Integrated Support Center for Nuclear Non-Proliferation and Nuclear Security

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Japan’s Commitment to Strengthening Nuclear Security
(Announced at the Washington Nuclear Security Summit)

Japan’s National Statement at the Washington Nuclear Security Summit
(Excerpts)

Ministry of Foreign Affairs of Japan,

- Establishment of a regional support center for strengthening of nuclear security for Asia
  “Japan will this year establish a regional center for the strengthening of nuclear security, tentatively named the ”Integrated Comprehensive Support Center for Nuclear Non-Proliferation and Nuclear Security for Asia“ under the Japan Atomic Energy Agency (JAEA), with the aim of institutionalizing support for nuclear security on a permanent basis and contributing to strengthened nuclear security in Asia and other regions in line with opinions expressed at the aforementioned seminar in January.”

- Development of technology related to measurement and detection of nuclear material and nuclear forensics based on international cooperation

- Contributions to IAEA Nuclear Security Programs

- Hosting of a WINS conference
Lecturers will be invited from both domestic and foreign/international entities including the IAEA. Mock physical protection facility and/or virtual reality systems will be built for training.

The Center will also play a role as an international joint research hub in these fields.

Support for capacity-building efforts including education and training, and for infrastructure development in emerging countries for nuclear use.
1. **Strengthening capacity building through human resource development, training and education**

   The Integrated Support Center provides training and education via lectures, exercises, workshops and e-learning systems, which are tailored for a wide range of bureaucratic and technical human resources, from leadership to technician levels, in order to assist building and sustaining successful, indigenous, nonproliferation and nuclear security organizations and programs. These activities also emphasize building networks among people in the Asian region to reinforce technical concepts, exchange information, and to increase regional confidence.

2. **Supporting infrastructure development**

   The Integrated Support Center provides legal, regulatory and technical support for the development of domestic laws and regulations, and for development of efficient and effective nuclear material accounting, control and monitoring instrumentation systems and procedures.

3. **Developing technology and providing support**

   The Integrated Support Center draws on extensive domestic research and development capabilities for nuclear material accounting, detection and measurement to provide technical support for building and strengthening nuclear security programs in other countries.
Summary of Human Resource and Capacity Building Assistance Activities

1. Training courses for nuclear security
   1 Expected participants
   Officials/personnel from regulatory bodies, nuclear operators, radioactive material licensees, officers from police and coast guards
   2 Program contents
   (1) Design and evaluation process of a physical protection system of facilities using nuclear and other radioactive materials
   (2) Design and evaluation process of a physical protection system of nuclear and other radioactive material during transport
   (3) Detection of and response to illegal acts related to nuclear and other radioactive material

2. Training courses for safeguards and state system of accounting for and control of nuclear material
   1 Expected participants
   Nuclear operators and government officials involved in state system of accounting for and control of nuclear material, etc.
   2 Program contents
   (1) IAEA safeguards
   (2) National system of safeguards
   (3) Material accounting system

3. Training courses on the international nuclear non-proliferation framework
   1 Expected participants
   Nuclear operators and government officials responsible for the development of domestic legislation in the fields of nuclear non-proliferation and nuclear security
   2 Program contents
   (1) History and international trend of peaceful uses of nuclear energy and nuclear non-proliferation
   (2) International framework of nuclear non-proliferation
   (3) Japan’s efforts to ensure compatibility between peaceful uses of nuclear energy and nuclear non-proliferation
Training Field
Physical Protection Mockup Facility

Physical Protection Mockup Facility will be set up and introduced to training.

Perimeter Barriers
- Security fence (Double fence)
- Vehicle barrier
- Gate, etc.

Various sensors
- Fiber-optic cables sensor
- Electric field sensor
- Buried-line sensor, etc.

Protected Area

Security office
- Lighting system
- Fence + sensors
- Active infrared sensors
- Microwave sensors
- CCTV cameras (Fixed, PTZ)
  (Video motion detector)
Exercise of equipment installation and lay out
(Evaluation of sensor or camera lay out and its effect)

Emergency response (when RDD is activated)
Simulation of response in radiological environment
(Display of source distribution)

Intrusion simulation
Analysis of route of entry
Design of protected facilities
(detection・delay・response)

Visual Learning/Evaluation
(Group study using VR stereoscopic system at “Fugen”)

Exercise of equipment installation and lay out
(Evaluation of sensor or camera lay out and its effect)

Emergency response (when RDD is activated)
Simulation of response in radiological environment
(Display of source distribution)

Security design of nuclear facilities and their surrounding area, walk through training both within and without facilities

Visual Study, Experience, and Evaluation (Interactive study in real scale) (Usage example of CAVE VR stereoscopic display system)

Function parts

Visual Training Images
Training environment compatible to various conditions and support needs for ensuring nuclear security
Cultivate human resources who will take leadership roles in nuclear non-proliferation and peaceful uses of nuclear energy not only in their own countries, but also in international society recognizing importance of non-proliferation and nuclear security in cooperation with universities, such as Department of Nuclear Engineering and Management School of Engineering, the University of Tokyo or Department of Nuclear Engineering, Graduate School of Science and Engineering, Tokyo Institute of Technology.

Utilizing the functions of the integrated support center, based on past collaboration experience with the University of Tokyo and Tokyo Institute of Technology.

Implementing detailed trainings based on related information including IAEA-INSEN (International Nuclear Security Education Network) and, at the same time, preparing programs for technical research and development on nuclear security in order to cultivate leaders of nuclear security, who also have academic sophistication.

Intended participants: Students with Master’s degree or PhD. Not only domestic students, but also foreign students are accepted.
The Integrated Support Center draws on extensive domestic research and development capabilities for nuclear material accounting, detection and measurement to provide technical support for building and strengthening nuclear security programs in other countries.

Technology development by using Japan’s R&D capabilities

1. Demonstration of Pu-NDA for Spent Fuel Measurement
2. Laser Compton Scattering γ-ray Nuclear Resonance Fluorescence non-destructive measurement (LCSγ・NRF)
3. He3-alternative Neutron Detector

- The demand of Helium-3 for neutron detectors has significantly increased.
- The Helium-3 shortage is serious.
- Alternative techniques to the Helium-3 neutron detectors for nuclear security and safeguards systems are necessary to be developed.
In carrying out these activities, the Integrated Support Center engages in mutually complementary cooperation with international organizations including the International Atomic Energy Agency (IAEA), the European Atomic Energy Community (EURATOM) and countries such as the United States, Australia and Asian neighbors, while orchestrating the all-nation project with Nuclear Material Control Center, Japan Nuclear Energy Safety Organization and other relevant organizations and universities in Japan under the coordinated direction of government ministries, which include the Cabinet Office, the Ministry of Education, Culture, Sports, Science and Technology, the Ministry of Economy, Trade and Industry and the Ministry of Foreign Affairs. Thus, the Integrated Support Center contributes to the global strengthening of nonproliferation and nuclear security measures by sharing Japan’s vast experience and knowledge, and through active collaborations and information dissemination.