human remains that are known to contain sealed or unsealed radioactive sources, either as a result of radiological procedures for medical treatment of patients or as a consequence of an emergency.

The CBRN SSA NAST shall establish, implement, assess and strive to continually improve a management system that is aligned with the goals of the regulatory body and that

I. EVENTS GENERAL

DEFENSE OF THE PhD THESIS BY MUMINOV SAFARALI ON THE TOPIC “STATE OF RADIATION SAFETY AND RADON MONITORING ON THE TERRITORY OF THE REPUBLIC OF TAJIKISTAN"

On January 9, 2023 at the dissertation council 6D.KOA-041 of the Tajik Technical University named after academician M. Osimi our colleague Muminov Safarali Valievich successfully defended his Science Research Thesis on the topic «State of radiation safety and radon monitoring on the territory of the Republic of Tajikistan» on the specialty 03.02.08 - Ecology (technical sciences).

It should be noted that the thesis of Muminov S.V. written on important topic - studying the distribution of the technogenic isotope cesium-137 in some regions of the country, studying the total specific activity of alpha and beta particles in drinking water in cities and districts of the Khatlon Region, assessing the concentration of radon in residential apartments, preschool institutions and schools in the Dushanbe city and Khatlon Region, radioecological monitoring of the Kamarob gorge of the Rasht District, the Almasy gorge of the Gissar District, the Sari Khosor area of the Baljuvan District, the Kanas area of the Vakhdat District and the Iskanderkul area of the Zeravshan valley and assessment of the radiation state of the areas around uranium tailings dumps of the northern part of Tajikistan.

It should be emphasized that the supervisor of Mr.Muminov is Prof. Ilkhom Mirsaidzoda, Doctor of Technical Sciences, Associate Professor, Director of the CBRN SSA of the Tajikistan National Academy of Sciences. The main goal of the study is to assess the state of radiation safety and radon monitoring of the Republic of Tajikistan's territory.

Official opponents are well-known scientists of our country, such as Abdullaev Sabur Fuzaylovich - Doctor of Physical and Mathematical Sciences, Professor, Head of the Laboratory «Physics of the Atmosphere» of the S. Umarov.

Physical-Technical Institute of the Tajikistan National Academy of Sciences and Rozikov Zafar Abdukahorovich - Doctor of Technical Sciences, Professor of the Department of «Ecology» of the Tajikistan Mining and Metallurgical Institute. At the same time, it should be underlined that at the DC meeting the DC members paid special attention to the scientific work of S.V. Muminov and gave high appreciations. According to their conclusion and final decision, the thesis of Muminov Safarali Valievich is considered to be a finished and highly qualified topic, and at the same time Muminov Safarali Valievich deserves the scientific title of Candidate of Technical Sciences (PhD).



IMPLEMENTATION OF THE IAEA PROJECT AT THE NATIONAL FOOD SECURITY DIAGNOSTIC CENTRE OF THE FOOD SECURITY COMMITTEE OF THE GOVERNMENT OF THE REPUBLIC OF TAJIKISTAN

18 January 2024 a meeting on implementation of the International Atomic Energy Agency (IAEA) National Project TAD7003 «Strengthening Capacity for Monitoring Radionuclides in Fodder, Food and Water» was held at the National Diagnostic Centre of the Food Security Committee of the Government of the Republic of Tajikistan.

Matin Akhmedov - Deputy Director of the Chemical, Biological, Radiological and Nuclear Safety and Security Agency of the Tajikistan National Academy of Sciences, and Olimjon Azizov - Head of the International Relations and Public Relations Department of the Agency, attended the meeting on behalf of the IAEA as the National Liaison Assistants to the IAEA.

During the meetings with the management and specialists of the Centre, issues related to laboratory equipment and strengthening of capacities were discussed. This project has been running since 2018 and to date all activities have been implemented. High-tech equipment was obtained, and a radiometric laboratory was established, which now has all necessary laboratory facilities,



such as refrigerators for sample storage, muffle furnace, drying cabinets, centrifuge, pH-meter, fume cupboard, analytical scales of various classes, as well as laboratory utensils, reference materials and consumables.

The following equipment was purchased to fulfil the tasks of radiometric research in food products according to the requirements of the National and International Standards:



- Gamma spectrometer NaI (Tl) Scintillation Detector System
- Alpha-beta spectrometer (Liquid Scintillation Counting System).

During the implementation of this project all declared laboratory equipment, consumables and reference materials were delivered and installed.

Within the framework of the project, specialists of the Centre were trained at the All-Russian Research Institute of Radiology and Agroecology, Obninsk, Russian Federation, and the Institute of Nuclear Physics, Almaty, Republic of Kazakhstan. During the training, the specialists were familiarized with the instrumentation of the Institutes, methods and regulatory documents. Upon completion of the training, they were received the relevant certificates.

Thus, trained specialists perform researches of samples by gamma-spectrometry and beta-spectrometry methods on the acquired equipment within the framework of the National Project.

It should be noted that the content of chemical contaminants and radionuclides in food raw materials and foodstuffs should be controlled. At present, the centre measures caesium-137 and strontium-90 activity in feed and raw materials imported or produced in the Republic.

It is important to mention that such co-operation with International Partners, particularly with the International Atomic Energy Agency with the support of the Chemical, Biological, Radiological and Nuclear Safety and Security Agency of the Tajikistan National Academy of Sciences, helps the Food Security Committee to achieve its objectives in the field of Food Security in the Republic of Tajikistan.

DIRECTOR OF THE CBRN SAFETY AND SECURITY AGENCY OF TNAS BECAME THE WINNER OF THE ENVIRONMENTAL CONTEST OF THE MAJLISI NAMOYANDAGON MAJLISI OLI OF THE REPUBLIC OF TAJIKISTAN

20 January 2023 in Majlisi Namoyandagon Majlisi Oli of the Republic of Tajikistan the results of the Republican contests of the best materials on the topics «Environmental Education» and «Adaptation to Climate Change» were summed up, and the winners were determined. This was reported by TNIA "Khovar" with reference to the Majlisi Namoyandagon Majlisi Oli of the Republic of Tajikistan.

In order to promote the solution of environmental problems, as well as to attract scientists and specialists, journalists, civil society, experts, students, pupils of educational and pre-school institutions, to implement the state policy in the field of environmental protection, to raise environmental awareness of the population Majlisi Namoyandagon Majlisi Oli of the Republic of Tajikistan in cooperation with the Committee on Environmental Protection at the Government of the Republic of Tajikistan announced Republican contests of the best stuffs on the topics «Environmental Awareness» and «Adaptation to Climate Change». On the topic «Environmental Education» 57 applicants from all cities and districts of the Republic of Tajikistan had submitted 115 stuffs to the Republican Contest Commission of the Majlisi Namoyandagon Majlisi Oli of the Republic of Tajikistan.

Among the participants of the contest were 26 professional journalists, 18 scientists from various fields, including 2 doctors of sciences and 9 candidates of sciences(PhD), 6 applicants and postgraduates, 5 masters and students of higher education institutions, 6 teachers of secondary schools and gymnasiums, 8 students of secondary schools, gymnasiums and educational institutions for talented pupils.

Thus, in the nomination «Adaptation to Climate Change» the first place with the first degree diploma and a memorable souvenir were awarded to Hasan Asoev, an expert on environmental issues, employee of the Academy of.

Agricultural Sciences of Tajikistan, for the publication of the book (monograph) entitled «Rogun HPP - an example of «green» economy of the Region».

The second place with a diploma of II degree and memorable souvenir has been awarded to Doctor of Technical Sciences, Prof. Ilhom Mirsaidzoda, Director of the CBRN SSA of the Tajikistan National Academy of Sciences, as to a specialist ensuring chemical, biological, radiological and nuclear safety and security, for his scientific works, normative documents and a number of articles on ensuring environmental safety.

Marziya Saidzoda, journalist, head of the department of the National Information



Agency of Tajikistan «Khovar» for a series of articles and reports in the field of nature protection and ecology, has been also awarded by second place, a diploma of II degree and memorable souvenirs.

Nomvar Kurbonov, Candidate of Technical Sciences, Deputy Director for Science and Education of the Institute of Water Problems, Hydropower and Ecology of TNAS for the cycle of works and articles on adaptation, climate change and environmental problems, has been awarded by the second place with a diploma of II degree and memorable souvenirs.

Also second place, a II degree diploma and memorable souvenirs were awarded to the journalist, head of the department of the National Information Agency of Tajikistan “Khovar” Marziya Saidzoda for a series of articles and reports in the field of nature conservation and ecology.

The third places with a diplomas of III degree and memorable souvenirs have been awarded to Farzona Odinaeva, editor of Tajikistan Television, for her reports and programs on the topic of climate change and Mirzokodir Kodirzoda, Deputy Head of the National Legislation Centre of the President of the Republic of Tajikistan, for a series of works and articles in the field of environmental protection and ecology.

The third places with a diplomas of III degree and memorable souvenirs were awarded to a journalist, chief specialist of the official publication of the Republic of Tajikistan - newspaper «Jumhuriyat» for a series of reports and articles on climate change adaptation and environmental education by Okhistamokh Gulberdiyeva and others.

At the grand ceremony, Deputy Chairman of the Majlisi Namoyandagon Majlisi Oli of the Republic of Tajikistan Kodiri Kosim, Chairman of the Environmental Commission of the Majlisi Namoyandagon Muhammadrahim Yusufi presented the winners of the competition with memorable souvenirs.

In the nomination «Environmental Education» the first place with a diploma of the first degree and a souvenir was awarded to Amrokhon Tojov, journalist, first deputy director of «Television «Tajikistan» Committee on Television and Radio under the Government of the Republic of Tajikistan Amrokhon Tojov for a series of television programs on environmental education and climate issues.



The second place with the diploma of II degree and memorable souvenirs has been awarded to the journalist, editorof the department of primary and secondary vocational schools of the newspaper «Omuzgor» of the Ministry of Education and Science of the Republic of Tajikistan Khotam Khomidov (Khotami Khomid) for a series of articles on the topic of environmental education.

The second place with the diploma of II degree and memorable souvenirs has been awarded to Gulrukhsor Tilloi, environmental journalist, head of the Environmental Information Centre of the Committee for Environmental Protection of the Government of the Republic of Tajikistan, for TV programs and the cycle of «Environmental News» on «Safina Television».

Bokimuhammad Bokizoda, head of the environmental protection sector in Ayni district of Sughd Region, has been awarded by second place, II degree diploma and memorable souvenirs for a series of articles on environmental education.

Along with this, the third place with a diploma of III degree and memorable souvenirs has been awarded to Kamol Kurboniyon, a journalist, Excellent Press of the Republic of Tajikistan, Head of the Department of Translation of the Administration of the Majlisi Namoyandagon Majlisi Oli of the Republic of Tajikistan, for his essay on «Environmental Education».

In addition, the third place with a diploma of III degree and souvenirs has been awarded to Oimnisso Shahsufbekova, a biology teacher, PhD in Biology, Senior Lecturer of the Department of Medical Biology with Genetic Basis of the Abuali Ibni Sino Tajik State Medical University, for a series of articles on environmentaleducation and others.

In total, 115 participants of the competition have been awarded with memorable presents.



SPORTS EVENT DEDICATED TO THE NATIONAL ARMED FORCES DAY

On the 23 February 2023, in honour of the 30th anniversary of the establishment of the Armed Forces of the Republic of Tajikistan, a ceremonial event was held in the conference hall of the Agency for Chemical, Biological, Radiological and Nuclear Safety and Security of the Tajikistan National Academy of Sciences with participation of the Agency's staff.

At the beginning of the event, the Director of the Agency, Ilhom Mirsaidzoda, made a detailed report on the history of the creation and formation of the National Army, as well as the stages of development of the Armed Forces during the period of independence, which turned from nothing into a strong and powerful organization and especially emphasized the contribution of the Armed Forces personnel to the defense of the border. He added that it is thanks to the attention and support of the Commander-in-Chief of the Armed Forces of the country, Mr. Emomali Rahmon, that today all conditions for service have been created for military personnel. Also, during his fruitful speech, he briefly spoke about the skill and courage of the military personnel of the country's Armed Forces, which are a school of courage and bravery, a field of charity, a guarantor of peace and stability of the Motherland of our ancestors' borders, and congratulated all participants of the meeting on this great holiday of the defenders of the Motherland.

In addition, during the meeting, sports events were held on the territory of the Agency's Regional Training Centre with the participation of all staff members of this institution. The events were organized in 10 sports, including sports competitions, hand-to-hand combat, football and other sports. At the end of the tournament, the winners were awarded with valuable and memorable gifts from the Agency's administration.

The purpose of such sports events is, first of all, to improve physical skills, propaganda and encouragement of a healthy lifestyle. To be noted that the Agency regularly organizes such useful and sporting events, which have now become a tradition.

THE START OF REHABILITATION WORKS AT THE TAILING DUMP OF URANIUM INDUSTRY WASTE IN ISTIKLOL TOWN

It shouled be mentioned that at the uranium heritage site, located on the territory of the Istiklol town (former Taboshar) of the Republic of Tajikistan, have been accumulated about 16 million tons of uranium industry wastes, generated in the period from 1945 to 1965, after processing of uranium ore.

From a radiation safety point of view, the uranium legacy site is located very close to a populated area. Important problems of local radiation protection are associated with the use of water from adit No. 6 and the open pit, with the location of school No. 5 (170 students) at the entrance to the site, with the frequent use of the site by the local population as a place for breeding domestic animals, as well as with the problem of location of small farms, gardens and vegetable gardens.

During the past uranium mining and processing activities in Tajikistan, more than 170 million tons of waste rock and tailings dumps containing hundreds of TBq of radionuclides have been accumulated. A significant part of uranium ore processed in the country was imported from neighboring countries (Kyrgyzstan, Uzbekistan, Kazakhstan), as well as from Eastern European countries.

All mining and processing wastes from the Taboshar site are located downstream of the open pit. To the south, the waste dumps are associated with the Archi Sai retention pond. To the west, the site extends to the Sarym Sahli Valley, beyond which is the Istiqlol town (former Taboshar). To the east, the site is neighboured by the village of Old Taboshar, just below the waste rock dumps.

The Taboshar facility has a total area of over 400 hectares and is quite complex. Sai includes a large open pit mine, abandoned miners` adits, seven waste dumps, the structure and bunkers of a low grade ore processing plant, a dump of crushed poor ore prepared after heap leaching (yellow hill) and several

tailings accumulated at various stages of development of the hydrometallurgical uranium recovery process.

The gamma dose rate over the waste dumps is over 0.62 μSv/h. A large waste dump with approximately 2.4 million tons of crushed low-grade uranium ore consists of low-grade ore residues that have been prepared for leaching with sulphuric acid in concrete tanks. On the undisturbed surface of the open pit, measurements generally show gamma dose rates ranging from 0.6 μSv/h to 1.5 μSv/h. Nevertheless, values ranging from 2.2 μSv/h to 3.5 μSv/h have been recorded at locations on the exposed top of the quarry.



Based on the results of risk assessment and the threat posed to the environment and public health, under the instruction of the Government of the Republic of Tajikistan has been developed «National Concept of the Republic of Tajikistan on Rehabilitation of Tailings Dumps of Wastes from Uranium Ore Processing for 2014-2024» (Resolution of the Government of the Republic of Tajikistan No. 505 dated 01.08.2014), where Digmai and Taboshar sites (present Istiklol) were assigned the highest priority for remediation works.

To address the problems associated with uranium tailings, the Government of the Republic of Tajikistan and the leadership of neighbouring Central Asian countries have encouraged international organisations to provide assistance in their remediation.

At present, international projects are functioning to carry out remediation work at the Taboshar tailings dump in Istiqlol. One of such projects is the Interstate Special Purpose Programme «Rehabilitation of Territories of EurAsEC Member States Affected by Uranium Mining Operations», which was approved by Decision of the Interstate Council of the Eurasian Economic

Community No. 602 of 05.04.2012.

The main objectives of the Programme are:

-reduction of risks of emergencies with radioecological consequences on the territories of the Programme participant states affected by uranium mining and processing operations;

-development of means and technologies of remediation works;

-ensuring safe living conditions and social remediation of the population in these regions.

In accordance with the Programme, the Joint Stock Company Federal Center for Nuclear and Radiation Safety of the State Corporation "Rosatom" of the Russian Federation has carried out comprehensive engineering surveys at the Taboshar industrial site, clarified geological and hydrological conditions of the site, and performed topo-geodetic survey. As part of environmental surveys, emanation and gamma surveys, soil and vegetation sampling were carried out at these sites.At the stage of research works together with specialists of the Federal Medical and Biological Agency of the State Corporation «Rosatom» of the Russian Federation and the Sanitary and Epidemiological Service of the Republic of Tajikistan, the impact of the Programme facilities on the health of the populationwas assessed and a programme of socio-hygienic monitoring was developed.

Since October 2022, remediation works have started at the Istiqlol uranium legacy sites, which are expected to be completed by the end of 2023. The work is being carried out by Rosatom State Corporation of the Russian Federation and the contractor is LLC Construction and Production Company «Faiz» , which has directly started the remediation work.

The Agency for Chemical, Biological, Radiological and Nuclear Safety and Security of the Tajikistan National Academy of Sciences, as a regulatory body in the field of nuclear and radiation safety, will permanently supervise the fulfilment of safety requirements during the remediation works.

Istiqlol's Taboshar Poor Ore Factory dump prior to remediation.

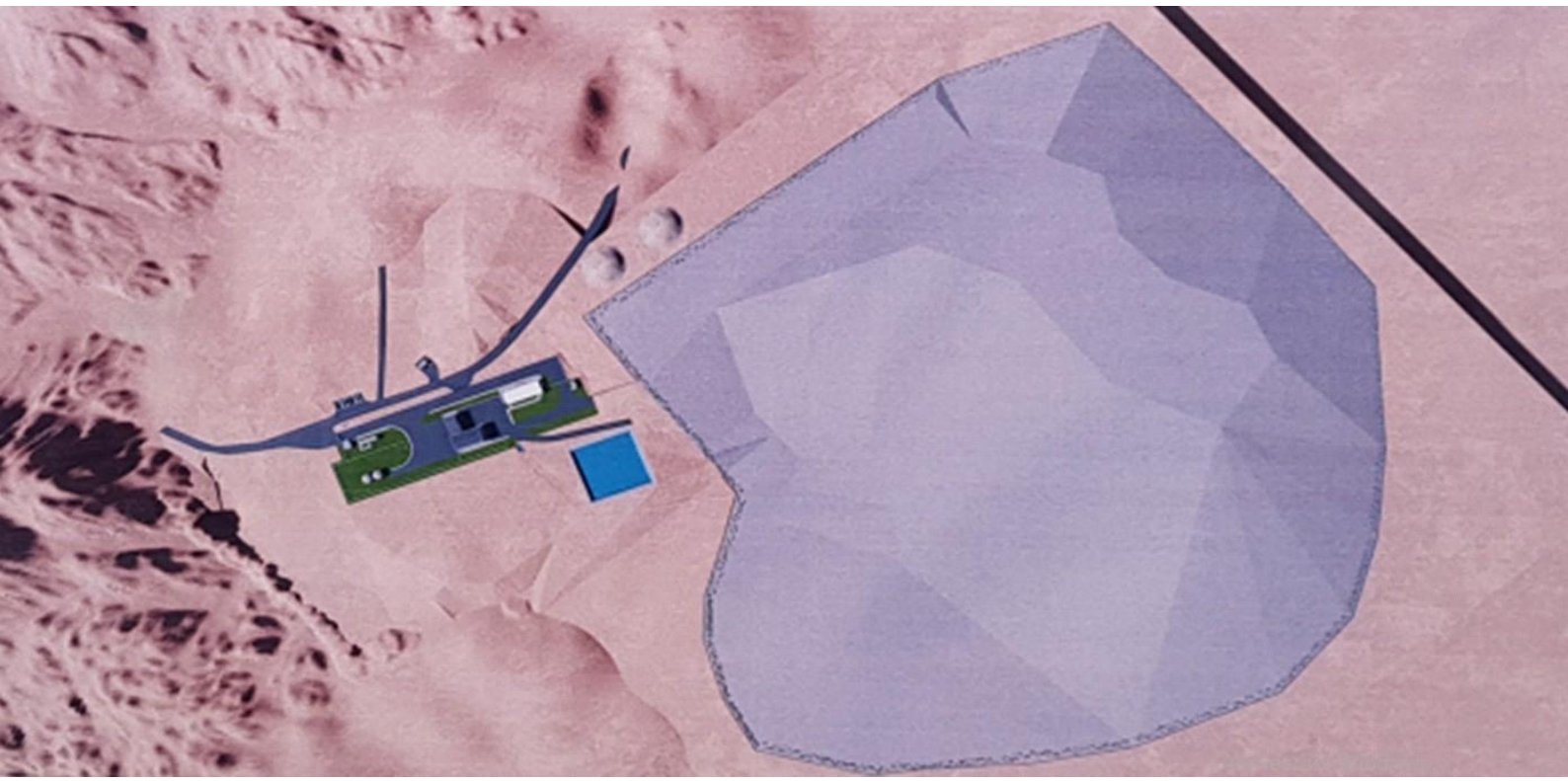


Taboshar Poor Ore Factory surface levelling process (December 2022)



Process of covering the Taboshar Poor Ore Factory waste surface with neutral soil (January 2023).





After completion of remediation works on the tailings area, the Taboshar Poor Ore Factory surface should look like this.

Taboshar Poor Ore Factory dump after remediation (as per the project)

Completion of r remediation works is planned for the end of 2023. Remediation of the rest of the Taboshar site of Istiqlol town is planned in 2024-2025.

VISIT OF SCHOOLCHILDREN FROM GYMNASIUM NO. 1 FOR GIFTED CHILDREN OF DUSHANBE CITY TO THE RESEARCH LABORATORY OF THE CHEMICAL, BIOLOGICAL, RADIOLOGICAL, AND NUCLEAR SAFETY AND SECURITY AGENCY OF THE TAJIKISTAN NATIONAL ACADEMY OF SCIENCES

On 17 May 2023, schoolchildren from Gymnasium No. 1 for gifted children of Dushanbe city have visited the Chemical, Biological, Radiological, and Nuclear Safety and Security Agency's Research Laboratory, which dedicated with chemical, biological, radiological, and nuclear safety and security. During their visit, the schoolchildren had a unique opportunity to learn about cutting-edge technologies in science as well as how scientific researches in the field of safety and security are conducted.



The visit to the Laboratory began with an interactive presentation to inform schoolchildren on how science is helping to keep our planet safe. The schoolchildren then took part in a tour of the Laboratory, where they were demonstrated some cases of research and development in the fields of chemical, biological, radiation and nuclear safety and security. They also had close conversations with researchers of a specialized laboratory.

Schoolchildren from Gymnasium No. 1 for talented children of the Dushanbe expressed their gratitude to the leadership and all officers of the Agency for the opportunity to visit the laboratory of the Chemical, Biological, Radiological, and Nuclear Safety and Security Agency of the Tajikistan National Academy of Sciences.

“We are very pleased that we were able to visit this modeern laboratory and learn more about science, the development of modern and advanced technologies and their role in protecting of the planet. Since this first visit of our schoolchildren was a good, useful and educational trip, we would like to say a huge thank you to the laboratory staff, as well as to the leadership of the Agency for Chemical, Biological, Radiation and Nuclear Safety and Security of the National Academy of Sciences of Tajikistan for providing this opportunity,” said Farkhunda Khamidova, one of the students of gymnasium No. 1 for gifted children of the Dushanbe, at the end of an unforgettable and memorable group visit with her classmates.

Thus, it can be noted that the schoolchildren’s visit to the laboratory of the Agency for Chemical, Biological, Radiation, and Nuclear Safety and Security of the Tajikistan National Academy of Sciences was organized as part of the Agency’s educational program, as well as its educational course on the study of science and technology, and the purpose of this event was to further increase interest of schoolchildren in science and the progress of science and technology



and at the same time contribute to the implementation of the State program “Twenty years of learning and development of natural, exact and mathematical sciences in 2020-2040”.

Because the implementation of this Program is considered as the most important pillar of the secular worldview and the most effective means of educating the individual.



NATIONAL FORUM "COOPERATION WITH STAKEHOLDERS IN THE REMEDIATION OF URANIUM HERITAGE OBJECTS IN THE REPUBLIC OF TAJIKISTAN"

From 3 to 5 August 2023, a National Forum "Cooperation with Stakeholders in the Remediation of Uranium Heritage Objects in the Republic of Tajikistan" was held at the Training center of the National Bank of Tajikistan in Gulistan city, Sughd region.

This Forum was organized with participation of more than 100 (one hundred) representatives of national and international partners, representatives of public organizations and mass media, technical working groups, radiation safety specialists and other participants from target districts of Sughd region.

The forum summarized the results of the working groups on the action plan of Istiklol town, B. Gafurov district, jamoat Ghoziyon , and Adrasman township,

which also had the opportunity to share their experience in raising public awareness before the start of remediation works at sites of uranium heritage in these target areas of Sughd region.

The Director of the CBRN Safety and Security Agency of the TNAS, Ilhom Mirsaidzoda highlighted that within the framework of the Regional Project «Stakeholder Engagement for the Remediation of Sites of Uranium Legacy in CA Phase II» for 2022-2023, the Agency staff also conducted a number of other activities dedicated to public awareness raising on radiation safety in these target districts of Sughd region, and holding this kind of forums gives an opportunity to the representatives from Istiklol town, B. Gafurov district, jamoat Ghozien and Adrasman township to express their opinions and contribute to community outreach.

The event was arranged by the OSCE Programme Office in Dushanbe within the framework of the joint OSCE-UNDP regional project «Stakeholder Engagement for the Remediation of Uranium Legacy Sites in Central Asia» (Phase II) with the support of the European Commission.



INTERNATIONAL SCIENTIFIC PRACTICAL CONFERENCE "CHEMICAL, BIOLOGICAL, RADIATION AND NUCLEAR SAFETY: ACHIEVEMENTS, CHALLENGES AND FUTURE PROSPECTS", DEDICATED TO THE 20TH ANNIVERSARY OF ESTABLISHMENT OF THE CBRN SAFETY AND SECURITY AGENCY OF THE TNAS

On the 4-6 August 2023, the International Scientific and Practical Conference «Chemical, Biological, Radiological and Nuclear Safety and Security: Progress, Challenges & Future Prospects» dedicated to 20th anniversary of establishment of the Agency for Chemical, Biological, Radiological, and Nuclear Safety and Security of the Tajikistan National Academy of Sciences (CBRN Safety and Security Agency of the TNAS), was held in Gulistan, Republic of Tajikistan.

More than 100 representatives of international and public organizations took part at the conference, as well as a large number of specialists on this problem has joined the conference virtually.

The conference was opened by the Director of the CBRN Safety and Security Agency of the Tajikistan National Academy of Sciences - Dr. Ilhom Mirsaidzoda. He familiarized the participants with the main scientific directions and developments, as well as achievements in their implementation, including work on strengthening the legal framework, conducted by the CBRN Safety and Security Agency during 20 years.

Welcoming speeches were also made by Sergey Katzenelenbogen, representative of USA; Olga German, Scientific Secretary of IAEA department on radiation protection; Elektra Tsigaridas, representative of European Union; Rati Japaridze, Acting Head of Mission of OSCE Programme Office in Dushanbe; Tamara Zhunussova, representative of Norwegian Radiation Protection Authority; Damir Zaredinov, representative of Ministry of Health of

the Republic of Uzbekistan.

The guests, who took the floor, congratulated the staff of CBRN Safety and Security Agency with 20th anniversary and emphasized that cooperation in the field of chemical, biological, radiological and nuclear safety with CBRN Safety and Security Agency of TNAS is constantly expanding and strengthening.

The conference was also attended by representatives of cities and villages neighboring with the uranium tailings sites: representatives of Adrasman and Ghoziyon townships, Istiklol town, and B. Gafurov district of Sughd region.

After welcoming remarks and discussion of CBRN Safety and Security Agency's achievements, the work of the conference continued in the format of several sessions:

Section 1 - Chemical and Biological Security;

Section 2 - Involving of the stakeholders in the rehabilitation of uranium heritage sites projects.

Session 1 of the conference was moderated by Matin Akhmedov, Deputy Director of CBRN Safety and Security Agency of the Tajikistan National Academy of Sciences. He highlighted the organizational and scientific activities in the field of biosafety and biosecurity in the Republic of Tajikistan. Alimakhmad Sufiev's report was devoted to the solutions of biological safety and biological security problems in Tajikistan (on the example of implementation of the Law «On Ensuring Biological Safety and Biological Security»). There was also a report made by Lela Bakanidzethe, Representative of the Regional Secretariat of the EU Initiative - Centre of Excellence for CBRN Risk Reduction for Central Asia.

The session participants expressed their interest on considered issues, as evidenced by the discussions with a large number of questions related to biosafety and biosecurity, and so there was a useful exchange of views.

At the 2nd session the following reports have been presented:

«Stakeholders Engagement for the Remediation of Uranium Legacy Sites in Central Asia. Phase II» - Dmitry Prudskikh - OSCE Adviser on Projects ;

«Raising Awareness and Experience in Sharing Knowledge on Radiation Safetyand Security among Local Population of the Republic of Uzbekistan» - Damir Zaredinov - Representative of the Ministry of Health of the Republic of Uzbekistan;

«National progress in the management of uranium legacy sites of the Republic of Tajikistan» - Bakhtiyor Barotov - Head of the Department of Scientific and Technical

Services of the CBRN Safety and Security Agency of TNAS;

«Work with youth on environmental safety» - Ikrom Mamadov - Chairman of the NGO «Youth Group for Environmental Protection of Tajikistan».



It should be noted that this topic was one of the most urgent problems for the population living near the tailing dumps in northern Tajikistan, in connection with this many questions have been asked by the representatives of Adrasman and Goziyon townships, B. Gafurov district and Istiklol City of Sughd region. Representatives of CBRN Safety and Security Agency gave comprehensive answers to each question.

Thus, the conference has demonstrated the commitment of CBRN Safety and Security Agency of the TNAS to the creation of an environmentally clean zone in uranium legacy sites, to the development of international cooperation in this matter using advanced technologies for tailings remediation.

The results of Conference will contribute to the awareness of population living near the tailing facilities, will increase their culture on radiation safety issues, which will contribute to the sustainable development of these territories.

The Conference Materials are available at the following link:

https://www. cbrn.tj/books/+sbornik_CBRN_Con2023.pdf

Conference website: www.conf.cbrn.tj

CEREMONIAL MEETING IN HONOUR OF THE 32ND ANNIVERSARY OF THE STATE INDEPENDENCE OF THE REPUBLIC OF TAJIKISTAN

On the September 7, 2023, in the conference hall of the Agency for Chemical, Biological, Radiological and Nuclear Safety and Security of the National Academy of Sciences of Tajikistan, as part of the implementation of the Action Plan of the Primary Committee of the People's Democratic Party «Afkanishot» for 2023, a ceremonial meeting was held with the attendance of all employees of the Agency, dedicated to the 32nd anniversary of the State Independence of the Republic of Tajikistan.

The ceremonial event was opened with very meaningful introductory speech by Director of the Agency for Chemical, Biological, Radiological, and Nuclear Safety and Security of TNAS, head of the Primary Committee of the People's Democratic Party «Afkanishot» Ilhom MIRSAIDZODA.

During his speech, the Director, firstly, congratulated the audience on the 32nd anniversary of the State Independence of the Republic of Tajikistan and reminded that each of us should appreciate the prosperity and peace of the country, as well as the significant achievements of the independence period, all of which were achieved thanks to the efforts of the Founder of Peace and National Unity, the Leader of the Nation, the President of the Republic of Tajikistan Emomali Rahmon, and by the honorable people of our sovereign and independent country.

Hence, state independence is considered the most precious gift and a way to achieve national unity, a builder of a just and democratic society, a guarantor of a unified legal space and a great achievement of the nation, while ensuring the development of our national stability both for today and


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for the coming centuries.

In his speech, he also emphasized that state independence is a sacred and great benefit for all of us. On this basis, to protect and be grateful to it is thevital and most important duty of every patriot, noble and self-conscious person of this beautiful land.

Therefore, we can say with full confidence that the growth of the new state, smooth development of the new statehood, true independence of our country, general national unity, integrity and strengthening of peace and stability in our ancient land makes each of us always strive for the prosperity of our dear Motherland and to cherish these two unique gifts - Independence and National Unity - as the apple of the eye.

At the same time, Ilhom Mirsaidzoda urged the young people, who comprise almost 70% of the staff, not to waste their free time, but to devote it to reading specialized books, and at the same time mastering advanced sciences and technologies and learning foreign languages.

At the end of the ceremonial meeting, M. Muminova, Scientific Secretary of the Agency, in her intense report entitled «Born at the Independence Era», gave a detailed info of the effective activities and significant achievements of the last two decades at the Agency for Chemical, Biological, Radiological and Nuclear Safety and Security of the Tajikistan National Academy of Sciences during the Independence period of our country.



PARTICIPATION AT THE 67TH SESSION OF THE GENERAL CONFERENCE OF THE INTERNATIONAL ATOMIC ENERGYAGENCY (IAEA)

The 67th Regular Session of the IAEA General Conference has been held from 25 to 29 September 2023 at the Vienna International Centre (VIC) in Vienna, Austria, where high-ranking officials and representatives from IAEA Member States considered a number of of issues.

Delivering national statement at the Conference, the head of the Tajik delegation noted the level of bilateral cooperation with IAEA in various fields, including the peaceful use of nuclear technologies within the framework of IAEA programs, important cooperation projects in the field of health, environmental protection, especially glacier protection within the framework of the fifth initiative of the Founder of Peace and National Unity, Leader of the Nation, the President of the Republic of Tajikistan, H.E. Emomali Rahmon, by proposal of whom 2025 has been declared as the International Year of Glacier Protection by UN.

The importance of remediation of the territories damaged by uranium production in the Central Asian countries, completed rehabilitation works, existing problems and the implementation of subsequent measures were also emphasized.



Separate meetings of the country's delegation with representatives of partner states to discuss the areas of cooperation and joint implementation of the IAEA General Strategic Plan on the rehabilitation of radioactive waste tailings sites in the Central Asian countries were held on the sidelines of the conference.

For further information: https://www.iaea.org/about/governance/general-conference/gc67/gc-at-glance

CULTURAL EVENT DEDICATED TO THE STATE LANGUAGE DAY

On the 5 October 2023 at the Chemical, Biological, Radiological, and Nuclear Safety and Security Agency of the Tajikistan National Academy of Sciences(TNAS) in honor of the «Day of the State Language of the Republic of Tajikistan» a cultural event entitled « Wonderful Tajik Language» was held under the leadership of the youth club «Atom» of the Agency for CBRN Safety and Security of the TNAS and the Primary Committee of the People's Democratic Party «Afkanishot» of the TNAS.

All employees of the Agency took an active part in the cultural event by reciting poems, stories, proverbs and sayings in the beautiful Tajik language. The participants who distinguished themselves by their beautiful speech and skill in reciting poems were awarded by books.



CELEBRATION OF THE DAY OF THE PRESIDENT OF THE REPUBLIC OF TAJIKISTAN AT THE AGENCY FOR CBRN SAFETY AND SECURITY OF THE TNAS

On the November 16, 2023 in the meeting room of the Agency for CBRN Safety and Security of the Tajikistan National Academy of Sciences (TNAS) a political and cultural event dedicated to the Day of the President of the Republic of Tajikistanin was held , which has been organized by the primary organization "Afkanishot" of the executive committee of the People's Democratic Party "Khiradmandon" in TNAS.



Chairman of the primary organization "Afkanishot" of the executive committee of the People's Democratic Party "Khiradmandon" Ilhom Mirsaidzoda spoke about the history of the 16th session of the Supreme Council and the achievements of the Leader of the Nation, Hero of Tajikistan, the Honorable Emomali Rahmon, and how in those difficult days, despair and violence gripped society and every citizen of Tajikistan needed a safe place, peace and shelter.

It should be noted that in such a difficult situation, the Tajik people needed a wise and humane leader. It was in such a sensitive and fateful situation for the nation that the Head of State, as a sympathizer of the Motherland and a courageous person, was able to unite the scattered people and at the same time fight for the preservation of peace and national unity in the land of his ancestors.

Then the Agency officers spoke with a high sense of patriotism and told in details about the valuable merits of the Leader of the Nation, H.E., Mr. Emomali Rahmon.

At the end of the meeting, agency employees collectively watched the documentary film “Mardi Roh”(Traveler or Man of the Road).

CELEBRATION OF THE NATIONAL FLAG DAY OF THE REPUBLIC OF TAJIKISTAN IN THE REGIONAL TRAINING AND EDUCATIONAL CENTER OF THE AGENCY FOR CBRN SAFETY AND SECURITY OF THE TNAS

On November 24, 2023, in honor of the National Flag Day of the Republic of Tajikistan, active members of "Atom" Club held a round table and sports events at the Regional Educational Center of the CBRN SSA of the Tajikistan National Academy of Sciences.

At the round table it was discussed the history of the state flag from "Dirafshi Kovyani" when it was adopted as the first symbol of the independent tajik state to the present.

Each round table participant, with a high sense of patriotism, told the audience about the importance of the State Flag of the Republic of Tajikistan for ensuring peace, national unity and stability in achieving national goals, especially for youth. Then, several sports games were organized on the sports ground of the Agency's Regional Training and Educational Center.




PowerPoint





THE OFFICIAL CEREMONY OF HANDING OVER THE ION CHROMATOGRAPH TO THE STATE SCIENTIFIC INSTITUTION “CENTER FOR GLACIER STUDIES OF THE TNAS”

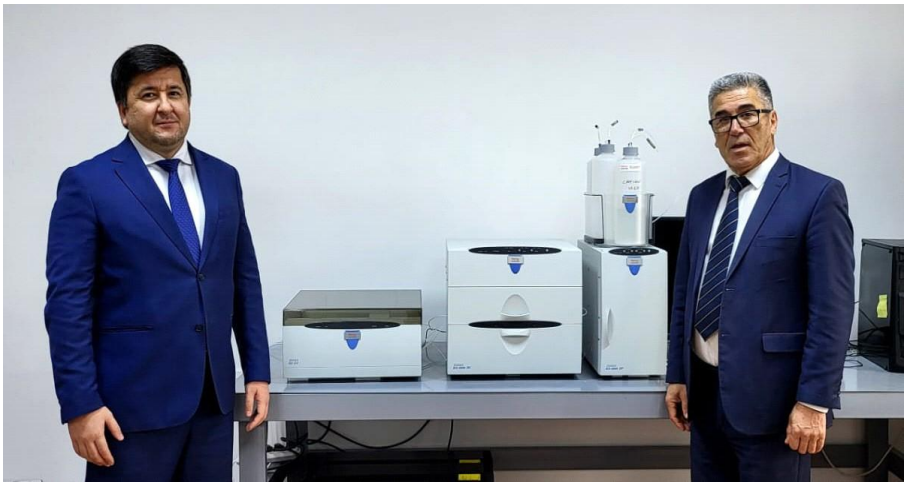
On November 28, 2023, an official ceremony took place to transfer the ion chromatograph to the laboratory of water quality, isotopes, and sanitation of the State Scientific Institution “Center for Glacier Studies of the Tajikistan National Academy of Sciences” as part of the implementation of International Atomic Energy Agency (IAEA) national project TAD7004 - “Establishing National Capacity for Glacier and Snow Assessment under Changing Climate Conditions.”





The handover ceremony was participated by Dr. Ilhom MIRSAIDZODA, Director of the Chemical, Biological, Radiological and Nuclear Safety and Security Agency of TNAS, as the National Liaison Officer (NLO) and Mr. Olimjon AZIZOV, Head of Public and International Relations Department of the Agency, as a National Liaison Assistance (NLA). On behalf of the International Atomic Energy Agency (IAEA) was given the ion chromatograph to perform the qualitative water analysis to Professor Abdulhamid KAYUMOV, Director of the State Scientific Institution «Center for Study of Glaciers of the Tajikistan National Academy of Sciences ».

The purpose of the project is to study, assess, and clarify the hydrological processes of glacier degradation in Tajikistan. This project is in line with national priorities for promoting environmental sustainability and sustainable water resources management mentioned in the National Development Strategy of Tajikistan until 2030.



It should be noted that the implementation of such projects and the use of new technologies for analyzing and monitoring glacier degradation are necessary for measuring water flow in glacial rivers of Tajikistan, as well as for modeling, forecasting, and taking measures to mitigate the effects of climate change.

Within the framework of Project TAD7004 the International Atomic Energy Agency (IAEA) will continue to train the staff of the State Scientific Institution “Glacier Research Center of TNAS”, creating national human capacity to assess glaciers and snow cover in changing climate conditions.



JOINT WATCHING OF THE LIVE BROADCAST OF THE ADDRESS OF THE FOUNDER OF PEACE AND NATIONAL UNITY - LEADER OF THE NATION, PRESIDENT OF THE REPUBLIC OF TAJIKISTAN, H.E. EMOMALI RAHMON "ON MAJOR DIRECSIONS OF TAJIKISTAN'S DOMESTIC AND FOREIGN POLICY"

28 December 2023, in the conference hall of the Chemical, Biological, Radiological, and Nuclear Safety and Security Agency of the National Academy of Sciences of Tajikistan, a collective watching of the live broadcast of the Address of the Founder of Peace and National Unity - Leader of the Nation, President of the Republic of Tajikistan, H.E. Emomali Rahmon "On Major Dimensions of Tajikistan's Domestic and Foreign Policy" through TV channels took place.



In his address this year, the leader of the nation mainly discussed the challenges of climate change in the world, the shortage of highly skilled manpower and professionals in all spheres in the country, including in the fields of exact sciences, mathematics and natural sciences, as well as the training of scientists and inventors.

It should be mentioned that every message of the President of the country, which is addressed to Majlisi Oli every year, is special in its features, in-depth aspects, analyses of results and prospects, forward-looking proposals, visionary design and programming and is a proof that this comprehensive and most important document of the year is the basis for winning even higher stages of triumph, economic growth and success and everything starts with the content of this comprehensive guidance.

All Agency officers welcomed the message of the President of the country “On the main directions of the domestic and foreign policy of the Republic” and will fully implement all useful instructions and proposals of the Head of State in the course of their activities.

ANNUAL MEETING OF THE AGENCY FOR CBRN SAFETY AND SECURITY OF THE TNAS FOR 2023

On December 29, 2023, the annual meeting was held in the meeting room of the Regional Center of the Agency for Chemical, Biological, Radiation and Nuclear Safety and Security of the Tajikistan National Academy of Sciences with the participation of all staff of the Agency for CBRN Safety and Security of TNAS.

Dr.Ilkhom Mirsaidzoda, Director of the Agency for Chemical, Biological, Radiological and Nuclear Safety and Security of TNAS, opened the annual meeting and summarized the results and achievements of the past 2023, in particular, he said that one of the most important events of 2023 considers celebration of the 20th anniversary of the establishment of the Agency for Chemical, Biological, Radiological and Nuclear Safety and Security of TNAS, and at the same time made a detailed speech on the plans and prospects of the Agency in the new year of 2024.



During the meeting, the Director of the Agency used informative speech of the regular address of the Founder of peace and national unity – Leader of the Nation, President of the Republic of Tajikistan, H.E. Emomali Rahmon regarding the progress of construction and improvement of the country, implementation of plans and strategies, programs and ensuring sustainable development of the national economy, raising the living standards of the people, as well as talked about improving the level and quality of science and education, gave many quotes, and at the same time urged young people not to lose time and constantly make efforts to learn science, modern technologies and improve their knowledge constantly.



At the end of his comprehensive speech, the Director of the Agency sincerely congratulated all the attendees and participants of the meeting with the end of the year and expressed the hope that only a peaceful atmosphere, good working mood and peace, unity and mutual understanding in the team can help us all to conquer high peaks and bring success.

Then, during the meeting, the heads of the Agency's divisions and sectors presented annual reports to the participants and detailed the results of their work.

II. SCIENTIFIC-RESEARCH WORKS

IN 2023, THE AGENCY CONDUCTED ITS RESEARCH ACTIVITIES BASED ON THE FOLLOWING SCIENTIFIC TOPICS:

Physical and chemical foundation of uranium concentrates extraction from ores and wastes (Project manager Prof. Kholmurod Nazarov, state registration 0120 TJ 01030).

Processes of decomposition of uranium ores of Tajikistan by sulphuric acid have been studied and generalized and the kinetic processes of ore decomposition have been researched. Kinetic curves of uranium extraction at temperatures 303-353 K have been studied. The activation energy (E_a) of the processes was calculated and the dependences of the reaction rate on temperature and duration of the process were revealed. The numerical values of the activation energy indicate that the decomposition process happens in the diffusion area.

To find the activation energy and to determine more precisely the area of the ore decomposition process, a graph of the dependence of the logarithm of the mean values of the reaction rate constants on the inverse absolute temperature was plotted. From the tangent of the slope angle the values of activation energy of the processes were calculated (Figure 1).

Table 1 and Figure 2 show the results of decomposition of uranium ores of Tajikistan, as well as the process parameters and optimal conditions of uranium transition into solution.

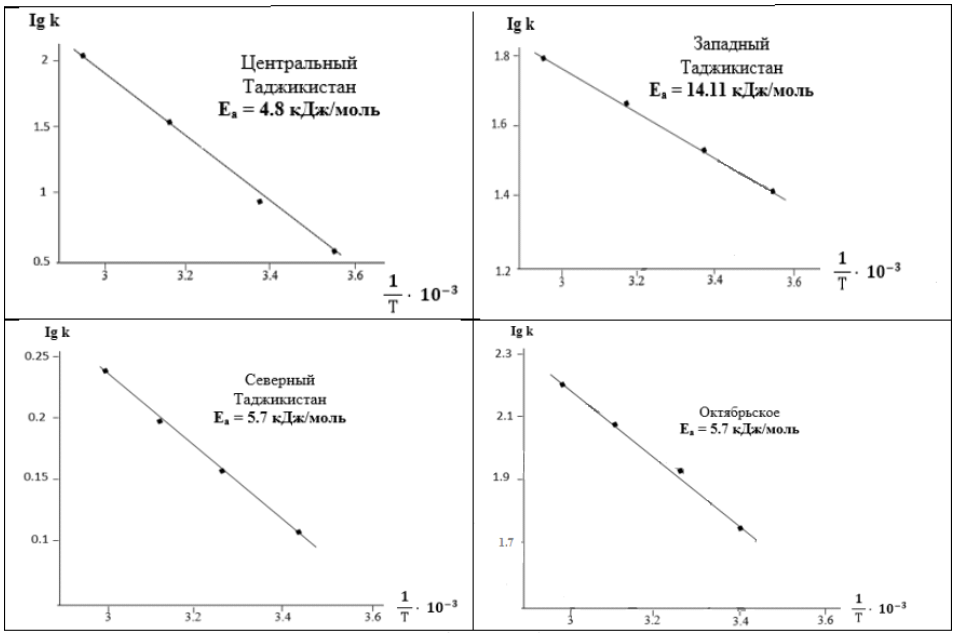


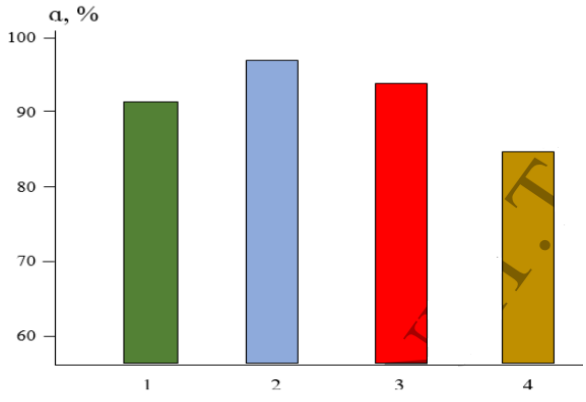
Figure 1 - Dependence of lgK on the inverse absolute temperature of decomposition of the uranium ores of Tajikistan.

Table 1 - Kinetic parameters of the decomposition process of uranium ores of Tajikistan

Figure 2 - Comparative assessment of uranium extraction degree of ores ofdifferent deposits of Tajikistan:

Deposit of uranium ores	Sulphuric acid consumption, kg/t	Optimal temperature K	Process duration, hour	Experimental activation energy, kJ/mol	The degree of transition of uranium into solution, %
«Central Tajikistan»	150	333	3	4.8	91.5
«Western Tajikistan»	350	353	1	14.4	96.2
«Northern Tajikistan»	600	348	6	5.7	93.3
«Oktyabrskoye»	300	363	1	15.37	85.0

1 – deposit “Central Tajikistan”;
2 - deposit “Western Tajikistan”;
3 - deposit “Northern Tajikistan”;
4 - deposit “Oktyabrskoye”.



The values of kinetic characteristics provide an opportunity to choose a rational mode of implementation of the process of sulphuric acid decomposition of ore.

A micro-gel based on pectin polysaccharides derived from sunflower basket, which is an active sorbent, with particle size up to +0.4 mm, obtained according to the method developed jointly

with the Institute of Chemistry named after V.I. Nikitin of the Tajikistan National Academy of Sciences, was used for sorption of uranium from mine water.

Sorption was carried out as follows: to a certain mass (1 g) of sorbent (microgel) with particle size up to 0.4 mm, water was added in order to swell it. The swollen sorbent was placed in the sorption column. Then a certain volume (V=0.2 ml/min) of uranium-containing solution of a certain concentration was passed through the sorption column. Samples were taken from the resulting solution of 5 ml each and the uranium content is determined.

After the sorption process, which was controlled by the uranium content in the liquid, the uranium-saturated sorbent was fired to complete burnout at a temperature of 250-350°C in furnaces. The uranium-containing ash was leached with sulphuric acid with the addition of oxidizing agents (nitric acid and trivalent iron). Then uranium concentrate (U_3O_8) was isolated according to the known methodology developed in the CBRN Safety and Security Agency of the Tajikistan National Academy of Sciences.

A comparative analysis of uranium sorption from solutions by different sorbents under static regime was carried out. The results of sorption comparison are given in Table 2.

Table 2 - Comparative analysis of uranium sorption from solutions by different sorbents under static regime

Thus, it was found that the micro-gel based sorbent sorbs uranium well as other conventional sorbents.

XRF and DTA of uranium ores and wastes were also studied. Figure 3 shows XRF of Adrasman radioactive waste. The mineralogical composition of the waste was determined by X-ray phase analysis on a DRON-3 instrument (upgraded) with digital processing on a copper anode (35 kV and 20 mA) and a nickel filter. The main waste minerals were quartz, albite, orthoclase, uranium mica.

Figure 3 - Radiograph of radioactive waste from the Adrasman tailings dump.

Given that the waste is carbonate, the soda method can be recommended for its leaching.

Also to study the material and chemical composition of uranium ores of the

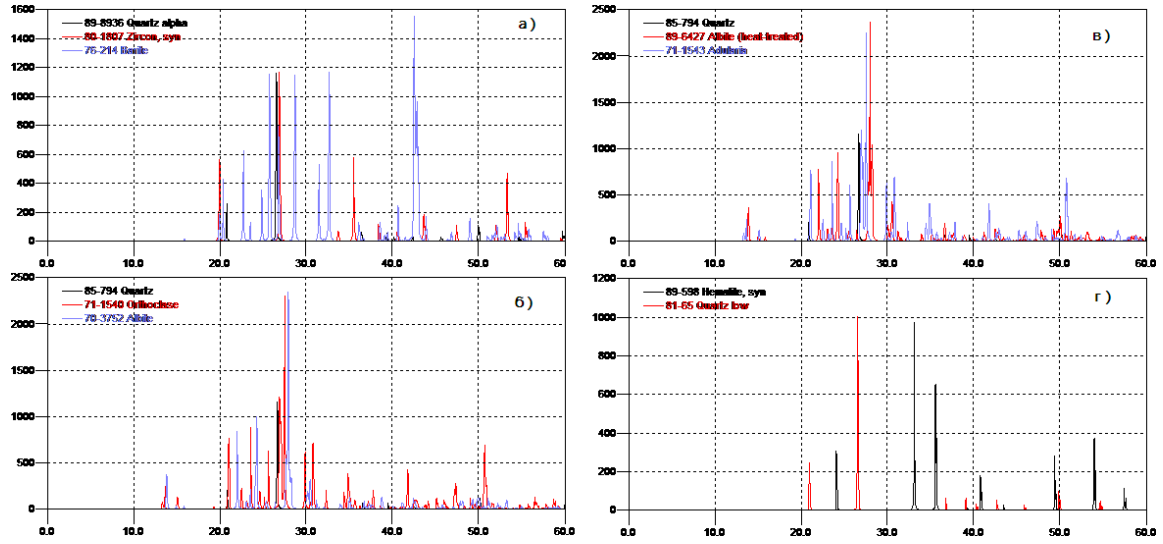
Sorbent	Quantity of sorbent, g	Quantity of solution, ml	Holding time, hour	Sorption degree, %
АМ 25	3	20	24	50,35
АМП 100	3	20	24	37,53
Coal, heat-treated	3	20	24	63,20
Sorbent K	3	20	24	62,52
Microgel	1	20	24	52,52

deposit «Northern Tajikistan-2» X-ray fluorescence analysis (XRF) was carried out on the device DRON-3 with digital processing on copper anode (35 kV and 20 mA) and nickel filter. Figure 4 shows XRF of ore from the North Tajikistan-2 deposit. The main ore minerals are quartz, albite, orthoclase, and uranium mica.

Figure 4 - X-ray radiogram of uranium ore from the deposit «Northern Tajikistan-2».

Since the ore is silicate, the sulphuric acid method can be recommended for leaching.

Labsys Evo-1600 derivatograph from Setaram company was used for DTA of uranium ore from the deposit «Northern Tajikistan-2». LabSys Evo is a modern derivatograph (synchronous thermal analyser). It combines simultaneous thermogravimetry and differential scanning calorimetry (TGA-DTA/DSC, TG-DTA/DSC) and has the best sensitivity and accuracy of analysis.



LabSys Evo is a derivatograph with TG scales with 0.01 mg accuracy and 3D (Calvet) DSC heat sensor and furnace with heating up to 1600°C and water cooling. With a 3Dsensor sensitivity of 0.5 mV/mW and a high oven heating/cooling rate of 100°C/min (minimum 0.1°C/min), the Cp measurement accuracy reaches a value of 2% over the entire temperature range. The 3D Cp (Calvet) sensor consists of 10 thermocouples completely surrounding the sample. It is possible to use corundum and platinum crucibles of 0.1 mL volume under different gas media (air, nitrogen, oxygen, helium, argon, hydrogen and others or their mixtures). The heating speed was 10 °C/min.

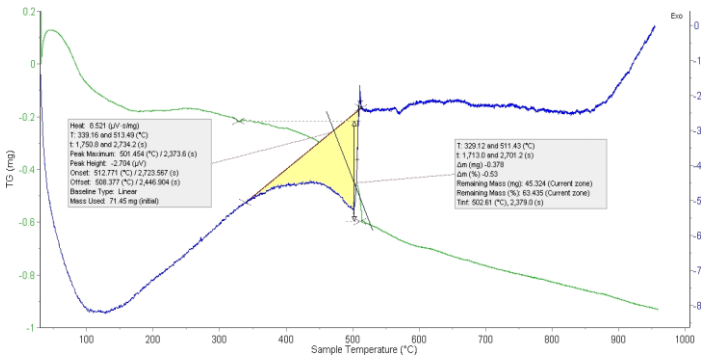


Figure 5 shows the differential thermal analysis (DTA) of uranium ore samples from the deposit «Northern Tajikistan-2», where DTA curves of uranium ores are presented. In this thermogram, we observe an endo-effect at 450-550°C, which is related to the transformation of kaolinite.

There are no α- and β-transition of quartz in uranium ores from the deposit «Northern Tajikistan-2», and DTA shows the absence of carbonate compounds.

Figure 5 - DTA of ore from the deposit «Northern Tajikistan-2» («Oktyabrsky»).

For uranium ores of the deposit «Northern Tajikistan-2» the sulphuric acid method of raw material processing is proposed by using oxidising agents in the process of recycling.

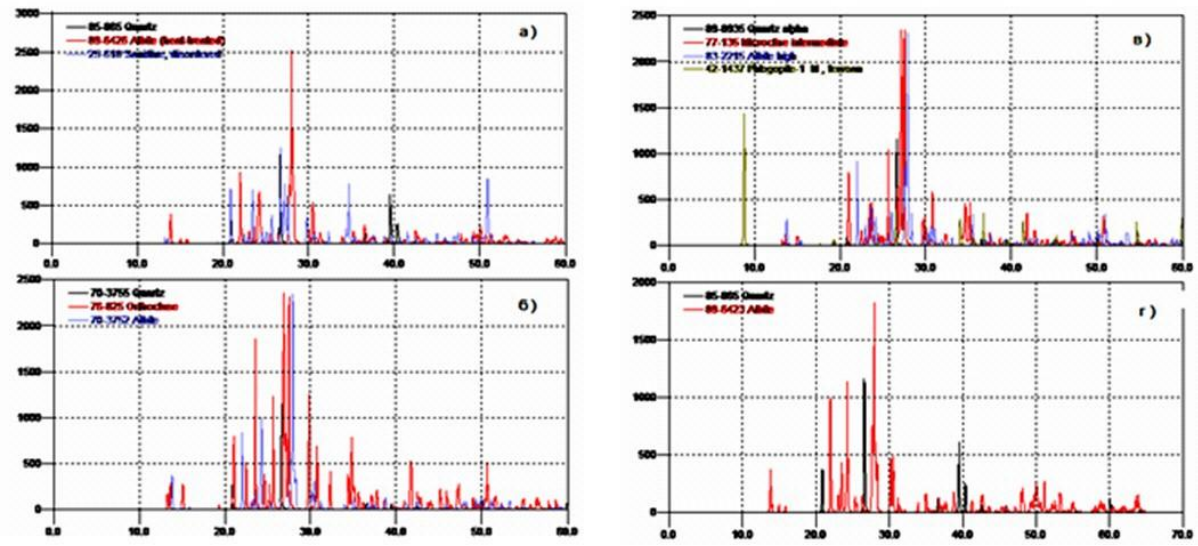
Radioecological research on objects containing radionuclides (Project manager Dr. Ilhom Mirsaidzoda, state registration No. 0120 TJ 01031)

Monitoring of uranium-containing wastes (tailing dumps) in northern Tajikistan and their nearest settlements (Istiklol, Buston, Goziyon, Adrasman, etc.) was conducted. It was shown that the average equivalent dose rate on the tailing dumps area reaches 10-30 μSv/hour, and the volumetric concentration of radon in the atmospheric air at different sites is from 200 to 1000 Bq/m^2. It was found that the specific activity of radionuclides in tailings ranges from 1000 to 7000 Bq/kg.

Taking into account various radiation factors, the annual radiation doses to the population living in the settlements close to the tailings dams were calculated.

Radon monitoring was also conducted in the air of buildings of pre-school and school educational institutions of Istiklol city.

It was found that the average value of volumetric activity (VA) of radon in indoor air in buildings reaches 93 Bq/m^2.



These parameters do not exceed the standard of 200 Bq/m^2 (for old buildings) established in the Radiation Safety Standards (NRB-06 SP 2.6.1.001-06).

Monitoring of Cesium-137 content of the northern districts of Tajikistan has shown that Cesium-137 isotope content in these districts is much lower compared to the southern districts.

Researches on determination of radionuclides in mineral ores of Tajikistan were continued. The potential radiation hazard of the Adrasman tailings dump was also assessed. The Adrasman tailings dump covers an area of 3.2 ha, the total volumeof uranium waste is 400 thousand tonnes, and the total activity is 5.92 *1012Bq. The tailings environment is acid-alkaline, pH=6-8. The tailings consists of crushed stone-wood soils with loamy aggregates. On the surface of the tailings the observed gamma radiation dose rates are 0.85-1.25 μSv/hour,. On the body of the tailing the gamma radiation dose rate is 0.50-15.00 μSv/hour.

To determine the radiation level in the surveyed territories, measurements of the general radiation background of the area were carried out and compared with the results of radiation-ecological monitoring in the territory of Sughd region of Tajikistan.

The ambient dose equivalent rate (ADER) of gamma radiation was measured by dosimeters DKS-96 «Doza» (Russia), DKS-AT1123 «Atomteh» (Belarus), MKS-AT6130 «Atomteh» (Belarus) and PackEye FHT-1377 «Thermo» (Germany).

Radon monitoring was conducted using both the integral measurement method and the instantaneous method. Instantaneous measurements of radon volumetric activity (VA) were performed using radon radiometer RRA-01M-03. Calculation of radon flux density (RfD) was performed according to the method of express measurement of RfD.

The intensity of natural gamma-radiation in the area of the tailing dump No. 2 decreases naturally from 0.25-0.40 μSv/hour for granite porphyries and other types of rocks to 0.24-0.28 μSv/hour for andesite and andesitdacite porphyries. The average background value of gamma radiation EDR determined by 80 measurements is 0.38-0.32 μSv/hour for the tailings area. The maximum background value is 0.42 μSv/hour. The maximum value of gamma radiation dose, by which the glory of radioactive contamination is determined, was 0.62 μSv/ hour.

It should be noted that in recent years, due to heavy rains, part of the surface of the tailings pond cover has been washed away and an open area of tailings material has been formed (Figure 6), which has a potential hazard for the population living near the tailing and for the environment. Conducting preventative measures to cover the open area is a priority.

Figure 6: Open area of the Adrasman tailing.

III. INTERNATIONAL COOPERATION

EQUIPMENT TRANSFER CEREMONY TO THE STATE RESEARCH INSTITUTION “GLACIER RESEARCH CENTER OF TNAS" IN THE FRAMEWORK OF THE IAEA TECHNICAL COOPERATION PROJECT

On 19 January 2023, in the laboratory of water quality, isotopes and sanitation of the State Research Institution «Glacier Research Centre of the Tajikistan National Academy of Sciences» (SRI «Glacier Research Centre of the TNAS») an official laboratory equipment transfer ceremony in the framework of International Atomic Energy Agency (IAEA) technical cooperation program was held with participation of Dr.Ilkhom Mirsaidzoda, Director of the Agency for Chemical, Biological, Radiological and Nuclear Safety and Security of the Tajikistan National Academy of Sciences (CBRN SSA TNAS).

The Laboratory of Water Quality, Isotopes and Sanitation of the SRI «Glacier Research Centre of TNAS» has been established in cooperation with the IAEA and the CBRN Safety and Security Agency of TNAS to study glaciers and snow cover, to observe and control their condition, and for determination of the hydrological composition of glacier waters, lakes and glacier basins.



It should be noted that at the preparation procedure for the operation of laser equipment «Picaro» in the laboratory of water quality, isotopes and sanitation of the SSI «Glacier Research Centre of TNAS» had been signed documents on the acceptance-transfer of equipment between the CBRN SSA TNAS, and was expressed interest in further expansion of mutually beneficial cooperation.



At his speech, Dr. Ilhom Mirsaidzoda, Director of the CBRN SSA TNAS, Doctor of Technical Sciences, Associate Professor, mentioned the initiatives of the President of the Republic of Tajikistan, H.E. Emomali Rahmon on the glacier conservation, as well as underlined the importance of declaring 2025 as the «International Year of Glacier Protection» noting that this initiative will contribute to greater involvement of the world community in addressing climate change and glacier conservation issues.

Then, Professor Abdulhamid Kayumov, Director of the State Research Institution « Glacier Research Centre of TNAS» noted that this laboratory will be created to implement the 5th initiative of the President of the Republic of Tajikistan, H.E., respectful Emomali Rahmon to declare 2025 as «International Year of Glacier Protection» and will give a new impetus to the development and strengthening of the Glaciology in the Republic.

Also in his speech, he noted that with the support of the IAEA Technical Cooperation Department and the CBRN SSA TNAS, «Picaro» laser equipment will be put in to operation in the Water Quality, Isotope and Sanitation Laboratory of the Centre, which will allow further innovative isotope studies of glaciers as well as snow cover.

Within the framework of this project, the staff of the Centre's Water Quality, Isotope and Sanitation Laboratory had been trained for one month at the

University of Innsbruck of the Republic of Austria to master the methods of isotope studies of glaciers.

Thus, it can be concluded that although such a method of glacier research at the world level is extremely rare and its introduction in the center is an innovation at the same time it leads to the development of the science of glaciology, as well asto new ways of conducting glacier research and it was implemented thanks to the policy and current measures taken by the leadership of the Government of the Republic of Tajikistan in the field of glacier research and glacier preservation.



OFFICIAL HANDOVER CEREMONY OF MILITARY SUPPLIES TO THE STATE COMMITTEE FOR NATIONAL SECURITY OF THE REPUBLIC OF TAJIKISTAN

8 February 2023, an official ceremony was held for the handover of military supplies to the State Committee for National Security of the Republic of Tajikistan within the framework of the National action plan of the Republic of Tajikistan on the implementation of UN Security Council Resolution 1540.



Dr. Ilhom MIRSAIDZODA, Director of the chemical, biological, radiological and nuclear Safety and Security Agency, as national focal point, handed over military supplies for use of the State Committee for National Security of the Republic of Tajikistan, on behalf of the US Department of Energy.

This technical support is provided under the Green Border Security Project, which aims to strengthen Tajikistan's law enforcement infrastructure along the border with Afghanistan.

As part of this project, it is planned to hand over special clothing, flak jackets, equipment for operations in mountainous terrain, special protective uniforms for mine clearance, night vision equipment, binoculars, monocular, transceivers, special military vehicles, vans equipped with radiation detection equipment for determination of illegal trafficking of nuclear and radioactive materials, and others.





OFFICIAL HANDOVER CEREMONY OF RADIATION PORTAL MONITORS FOR THE DETECTION OF NUCLEAR AND RADIOACTIVE MATERIALS TO KHUJAND INTERNATIONAL AIRPORT

On the February 27, 2023, an official ceremony to handover Radiation Portal Monitors (RPM) for the detection of nuclear and radioactive materials was held at Khujand International Airport. The RPM was handed over by USA Department of Energy for use in preventing terrorism involving weapons of mass destruction, as part of the Implementation of the National Action Plan of the Republic of Tajikistan on UN Security Council Resolution 1540 realization.

The handover ceremony was participated by Kurboni Alimardon, General Director of Khujand International Airport, Major-General Zafar Mahmadiev, Head of the Customs Service Department of Sughd Region, Dr. Ilhom Mirsaidzoda, Director of the Chemical, Biological, Radiological and Nuclear Safety and Security Agency of the TNAS, Farhod Qiyomiddinov, Representative from the Ministry of Foreign Affairs of the RT, Mr. Kevin Roshdieh and Mr.Emily Morley, Representatives of the National Nuclear Security Administration of the US Department of Energy, and others.


МАРҲАМАТ НАМОЕД!
ДОБРО ПОЖАЛОВАТЬ!
WELCO





It should be noted that the purpose of the installation of these Radiation Portal Monitors is to prevent terrorism using weapons of mass destruction and illicit trafficking in nuclear and radioactive materials across the borders of the Republic of Tajikistan. The installation of such equipment at the airport is the next step for the Republic of Tajikistan against terrorism with use of weapons of mass destruction, their prevention, and illicit trafficking.

In the last few years, similar Radiation Portal Monitors for the detection of nuclear and radioactive materials have been installed by US Department of Energy at the “Dusti”, “Panji Poyon”, “Fotehobod”, “Guliston”, “Sarazm”, and Dushanbe International Airport customs checkpoints. In the framework of this project, US Department of Energy plans installation of similar RPMs at Kulob and Bokhtar International Airports. It should also be mentioned that all these donations were from US DOE.

Also, as part of this project, US Department of Energy plans to provide handheld equipment and training for customs officers in order to prevent the illicit trafficking of nuclear and radioactive materials.

REGIONAL COORDINATION MEETING

The Government of Tajikistan through the Chemical, Biological and Radiological and Nuclear Safety and Security Agency has hosted a 3-days Regional Coordination Meeting which was conducted in close coordination with International Atomic Energy Agency. The purpose of the event was to present and review the progress made and define future activities to be implemented under the project "RER2020003 - Supporting the Analysis of Low Carbon Pathways towards an Ambitious Decarbonised Energy Sector by 2050".

This important coordination event has gathered 18 energy and climate change experts from Europe and Central Asia involved in development and review of National Energy and Climate Plans.

The event was opened by Dr. Ihhom Mirsaidzoda, Director of Chemical, Biological, Radiological and Nuclear Safety and Security Agency of the Tajikistan National Academy of Sciences and Mr. Sorbon Kholmuhammadzoda, Deputy Minister of Energy and Water Resources of the Republic of Tajikistan.

Then Prof.Umarkhon Madvaliev, Chairman of the Association of Renewable Energy Sources of the Republic of Tajikistan, as well as official Representatives of the International Atomic Energy Agency spoke before participants of the meeting on this issue.

In the course of the Regional Coordination Meeting, the event participants presented the current situation, as well as modern prospects for energy assessment at the country level, discussed the project work plan with an emphasis on the organization of necessary for the work capacity building activities like regional training courses, seminars and expert missions, etc..

IAEA NATIONAL LIAISON OFFICERS MEETING IN TAJIKISTAN

On the May 23-26, 2023, the Chemical, Biological, Radiological, Nuclear Safety and Security Agency of the Tajikistan National Academy of Sciences (CBRN Safety and Security Agency of the TNAS) jointly with the International Atomic Energy Agency (IAEA) hosted a meeting of National Liaison Officers to enhance the IAEA's technical cooperation programs.

Representatives of more than 30 Member States from Europe and Central Asia participated in the meeting, and more than 35 IAEA Member States joined the meeting online.

Dr. Ilhom Mirsaidzoda - Director of the CBRN Safety and Security Agency of the TNAS, pointed out that specialists from uranium waste remediation,



nuclear and radiation safety and the health sector are meeting to discuss how to equip cancer research centers with modern cancer prevention equipment, along with issues related to protecting glaciers and using radionuclide and radiation technology to determine the age of the glaciers as well as international, regional

and national health programmes.

«The Annual Meeting of National Officers is dedicated to improving and advancing IAEA technical cooperation projects and is an important platform for cooperation and exchange of ideas for member countries with experience in implementing IAEA technical cooperation programs», remarked the director of the Agency for CBRN Safety and Security of the TNAS.

It was underlined that this meeting will allow representatives of member states in Europe and Central Asia to assess the effectiveness and impact of current projects, to explore innovative solutions to problems encountered, as well as technical cooperation on important issues for the peaceful use of nuclear science and technology.

Through interactive sessions, workshops and forums, participants exchanged ideas and discussed the IAEA's technical cooperation programmes as well as their relevance to the Sustainable Development Goals.

The results of the meeting will be useful in forming future strategies, policies and initiatives that will contribute to the peaceful and sustainable development of member states, including Europe and Central Asia, through the application of nuclear science and technologies.



THE OFFICIAL CEREMONY OF TRANSFERRING CARS TO THE STATE COMMITTEE OF NATIONAL SECURITY OF THEREPUBLIC OF TAJIKISTAN

As part of implementation of National Action Plan of the Republic of Tajikistan on UN Security Council Resolution 1540 on September 12, 2023, an official ceremony of transferring Toyota Hilux cars to the State Committee of National Security of the Republic of Tajikistan took place.



Ilhom Mirsaidzoda, Director of Chemical, Biological, Radiological and Nuclear Safety and Security Agency, as a national coordinator, handed over vehicles to representatives of the State Committee of National Security of the Republic of Tajikistan on behalf of the US Department of Energy.



This technical assistance is provided as part of the Green Border Security Project, which aims to strengthen the law enforcement infrastructure of the Republic of Tajikistan along the border with Afghanistan.

As part of the implementation of this project, it is planned to transfer special clothing, body armor, equipment for conducting operations in mountainous areas, special protective uniforms for demining, night vision devices, binoculars, monoculars, transceivers (radios), special military vehicles, motor vehicles, minibuses with sensitive equipment to detect and prevent the illegal traffic of nuclear and radioactive materials and a number of other equipment.

OFFICIAL CEREMONY TO CONVEY DEVICES AND EQUIPMENT TO THE INSTITUTE OF BOTANY, PHYSIOLOGY AND GENETICS OF PLANTS OF THE TAJIKISTAN NATIONAL ACADEMY OF SCIENCES

On 14 September 2023, an official ceremony was held to hand over devices and equipment to the Institute of Botany, Physiology and Genetics of Plants of the Tajikistan National Academy of Sciences within the framework of the IAEA Regional Technical Cooperation Project RER5024 «Enhancing productivity and resilience to climate changes of major food crops in Europe and Central Asia».



Ilhom Mirsaidzoda, Director of the CBRN SSA, as National Coordinator, handed over devices and equipment for research on increasing the productivity of staple food crops to the Institute of Botany, Plant Physiology and Genetics of the Tajikistan National Academy of Sciences on behalf of the International



Atomic Energy Agency (IAEA).

Within the framework of the IAEA Regional Technical Cooperation Project RER5024 «Enhancing productivity and resilience to climate change of major food crops in Europe and Central Asia», special devices such as soil moisture meter, benchtop pH-meter, micro-volume UV spectrophotometer with a wavelength range of 190nm - 850 nm, laboratory freezer, automatic seed counter with microcomputer control, DNA analysis tests and other equipment were transferred.

OFFICIAL CEREMONY OF HANDING OVER

On 15 September 2023, the official ceremony of handing over the Toyota Hilux cars to the Border Troops of the State Committee for National Security of the Republic of Tajikistan within the framework of implementation of the National Action Plan of the Republic of Tajikistan on UN Security Council Resolution 1540 was held.



VEHICLES TO THE BORDER TROOPS OF THE STATE COMMITTEEFOR NATIONAL SECURITY OF THE REPUBLIC OF TAJIKISTAN AS PART OF THE IMPLEMENTATION OF THE NATIONAL ACTION PLAN OF THE REPUBLIC OF TAJIKISTAN

Ilhom MIRSAIDZODA, Director of the Chemical, Biological, Radiological and Nuclear Safety and Security Agency, as National Coordinator, handed over the vehicles for use to the Border Troops of the State Committee for National Security of the Republic of Tajikistan on behalf of the U.S. Department of Energy.



This technical assistance is provided within the framework of the Green Border Security Project, which aims to strengthen the law enforcement infrastructure of the Republic of Tajikistan along the border with Afghanistan.

As part of this project, it is planned to hand over specialized clothing, body armor, equipment for operations in mountainous terrain, special protective uniforms for mine clearance, night vision devices, binoculars, monoculars, receiving and transmitting devices (radios), special military vehicles, cars and minibuses with sensitive equipment for detecting the illegal traffic of nuclear and radioactive materials and a number of others.

OFFICIAL CEREMONY TO CONVEY THE X-RAY DIAGNOSTIC AND RADIOTHERAPY EQUIPMENT TO THE REPUBLICAN RESEARCH CENTRE FOR ONCOLOGY OF THE MINISTRY OF HEALTH AND SOCIAL PROTECTION OF POPULATION OF THE REPUBLIC OF TAJIKISTAN

On 15 November 2023, an official ceremony to hand over the X-ray diagnostic and Radiotherapy Equipment to the Republican Research Centre for Oncology of the Ministry of Health and Social Protection of Population of the Republic of Tajikistan within the framework of the Projects of Technical Cooperation of the International Atomic Energy Agency (IAEA): TAD6007 - Strengthening the Central and Northern Oncology Centers and TAD6008 - Improving DiagnosticServices was conducted.



Dr. Matin AKHMEDOV, Deputy Director of Agency for Chemical, Biological, Radiological and Nuclear Safety and Security of TNAS and Mr. Olimjon AZIZOV, head of the International Relations and Public Relations Department of the Agency as National Liaison Assistants on behalf of the International Atomic Energy Agency (IAEA) handed over X-Ray Diagnostic and Radiotherapy Equipment to Dr. Zafar HUSEYNZODA, head of the Republican Research Centre for Oncology.



Within the framework of TAD6007 and TAD6008 projects, three staff of the Republican Research Centre for Oncological have been trained in X-ray diagnostics, magnetic resonance tomography (MRI), and radiotherapy in the medical institutions of the Russian Federation, Azerbaijan, and Armenia.

The purpose of implementing these projects is the timely detection and prevention of various oncological diseases in the capital and other regions of the Republic of Tajikistan.

In the future years, the IAEA also intends to train hospital staff and purchase additional radiotherapy and X-ray diagnostic equipment as part of these national projects.

AN OFFICIAL CEREMONY TO CONVEY DIAGNOSTIC EQUIPMENT TO THE KULOB REGIONAL ONCOLOGY CENTER

On 17 November, an official ceremony to hand over the Ultrasound diagnostic equipment to the Kulob Regional Oncology Center in the framework of the implementation of the IAEA TC National Project TAD6009 - «Improving diagnostic capabilities at the Kulob Regional Oncology Center» on behalf of the International Atomic Energy Agency (IAEA) was conducted.



Dr. Matin Akhmedov, Deputy Director of the Agency for Chemical, Biological, Radiological and Nuclear Safety and Security of TNAS and Mr. Olimjon AZIZOV, head of the International Relations and Public Relations Department of Agency, as National Liaison Assistants on behalf



of the International Atomic Energy Agency (IAEA) handed over Ultrasound diagnostic unit to Dr. Navruzjon Kholmatov, Head of the Regional Oncology Centre in Kulob.

The purpose of the mentioned project is the timely detection and prevention of various oncological diseases in the region.

It should be noted that the implementation of such projects will further improve the level and quality of diagnostic and treatment services for oncological diseases in the region and its surrounding areas.

In the future years, the International Atomic Energy Agency (IAEA) intends to procure other X-ray diagnostic and radiotherapy equipment as well as to train hospital staff of the Kulob Regional Oncology Center as part of this national project.

EQUIPMENT HANDOVER CEREMONY AND IMPLEMENTATION OF THE INTERNATIONAL ATOMIC ENERGY AGENCY PROJECT AT THE INSTITUTE OF VETERINARY MEDICINE OF THE TAJIK ACADEMY OF AGRICULTURAL SCIENCES

On December 9, 2023, with support of the Agency for Chemical, Biological, Radiological and Nuclear Safety and Security of the Tajikistan National Academy of Sciences (CBRN Safety and Security Agency of TNAS) and the International Atomic Energy Agency (IAEA) in the framework of the national project TAD5006 - «Application of Nuclear and Molecular Methods of Diagnostics and Control of Transboundary Animal Diseases», modern equipment and consumables were handed over to the Institute of Veterinary Medicine of the Tajik Academy of Agricultural Sciences.



The official handover ceremony was attended by Dr. Matin Akhmedov, Deputy Director of the CBRN Safety and Security Agency of TNAS and Olimjon Azizov, Head of International Relations and Public Relations Department of the Agency, as assistants to the National Coordinator. On behalf of the IAEA, to the Prof. Rajabmurod Atovullozoda, Director of the Institute of Veterinary Medicine of the Tajikistan Academy of Agricultural Sciences was presented modern equipment and consumables, such as biological boxes for molecular diagnostics (PCR), equipment for diagnostics by enzyme-linked immunosorbent assay (ELISA), low-temperature refrigerators for storage of samples and strains of pathogenic microorganisms, autoclaves, thermostats,



centrifuges, chemical reagents, etc.

The purpose of this project is to diagnose, differentiate, determine serotypes and isolate pathogenic microorganisms that circulate in livestock farms and poultry farms of the Republic of Tajikistan and cause significant economic damage. Also, the use of this equipment will provide scientists and industry specialists with the opportunity to monitor infectious diseases, especially zoonoses, as well as to monitor the epizootic situation among wild and domestic animals and birds, that will be implemented as part of solution to state programs and national strategies.

For further improvement the scientific work process - research and use of equipment, a number of scientists of the Institute visited foreign countries, including the Russian Federation, Austria, Northern Macedonia and Turkey.

A solar panel was also installed at the Institute within the framework of this project, which provides conditions for stable operation of laboratory equipment. At the same time, as part of this project, modern testing equipment was imported

and installed for molecular diagnostics, which plays an important role in the detection and typing of pathogens of especially dangerous diseases of livestock and poultry, including zoonoses. The institute has now received equipment for serological, bacteriological and virological studies, which are important for the isolation of viruses, bacteria and their serotypes and are planned to be handed over to international experts in the near future.

It is important to note that constant cooperation with international institutions has a positive impact on the technical and intellectual potential of research institutes. The Institute of Veterinary Medicine plans to implement future technical projects for cooperation with the support of the CBRN Safety and Security Agency of TNAS and the IAEA to further strengthen modern methods of diagnostics and prevention of infectious diseases, including zoonoses that pose a high risk of infection to animals and humans. There are also plans for further cooperation in the field of professional development of scientists.



MEETING WITH SPECIALISTS FROMTHE SUGHD REGIONAL ONCOLOGYCENTRE WHO HAVE COMPLETED LONG-TERM TRAINING ABROADWITHIN THE FRAMEWORK OF COOPERATION WITH THE IAEA

On December 20, 2023, with the support of the Agency for Chemical, Biological, Radiological and Nuclear Safety and Security of the Tajikistan National Academy of Sciences (CBRN SSA TNAS) in cooperation with the International Atomic Energy Agency (IAEA) and the Ministry of Health and Social Protection of the Population of the Republic of Tajikistan (MoHSPP RT), in particular with the State Institution «Republican Reseach Centre of Oncology» of the MoHSPP RT, at the Sughd Regional Oncology Centre was conducted a meeting with specialists who have completed long-term training in advanced oncology clinics of foreign countries in the field of medical physics, radiation therapy and diagnostics within the framework of the implementation of the IAEA national projects TAD6007 - Strengthening the Centers of Oncology **and TAD6008 – Improving Diagnostic Services.**

During the visit, Dr. Matin Akhmedov, Deputy Director, of CBRN Safety and Security Agency of TNAS and Olimjon Azizov, Head of Public and International Relations Department of the Agency, as Assistants of IAEA National Coordinator met with Mr. Bakhtiyor Orifov the Head of Regional Oncology Center and the specialists, who have undergone long-term training within the framework of the above





mentioned projects.

Doctors who were trained in foreign countries are currently working as qualified specialists in the Sughd Oncology Centre. In addition, starting from November 1, 2023, one of the doctors from the diagnostic department of this center is undergoing a year-long training at the Oncology Centre of the Republic of Azerbaijan on early diagnosis and prevention of oncological diseases. Also, to provide support and encouragement, the specialists of the center participate in various regional and international online events to exchange experience and provide qualified services to the population.

It is important to add that within the framework of cooperation with the IAEA, modern equipment for radiation therapy was installed at the Sughd Regional Oncology Centre in 2019. Currently, this equipment is widely and successfully is using in the treatment of malignant neoplasms. It should be noted that before the opening of the radiology department and the installation of the above-mentioned equipment, patients from Sughd region had to travel to the capital of the Republic or to the foreign countries hospitals to receive this therapy.

It should be highlighted that major IAEA grants are aimed at the developmentand provision of quality services in cancer centers in the Republic of Tajikistan. With the support of the National Coordinator-the Chemical, Biological, Radiological and Nuclear Safety and Security Agency of the Tajikistan National Academy of Sciences, the IAEA will continue its cooperation with the oncology centers of the MoHSPP of Tajikistan, as part of the implementation of national projects on supply with technical equipment and capacity building of qualified
medical specialists for the upcoming years.





CENTER FOR GLACIER RESEARCH OF THE TAJIKISTAN NATIONAL ACADEMY OF SCIENCES RECEIVED FROM THE IAEA NEW DEVICE FOR CONDUCTING GLACIER RESEARCHES IN THE FIELD

Thanks to the initiatives of the Founder of Peace and National Unity, Leader of the Nation, President of the Republic of Tajikistan H.E. Emomali Rahmon on declaring 2025 as «International Year of Glacier Preservation» the development of international cooperation allows to expand the boundaries of research work on glaciers and reach the international level to meet international standards.

Within the framework of the implementation of the IAEA national project TAD7004 - «Building national capacity for assessing the state of glaciers and snow cover under changing climate conditions», Dr. Ilhom Mirsaidzoda, Director of the Agency for Chemical, Biological, Radiological and Nuclear Safety of the Tajikistan National Academy of Sciences, National Liaison Officer of the International Atomic Energy Agency (IAEA) in the Republic of Tajikistan and Mr. Olimjon Azizov, Head of the International Relations and Public Relations Department of the Agency, National Liaison Assistant, handed over two sets of MultiLine Multi 3630 multiparameter digital instruments to professor Kayumov Abdulhamid, Director of the State Research Institution(SRI) «Center for Glacier Research of the Tajikistan National Academy of Sciences». in the ceremonial atmosphere.





It should be noted that before this, the SRI Center for Glacier Research at TNAS received equipment from the IAEA for large-scale and fundamental research as part of the development of the school of glaciology and research:

- The PICARRO laser analyzer determines the stable isotope composition



of glaciers, snow cover and melt water.

- The Center also received a modernion chromatograph to conduct analysis of glacier, snow cover and meltwater samples on high level. The ion chromatograph allows studying glaciers and water resources of Tajikistan at a qualitatively new level.

With the support of the IAEA, the Water Quality, Isotopes and Sanitation Laboratory, equipped with modern equipment, which makes it possible to determine and identify hydrological processes occurring in glaciers and snow cover, as well as to determine the mechanisms of glacier degradation for the subsequent development of adaptation measures for glacier conservation, has been created.





The study of glaciers requires expeditionary work in hard-to-reach high-mountainous areas and field instruments are useful assistants in this work.

Two sets of MultiLine Multi 3630 multiparameter digital instruments were also purchased as part of the project, which makes possible to measure several parameters with one device.

In the field, the universal measuring device is designed for simultaneous measurement of such parameters as:

- pH;
- redox potential;



• dissolved oxygen;
• conductivity;
• turbidity.

The work of this laboratory is carried out by three groups of employees.

Each of these groups has clearly defined goals and objectives:

1. a network group collecting samples from major river basins and precipitation;

2. an expedition group to collect samples from glaciers, snow cover, glacial lakes and meltwater;

3. a stationary (laboratory) staff that ensures continuous work, analysis and study of samples.

Photo: SRI «Glacier Research Center of the Tajikistan National Academy of Sciences»

OFFICIAL HAND-OVER CEREMONY OF VEHICLES TO THE DEPARTMENTOF SPECIAL PURPOSE UNITS OF THE MINISTRY OF INTERIOR OF THE REPUBLIC OF TAJIKISTAN WITHIN THE FRAMEWORK OF THE IMPLEMENTATION OF UN SECURITY COUNCIL RESOLUTION 1540

December 27, 2023, the official ceremony of handing over the Toyota Hilux cars equipped with detectors for detection of nuclear and radioactive materials to the Department of Special Purpose Units of the Ministry of Interior of the Republic of Tajikistan within the framework of implementation of the National Action Plan of the Republic of Tajikistan on UN Security Council Resolution 1540 was held.





Dr. Ilkhom Mirsaidzoda, Director of the Agency for Chemical, Biological, Radiological and Nuclear Safety and Security, as the National Coordinator, handed over vehicles for use to the Department of Special Purpose Units of the Ministry of Interior of the Republic of Tajikistan on behalf of international donors.

This technical assistance was provided within the Green Border Security Project, which aims to strengthen the law enforcement infrastructure of the Republic of Tajikistan along the border with Afghanistan.

As part of this project, it is planned to transfer special clothing, body armour, equipment for operations in mountainous areas, special protective uniforms for mine clearance, night vision devices, binoculars, monoculars, receiving and transmitting devices (radios), special military vehicles, cars and minibuses with sensitive equipment for detecting the illegal traffic of nuclear and radioactive materials and a number of others.

IV. THE NATIONAL DEPARTMENT OF THE NUCLEAR LADY



SPEECH BY WiN TAJIKISTAN MEMBER ON RADIO "KHOVAR"

On January 13, 2023, in Dushanbe, at the National Information Agency of Tajikistan "Khovar", a conversation was held with WiN Tajikistan member Ghaibullaeva Zumrat – a gold medal winner of the World Intellectual Property Organization (WIPO) in 2022, PhD on chemistry, Associate Professor of the M.S. Osimi Tajik Technical University in the radio program "Women and Life" on the topic "The role of women in the sciences development".

During the conversation, Dr.Ghaibullaeva Zumrat spoke about the activities of WiN Tajikistan and the goals and objectives of the organization, which was organized on March 8, 2020. She also spoke about the activities of the members of WiN Tajikistan and their contribution to the development of science in Tajikistan, about scientific and cultural events, promoting family values, a healthy lifestyle, spiritual, moral and patriotic education of youth, as well as on charity events. WiN Tajikistan members held a number of competitions, such as: the best essay among female students on the topic "The role of women



scientists of Tajikistan in the development of science", a children's drawing competition "The world around us through the eyes of children", round tables and seminars, meetings with women veterans , the annual international scientific and practical conference "The Role of Women Scientists in the Development of Science, Innovation and Technology".

Further she gave some details about the International Scientific and Practical Conference "The Role of Women in the Development of Science, Innovation and Technology," which was held in 2022 in the city of Gulistan, Sughd region, the active participation of women in various fields of science. Along with women scientists from Tajikistan, women from Russia, Uzbekistan, Kazakhstan, Kyrgyzstan, Armenia, the United States of America, Pakistan and others took an active part with interesting reports and results of their research. During the conference, women scientists discussed further plans for cooperation, considered the issues of women leadership in society, involving young girls to scientific and

technical fields, emphasized the importance of studying the modern technologies, sophisticated equipment, and addressing issues of improving women's health, their working and living conditions generally.

During the conversation, Dr. Ghaibullaeva noted the contribution of WiN Tajikistan members to the implementation of the state Program "Study and development of natural, exact and mathematical sciences for 2020-2040." In the framework of WiN Tajikistan activities, interesting meetings are being held with girls - graduates of schools, lyceums, colleges and young women not only from the capital, but also from other regions of the country to involve them in education, training and science, and explanation of their contribution to the development of the country. During the conversation, it was noted that the woman of Tajikistan is not only a mother, pupil, wife, but also an educator, teacher, scientist, politician and an active member of the state and society.

Also, Dr.Gaibullaeva Zumrat spoke about her achievements in the science: - processing of polymetallic ores, methods for producing metals and their compounds in low energy-intensive and environmentally friendly ways. Tajikistan lacks energy resources such as natural gas and oil. In this regard, coal is widely used in research, which, after processing and separation of chemicals from its composition, is gasified and then used in the process of ores treatment and concentrates. Coal deposits in Tajikistan are inexhaustible and its use is economically profitable. Based on the results of scientific research, a numberof inventions have been obtained. Gaibullaeva Zumrat noted that she was an active participant at the invention exhibition in Seoul, Korea. Her invention, "Method for obtaining the heavy metals from galena-containing concentrates," was awarded a gold medal. She also took part in an international forum organized by the ?World Science and Health Organization in India. For a number of published scientific publications, she was awarded the honorary title of best scientific work in the field of "Chemistry and Metallurgy." It is also gratifying to note that the World Intellectual Property Organization (WIPO) awarded Gaibullaeva Zumrat the gold medal in 2022. Upon completion of the dialogue Gaibullaeva Zumrat noted that she successfully defended her doctoral thesis on the topic: "Technological basis for the production of metal compounds for electrical purposes".

CAREER GUIDANCE LESSONS FOR HIGH SCHOOL STUDENTS

As part of WiN Tajikistan activities to encourage interest to science among youth from February 7 to 10, 2023, career guidance classes were held with school undergraduates, including young girls.

Dr. Ghaibullaeva Zumrat, WiN Tajikistan's member, Doctor of Chemical Sciences, Associate Professor of the M.S.Osimi Tajik Technical University visited secondary rural schools of the Firdavsi district of Dushanbe, in such mahallas as: Somon, Dareobod, Kahramon, Shainak, Obchakoron and Gulbutta.

During a meeting with school graduates and young girls, Dr. Ghaibullaeva spoke about the specialties at universities, about modernized educational programs and conditions for training of highly qualified specialists.

Graduates, especially girls, showed the great interest in continuing their education at the universities. At the meeting there were many questions



regarding specialties in exact sciences and engineering, duration of studies at universities and their forms, living conditions and modern equipment of laboratories, provision of work after graduation, and others.



Dr. Ghaibullaeva Zumrat, answering questions of graduates and girls, held an explanatory conversation about the role of an educated person in modern developing Tajikistan, the role of an educated woman in society and in the family, the participation of an educated woman in science and culture and the support of the Government of the Republic of Tajikistan for women and young girls, which are reflected in a number of official documents.

INTERNATIONAL DAY OF WOMEN AND GIRLS IN SCIENCE

Every year, on February 11, the world celebrates the International Day of Women and Girls in Science, adopted by the UN General Assembly to ensure full and equal access to participation in science for women and girls.

On the February 9, 2023, vice-presidents of WiN Tajikistan Dr. Kayumova Dilorom, responsible for popularization of science among young people and Prof.Sharofova Mizhgona, conducted a round table devoted to “International Day of Women and Girls in Science”. The aim of round table was popularization of science among women and girls by exchange of experiences.

Over the past few years, the global community has made many efforts to encourage and attract women and girls to science.



The full and equal participation of women and girls in science plays a vital role in ensuring the diversity of scientific research, expanding involving of talented researchers and bringing a new perspectives.

As part of cooperation, the round table participants were representatives of WiN Tajikistan and “Association of Women Studying Glaciers” of the State Research Institution “Center for Glacier Researchs of the Tajikistan National Academy of Sciences”.

Participants of round table discussed reports and presentations by scientists from various fields of activity.

Dr. Shosafarova Shoira, head of Occupational exposure control services section of the Agency for CBRN Safety and Security of TNAS, made a presentation on contribution of women in the field of radiation protection and the main activities of the Agency for CBRN Safety and Security of TNAS.

Representatives of “Association of Women Studying Glaciers” in their presentations demonstrated achievements in the field of glaciology.

Prof. Sharofova Mizhgona shared her experience and achievements in the field of science and wished everyone to achieve success in such a difficult path as science. In conclusion, it was noted that women and girls continue to lead innovative and pioneering research. They are inspiring role models for our future generations.





SPEECH BY WIN TAJIKISTAN MEMBER ON THE RADIO "KHOVAR"

On the February 10, 2023, in the radio-program "Woman and Life: Women's Contribution to the Development of Science", devoted to the "International Day of Women and Girls in Science" a conversation took place between the host of the program of the National Information Agency of Tajikistan "Khovar" Manizha Bahromzoda and Prof. Sharofova Mizhgona, vice-president of WiN Tajikistan, winner of KIPO and KWIA at the International Exhibition of Women Inventors "KIWIE-2021"» in Korea, Doctor of Medical Sciences, head of the laboratory of the Center for Research of Innovative Technologies of the Tajikistan National Academy of Sciences, and Director of the Avicenna Institute of Medicine and Pharmacology.

In the interview, comments were made on the message of the Leader of the Nation, H.E., respected Emomali Rahmon, to the Majlisi Oli on December 23, 2022.

Over the years of independence, the Government of the country has implemented beneficial measures to support women and girls to improve



their position in the society. Currently, women make up 25% of the total number of civil servants, including almost 20% of management personnel, as well as 73% in the education sector.

Indeed, today women have valuable contribution to the development of education, in particular to the development of the exact sciences, and their scientific achievements play a significant role in the progress of society.

February 11, 2016, it is celebrated as the “International Day of Women and Girls in Science” the goal of which is to achieve the equal access of women and girls to the achievements and development of science, technology and innovation, ensuring gender equality.

In a conversation about the contribution of women and girls to the development of science, she expressed her opinion on this issue. At the same time, she noted the contribution of WiN Tajikistan under the Agency for CBRN Safety and Security of TNAS in attracting young girls and women to science. This relatively young platform, created on March 8, 2020, provides women and young girls with many opportunities for scientific, practical, organizational and charitable activities.

During the conversation, Prof. Sharofova Mizhgona explained the connection of her work in medical science, her motivations and, in this connection the work in the field of pharmacology, interpreting the state of phytopharmacology or the science of creating medicines from medicinal plants of the country.

Some information was given about all the efforts, results, inventions and achievements during her scientific career. Along with all these results and the most important achievements, several books and articles have been written, patents and innovation proposals have been received, participation in national

and international conferences, and cooperation with colleagues from other countries has been carried out.

Prof. Mizhgona Sharofova also expressed her opinion on how a woman can be a scientist while remaining the keeper of the family hearth.

At the end of the "Woman and Life" program on radio "Khovar", she congratulated all the women and girls with "International Day of Women and Girls in Science", wishing them and all listeners all the best.



DISCUSSION OF THE TOPICS FOR SCIENTIFIC ROUND TABLES BY WIN TAJIKISTAN'S MEMBERS

On the February 17, 2023, the women-scientists of WiN Tajikistan met in the conference room of the Agency for CBRN Safety and Security of TNAS to discuss topics of the round tables discussions.

The meeting was devoted to discussion of the topics for scientific round tables. It was decided to hold three round tables, including on radiation safety issues (professional radiation monitoring, cancer issues, problems of radioactive tailings); nutrition issues (the influence of various additives on the quality of food products), and on issues of modern fundamental materials science.

It was also decided to hold a meeting of WiN Tajikistan's members devoted to Mother's Day and International Women's Day on the topic "The role of women in the development of sciences in Tajikistan". It is planned to invite outstanding women scientists working at the Tajikistan National Academy of Sciences to the meetings.



REPUBLICAN SCIENTIFIC AND PRACTICAL CONFERENCE “THE ROLE OF WOMEN IN THE DEVELOPMENT OF EXACT SCIENCES”

On the February 24, 2023, a Republican Scientific and Practical Conference “The role of women in the development of exact sciences” was held in the conference hall of the National Academy of Sciences of Tajikistan.



The conference was opened by the President of the Tajikistan National Academy of Sciences, academician Farhod Rahimi, who noted that: “The role of women in the development of exact sciences is significantly increasing, and we are proud that women scientists carry out grate scientific activities on an equal basis with men”.



The Chairman of the Committee on Women and Family Affairs under the Government of the Republic of Tajikistan, Hilalbi Kurbanzoda, in her welcoming speech emphasized that increasing the number of scientists among women in the country is not only the development of science, but also the expansion of the family system in the Republic.

Prof. Gulchehra Kohirova, Vice-President of TNAS, Corresponding Member of TNAS also delivered a welcoming speech at the conference. She emphasized that the role of women is important not only in the field of exact and natural sciences, but also in science in general, because it is very difficult to engage in scientific research that requires high qualifications along with daily care for family and children. Ofcourse, a woman associated with science leads to the progress of society, an educated generation and the development of science in Tajikistan.

Representatives of Tajik National State University, Technological University, Tajikistan National Academy of Sciences, Medical University, Institute of Geology, Earthquake Resistant Construction and Seismology of the Tajikistan National Academy of Sciences, as well as representatives of WiN Tajikistan - Dr. Khakimova Nodira and Dr. Mamadyusufova Menu, made reports.

Dr.Nodira Khakimova made a report on “Monitoring of occupational exposure of employees of the Republican Oncological Scientific Center of Tajikistan”, in which she provided statistical data on the average values of occupational exposure received by employees who use sources of ionizing radiation in their activities.

Dr. Mamadyusufova Menu made a report on “Resistance of wild relatives of wheat in different climatic conditions of Tajikistan,” in which she, in particular, spoke about the problem of yellow rust, a dangerous disease that affects cereal plants.

COMPETITION «NATIONAL DISHES TABLE»

On the March 6, 2023, at the Regional Training Center of the Agency for CBRN Safety and Security of the Tajikistan National Academy of Sciences, as part of the activities of WiN Tajikistan to strengthen national identity and create favorable conditions for the active participation of women and young girls in cultural and public life, the "National Dishes Table" competition, dedicated to the national holiday Mother's Day was held.

The competition was held among master's students of the Tajikistan National Academy of Sciences under the leadership of Dr. Mamadyusufova Menu, Head of the Department of Master's, Postgraduate and Doctoral Studies of the Tajikistan National Academy of Sciences, Chairman of the Council of Young





Scientists of TNAS. The competition consisted of preparing a national dish and its presentation.

The competition was held in a warm, friendly atmosphere. The competition participants prepared various national dishes, shot original videos of the cooking process, and one of the teams performed national dances from various regions of the Republic.

In addition to the competition, WiN Tajikistan members - Muminova Mehrangez and Bokieva Shoira conducted a master class on preparing the national dish “oshi-tuppa”. They shared their experience and secrets in preparing of this dish.

A MEETING DEDICATED TO THE THIRD ANNIVERSARY OF WiN TAJIKISTAN FORMATION

On the March 6, 2023, at the Regional Training Center of the Agency for CBRN Safety and Security of the Tajikistan National Academy of Sciences a meeting dedicated to the third anniversary of formation of WiN Tajikistan was held. More than 70 participants took part in the event, including from foreign countries connected online.

Dr. Ilhom Mirsaidzoda, Director of the Agency for Chemical, Biological, Radiological and Nuclear Safety and Security of the Tajikistan National Academy of Sciences (Agency for CBRN Safety and Security of TNAS) delivered a welcoming speech. He cordially congratulated the WiN members with Mother's Day and third anniversary of WiN Tajikistan formation.





In his speech, he noted the increasing role of women in science, culture and public life. He noted that modern women successfully combine the role of a recognized scientist and a caring mother. He also spoke about the achievements of WiN Tajikistan and future plans.

Academician Ulmas Mirsaidov, Doctor of Chemical Sciences, Professor joined the director's congratulations. He also congratulated the women with Mother's Day and Third Anniversary of WiN Tajikistan formation, and wished further development and successful achievement of all the goals.

Sayfieva Zarina, President of WiN Tajikistan also congratulated all participants of the meeting with beautiful spring holiday Mother's Day and Third Anniversary of WiN Tajikistan formation and thanked all members for their active participation in the activities of WiN Tajikistan.

Then the floor was passed to representatives of WiNs from other countries:
- Evgenia Enshina, head of the National Chapter of WiN Russia,
-Lee Marina, President of WiN Uzbekistan and other partners in turn, congratulated all members of WiN Tajikistan with International Women's Day, Mother's Day and third anniversary of formation and wished further prosperity, development, and good luck in all their endeavors.

In addition, Dr. Khakmova Nodira, Dr. Gaibullaeva Zumrat, and Dr. Abidzhanova Nigora made welcoming speeches and also congratulated everyone with such a significant day.

SEMINAR FOR HIGH SCHOOL STUDENTS OF THE M.S.OSIMI TECHNICAL LYCEUM "ENVIRONMENTAL ISSUES OF URANIUM TAILINGS IN ISTIKLOL CITY"

On the March 10, 2023, WiN Tajikistan's members: Dr. Khakimova Nodira, senior researcher of the Agency for CBRN Safety and Security of TNAS, Tagayeva Sabrina - senior laboratory assistant of the Agency, and Don Ekaterina, biology teacher of the M.S.Osimi Technical Lyceum, have conducted a seminar "Environmental issues of uranium tailings in Istiklol city" for high school students of the mentioned Lyceum.

The purpose of seminar was not only to familiarize youth with environmental problems associated with uranium tailings in Istiklol city, possible routes of contamination by radionuclides, and measures taken to minimize these problems, but also to help schoolchildren, especially girls in choosing a future profession, to interest and attract them to exact sciences.





Dr. Khakimova Nodira told students about the main activities of the Agency for CBRN Safety and Security and about the ongoing research work.

During the presentation, schoolchildren learned about the history of tailings dumps and the ongoing works for their rehabilitation.

The seminar turned out to be informative and very interesting for young researchers.

ROUND TABLE "RADIATION SAFETY IN MEDICINE AND RADIATION THERAPY IN PALLIATIVE CARE»

On the March 10, 2023, in the framework of WiN Tajikistan's activity the round table on the topic: "Radiation safety in medicine and radiation therapy in palliative care" has been held.



Two presentations were presented to the attention of WiN Tajikistan's members:

Dr.Khakimova Nodira, senior researcher of the Agency for CBRN Safety and Security made a presentation on the topic "Radiation Safety in Medicine," in which she spoke about the fundamentals of radiation safety, annual doses of medical workers and shared interesting cases from her professional practices.

She also noted that due to existing risks, the field of application of ionizing radiation in medicine requires special and careful monitoring of

protection of both patients and personnel. The powerful use of radiation technology in diagnosis and treatment is gradually opening up almost unlimited possibilities for medicine. The greater the power, the greater the responsibility, which is to comply with the rules and regulations for the use of ionizing radiation. In orderto obtain permission to conduct any activity using sources of ionizing radiation(IRS) in medicine, it is necessary to adhere to legal standards.



In addition, the qualifications of medical and technical personnel performing diagnostic or therapeutic medical irradiation procedures must be sufficiently high. Annual verification of equipment, the presence of a quality control system for radiation diagnostic or treatment methods, certification of X-ray and radionuclide diagnostic and radiotherapeutic equipment, as well as methods of radiation diagnostics and therapy are also included in the list of required documentation for obtaining permission to work with radiation sources.

Presentation by Dr. Nigora Abidzhanova, consultant-expert of National Association of Palliative Care of the Republic of Tajikistan, assistant of the Department of Oncology and Radiation Therapy of the Abuali ibn Sino TSMU was devoted to the basics of palliative care, the role of radiation therapy in reducing the pain syndrome of cancer patients, and difficulties faced by patients

who need the palliative care.

It was noted that high-quality palliative care is an integral element of the World Health Organization's framework for integrated, people-centered health care, which was endorsed by the Sixty-ninth World Health Assembly in 2016. The relevance of issues related to palliative care in the modern world increases every year. Medicines needed for palliative care, including painkillers, are on the WHO list of essential medicines for adults and children and should be available to everyone who needs them. In the Republic of Tajikistan, palliative care is included in the Health Code and is studied at all levels of training of medical workers. Nigora's presentation aroused great interest among the round table participants; many questions were asked.

At the end of her presentation, Dr. Nigora Abidzhanova showed both interesting and informative videos "About radiation therapy in 60 seconds" and "Lastlecture".

Dr. Nigora Abidzhanova, in addition to very interesting and necessary information, also provided each participant of this event with memorable gifts with a logo and the inscription - "National Association of Palliative Care of the Republic of Tajikistan" (electronic media with information about their activities, notepads, and pens) and a very beautiful and valuable book «Merosi niyogon»(Ancestral Heritage) in Tajik and English languages.



EXCURSION TO THE REGIONAL TRAINING CENTER AND LABORATORY OF THE AGENCY FOR CBRN SAFETY AND SECURITY OF TNAS FOR THE HIGH SCHOOL STUDENTS OF THE LYCEUM BOARDING SCHOOL «HOTAM & PV»

On the 15 March 2023, as part of WiN Tajikistan activities to promote interest in science among youth, a study tour to the Laboratory of the Agency for CBRN Safety and Security of TNAS was organized, including a lecture on environmental aspects and showing of the Regional Training Centre.

Zarrina Shoimardonova, Senior Researcher of the Agency for CBRN Safety and Security of TNAS has facilitated this excursion for high school students of 10th-11th grades of Lyceum Boarding School "Khotam & PV" (Hissar Branch). The invited schoolchildren are participants in various international and regional Olympiads in physics,chemistry and mathematics.

Zarina Sayfieva, Director of Regional Training Center on WMD Nonproliferation and Export Control and President of WiN Tajikistan talked about the activities of the training center, in particular that the Regional Training





Center covers a wide range of activities in the field of education and training. It includes training courses and workshops on WMD non-proliferation and export control, chemical, biological, nuclear and radiation safety and security, and WMD terrorism prevention.

The Regional Training Centre trains more than 500 specialists a year from ministries and agencies not only of the Republic of Tajikistan but also colleagues from the Central Asian region.

Training courses are provided for law enforcement officers on the prevention of WMD terrorism, both at the training center and at various cross-border checkpoints.

After a tour in the training center, Dr. Yana Dovgyallo, Senior Researcher of the Institute of Economics and Demography of the Tajikistan National Academy of Sciences, conducted an open lesson on «The Earth is Our Common Home». She spoke about the ecological issues and the importance of conservations about nature for future generations.

She also noted that the atmospheric pollution, destruction of the ozone layer, desertification of land, plastic drifting in the world's oceans are only a small part of the environmental problems that require immediate intervention. Addressing



them is a challenge for all countries of the world interested in preventing a global catastrophe. It is important to plant trees around factories and along roads, i.e. to green up in general, which reduces the spread of harmful substances.

The class was conducted in an interactive format, where participants showed a good level of awareness and received the answers during the discussion.

The study tour then continued in the Laboratory of the Agency for CBRN Safety and Security. The laboratory team: Dr. Barotov Bakhtiyor, Head of Research Department and Boboerov Mehrovar, Senior Research Officer of the laboratory spoke about the activities, the analyses undertaken in the laboratory, the research works and demonstrated the advanced equipment available in the lab.

After the tour, the schoolchildren were given a book on «Environmental Law of Tajikistan» and memorable gifts.

CHARITY EVENT FOR CHILDREN FROM THE FAMILY AND CHILD SUPPORT CENTER DEVOTED TO NOWRUZ HOLIDAY

On the March 18, 2023, in honor of Nowruz Holiday, the Association "Women Studying Glaciers" together with WiN Tajikistan, held a charity event for children from the Family and Child Support Center No. 2 in Dushanbe.

Participants of charity action made a hand-embroidered gift bags and painted eggs as a symbol of rebirth, new life. Each bag contained sweets and cards with sincere wishes for the children on behalf of all participants.

The uniqueness of this event was in participation of children who themselves offered their help to please other children. The children sincerely recited poems as a sign of gratitude.



MOSCOW INTERNATIONAL SALON OF INNOVATIVE TECHNOLOGIES «ARCHIMEDES»

From March 28 to 30, 2023, the 26th Moscow International Salon of Innovative Technologies "Archimedes" was held, in which Tajik scientists have participated.



The Salon participants were representatives of 221 organizations from 27 countries and 35 regions of Russian Federation, who demonstrated about 600 innovative projects and inventions to general scientific and technical community.

A qualified Expert Commission and an International Jury summed up the results of the competitions, as a result of which the Salon participants were awarded gold, silver and bronze Salon medals and special prizes.

By the decision of the International Jury, Dr. Zumrat Gaibullaeva, Tajik scientist was awarded a silver medal for her invention - "Technology for producing reducing substances in coal processing".

QUARTERLY MEETING OF WIN TAJIKISTAN'S MEMBERS

On the April 7, 2023, the quarterly meeting of WiN Tajikistan's members hasbeen held.

Sayfieva Zarina, the president of WiN Tajikistan shared a report on the work done by the first quarter of 2023, noting that all planned activities are proceeding according to the schedule.

During the reporting period, 12 events have been held, including speeches on the radio of WiN Tajikistan's members, career guidance classes for schoolchildren, two round tables, participation with reports in conferences, the "Dastarkhoni Taomhoi Milli"(Table of national dishes) competition, an excursion to the regional training center and laboratory of the Agency for CBRN Safety and Security of TNAS, as well as a charity event for children from the Family and Child Support Center.

During the meeting the organizational issues of subsequent events were also discussed, in particular, an essay competition on the topic "Leadership of women of Tajikistan in scientific and technical professions"; a charity event for an orphanage dedicated to International Children's Day; organizing a seminar on food safety issues; a seminar on current issues of skin cancer and etc.



OPEN LECTURE “INTERESTING ABOUT SOLAR RADIATION AND CURRENT ISSUES OF SKIN CANCER IN THE REPUBLIC OF TAJIKISTAN”

On the April 14, 2023, as part of the activities of WiN Tajikistan, Dr. Abidzhanova Nigora made an open lecture on the topic “Interesting about solar radiation and current issues of skin cancer in the Republic of Tajikistan.

Nigora spoke about the benefits and harms of solar insolation on human skin, as well as the effects of ultraviolet (UV) radiation from the Sun or artificial sources, such as artificial tanning equipment (solarium), the regular use of which, according to the World Health Organization, causes the development of cancer skin. This is partly due to the fact that tanning beds contain 10 times more UV-A rays compared to the sun’s rays.





Excessive sun exposure by a high UV index and associated sunburn in childhood and adolescence are one of the risk factors leading to the development of skin cancer later in life. A certain amount of UV rays has health benefits, including production of vitamin D, serotonin production and improved mood, as well as a stronger immune system.

The negative effects of UV radiation can be prevented using simple and effective preventive measures. If the UV index is 3 or higher, some comprehensive sun protection is recommended.

Nigora also spoke about the current issues of skin cancer in Tajikistan, which ranks third in the overall incidence structure of malignant neoplasms, about the risks associated with this disease and about preventive measures, including the correct and rational use of sunscreen, hats, sunscreens, glasses and umbrellas that help reduce the risk of malignant skin tumors.

ESSAY CONTEST FOR THE STUDENTS OF 1ST AND 2ND YEARS OF HIGH EDUCATION INSTITUTIONS OF THE REPUBLIC OF TAJIKISTAN ON THE TOPIC «LEADERSHIP OF TAJIK WOMEN IN SCIENTIFIC AND TECHNICAL PROFESSIONS»

On the April 18, 2023, as part of the activities of WiN Tajikistan to encourage an interest in science among young people, the second stage of the Essay Contest on «Leadership of Tajik Women in Scientific and Technical Professions», for the students of first and second years of high education institutions of the Republic of Tajikistan, was held.

Academician Ulmas Mirsaidovich Mirsaidov, Doctor of Chemical Sciences, Professor, made a welcoming speech and highlighted the significant contribution of outstanding women scientists of the Republic of Tajikistan to the development and establishment of science.



Prof. Ulmas Mirsaidov talked about his experience in science, women scientists whom he worked with and who can be an example for the young generation of scientists. He also noted the importance of holding such events for young people.

Zarina Sayfieva, President of WiN Tajikistan spoke about the activities, aims and objectives of WiN Tajikistan, as well as the prospects for continuing scientific activities after graduating from higher education Institution.

The first stage of the competition was writing essays on the topic «Leadership of Tajik women in scientific and technical professions». There were 20 (twenty) female students of the 1st and 2nd courses from: the Russian-Tajik Slavonic University,



M.Osimi Tajik Technical University, Dushanbe branch of the Moscow State University, Abu Ali ibn Sino Tajik State Medical University, and the Tajik National University, who participated in it. The competent jury selected 10 (ten) papers according to the evaluation criteria of the papers, which had enough points to pass to the second stage.

The second stage of the competition was presentation of the essay and more detailed discussion on the topic. Dr. Abdullaeva Saodat, the chair of the jury, scientific secretary of the Attestation Commission for certification of scientific and scientific-pedagogical personnel of higher qualification of the Republic of Tajikistan, executive secretary of the journal “Izvestiya” of TNAS introduced participants the criteria of the presentations evaluation.

The contest participants prepared interesting presentations about such prominent women scientists as Gulchehra Kokhirova, Galina Vysokovskaya, Maksuda Abdusalyamova, Muazzama Murakilova, Ilaria Raikova, and others. Working on their essays, some of the contestants were so interested with life and scientific activities of the selected women scientists that decided to meet with them, take a personal interview and get acquainted with some of the facts of their biography, which is not known to the public. Such stories made the presentationseven more interesting and entertaining.



Four contestants took prizes in the second stage of the Contest:

Yelizaveta Siroshenko - first place;

Anisa Muhammadkarim - second place;

Anisa Muminova and Nozia Alinbekzoda - third places.

Presentation outside the Contest was made by a 9th class student of the Lyceum of the Lomonosov Moscow State University branch in Dushanbe Azizova Nilufar on the topic «Bullying as a social and public problem».

All participants were awarded certificates of participation and memorable gifts.

Finally, Prof. Umarova Tatyana expressed her gratitude to the Agency for CBRN Safety and Security and the president of WiN Tajikistan for organizing the contest and reminded the young generation of the importance of remembering their teachers and learning about the lives and activities of scientists who dedicated their lives to science.

PARTICIPATION OF WiN TAJIKISTAN MEMBERS IN THE «KOLBA» AWARD AND FORUM

On the April 21, 2023, for the second time, the «KOLBA» Award and Forum for Women Scientists and Specialists from variousprofessional fields was held with the support of «Women in Nuclear Industry» Foundation for Professional Initiatives. 340 scholars and specialists have participated the forum.

The Opening Ceremony of the forum began with welcoming remarks by the artificial intelligence robot «Masha» and the founder of the «Atomic Energy 2.0» science portal, Alena Yakovleva.

Evgeniya Enshina, Head of the National Chapter of Women in nuclear (WiN) Russia of the International Movement WiN Global, founder of the KOLBA Award and Forum, then seized the initiative. Evgeniya noted:

«the main objective of the «Kolba» project is to popularize science in Russia, create role models for future women scientists, build human and intellectual capital in the country, highlight scientific achievements and developments, share experience and knowledge, and strengthen career opportunities for women scientists and create a positive image of a Russian scientist abroad».



The Business Agenda of the forum began with speeches by Oksana Voloshina, Evgeniya Enshina, and Zarina Sayfieva, President of WiN Tajikistan. Each of them highlighted the importance and significance of the award for Russian women

scientists. Zarina noted:

Today, through such activities as the «Women in Science and Technology Forum» and the «Kolba» Awards, the future of women scientists looks incomparably more optimistic than it was a few years ago. The gender gap in science, technology, engineering and mathematics continues to narrow. There is every reason to believe that it will disappear completely in the near future, mainly thanks to the current trend towards an increasing number of women scientists. A number of factors are contributing to this, which means that in the very near future we will be witnessing some incredible discoveries made by our female contemporaries.

Following this, a plenary session entitled «Science today - work on mistakes or a new round of development? » was held with speakers discussing that science today is a process of constant development and improvement. Even in areas where scientific research is focused on work on mistakes, the scientists are constantly looking for new solutions and approaches to improve existing technologies. Thus, Science today can be seen as a combination of work on mistakes and a new round of development.

The forum’s operating agenda ended with a lecture on digital ethics presented by Tatyana Baranova, business-ethics expert.





The «KOLBA» Awards Ceremony https://t.me/kolba_science took place in the second part of the program in 17 categories and 3 special categories.

There were greeting speeches by Olga Tryaskova and Inna Belyaeva, award sponsor Natalia Narcissova, editor-in-chief of «Alpina non-fiction» publishing house and Anastasia Perzhakova, «Kolba» award ambassador in Ulan-Ude. This year applications were accepted from 60 cities of Russia and 4 CIS countries have participated in the nomination «Science without Borders». Overall, the experts of the Foundation determined the finalists of the competition for the Award - a distinctive sign «Kolba», encrusted with a precious stone, and a certificate.

Representatives of four CIS countries - Kyrgyzstan (Bishkek), Tajikistan (Dushanbe), Uzbekistan (Bukhara, Tashkent, Namangan) and Kazakhstan (Almaty) were elected as winners of the Special nomination «Science without Borders».

The Republic of Tajikistan has been represented by Dr. Zumrat Ghaibullaeva, active member of the National Chapter WiN Tajikistan of WiN Global, Doctorof Chemistry, and Associate Professor of M.S.Osimi Tajik Technical University.

SCIENTIFIC AND PRACTICAL SEMINAR ON «FUNCTIONAL NUTRITION AND ITS ROLE IN THE WORLD TODAY»

On the April 27, 2023, a joint scientific and practical seminar on «Functional Nutrition and its Role in the World Today» was held at the Tajik Technological University (TTU) within the bilateral cooperation between WiN Tajikistan and the Faculty of Engineering and Technology of TTU.

Dr. Sharofova Mizhgona, Vice President of WiN Tajikistan, delivered the opening remarks. In her speech, she noted that the functional food, which has a scientific basis, in addition to the traditional nutritional value, combines characteristic additional properties because it is obvious to all that a healthy diet is the basis of human health! The basis of good health and a healthy lifestyle is good nutrition - everything a person eats has an impact on his/her appearance and mood.

In 2019, the United Nations has declared 7 June as World Food Safety Day. The aim of this is not only to draw international attention to food issues, but also to improve global health through food safety.





Women scientists, representatives of WiN Tajikistan, made the presentations:

- Professor, Dr. Rustamova Mehriniso, Head of «Clinical Medicine» Department of TNAS, Laureate of E.N.Pavlovsky Award;
- Dr. Salibayeva Zainab, Chief Specialist of National Diagnostic Centre of Food Safety under the Government of the Republic of Tajikistan.

In addition, lectures on the topic of study the functional foods were given to professors and students of TTU.

The management of Tajik Technical University offered to conduct open lectures and classes for the students of this faculty by representatives of WiN Tajikistan. An initiative was also taken to start joint scientific cooperation of the WiN Tajikistan female scientists with TTU professor and teaching staff.

VISIT OF WIN TAJIKISTAN MEMBERS TO THE INDUSTRIAL PLANT, OJSC «AZOT» AND “SARBAND” HYDRO POWER PLANT OF LEVAKAND, KHATLON REGION

On the May 11, 2023, the members of WiN Tajikistan visited the Plant OJSC «AZOT» and the “Sarband” Hydro Power Plant in Levakand of Khatlon Region of the Republic of Tajikistan.

The purpose of the visit was:

- to promote the activities of women scientists and professionals from various fields of science and technology of WIN Tajikistan in cities and districts of the Republic of Tajikistan;

- forming scientific and cultural relations with women from other districts and cities of the Republic to further develop women’s initiatives and cooperation and enhance the role of women in society.

The relevance of the visit: Despite significant progress in achieving gender equality in Tajikistan in various fields, women still face discrimination in





professional fields, including science, technology and innovation. Therefore, the promotion of women engaged in these fields is an important and urgent task for building intellectual capital in Tajikistan.

After arriving at OJSC «AZOT», the WiN Tajikistan members were met by the technical director of the plant, Mr. Gadoev Tojiddin, who accompanied the group all the time of their stay at the plant.

According to the agenda of the visit, the General Director of the plant Mr. Umejon Sharipov, made a welcoming speech. He noted that the plant is the pioneer among large chemical enterprises in the Republic of Tajikistan. The plant started its work in 1967 with two production lines: ammonia producing thousand tons/year and urea 180.0 thousand tons/year. The plant produces urea for agriculture, carbon dioxide (CO_2) for food industry and technical needs, gaseous oxygen (O_2) for medicine and metal welding, liquid nitrogen (N_2) for livestock farming, liquid ammonia (NH3) for industrial refrigeration plants. OJSC «AZOT» products are sold not only within the country, but also are exported beyond its borders to far and near abroad. During his speech, Mr. Sharipov told about the engineering and technical staff, including the activities of women working at the plant and their contribution to its development.

Mr. Umejon Sharipov noted that this year, the Founder of Peace and National Unity, Leader of the Nation, President of the Republic of Tajikistan, His

Excellency Emomali Rahmon has visited the plant and positively assessed the work on repair and modernization of production.

The modern control systems «Centum VP» and «ProSafe RS» have been installed at the plant. Control and measuring equipment and emergency protection systems have also been completely replaced at production facilities using equipment from world-renowned companies, including «Siemens», «Samson», «Emerson», «Metran» and ABB. During the visit, the Head of Republic has got acquainted with the production process, operation of modern equipment and established technologies and has drawn the attention of the industry managers to the production of high quality products and training of young qualified specialists.



Ms. Bunafsha Fayziddinzoda, the Mayor of the Levakand city, was also attended at the meeting. She highlighted the role of women and youth in the development of the city, and especially emphasized the activities of women in the industrial enterprises of the region. Ms. Bunafsha Fayziddinzoda noted the importance of strengthening cooperation of women and youth with scientific organizations of the Tajikistan National Academy of Sciences and higher educational Institutions of the country.

Dr. Gaibullaeva Zumrat has presented the purpose of the visit of WiN Tajikistan members, the role of women scientists of the Republic of Tajikistan in the development of science, as well as her teaching activities on training of OJSC “AZOT” staff.

Sayfieva Zarina, President of WiN Tajikistan mentioned the history of foundation, activity and goals of the National Chapter. She thanked the management of the industrial enterprise OJSC «AZOT» and Government of Levakand city for facilitating the organization of the meeting between the women of WIN Tajikistan and representatives of the enterprise. She stressed the importance of forming scientific and cultural relations with the representatives of the enterprise and the region.

Drs. Khakimova Nodira, Gaibullaeva Zumrat, Mamadyusufova Menu and Abdullaeva Saodat, members of WIN Tajikistan discussed the possible ways and means of cooperation.

At the end of the meeting, Zarina Sayfieva presented commemorative gifts to the management of OJSC «AZOT».

A working meeting was held at the production site with women working in the factory as part of the tour of the facility.



The women who took part in working meeting:

Ruzieva Shokhida - automation and process control engineer;

Rakhimova Suraye – apparatus user of «Natural gas purification» workshop;

Naimova Raikhongul - master of relay protection and automation of technological production processes;

Yusupova Bakhti and Isoeva Farzona – apparatus users at Urea workshop;

Yakhyoeva Niso - head of production laboratory;



Mahmadalieva Shahlo and Dzhurahonova Sobira - laboratory technicians at the Water Treatment shop;

Kirdlyashkina Anna - design technician;

Muzaffarova Mamagul - master of Ammonia production shop;

Rakhimova Mehrinisso - air separation workshop technician at the plant.

They presented their activities, production and personal achievements. During the discussion they also spoke about increasing women's involvement in production and staff training, as well as expressing their interest in working together with WIN Tajikistan.

After a technical tour on OJSC «AZOT», WiN Tajikistan members visited the "Sarband" Hydro Power Plant(HPP).

The Director General Mr. Jamshed Makhmadkhonov welcomed the group at the "Sarband" HPP. During the meeting, he mentioned that "Sarband" hydroelectric power plant with a design capacity of 240 MW is the fifth large energy facility in operation on the Vakhsh River of the Republic of Tajikistan.

The construction of the hydropower plant, based on the Sharshara plant, started back in 1956 and its first unit was commissioned in 1962. At present, the Sarband Hydro Power Plant employs 162 workers, including 25 women, and has an engineering staff of 75. In order to ensure the safety and reliable use of the hydropower plant, shore protection works are being carried out in the link canal and it is planned to pour concrete from 455m to 460.5m in the volume of

1800m^3 with a length of 90m.

During the meeting, the WiN Tajikistan members asked Mr. Jamshed Makhmadkhonov about scientific implementations in plant operation, safety and seismic resistance, as well as women's contribution to the power plant and cooperation.

Sayfieva Zarina invited scientific and technical staff, including women working at the hydropower plant, as well as management to participate in the International Conference "Women in Science, Innovation and Technology Development" to be held in August 2023.



CHARITY EVENT DEVOTED TO THE INTERNATIONAL CHILDREN'S DAY

On May 25, 2023, WiN Tajikistan's members organized a charity event for children with disabilities undergoing rehabilitation at the State Institution "Educational and Practical Complex of Social and Innovation Work".

Every day, about 50-60 children with various disabilities - physical and mental (cerebral palsy, Down syndrome, autism and others) receive help and undergo rehabilitation at the center in the format of a day center - that is, mothers with children come at 7 am and leave at 18.00. Children from 0 to 14 years old are accepted.

As part of rehabilitation, children undergo therapy with highly qualified specialists of the center. They receive a massage, develop fine motor skills, work with a speech therapist, and undergo various exercises on special simulators.

The management of the State Institution "Educational and Practical Complex of Social and Innovation Work", specialists, as well as parents of children with disabilities expressed deep gratitude to WiN Tajikistan and the Agency for CBRN Safety and Security of TNAS for the assistance provided.



SEMINAR “PALLIATIVE CARE ISSUES IN TAJIKISTAN”

On the June 30, 2023, as part of the activities of WiN Tajikistan a seminar on the topic: “Palliative care Issues in Tajikistan” was held.

The speaker was Dr. Abidzhanova Nigora, a consultant-expert of the National Association of Palliative Care of the Republic of Tajikistan, assistant of the Department of Oncology and Radiation Therapy of Abuali ibn Sino Tajik State Medical University.

The World Health Organization (WHO) defines it as follows: Palliative care is an approach aimed at improving the quality of life of the patient and his family facing a life-threatening illness.



In her presentation, Nigora Abidzhanova spoke about the history of emergence of palliative care in the Republic of Tajikistan, legislation and regulatory documents, as well as acute problems with the provision of palliative care in Tajikistan, in particular, the acute shortage of painkillers.

Niolbi Khasanovna, Director of the Association of Nurses and Midwives, spoke about her experience of working with seriously ill patients, as well as practical issues of palliative care, including how to care for patients so that they do not have serious complications.

IV INTERNATIONAL SCIENTIFICAND PRACTICAL CONFERENCE «THE ROLE OF WOMEN SCIENTIST IN THE DEVELOPMENT OF SCIENCE, INNOVATION AND TECHNOLOGY»

On the August 15-17, 2023, the IV International Scientific and Practical Conference «The Role of Women Scientists in the Development of Science, Innovation and Technology» was held in Khudjand city (Sughd Region, Tajikistan) with participation of more than 100 scholars.

The conference was organized by:

- the Agency for Chemical, Biological, Radiological and Nuclear Safety and Security of the Tajikistan National Academy of Sciences;
- National Chapter of WiN Tajikistan under the Agency for CBRN Safety and Security of the Tajikistan National Academy of Sciences.

Presentations were made by women scientists, teachers, graduate students, postgraduates, undergraduates, and students representing various institutions and government agencies of the Republic of Tajikistan, including representatives of research institutes of the Tajikistan National Academy of Sciences, Academician M.S.Osimi Tajik Technical University, the National Centre for Food Security Diagnostics, the Institute of Biosafety Problems and Biotechnology of the Tajik Academy of Agricultural Sciences, the Russian-Tajik (Slavonic) University, the Branch of Lomonosov Moscow State University in Dushanbe, Abuali-ibn-Sino Tajik State Medical University, Institute of Economics and Demography of the Tajikistan National Academy of Sciences, Republican Oncological Research Centre of the Ministry of Health and Social Protection of the Population of the Republic of Tajikistan, A. Bakhoviddinov Institute of Philosophy, Political Science and Law of TNAS and others.

The conference was also attended by scientists from such international organizations as: WiN Global; WiN Russia; WiN Kyrgyzstan; WiN Uzbekistan; Lomonosov Moscow State University; Scientific Institution «Russian National Scientific Research Institute of Medical and Aromatic Plants», Moscow, Russia;

Federal State Budgetary Institution «State Scientific Center of the Russian Federation - Federal Medical Biophysical Center named after A.I. Burnazyan», Moscow, Russia; Centre for Development of Professional Qualification of Medical Workers of the Ministry of Health of the Republic of Uzbekistan, Tashkent, Uzbekistan; Mohamed V University, Rabat, Morocco and others.

During the conference, reports were listened to and discussed in the following sections:

- CBRN safety and security issues;
- Natural Sciences and Ecology;
- Women in Science and Gender Equality;
- Medicine;
- Actual issues of linguistics, pedagogy and law.

A collection of articles has been prepared and published for the commencement of the conference, in which more than 70 author's papers were presented.

RESOLUTION

on the results of IV International Scientific and Practical Conference

«The Role of Women Scientists in the Development of Science, Innovation and Technology»

(August 15 -17, 2023, Khudjand city, Republic of Tajikistan)

The following conclusions and recommendations were adopted based on the results of the sectional discussions:

- This conference is an international platform bringing together women





scientists from different fields of science, promoting the strengthening of network between research institutes of different countries, exchange of experience in nuclear and radiation safety, biosafety, mathematics and computer science, chemistry, biology, medicine, geology, ecology, and social sciences.

- The increasing role of women scientists in science, public and social areas was noted. Taking into account the wide range of scientific directions of the conference, the participants of the conference suggested to more widely apply the exchange of experience in research work and innovative achievements through the participation of students, young scientists, researchers, including men.
- It was recommended that research institutes work more closely with higher education institutions to attract girls to research activities in basic and applied sciences and to promote careers in nuclear and radiation safety, biosafety, biology, mathematics and computer science, chemistry, physics and technology, geology and medicine.
- Provide comprehensive support to young women scientists, postgraduates, and students; facilitate the exchange of knowledge, information and best practices, successful experience, achievements of women career development (experience of WiN Global member countries).



- To continue the implementation and improvement of approaches aimed at maintaining the continuity of professional knowledge and skills from specialists of the older generation to the younger generation.
- The conference participants recognized the IV International Scientific and Practical Conference «Role of Women Scientists in the Development of Science, Innovation and Technology» as a success.
- We express our deep gratitude to the management of the Agency for CBRN Safety and Security of the Tajikistan National Academy of Sciences for providing organizational and financial support for the conference.

CHARITABLE ASSISTANCE

At the end of August 2023, heavy rains and severe flooding occurred in Tajikistan,which caused many mudflows, landslides and rockfalls.

WiN Tajikistan's Members under the Agency for Chemical, Biological, Radiological and Nuclear Safety and Security of Tajikistan National Academy of Sciences decided to provide assistance to the two most affected families of the Gulpista mahalla of Varzob district, whose houses were damaged as a result of the flood.

On October 3, 2023, backpacks with school supplies for five children and food were given to the affected families.





VII ANNUAL COMPETITION OF PROJECTS ON INTERNATIONAL ACTIVITIES OF UNIVERSITIES IN RUSSIA AND THE CIS COUNTRIES “EEUA PRIZE 2023”

Participants of VII Annual competition and conference of the Association of Eastern European Universities (EEUA) were representatives of universities from Russia, Belarus, Tajikistan, Hungary, India, Iran, Brazil, Argentina, the United Arab Emirates, Ethiopia, Algeria, Mali, etc.

It is important to note that world-famous scientists studied at St. Petersburg Polytechnic University. The people who taught and studied there, had created the history and glory of the Polytechnic University for more than 100 years: Nobel Prize laureates P.L. Kapitsa, N.N. Semenov, Zh.I. Alferov, academicians A.F. Ioffe, I.V. Kurchatov, A.A. Radzig, Yu.B. Khariton, O.K. Antonov. St. Petersburg Polytechnic University includes 12 institutes; there is the St. Petersburg Polytechnic University History Museum - one of the largest university museums with an extensive collection of instruments from the late 19th - early 20thcenturies, unique objects of science and technology.



Tajikistan was represented by the only project “Popularization of natural sciences in Tajikistan and its integration into student life”, the manager of which is a member of WiN Tajikistan – Dr.Tatyana Umarova, Head specialist of the science department of the Dushanbe Branch of the Lomonosov Moscow State University.

It is gratifying to note that Umarova Tatyana’s project won in the “Development of Interuniversity Cooperation” nomination. The solemn ceremony of awarding the winners of the EEUA Award 2023 took place on October 4, 2023 in the new building Technopolis Polytech.

The EEUA Prize 2023 was established by the Association of Eastern European Universities(EEUA) and is an annual competition of university projects in the



field of internationalization of higher education in Russia and the CIS, thanks to which the best international university projects receive recognition and fame.

The presented project's content is aimed at strengthening research ties between universities of Tajikistan and partner countries, attracting more students to science, developing the creative potential of students, creating conditions for their scientific professional guidance from the very first days of studying at the university, a special place in the project focuses on the involvement of girls to science, their active participation in scientific events at various levels, which corresponds to the main activities of WiN Tajikistan.

30TH WiN GLOBAL ANNUAL CONFERENCE NOVEMBER 12-16, ASWAN, EGYPT

On the November 12-16, the 30th WiN Global Annual Conference on the theme "Women for sustainable Development of Nuclear and Radiation Applications" was held in Aswan (Egypt).



This theme has been chosen to allow integration of presentations from all applications of nuclear technology, from energy generation and developments in NPP technologies, to life-saving medical breakthroughs and radiation treatments. In the proven concept of this conference, further subjects comprise the presentation of new insights in radiation applications in nuclear medicine, biology, physics and radiation protection and food security.

This event offers the opportunity to bring together a broad spectrum of women and men experts for professional and multidisciplinary exchange of experience and expertise in this domain.

Sayfieva Zarina - the President of National Chapter-WiN Tajikistan of WiN Global, took part in the conference and made two reports "Report on the activities of the National Chapter-WiN Tajikistan" and "Latest developments in Safety, Security and Safeguards" based on the example of activities of Regional Educational and Training center on CBRN safety and security and WMD counter-terrorism.

An official announcement was also made for the WiN Global Conference to be held in 2027 in Dushanbe, Tajikistan and foundation of Women in Nuclear Central Asian Network (WINCA Network).

SEMINAR "INORGANIC CONSTRUCTION BIOMATERIALS"

On the November 21, 2023, as part of the activities of WiN Tajikistan on exchange of knowledge and experience, the Dushanbe Branch of the M.V.Lomonosov Moscow State University together with the Agency for CBRN Safety and Security of TNAS, as well as WiN Tajikistan, held a scientific seminar on the topic "Inorganic construction biomaterials" delivered by speaker

- Knotko Alexander, Doctor of Chemical Sciences, Professor of Faculty of Materials Sciences of the M.V.Lomonosov Moscow State University.

The director of the Dushanbe Branch of MSU Prof. Sergei Trofimov, made an opening speech, who noted that the seminar was organized as part of the implementation of the State program "Twenty years of study and development of natural, exact and mathematical sciences", the upcoming 270th anniversary of the Moscow State University and the 15th anniversary of the Dushanbe Branch





of M.V.Lomonosov Moscow State University.

The Science Workshop took place in the Agency for Chemical, Biological, Radiological and Nuclear Safety and Security of TNAS, brought together like-minded scientists from research institutes of the Tajikistan National Academy of Sciences, the Council for Coordination of Research and Development of TNAS, the Center for Research of Innovative Technologies of TNAS, teaching staff of the Faculty of Materials Sciences of the Moscow State University, Dushanbe Branch of M.V.Lomonosov Moscow State University, scientists from the Tajik National University, Abuali ibni Sino Tajik State Medical University, etc., the head of WiN Russia, Evgenia Enshina, took part online. It is pleasant to note that graduates of the field of study “Chemistry, Physics and Mechanics of Materials” of the Branch took an active part in the scientific seminar and discussions.

The seminar participants noted the relevance of this topic, the productivity and prospects for further joint scientific meetings, allowing them to learn about the latest innovative developments in the field of modern materials science, to have the opportunity to exchange ideas and discuss them.

INTERNATIONAL FORUM-DIALOGUE “WOMEN OF KAZAKHSTAN AND RUSSIA: THE ENERGY OF COOPERATION FOR THE SUSTAINABLE DEVELOPMENT OF HIGH-TECH INDUSTRIES”

On November 27, 2023, in Astana, the Association “Nuclear Society of Kazakhstan” and the Foundation for the Support and Development of Women’s Initiatives “Uniting Women in the Nuclear Industry” with the support of State Corporation “Rosatom” held the International Forum-Dialogue “Women of Kazakhstan and Russia: Energy of Cooperation for Sustainable development of high-tech industries. »

Muminova Mehrangez, press secretary of WiN Tajikistan, scientific secretary of the Agency for CBRN Safety and Security of TNAS, spoke as a speaker at the panel session “International Open Dialogue of Women in the Nuclear Industry.” In her speech, Muminova Mehrangez noted the importance of supporting women’s initiatives in the nuclear and radiation field and attracting the younger generation to this area.





The forum-dialogue brought together experts from high-tech industries, including the nuclear industry: representatives of the Department of Nuclear Energy and Industry of the Ministry of Energy of Kazakhstan, the Ministry of Education of Kazakhstan, the National Nuclear Center of the Republic of Kazakhstan, the KAZENERGY Association, the National Nuclear Center of the Republic of Kazakhstan, UzAtom, WiN Global Chapters from Tajikistan, Uzbekistan and Kazakhstan, University of Tunis El Manar (International Council for the Support and Development of Women in Industry and Technology), experts from Rosatom State Corporation, JSC OKB Gidropress, JSC Atomenergoproekt.

During the event, participants presented best practices for creating a comfortable environment for the professional development of women professionals, stimulating scientific activity, attracting the younger generation to STEM professions, as well as developing international dialogue in the scientific and technical field. The event became a platform for the exchange of experience between women experts in the nuclear and high-tech international communities on the use of innovative and technological developments to achieve sustainable development goals, including nuclear technologies.

EXCURSION FOR HIGH SCHOOL STUDENTS OF INTERNATIONAL SCHOOL “CONTOFIELD” TO THE REGIONAL EDUCATION AND TRAINING CENTER AND LABORATORY OF THE AGENCY FOR CBRN SAFETY AND SECURITY OF TNAS

On the November 29, 2023, as part of activities of WiN Tajikistan to encourage interest to the science among young people by the initiative of Ekaterina Don – the teacher of biology and geography the introductory tour was carried out to the Regional Educational and Training center on CBRN safety and security and WMD counter-terrorism and the laboratory of the Agency for CBRN Safety and Security of NAST for high school students of the International School “Contofield”.



The aim of the event was to familiarize students with scientific researches in the field of nuclear and radiation safety, methods of radionuclide monitoring of the biological environment of Tajikistan.

Zarina Sayfieva - Director of Regional Educational and Training center on CBRN safety and security and WMD counter-terrorism, President of WiN Tajikistan, told students about the main activities of the training center and the CBRN Safety and Security Agency.



Yana Dovgyallo - leading researcher of the Institute of Economics and Demography of the Tajikistan National Academy of Sciences, PhD, member of WiN Tajikistan, in her presentation "Fundamentals of Ecology," introduced students with global environmental problems and possible ways to solve them. During her speech, Yana focused on what each of us needs to change and how to organize our own relationship with the environment in order to minimize the anthropogenic load.

Boboerov Mehrovar, Ph.D., senior researcher at the laboratory of the CBRN Safety and Security Agency of the Republic of Tajikistan and Muminov Safarali, Ph.D., Head of the Patient and Public Exposure Control Sector, spoke about the research carried out in the laboratory, demonstrated modern equipment which has no analogues in the republic.

Boboerov Mehrovar emphasized that one of the main directions of lab work is radiation monitoring of the environment, and showed how soil, water, air samples are prepared for analysis. The Nuclear Forensics Laboratory, which assists in the investigation of crimes related to the illicit trafficking of nuclear material, aroused great interest among students.

The excursion turned out to be informative and interesting, allowing to take a fresh look at scientific research in the field of nuclear and radiation safety.

SEMINAR “WHAT IS A LEADERSHIP?”

On the December 1, 2023, within the framework of the activities of WiN Tajikistan, Dr. Nigora Abidzhanova, Head of the Branch/Country Representative of Tajikistan ICAP Global Health, has made a science report at a seminar on the topic “What is a leadership?”

Any person can be a leader, regardless of position; it is not need to become a manager to do this. Leadership skills are necessary for both managers and ordinary employees.

As Nigora noted, the eadership is the ability to inspire, captivate by example, motivate, find a common language, and take initiative and responsibility. The qualities of a leader are the so-called soft skills: charisma, empathy, the ability to listen and hear, creativity, responsibility, learning ability and the ability to transfer one’s knowledge, as well as the art of noticing talent in others and finding application for it, willingness to experiment and take risks and other similar qualities. Natural leaders have qualities that allow them to strengthen





each individual on the team and the group as a whole. They are interested in helping their team members develop and grow.

Nigora Abidzhanova, with the help of simple tasks, showed how you can identify leaders in a group, as well as how, using certain questions, you can determine the leader and boss.

ANNUAL MEETING OF WiN TAJIKISTAN MEMBERS

On the December 27, 2023, an annual meeting of WiN Tajikistan members devoted to summing up the results of the year took place.

Dr. Ilhom Mirsaidzoda, Director of the Agency for Chemical, Biological Radiological and Nuclear Safety and Security of Tajikistan National Academy of Sciences, Doctor of Technical Sciences highly appreciated the activities and achievements of the National Chapter WiN Tajikistan.



"I am proud that the National Chapter WiN Tajikistan is actively developing and this is recognition of importance of the role of women in the field of CBRN safety and security. Our community includes women who demonstrate outstanding professional skills, leadership and dedication. Women play a key role in science and technology - from research and engineering to safety and regulation. Women have undeniable potential and talent that needs to be developed and supported. They are capable of overcoming any obstacles and



achieving success in science, subject to equal opportunities and fair access to resources, and I, as the head of the CBRN Safety and Security Agency, am always ready to contribute in every possible way to this process," emphasized in his speech the Director of CBRN Safety and Security Agency of TNAS.

"Women in science are a huge force! Women made a large number of scientific discoveries, especially in the field of chemistry and physics. I can give several examples of outstanding women scientists, Nobel laureates - Marie and Irene Curie, who did a lot for the development of nuclear physics. Marie Curie became the first female laureate and remained the only one until 1935, when the Nobel Prize awarded her daughter Irene. Women really play a huge role in science and I am pleased to see the development of the WiN Tajikistan," noted academician Mirsaidov Ulmas Mirsaidovich, Doctor of Chemical Sciences, Professor, and Academician of the Tajikistan National Academy of Sciences.

Sayfieva Zarina – the President of National Chapter WiN Tajikistan, made a report on the activities of the chapter for 2023.

At the end of the meeting, the most active members were awarded with certificates of gratitude and memorable gifts.

CONTENTS

I. EVENTS GENERAL

Defence of a phd thesis by muminov safarali at the technical university of Tajikistan named after academician muhammad osimi. 178

Implementation of the IAEA project at the national food security diagnostic centre of the food security committee of the government of the Republic of Tajikistan 180

Director of the CBRN safety and security agency of TNAS became the winner of the environmental contest. 182

Sports event dedicated to the national military day..... 186

The start of rehabilitation works in the tailing dump of uranium industry waste in istiklol town of the Republic of Tajikistan. 187

Visit of schoolchildren from gymnasium no. 1 for talented children in dushanbe to the research laboratory of the chemical, biological, radiological, nuclear safety and security agency of the Tajikistan National Academy of Sciences. 192

National forum «stakeholder engagement for the remediation of uranium legacy sites in Tajikistan» 194

International scientific and practical conference «chemical, biological, radiological and nuclear safety and security: progress, challenges & ways forward» dedicated to 20th anniversary of the CBRN SSA. 196

Ceremonial meeting in honour of the 32nd anniversary of the state independence of the Republic of Tajikistan. 199

Participation in the 67th session of the general conference of the international atomic energy agency (IAEA). 202

Cultural event dedicated to the state language day..... 204

Celebration of the president day of the Republic of Tajikistan at the CBRN safetyand security agency of Tajikistan. 205

Celebration of national flag day of the Republic of Tajikistan at regional educational and training center on CBRN safety & security and wmd counter-te rrorism..... 207

CONTENTS

Joint watching of the live broadcast of the address of the founder of peace and national unity - leader of the nation, president of the Republic of Tajikistan, h.e. Emomali rahmon “on major dimensions of Tajikistan’s domestic and foreign policy”. 211

Annual CBRN safety and security agency meeting 2023. 213

II. SCIENTIFIC-RESEARCH WORKS

In 2023, the agency had been performed its scientific activities on the following scientific topics:..... 216

III. INTERNATIONAL COOPERATION

Official ceremony of handing over equipment to ssi «glasier research center of TNAS»..... 224

Official handover ceremony of military supplies to the state committee for national security of Tajikistan..... 227

Equipment handover ceremony and implementation of the international atomic energy agency project at the institute of veterinary medicine of the tajik academy of agricultural sciences..... 215

Center for glacier research of the Tajikistan National Academy of Sciences received from the IAEA a new device for conducting glacier researches in thefield conditions..... 218

The official ceremony of transferring toyota hilux cars to the state committee of national security of the Republic of Tajikistan..... 222

Official handover ceremony of radiation portal monitors for the detection of nuclear and radioactive materials to khujand international airport..... 228

Official ceremony of transfer of the x-ray diagnostic and radiotherapy equipment to the republican scientific oncological centre of the ministry of health and social protection of population of the Republic of Tajikistan..... 226

The first IAEA national liaison officers meeting in Tajikistan. 232

The official ceremony of handing over the ion chromatograph to the state scientific institution “center for glacier studies of the TNAS”..... 234

Official ceremony of handing over vehicles to the border troops of the state committee for national security of the Republic of Tajikistan as part of the implementation of the national action plan of the Republic of Tajikistan. 236

Official ceremony of handing over devices and equipment to the institute of botany, physiology and genetics of plants of the national academy of sciences of Tajikistan. 238

An official ceremony for transferring the ultrasound unit to the regional oncology hospital of kulob. 242

Meeting with specialists from the sughd regional oncology centre who have completed long-term training abroad within the framework of cooperation with the IAEA. 247

Center for glacier research of the Tajikistan National Academy of Sciences received from the IAEA a new device for conducting glacier researches in thefield conditions. 250

Official hand-over ceremony of vehicles to the department of special purpose units of the ministry of interior of the Republic of Tajikistan within the framework of the implementation of un security council resolution 1540. 255

IV. THE NATIONAL DEPARTMENT OF THE NUCLEAR LADY

Speech by a win Tajikistan on radio “khovar”. 245

Career guidance lessons for high school students. 261

International day of women and girls in science. 263

Speech by win Tajikistan member on the radio “khovar”. 265

Discussion the topics for scientific round tables by win Tajikistan’s women scientists. 268

Republican scientific and practical conference “the role of women in the development of exact sciences”. 269

Competition «national dishes». 271

A meeting dedicated to the third anniversary of formation of win Tajikistan. 273

CONTENTS

Seminar “environmental issues of uranium tailings in istiklol city” for high school students of the technical lyceum named after m. Osimi. 275

Round table on the topic “radiation safety in medicine and radiation therapy in palliative care»..... 277

Excursion to the regional training center and laboratory of CBRN safety and security agency of TNAS for the high school students of the lyceum boarding school «hotam & pv»..... 280

Charity event for children from the family and child support center..... 283

Moscow international salon of innovative technologies «archimedes»..... 284

MeetingofwinTajikistan’smembers. 285

Open lecture “interesting about solar radiation and current issues of skin cancer in the Republic of Tajikistan”..... 286

Essay contest for the 1st and 2nd years of higher education of the Republic of Tajikistan on the topic «women’s leadership in science and technology professions in Tajikistan»..... 288

Participation of win Tajikistan’s member in the «kolba» forum and awards.291

Scientific and practical seminar on «functional nutrition and its role in the world today». 294

Visit of win Tajikistan’s members to ojsc «azot» plant and “sarband” hydro power plant, in levakand of khatlon region..... 296

Charity event devoted to international children’s day 302

Seminar “issues of palliative care in Tajikistan”..... 303

Iv international scientific and practical conference «the role of women scientist in the development of science, innovation and technology»..... 305

Charitable assistance..... 309

VII annual competition of projects on international activities of universities in russia and the cis countries “eeua prize 2023”..... 310

Seminar“inorganicconstructionbiomaterials”. 313

International forum-dialogue “women of kazakhstan and russia: the energy of cooperation for the sustainable development of high-tech industries”. 315

CONTENTS

Excursion for high school students of international school “contofield” to the regional education and training center and laboratory of CBRN safety and security agency of TNAS. 317

Seminar “what is a leadership?”. 319

Annual meeting of win Tajikistan members. 321