

Sustainable Security of Radioactive Sources in Central Asia

**NTI-CENESS REGIONAL WORKSHOPS ON
STRENGTHENING THE SECURITY OF RADIOACTIVE
SOURCES IN CENTRAL ASIA**

Laura S.H. Holgate | Anton Khlopkov | Co-Chairs

December 2018



The Nuclear Threat Initiative (NTI) and the Center for Energy and Security Studies (CENESS) would like to acknowledge the generous contribution by the Government of Canada for the organization of the NTI-CENESS Regional Workshop on Strengthening the Security of Radioactive Sources in Central Asia. We also would like to thank the International Atomic Energy Agency for its cooperation with NTI and CENESS on this workshop.

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**Center for Energy
and Security Studies**
www.ceness-russia.org



NTI
BUILDING A SAFER WORLD

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Introduction

Central Asia—bounded by the Russian Federation to its north; China to its east; Iran, Afghanistan, and Pakistan to its south; and the Caspian Sea to its west—is a region home to thousands of radioactive sources, including those used for medical, scientific, and industrial applications. Those sources include radioactive materials that are encapsulated in solid form and can range from iodine seeds used for internal radiotherapy treatment to industrial irradiators—weighing several tons—used for large-scale sterilization at fixed facilities.

Radioactive sources can be found at hospitals in city centers, through which thousands of people pass daily, as well as highly remote locations, where individuals or small teams use portable devices for a variety of industrial purposes. Some radioactive sources are found in open facilities with minimal or no physical protection or trained on-site security forces. Largely as a result of poor chain-of-custody procedures and insufficient regulatory controls, thousands of radioactive sources have gone missing around the globe. Even in countries with effective regulatory controls in place, high disposal costs and a lack of repositories have led end users to abandon radioactive sources at the end of their life cycle. These are challenges that affect every region of the world, including Central Asia.



Largely as a result of poor chain-of-custody procedures and insufficient regulatory controls, thousands of radioactive sources have gone missing around the globe.

The International Atomic Energy Agency (IAEA) has developed a risk-based graded approach to security of radioactive sources, establishing five categories of sources that require different levels of protection depending on their radioactivity level. The first and second categories pose the highest risk. The first category requires the most stringent controls and includes radioisotope thermoelectric generators (RTGs), irradiators, teletherapy sources, and fixed, multi-beam teletherapy (gamma knife) sources. The second category includes industrial gamma radiography sources, high-/medium-dose-rate brachytherapy sources, and others. If such sources fall into the wrong hands, they can be used to create radiological dispersion devices (RDDs), more commonly known as “dirty bombs.” If detonated, a dirty bomb could release high doses of radiation in a concentrated area, triggering panic and rendering that area uninhabitable for an extended period of time—resulting in large economic losses and risks of cancer among people who were exposed. That is why radioactive sources require reliable protection, accounting, and control measures, as well as appropriate management after their decommissioning, regardless of where they are located and used.

The Nuclear Threat Initiative (NTI) and the Center for Energy and Security Studies (CENESS) sponsored a pair of regional workshops in Central Asia to foster dialogue among experts on the security of radioactive sources and measures to prevent their illicit trafficking. The workshops also served as an opportunity to bring together leading specialists from major international partners to discuss opportunities for enhanced coordination and new project development in the region.

The first regional workshop was held in May 2017 in Astana, Kazakhstan. This workshop, organized in cooperation with the IAEA and the Government of Kazakhstan, was the first of its kind to bring together experts from the region, the Russian Federation, the United States, and the IAEA to identify steps needed to combat the growing threat of radiological terrorism.

The workshop focused on two thematic areas:

- Strengthening efforts to secure (and when possible, eliminate or replace) radioactive sources
- Preventing illicit trafficking of these sources in the event they escape regulatory control

The workshop also addressed national and regional approaches to orphan-source recovery, as well as building regional capacity and coordination for radiological security and illicit-trafficking prevention.



The workshop was attended by experts from Kazakhstan, Kyrgyzstan, Tajikistan, Uzbekistan, the Russian Federation, the United States, and the IAEA. Participants included representatives from national regulators, energy authorities, health ministries, customs services, and border-guard services.

The second regional workshop was held in June 2018 in Bishkek, Kyrgyzstan. The Bishkek workshop, co-sponsored by the IAEA and the Governments of Canada and Kyrgyzstan, continued the format introduced in Astana in 2017, featuring presentations on the progress of security and management of radioactive sources in the region, as well as presentations on national efforts to prevent illicit trafficking of radioactive sources. This format provided an opportunity for security officials and practitioners from the region to exchange best practices and share lessons learned. The Bishkek workshop also featured presentations by experts from international partners, including the IAEA, Rosatom, Rostekhnadzor, the U.S. Department of Energy, the U.S. Department of State, Global Affairs Canada, and the Eurasian Economic Commission (EEC).

The workshop was co-chaired by NTI Vice President Ambassador Laura S.H. Holgate and CENESS Director Anton Khlopkov, and included more than 70 participants from all five countries of Central Asia (Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan), the Russian Federation, Canada, the United States, the EEC, and the IAEA.

Although the proceedings of the Bishkek workshop are restricted to the participants, the co-chairs of the workshop produced a summary, included in this report along with the workshop agenda and participants list. The co-chairs' summary identifies a series of recommendations based on the discussions at both the Bishkek and Astana workshops. An underlying recommendation of both workshops is to **establish a regular regional dialogue within Central Asia on the security of radioactive sources and prevention of illicit trafficking of these sources**. The workshops identified a number of opportunities for coordination among countries in the region and among international partners, and noted that in order to be effective, this coordination must be sustained through a regular dialogue bringing together all relevant stakeholders.

This brief report provides an overview of the IAEA categorization of radioactive isotopes, the co-chairs' summary of the most recent regional workshop, and other workshop materials. NTI and CENESS encourage experts from the region to use these materials to sustain effective security of radioactive sources and as the basis for continued regional dialogue on these important issues.

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Radioactive Isotopes of Concern

Considerably more prevalent than nuclear materials, radiological sources are used throughout the world for medical, industrial, agricultural, research, and other purposes. In 2005, the IAEA released a categorization table of radioactive sources. Sources are ranked based on “the radionuclide specific activity of a source which, if not under control, could cause severe deterministic effects for a range of scenarios that include both external exposure from an unshielded source and internal exposure following dispersal of the source material.” There are five categories of sources, with Category 1 sources requiring the most stringent safety and security measures, and Category 5 requiring the least stringent measures.

Under this categorization system, two types of risk are considered: the risk of handling or being close to the source and the risk associated with radioactive material being dispersed from a source. The IAEA’s Code of Conduct on the Safety and Security of Radioactive Sources also serves as a guide to define high-risk radiological sources that warrant enhanced security and protection. The Code’s grading system is intended to assist states in allocating scarce human and financial resources to the highest-priority risks. Most countries use this categorization scheme to develop national-level regulations.

The four radionuclides in Figure 1 represent 99.9 percent of all IAEA Category 1 and 2 sources and should be accorded the highest priority for national security efforts due to the sources’ commercial availability, high radioactivity, and dispersibility.

Figure 1 **Highest Risk Radioactive Sources**



The Threat of Radiological Terrorism

As a result, dirty bombs are often referred to as “weapons of mass disruption.”

Terrorists cannot build an RDD unless they acquire the necessary materials to do so. It is therefore important to effectively secure all high-activity radiological sources. While only a limited number of countries maintain stockpiles of fissile material suitable for nuclear weapons—highly enriched uranium (HEU) and separated plutonium—radioactive materials are routinely stored and used throughout the world. Today, tens of thousands of radiological sources are located in more than 100 countries around the world.

Moreover, the threat environment is worsening, as the world experiences brutal attacks by terrorist groups such as al Qaeda and the Islamic State of Iraq and al-Sham. Terrorist groups have expressed an interest in acquiring the necessary radioactive materials to make dirty bombs, and they would not hesitate to use the devices if they did acquire those materials. Terrorist organizations could exploit lapses in physical protection and exploit criminal trafficking networks to smuggle radiological materials.

The IAEA Incident and Trafficking Database (ITDB) was established in 1995 to record incidents of illicit trafficking of nuclear and other radioactive materials. As Figure 2 illustrates, as of 31 December 2016, the ITDB contained a total of 3,068 confirmed incidents reported by participating states since 1993. Of these 3,068 confirmed incidents, 270 incidents involved a confirmed or likely act of trafficking or malicious use; 904 incidents did not have sufficient information provided for a determination to be made whether they were related to trafficking or malicious use; and 1,894 incidents were not related to trafficking or malicious use. Figure 3 shows incidents between 1993 and 2016 that involved confirmed or likely acts of trafficking or malicious use, based on data reported to the ITDB.

Figure 2 **Categories of Incidents Reported to the IAEA**

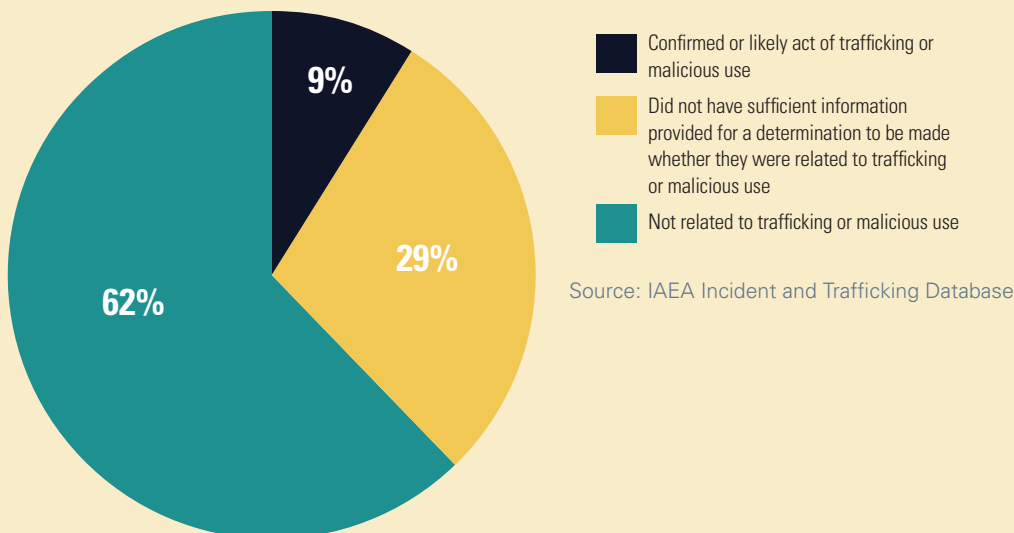
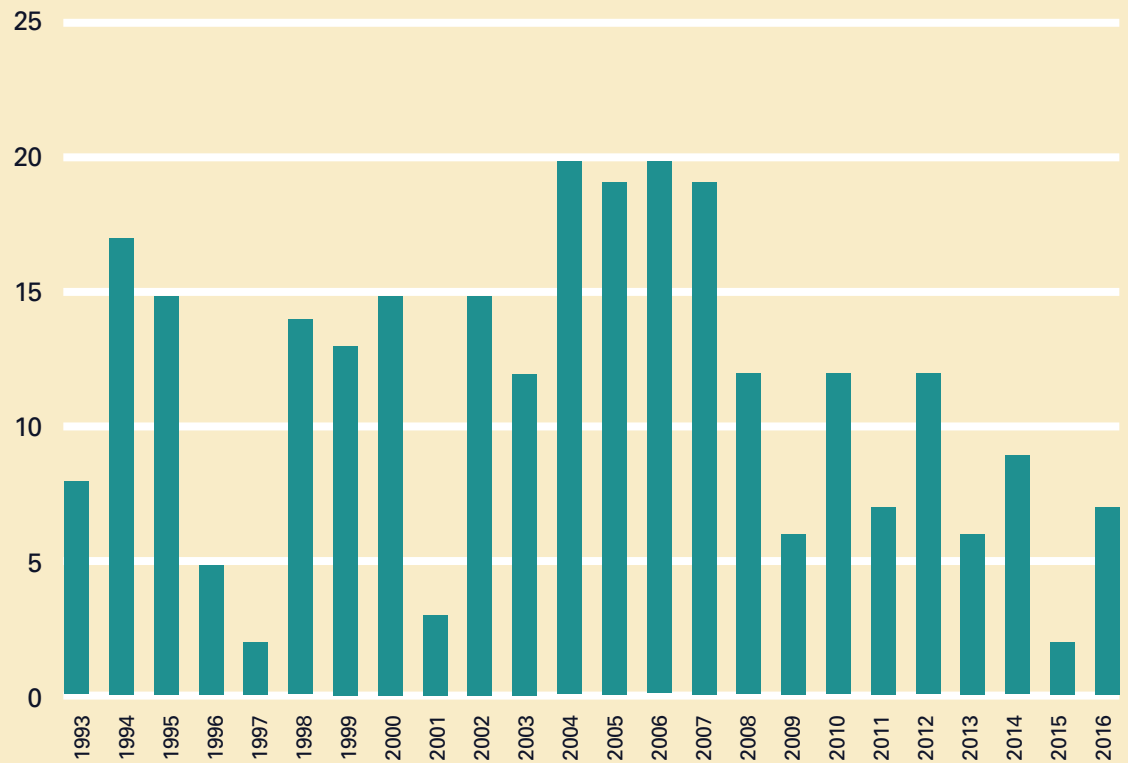


Figure 3 Incidents Related to Trafficking or Malicious Use, 1993–2016



Source: IAEA Incident and Trafficking Database

Unlike a nuclear weapon, a dirty bomb would not cause catastrophic levels of death and injury, but depending on its chemistry, form, and location, it could leave billions of dollars of damage due to the costs of evacuation, relocation, and cleanup—and the inevitable follow-on threats could have severe economic and psychological repercussions. Buildings could have to be demolished and the debris removed. Access to a radiation-contaminated area could be denied for years while the site is cleaned up well enough to meet even minimum environmental guidelines for protecting the public. As a result, dirty bombs are often referred to as “weapons of mass disruption.”



Co-Chairs' Summary, June 2018 Bishkek Workshop

The 2nd Regional Workshop on Strengthening Security of Radioactive Sources in Central Asia was held on 20–22 June 2018 in Bishkek, Kyrgyzstan. The workshop was co-organized by the Nuclear Threat Initiative (NTI) and the Center for Energy and Security Studies (CENESS), in cooperation with the International Atomic Energy Agency (IAEA), and the Governments of Canada and Kyrgyzstan.

The workshop provided an interactive framework for discussing opportunities to improve radioactive source security in Central Asia, including strengthening security of radioactive sources, developing threat-reduction strategies for end-of-life management of radioactive sources, and bolstering national and regional capacity for the prevention and interdiction of illicit trafficking of radioactive sources. The two-day workshop included more than 70 participants from Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan, the Russian Federation, the United States, Canada, the IAEA, the Eurasian Economic Commission (EEC), and other institutions and organizations.

The workshop brought a diverse group of participants together to discuss and share national experiences in two thematic areas—security of radioactive sources and the detection of radioactive sources out of regulatory control. The workshop model—which brought together regional neighbors, international partners and the IAEA, and integrated the prevention and detection communities—provided a unique forum for networking, sharing best practices, and improving coordination in related areas. The agenda and participants list are included as annexes to this report.

Participants at the second NTI-CENESS Regional Workshop, June 2018, Bishkek, Kyrgyzstan



The workshop provided an interactive framework for discussing opportunities to improve radioactive source security in Central Asia.

The workshop explored opportunities to strengthen security of radioactive sources in Central Asia by:

- Identifying priorities among the countries of the region to eliminate, secure, or replace the most vulnerable radioactive sources in the region—and to bolster national and regional capabilities (equipment, training, capacity) to deter, detect, and interdict illicit trafficking of such sources throughout the region;
- Enhancing awareness of work being done by Central Asian governments on prevention and detection of illicit trafficking of radioactive sources;
- Enhancing awareness of regional work being done by international partners on prevention and detection of illicit trafficking of radioactive sources;
- Enhancing awareness of opportunities for collaboration on projects with other Central Asian countries or international partners; and
- Establishing an enduring regional model for future cooperation and assistance for reducing the risks associated with malicious use of radioactive sources.

The following Co-Chairs' Report represents a high-level summary developed by the organizers. It is not meant to represent a consensus document of the participants or their respective affiliations, but draws on the discussions and presentations delivered at the workshop.

The workshop participants requested that this Summary reflect the participants' gratitude to NTI and CENESS for their effective organization of the workshop.

KEY HIGHLIGHTS

Sustaining a Regional Model for Cooperation

Noting the effectiveness of the regional model established by these two meetings, workshop participants voiced support for **sustaining a regional dialogue** on the security of radioactive sources and prevention of their illicit trafficking, involving the countries of the region and current partner countries and organizations, as well as other potential partners. It was emphasized that the continuation of a regional dialogue creates unique opportunities for coordination, best-practice exchange, information sharing, and the identification of opportunities for international partnership on projects.

Towards this end, the Co-Chairs emphasized the importance of continuing regular regional meetings, perhaps under the auspices of the International Atomic Energy Agency and rotating these meetings among the countries in the region. These meetings should include partner countries, as well as international organizations and intergovernmental unions involved in strengthening regional capacity, such as the IAEA,



INTERPOL, the United Nations, the Commonwealth of Independent States, the Eurasian Economic Union, and the European Union.

Toward this end, it was suggested that informal coordination meetings could be held on the margins of key conferences, including the Annual Regular Session of the IAEA General Conference, the IAEA International Conference on the Security of Radioactive Material: The Way Forward for Prevention and Detection (3–7 December 2018), and/or the 2019 Moscow Nonproliferation Conference (14–16 November 2019). The meetings could highlight the successes of both the 2017 Astana and 2018 Bishkek workshops and create opportunities to discuss options for sustaining regional dialogue on security of radioactive sources in future years.

Support for IAEA Instruments and Services

It was noted that Central Asian States have an opportunity to continue building their regional connections by participating in IAEA and other international meetings on security of radioactive sources and find opportunities to engage in related multilateral frameworks.

While security of radioactive sources is the responsibility of individual countries, the IAEA provides a global platform through which countries can cooperate to minimize the risk of radioactive sources being used in a malicious way. Upon member state request, the IAEA offers assistance, expert advice, equipment, and training, and serves as a central platform for international engagement.

Central Asian States were encouraged to support and endorse all requirements under the IAEA Code of Conduct on the Safety and Security of Radioactive Sources, as well as the Supplemental Guidance on the Import and Export of Radiological Sources and the Guidance on the Management of Disused Radioactive Sources, all of which provide international guidance on all aspects of security of radioactive sources. While recognizing that the Code is not a legally binding instrument, it was stressed that all States should write to the IAEA expressing their full support of the Agency's efforts to enhance the safety and security of radioactive sources, and stating that they are working toward following the guidance contained in the Code.

International treaties, such as the Convention on Early Notification of a Nuclear Accident and the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency, require the notification of radiological events that may affect neighboring countries. Countries of the region that have not yet done so were encouraged to sign up to those conventions (see Annex 3 for a list of legal instruments and international guidance documents).

Central Asian States also may request, on a voluntary basis, to participate in the IAEA's Nuclear Security Advisory Service (INSServ). This advisory service produces a confidential report that, once agreed to by the requesting State, serves as a basis

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Central Asian States may also choose to participate, on a voluntary basis, in the IAEA's other advisory services related to security and management of radioactive sources.

for nuclear security cooperation between the IAEA and the State and contributes to the development and implementation of an Integrated Nuclear Security Support Plan (INSSP). Such plans review States' overall and specific needs in terms of capacity to prevent, detect, and respond to criminal and intentional unauthorized acts involving nuclear or other radioactive material out of regulatory control. Central Asian States may also choose to participate, on a voluntary basis, in the IAEA's other advisory services related to security and management of radioactive sources.

Voluntary involvement in other related initiatives and partnerships with other international organizations such as the Global Initiative to Combat Nuclear Terrorism (GICNT), INTERPOL, the United Nations Office on Drugs and Crime (UNODC), and the World Institute for Nuclear Security (WINS) can help build national and regional capacities.

Support for IAEA Information Circulars

The following IAEA Information Circulars (INFCIRCs) are related to the scope of the workshop and are available for any IAEA member state to voluntarily subscribe to their provisions:

- INFCIRC/869—Joint Statement on Strengthening Nuclear Security Implementation
- INFCIRC/904—Joint Statement on Nuclear Terrorism Preparedness and Response
- INFCIRC/905—Joint Statement on National Nuclear Detection Architectures
- INFCIRC/910—Joint Statement on the Security of High Activity Radioactive Sources
- INFCIRC/918—Joint Statement on Countering Nuclear Smuggling

Support for Increased Engagement in Radioactive Source Security Fora

The IAEA has many relevant meetings and regular fora to encourage member state participation in all aspects of radioactive source security. Central Asian States should take advantage of opportunities to participate in the IAEA Working Group on Radioactive Source Security (WGRSS), annual IAEA Code of Conduct meetings, and the December 2018 International Conference on the Security of Radioactive Material: The Way Forward for Prevention and Detection.

Opportunities for international engagement also include the Commission of the Member States of the Commonwealth of Independent States (CIS) on Peaceful Uses of Atomic Energy (CIS-Atom).



Support for National Measures to Strengthen Radioactive Source Security

Countries in the region should synergize efforts and collaborate in regional training opportunities through established regional training in topics of radioactive source security. Coordination among training centers can provide additional opportunities for national and regional training, the exchange of training curricula, and related efforts to sustain equipment and knowledge. The IAEA's regular coordination meetings of Nuclear Security Support Centers and related training centers, some of which cover the issues of security of radioactive sources, offer an additional opportunity to share knowledge with over two dozen centers and training providers around the world.

The following training centers were highlighted in national presentations that serve the region:

- Kazakhstan Nuclear Security Training Center—Almaty, Kazakhstan
- Kyrgyzstan Center for Professional and Canine Training—Bishkek, Kyrgyzstan
- Tajikistan Regional WMD Non-Proliferation and Export Control Training Center for Countries of Central Asia, Caucasus, and Afghanistan—Dushanbe, Tajikistan
- EU Regional Secretariat of Chemical, Biological Radiological and Nuclear (CBRN) Risk Mitigation Centre of Excellence in Central Asia—Tashkent, Uzbekistan
- Rosatom Technical Academy (Rosatom Tech)—Obninsk, Russia
- National Research Nuclear University (MEPhI)—Moscow, Russia
- Training Centers for Customs Control of Fissile and Radioactive Materials of the Russian Customs Academy—Saint Petersburg, Rostov, and Vladivostok, Russia

Discussions on strengthening security of radioactive sources also focused on enhancing regulations, physical security measures at facilities with IAEA Category 1 and 2 sources (highest risk materials), transportation security, national inventory management, human capacity building and security culture, end-of-life management, and alternative technologies. The following are the key concepts from the workshop, dedicated to preventive measures related to security of radioactive sources:

- Finalize legal and regulatory documents relevant to physical protection of radioactive sources in use, storage, and transport.
- Keep national legislation up to date with international guidelines and commitments. Regulations should be adaptable to evolving threat environments and a national threat assessment and/or design basis threat (DBT).
- Strive to harmonize national regulations and practices with IAEA security recommendations and guidance documents, taking note of guidance documents published by the IAEA.

The IAEA's regular coordination meetings of Nuclear Security Support Centers and related training centers... offer an additional opportunity to share knowledge with over two dozen centers and training providers around the world.



Establish a national policy for the management of Disused Sealed Radioactive Sources

- Establish a regional website that serves as a regional reference for national legislation.
- Track sources throughout their life cycle and update national source-tracking registries. Utilize established IAEA software tools for the management of regulatory information and inspection activities.
- Bolster security for transportation of radioactive sources, to include the security of mobile radioactive sources used in industry.
- Consider replacing radioactive sources with alternative (non-radioactive) technologies, where technically possible and economically feasible, and where there are viable non-radioactive technologies.
- Request international assistance, when necessary, for training personnel in operating new equipment.
- Establish protocols or bilateral arrangements with neighboring/originating countries for the repatriation of disused radioactive sources or radioactive sources in transit.
- Explore opportunities to promote security culture within government, medical, research, and industrial organizations dealing with radioactive sources.
- Establish a national policy for the management of Disused Sealed Radioactive Sources. All countries using nuclear technologies have a responsibility to establish and implement comprehensive radioactive waste management strategies, with disposal as their endpoint. It was noted that the IAEA provides access to the latest relevant information, so that Member States are better supported in making informed decisions.
- Establish national strategies to address orphan radioactive source and search-and-recovery campaigns.

Participants noted that addressing the above measures requires strong and sustained collaboration, coordination, and relationship-building among national governments, regulatory bodies, and operator organizations, as well as other stakeholders inside and outside governments. To be effective and sustainable, these relationships must include a combination of steps so that all responsible organizations have the necessary motivation, knowledge, and resources to establish (if they have not yet been established), implement, and strengthen national regulations on security of radioactive sources.

Support for National Measures to Strengthen Capabilities for Detection of Radioactive Sources Out of Regulatory Control

Discussions on detection of radioactive sources out of regulatory control as part of broader efforts on prevention of illicit trafficking of nuclear and radioactive materials, included installation and maintenance of radiation portal monitors, deployment of



mobile radiation detectors, regulations, training, and sustainability of related efforts. The following are the key takeaways:

- Develop a national detection strategy based on a national threat assessment, that includes all relevant intelligence, customs, border, law enforcement, regulatory, and emergency response agencies, and clearly outlines individual agency roles and responsibilities when responding to incidents of radioactive sources out of regulatory control. The strategy should also specify national needs in deployment of detection equipment, including technical specifications and requirements for such equipment based on their country-specific needs and practices.
- Review and update national legislation and regulations to create a legal framework to prevent, interdict, investigate, and prosecute illicit trafficking of radioactive sources. Effective legal and regulatory framework serves as the basis for the implementation of the national detection strategy.
- Complete installation of radiation detection equipment (as appropriate) at border crossings and at the critical infrastructure facilities inside the country and, if necessary, solicit international support for completion of this installation. In order to maximize detection capability effectiveness, countries should ensure integration of this equipment into unified information and management system. Such integration should be considered in selecting manufacturers.
- Increase deployment of mobile detection equipment, particularly at long stretches of “green borders.”
- Increase and sustain detection capabilities within a country’s interior.
- Sustain national radioactive source illicit trafficking detection capabilities, including through routine maintenance and repair services and creating a regional maintenance center (or centers) in order to meet a demand for such services.
- Continue to look for strategic synergies in radiation detection portal border monitoring among neighboring countries to avoid redundancies and improve efficiencies.
- Develop (or utilize existing) legal arrangements/operational procedures for cross-border transfer of information pertinent to interdiction of illicit trafficking of radioactive sources, as well as return of identified/recovered sources to country of origin (repatriation) and transit.
- Conduct regional cross-border exercises (including tabletop exercises) involving representatives from countries of the region and their neighboring states and, where possible, international partners.
- Share information on incidents involving radioactive sources out of regulatory control through the IAEA’s Incident and Trafficking Database and INTERPOL’s Project Geiger Database.

**Increase
deployment of
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particularly at
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“green borders.”**



Annex 1: Agenda, 2nd Regional Workshop on Strengthening Security of Radioactive Sources in Central Asia

Organized by the **Nuclear Threat Initiative** and the **Center for Energy and Security Studies**, in cooperation with the **International Atomic Energy Agency** and the **Governments of Canada and Kyrgyzstan**

Jannat Resort Hotel ▪ Bishkek, Kyrgyzstan

Objectives

- To assess progress achieved since the May 2017 NTI-CENESS regional workshop in Astana, Kazakhstan to strengthen security and management of radioactive sources in Central Asia and bolster efforts to prevent illicit trafficking of nuclear and radioactive materials.
- To develop an action plan for strengthening regional coordination on security of radioactive sources and prevention of illicit trafficking of nuclear and radioactive materials.

Wednesday, 20 June 2018

18:00–22:00 Registration

19:30–21:30 Opening reception

Thursday, 21 June 2018

8:00–8:45 Breakfast

8:45–9:30 **Welcome & Overview of Objectives**

Taalaibek Asylbekov, *State Secretary, State Inspectorate on Environmental and Technical Safety, Kyrgyz Republic*

Ambassador Laura S.H. Holgate, *Vice President, Nuclear Threat Initiative (NTI)*

Anton Khlopkov, *Director, Center for Energy and Security Studies (CENESS)*

Julia Cloutier, *Counsellor (Political), Embassy of Canada in Kazakhstan*

Ian Gordon, *Section Head, International Atomic Energy Agency (IAEA)*

9:30–10:00 **Presentations by Workshop Organizers**

Dmitry Konukhov, *Senior Research Associate, CENESS*

Ioanna Iliopoulos, *Senior Consultant, NTI*



- 10:00–10:45 **Country Presentations: Efforts to Strengthen Security and Management of Radioactive Sources**
Marat Isakov, Head, Department of Nuclear and Radiation Safety, State Inspectorate on Environmental and Technical Safety, Kyrgyz Republic
Ilkhom Mirsaidov, Director, Nuclear and Radiation Safety Agency, Tajikistan
- 10:45–11:15 Coffee break
- 11:15–12:00 **Country Presentations: Efforts to Strengthen Security and Management of Radioactive Sources**
Bauyrzhan Mukanov, Head, Department of Materials Control and International Safeguards, Committee for Atomic and Energy Supervision and Control, Ministry of Energy, Kazakhstan
Adolat Orifjanova, Head Specialist, Sectoral Inspectorate for Atomic Oversight, Sanoatgeokontekhnazorat, Uzbekistan
- 12:00–13:00 Lunch
- 13:00–14:00 **Presentations by International Partners on Regional Efforts to Strengthen Security and Management of Radioactive Sources**
Ambassador Mikhail Lysenko, Advisor, CENESS
Konstantin Lavrov, Head of Information Integration and Analysis Department, National Operator for Radioactive Waste Management, State Atomic Energy Corporation Rosatom, Russian Federation
Sarah Norris, Country Officer, Office of Radiological Security, National Nuclear Security Administration, U.S. Department of Energy
- 14:00–14:15 Coffee break
- 14:15–15:30 **Presentations by International Partners on Regional Efforts to Strengthen Security and Management of Radioactive Sources**
Julia Gibson, Project Leader, Global Affairs Canada
Thierry Pelletier, Senior Nuclear Security Officer, IAEA
Ian Gordon, Section Head, IAEA
Vitaly Radchenko, Senior Research Fellow, Division for Nuclear and Radioactive Materials Protection, Control, and Accounting, Scientific and Engineering Centre for Nuclear and Radiation Safety (SEC NRS), Federal Environmental, Industrial and Nuclear Supervision Service (Rostekhnadzor), Russian Federation



- 15:30–16:00 **Presentations on Regional Projects to Strengthen Security and Management of Radioactive Sources**
Margarita Kalinina-Pohl, *Senior Program Manager, James Martin Center for Nonproliferation Studies*
Dinara Kerimbaeva, *Head of Branch Office, International Science and Technology Center (ISTC)*
- 16:00–16:15 Break
- 16:15–17:15 **Sustainability of Regional Efforts to Strengthen Security and Management of Radioactive Sources**
Alexey Plevaka, *Head of Laboratory, Division of Radiation Safety, SEC NRS, Rostekhnadzor, Russian Federation*
Stephen Mladineo, *Senior Advisor, Pacific Northwest National Laboratory, United States*
- 17:15–18:15 **Next Steps to Develop Regional Action Plan on Radioactive Source Security**
Anton Khlopkov, *Director, CENESS*
Ambassador Laura S.H. Holgate, *Vice President, NTI*
- 19:00–21:30 Dinner

Friday, 22 June 2018

- 8:00–9:00 Breakfast
- 9:00–9:30 **Presentations by Workshop Organizers**
Leon Ratz, *Program Officer, NTI*
Nikolay Kravchenko, *Associate Professor, National Research Nuclear University (MEPhI), Russian Federation*
- 9:30–10:15 **Country Presentations: Efforts to Prevent Illicit Trafficking of Nuclear and Radioactive Materials**
Ali Khalmurzaev, *Head of Section, Centre of the State Regulation in the Sphere of Environmental Protection and Ecological Safety, State Agency on Environment Protection and Forestry, Kyrgyz Republic*
Ilkhom Mirsaidov, *Director, NRSA, Tajikistan*
- 10:15–10:45 Coffee break
- 10:45–12:00 **Country Presentations: Efforts to Prevent Illicit Trafficking of Nuclear and Radioactive Materials**
Azizbek Turdiyev, *Head Inspector of the ICT Group in Administration of the State Customs Committee for the Andijan Region, Uzbekistan*



- 12:00–13:00 Lunch
- 13:00–14:15 **Presentations by International Partners on Regional Efforts to Prevent Illicit Trafficking of Nuclear and Radioactive Materials**
 Benjamin Briese, *Office of Nuclear Smuggling Detection and Deterrence, National Nuclear Security Administration, U.S. Department of Energy*
 Jesse Smith, *Office of Weapons of Mass Destruction Terrorism, U.S. Department of State*
 Igor Bannykh, *Advisor, Department of Customs Infrastructure, Eurasian Economic Commission*
- 14:15–14:30 Coffee break
- 14:30–15:00 **Presentations by International Partners on Regional Efforts to Prevent Illicit Trafficking of Nuclear and Radioactive Materials**
 Thierry Pelletier, *Senior Nuclear Security Officer, IAEA*
- 15:00–15:45 **Presentations & Discussion on Regional Training Centers**
 Sergey Sidorenko & Natalya Izmailova, *Institute of Nuclear Physics, Kazakhstan*
 Victor Fedianin, *Executive Director, VMF Group LLC, Kyrgyz Republic*
 Ilkhom Mirsaidov, *Director, NRSA, Tajikistan*
- 15:45–16:30 **Sustainability of Regional Efforts to Prevent Illicit Trafficking of Nuclear and Radioactive Materials**
 Nikolay Kravchenko, *Associate Professor, NRNU (MEPhI)*
 Benjamin Briese, *Office of Nuclear Smuggling Detection and Deterrence, National Nuclear Security Administration, U.S. Department of Energy*
- 16:30–16:45 Break
- 16:45–17:45 **Next Steps to Develop Regional Action Plan on Illicit Trafficking Prevention**
 Ambassador Laura S.H. Holgate, *Vice President, NTI*
 Anton Khlopkov, *Director, CENESS*
- 17:45–18:00 **Concluding Remarks**
 Anton Khlopkov, *Director, CENESS*
 Ambassador Laura S.H. Holgate, *Vice President, NTI*
- 18:00–19:00 **Break**
- 19:00–21:00 **Closing Reception**
 Social and Cultural Event, co-hosted by the Government of Kyrgyz Republic



Annex 2: Attendees, 2nd Regional Workshop on Strengthening Security of Radioactive Sources in Central Asia

NUCLEAR THREAT INITIATIVE (NTI)

Laura S.H. Holgate, Ambassador (ret.), Vice President, Materials Risk Management, Co-Chair

Ioanna Iliopoulos, Senior Consultant

Leon Ratz, Program Officer, Materials Risk Management

Madison A. Estes, Materials Risk Management

CENTER FOR ENERGY AND SECURITY STUDIES (CENESS)

Anton Khlopkov, Director, Co-Chair

Dmitry Konukhov, CENESS Senior Research Associate; Director, The 2019 Moscow Nonproliferation Conference

Nikolay Kravchenko, Associate Professor, National Research Nuclear University MEPhI; Founding Head of Directorate for Customs Control of Fissile Materials and Radioactive Sources of the Federal Customs Service

Mikhail Lysenko, Ambassador (ret.), Advisor; former Director, Department for International Cooperation, State Atomic Energy Corporation Rosatom; former Director, Department for Security and Disarmament, Ministry of Foreign Affairs

KAZAKHSTAN

Kuanysh Abdullayev, Security Officer, National Security Committee

Aniyar Abulkassimov, Chief Expert, Department of Licensing and Certification, Committee for Atomic and Energy Supervision and Control, Ministry of Energy

Dyussenali Aitzhanov, Chief Specialist of the Training Department, State Revenue Committee Training and Methodical Center

Nuraly Ayazbayev, Consultant of Department, Border Guard Service

Andrey Ivanov, Head of Department, Border Guard Service

Natalya Izmailova, Personnel Training at the Nuclear Security Training Center

Bauyrzhan Mukanov, Head, Department of Materials Control and International Safeguards, Committee for Atomic and Energy Supervision and Control, Ministry of Energy

Bektay Oshanov, Head, Division of Analysis of Normative and Legislative Instruments of the Legal Services Department, Ministry of Energy

Tamara Prokhodtseva, Nuclear Technology Safety Center (NTSC)

Sergey Sidorenko, Institute of Nuclear Physics (INP)



KYRGYZSTAN

Altynai Abirova, Chief Inspector, Department of Nuclear and Radiation Safety, State Inspectorate on Environmental and Technical Safety

Bektur Aidaraliev, Chief Inspector, Department of Nuclear and Radiation Safety, State Inspectorate on Environmental and Technical Safety

Taalaibek Asylbekov, State Secretary, State Inspectorate on Environmental and Technical Safety

Cholpon Chekirova, Leading Specialist, Division for Radiological, Chemical and Bacteriological Protection, Department for Population and Territory Protection, Main Directorate for Civil Protection and Fire Safety, Ministry for Emergency Situations

Bulan Dzhamgyrchiev, Chief Inspector, Department of Customs Control, Customs Service

Gulmira Dzhitishikova, Head, Section for International Cooperation, Department of Nuclear and Radiation Safety, State Inspectorate on Environmental and Technical Safety

Victor Fedianin, Executive Director, VMF Group LLC

Marat Isakov, Head, Department of Nuclear and Radiation Safety, State Inspectorate on Environmental and Technical Safety

Elina Iudakova, Engineer for Radiometric and Dosimetric Studies, Radiation Safety Department, Ministry of Health

Ali Khalmurzaev, Head of Section, Centre of the State Regulation in the Sphere of Environmental Protection and Ecological Safety, State Agency on Environment Protection and Forestry

Natalya Nazarova, Head, Radiological Waste Repository Site

Aleksei Otinov, Head, Information Technology Department, State Border Service

Alymbek Saidybakasov, Chief Inspector, State Inspectorate on Environmental and Technical Safety

TAJKISTAN

Nasriddin Egamberdiev, Member of Mobile Expert Support Team, Technical Support Organisation (TSO) to Nuclear and Radiation Safety Agency (NRSA)

Behzod Ishratov, Member of Mobile Expert Support Team, TSO to NRSA

Zubayda Kavrakova, Identification Center, TSO to NRSA

Menoo Mamadyusfova, Deputy Head of International Department, NRSA

Ilkhom Mirsaidov, Director, NRSA

Alisher Tajiev, Representative from the Physical Protection Sector, TSO to NRSA

Umed Uldzhabaev, Department of Licensing, NRSA

Bekhriz Zarifov, Department of Inspection, NRSA



TURKMENISTAN

Muhammedovez Gurbannyyazov, Professor, Director, Centre of Technologies, Academy of Sciences

Nurgeldi Seytgeldiyev, Director, Solar Energy Institute, Academy of Sciences

Dovlet Ulugberdiyev, Deputy Director, Training Center, State Customs Service

UZBEKISTAN

Gleb Alimov, Senior Scientific Associate, Institute of Nuclear Physics, Academy of Sciences

Aleksandr Kurevlev, Engineer, Institute of Nuclear Physics, Academy of Sciences

Adil Mukhtarov, Senior Researcher, Institute of Nuclear Physics, Academy of Sciences

Rakhmutdin Nuraliev, Head of the Central Chemical-Radiometric Laboratory, Ministry of Emergency Situations

Adolat Orifjanova, Head Specialist, Sectoral Inspectorate for Atomic Oversight, Sanoatgeokontekhnazorat

Azizbek Turdiyev, Head Inspector of the ICT Group in Administration of the State Customs Committee for the Andijan Region

CANADA

Julia Cloutier, Counsellor (Political), Embassy of Canada in Kazakhstan

Julia Gibson, Project Leader, Nuclear and Radiological Security, Global Affairs Canada

RUSSIAN FEDERATION

Konstantin Lavrov, Head, Information Integration and Analysis Department, National Operator for Radioactive Waste Management, State Atomic Energy Corporation Rosatom

Alexey Plevaka, Head of Laboratory, Division of Radiation Safety, Scientific and Engineering Centre for Nuclear and Radiation Safety (SEC NRS), Federal Environmental, Industrial and Nuclear Supervision Service (Rostekhnadzor)

Vitaly Radchenko, Senior Research Fellow, Division for Nuclear and Radioactive Materials Protection, Control, and Accounting, Scientific and Engineering Centre for Nuclear and Radiation Safety (SEC NRS), Federal Environmental, Industrial and Nuclear Supervision Service (Rostekhnadzor)

Denis Teplov, Second Secretary, Embassy of the Russian Federation to the Kyrgyz Republic

Alexey Zhurkin, Deputy Head, Information and Analytical Center for State and Departmental Accounting and Control of Radioactive Materials and Radioactive Waste, National Operator for Radioactive Waste Management, State Atomic Energy Corporation Rosatom



UNITED STATES

Benjamin Briese, Country Officer, Nuclear Smuggling Detection and Deterrence, National Nuclear Security Administration, Department of Energy

Travis Chamberlain, Project Manager, Pacific Northwest National Laboratory

Jack Lambert, Political Officer, Political and Economic Section, Embassy of the United States of America in the Kyrgyz Republic

Elly Melamed, Associate Assistant Deputy Administrator, National Nuclear Security Administration, Global Material Security, Department of Energy

Stephen Mladineo, Senior Advisor, Pacific Northwest National Laboratory

Sarah Norris, Country Officer, Office of Radiological Security, National Nuclear Security Administration, Department of Energy

Jesse Smith, Office of Weapons of Mass Destruction Terrorism, Department of State

EURASIAN ECONOMIC COMMISSION

Baktybek Baiserkeev, Director, Department of Customs Infrastructure

Igor Bannykh, Advisor, Department of Customs Infrastructure

INTERNATIONAL ATOMIC ENERGY AGENCY

Ian Gordon, Section Head, Waste Technology Section, Division of Nuclear Fuel Cycle and Waste Technology

Thierry Pelletier, Senior Nuclear Security Officer, Materials Outside of Regulatory Control

AKHMET YASSAWI UNIVERSITY, KAZAKHSTAN

Dauren Aben, Senior Research Fellow, Eurasian Research Institute

CENTER FOR NON-PROLIFERATION AND EXPORT CONTROL, KYRGYZSTAN

Uran Akhmetov, Senior Advisor

Taalaibek Bektashev, Export Control Consultant

INTERNATIONAL SCIENCE AND TECHNOLOGY CENTER

Dinara Kerimbaeva, Head of Branch Office

JAMES MARTIN CENTER FOR NONPROLIFERATION STUDIES, UNITED STATES

Margarita Kalinina-Pohl, Senior Program Manager, Nonproliferation Education Program



Annex 3: Relevant Legal Instruments and Guidance Documents

Status as of 1 August 2018

IAEA CODE OF CONDUCT ON THE SAFETY AND SECURITY OF RADIOACTIVE SOURCES & SUPPLEMENTARY GUIDANCE DOCUMENTS

Country	Code of Conduct on the Safety and Security of Radioactive Sources	Supplementary Guidance on the Import and Export of Radioactive Sources			Supplementary Guidance on the Management of Disused Radioactive Sources
	(1) Notification	(2) Notification	(3) POC	(4) SAQ	(5) Notification
Kazakhstan	X	X	X	Action needed	Action needed
Kyrgyzstan	X	X	X	X	Action needed
Tajikistan	X	X	X	X	Action needed
Turkmenistan	X	Action needed	Action needed	Action needed	Action needed
Uzbekistan	X	Action needed	Action needed	Action needed	Action needed

- (1) Notification pursuant to GC (47)/RES/7.B
- (2) Notification pursuant to GC (48)/RES/10.D
- (3) Contact Point Designated
- (4) Response to Questionnaire
- (5) Notification pursuant to GC (61)/RES/8.2

STATES' PARTICIPATION IN IAEA INCIDENT AND TRAFFICKING DATABASE (ITDB)

Country	Participation in IAEA ITDB
Kazakhstan	Member
Kyrgyzstan	Member
Tajikistan	Member
Turkmenistan	Action needed
Uzbekistan	Member



RELATED LEGAL INSTRUMENTS

Country	Convention on Early Notification of a Nuclear Accident	Entry into Force	Convention on Assistance in Case of a Nuclear Accident or Radiological Emergency	Entry into Force	Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management	Entry into Force
Kazakhstan	Accession	9 Apr 2010	Accession	9 Apr 2010	Ratification	8 Jun 2010
Kyrgyzstan	Action needed		Action needed		Accession	18 Mar 2007
Tajikistan	Accession	1 Oct 2011	Accession	23 Oct 2011	Accession	11 Mar 2008
Turkmenistan	Action needed		Action needed		Action needed	
Uzbekistan	Action needed		Action needed		Accession	19 Apr 2009

INTERNATIONAL CONVENTION FOR THE SUPPRESSION OF ACTS OF NUCLEAR TERRORISM (ICSANT) AND GLOBAL INITIATIVE TO COMBAT NUCLEAR TERRORISM (GICNT) MEMBERSHIP AND PARTICIPATION

Country	ICSANT	Entry into Force	Endorsement of GICNT Statement of Principles	Participation in Most Recent Central Asia Tabletop Exercise (October 2017, Tajikistan)
Kazakhstan	Ratification	31 July 2008	YES	YES
Kyrgyzstan	Ratification	2 Oct 2007	YES	YES
Tajikistan	Ratification	14 Sept 2005	YES	YES
Turkmenistan	Accession	28 Mar 2008	YES	NO
Uzbekistan	Accession	29 Apr 2008	YES	YES





The Nuclear Threat Initiative works to protect our lives, environment, and quality of life now and for future generations. We work to prevent catastrophic attacks with weapons of mass destruction and disruption (WMDD)—nuclear, biological, radiological, chemical, and cyber.

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