

Summary of Country Reports

—Current Status of 11 FNCA Member States*—

9th Workshop on Nuclear Security and Safeguards Project
of Forum for Nuclear Cooperation in Asia (FNCA)

November 27, 2019

*For ROK, data remained as of
October 2016.

Regulatory Authority

Independence of Regulatory Agencies

- ◆ **Independent:** China (CAEA), Indonesia (BAPETEN), Japan (NRA), ROK (NSSC), Mongolia (Executive office of the NEC and General Agency for Specialized Inspections (GASI))
- ◆ **Semi-Independent*:** Bangladesh (BAERA), Kazakhstan (NNC), Malaysia (AELB), Thailand (OAP), Vietnam (VARANS)
*The regulatory agency is under a governmental body or ministry to which a nuclear promotion agency belongs
- ◆ **No Independent:** Philippines (PNRI)

Recent Development

Philippines: The Comprehensive Nuclear Regulation Act, creating an independent regulatory body, “Philippine Nuclear Regulatory Commission” re-filed in House of Representatives in July 2019

Safeguards (1)

Implementation of International Treaties and Agreements

- Member of **NPT** (Nuclear Nonproliferation Treaty): 11/11 states
- **CSA** (Comprehensive Safeguards Agreement) in Force: 11/11 states (VOA is in force in China)
- **AP** (Additional Protocol) in Force: 10/11 states
- **IS** (Integrated Safeguards): 5/11 states

	NPT Member	CSA in Force	AP in Force	Integrated safeguards
Bangladesh	✓	✓	30 Mar. 2001	✓
China	✓	VOA in force	28 Mar. 2002	n/a
Indonesia	✓	✓	29 Sep. 1999	✓
Japan	✓	✓	16 Dec. 1999	✓
Kazakhstan	✓	✓	9 May 2007	✓
ROK	✓	✓	19 Feb. 2004	✓
Malaysia	✓	✓	(Signed: 22 Nov. 2005)	
Mongolia	✓	✓	12 May 2003	
Philippines	✓	✓	26 Feb. 2010	✓ *1
Thailand	✓	✓	17 Nov. 2017	
Vietnam	✓	✓	17 Sep. 2012	*2

*1 Philippines got Broader Conclusion from IAEA in May 2013 and implementing IS in 2017.

*2 Vietnam got Broader Conclusion from IAEA in May 2015.

Safeguards (2)

Updates on Safeguards Implementation of 2018-2019

- ◆ **Bangladesh:** Nuclear material accounting reports and AP declarations are submitted in a timely manner. One routine safeguards inspection was conducted by the IAEA Inspectors in April 2019 for AERE (Atomic Energy Research Establishment) and two LOF (Location Outside Facilities) sites. Submitted DIQ for Rooppur Nuclear Power Plant which is now under construction.
- ◆ **China (as of 2018):** Submits safeguards reports annually to the IAEA by December each year for the two civilian nuclear facilities, the Shandong Shidao Bay 200MWe High-Temperature Gas-Cooled Reactor Pebble-Bed Module Demonstration Power Plant and Shaanxi Uranium Enrichment Plant that are placed voluntarily under IAEA safeguards.
- ◆ **Indonesia:** Routine safeguards inspection 2 times for each MBA (Pre PIV & AP, PIV); Received 2 CAs and 1 Short Notice Inspection; BAPETEN conducted Workshop on implementation of AP software (2019); numbers of training completed and planned for 2018-2019.

Safeguards (3)

Updates on Safeguards Implementation of 2017-2018

- ◆ **Japan:** As a result of cooperation between the Government of Japan and the IAEA, the successful implementation of safeguards has enabled the broader conclusion for 2018, first reached for the 2003 calendar year; For Fukushima Daiichi Nuclear Power Plant, additional safeguards measures such as remote monitoring by surveillance cameras and radiation monitor were applied to confirm no removal of nuclear material.
- ◆ **Kazakhstan:** State Level Safeguards Approach for Kazakhstan was introduced; Installed noble gas radionuclide monitoring station, which will contribute to strengthening the WMD non-proliferation regime; Nuclear fuel for research nuclear reactors was converted to low-enriched fuel.
- ◆ **ROK (as of 2016):** started Unannounced Inspection since May 2016; “Updated SLA “has been applied since 1 Sep 2015; revised implementation procedures; 7 Sector approaches are applied based on the types and status of facilities

Safeguards (4)

Updates on Safeguards Implementation of 2017-2018

- ◆ **Malaysia:** New Atomic Energy bill contained basic requirements for safeguards elements as well as systems for accounting for and control nuclear materials, Additional Protocol information and prohibition of nuclear weapon development; Malaysia has signed the Additional Protocol agreement on 2005, but has yet to ratify it. Rescission of Malaysia's Small Quantities Protocol of The Comprehensive Safeguards Agreement on 14 September 2018; Pre-ISSAS mission meeting done in Sept 2018 and ISSAS Mission conducted on 25 February until 01 March 2019.
- ◆ **Mongolia:** Continuous AP activities based on the Safeguards Agreement signed in May 2003; Yearly and quarterly declaration to IAEA by NEC; received CA from IAEA and CA to Central geology laboratory in September 2018; Mongolia is participated the International Nuclear Safeguards Engagement Program (US DoE, NNSA) in 2019 and the technical capacity building has been undertaken under the program. Drafted regulation on accountancy and control of nuclear material under EU project.
- ◆ **Philippines:** With the implementation of Integrated Safeguards, the frequency of inspection will vary. Nuclear material accounting reports are submitted annually through the Secure Communication. AP reports will be sent as per AP Agreement.

Safeguards (5)

Updates on Safeguards Implementation of 2017-2018

- ◆ **Thailand:** AP ratification on 17 November 2017 and 2 Complementary Access in 2018; 1 Complementary Access in 2019. There is a Broader Conclusion Workshop in 2019. The AP declaration and CSA reports were submitted through secure system.
- ◆ **Vietnam:** 108 reports of nuclear research reactor, 74 LOF reports under CSA (2018); 6th year of AP implementation (2019); Workshop on radiation safety for safeguards inspectorate Q3 (2018).

Nuclear Security (1)

Implementation of International Treaties and Conventions

- **CPPNM** (Convention on the Physical Protection of Nuclear Material): 10/12 states
- **CPPNM Amendment***: 7/12 states
- *IAEA Recommendation INFCIRC 225/Rev5 consistent with the Amendment
- **Nuclear Terrorism Convention** (International Convention for the Suppression of Acts of Nuclear Terrorism):
Ratification: 6 states, Accession: 2 state, Acceptance: 1 state, Signature: 3 states

	CPPNM	CPPNM Amendment	Nuclear Terrorism Convention
Bangladesh	10 Jun 2005 in force	Entry into force since 04 Jul 2017	Accession 07 Jul 2007
China	09 Feb 1989 in force	Ratification 14 Se. 2009	Ratification 08 Nov 2010
Indonesia	08 Feb 1987 in force	Ratification 27 May 2010	Ratification 19 March 2014
Japan	27 Nov 1988 in force	Ratification 17 Jun 2014	Acceptance 02 Oct 2007
Kazakhstan	02 Oct 2005 in force	Ratification 26 Apr 2011	Ratification 31 Jul 2008
ROK	08 Feb 1987 in force	Ratification 29 May 2014	Ratification 29 May 2014
Malaysia			Signature 16 Sep 2005
Mongolia	08 Feb 1987 in force	Preparing to join	Ratification 06 Oct 2006
Philippines	08 Feb 1987 in force	Re-submitted for ratification since it was not acted upon in 17 th Congress	Signature 15 Sep 2005
Thailand	27 Mar 2018 in Force	Ratification 27 Mar 2018	Signature 14 Sep 2005
Vietnam	03 Nov 2012 in force	Ratification 03 Nov 2012	Accession Sept 2016

Nuclear Security (2)

Updates on Nuclear Security Implementation of 2018-2019

◆ Bangladesh:

- A National-level event Expert Mission on Nuclear Security Detection Architecture' in Dhaka, 1st Q 2020 under the Integrated Nuclear Security Support Plan (INSSP). Formation of Nuclear Security Force as Response Force for the NPP is underway (current response force: led by Bangladesh Army).
- Sep 2018: a protocol was signed with Russia to bring amendments to the 2011 IGA on the construction of a NPP at Rooppur site.
- IAEA Coordinated Research Project (CRP): 'Factors that can influence culture for safety, organizational culture and human performance at nuclear and other facilities in Bangladesh'

Nuclear Security (3)

Updates on Nuclear Security Implementation of 2018-2019

- ◆ **China (as of 2018):** Cyber Security Law released in Nov 2016; Nuclear Safety Law released in Aug 2017; Atomic Energy Law (draft) as a direct upper-level legislation of nuclear security, is in the process of review and approval; Regulations on Nuclear Security under development; Center of Excellence on Nuclear Security (COE) came into operation in Mar 2016, to provide all-around support to the nuclear security governmental management and capacity building in China; successful completion of the Ghana MNSR HEU conversion Project in Aug. 2017; Completed IAEA IPPAS mission in Sep. 2017.

Nuclear Security (4)

Updates on Nuclear Security Implementation of 2018-2019

- ◆ **Indonesia:** BAPETEN Physical Protection regulation is under revision to comply with INFCIRC/225/Rev.5), BAPETEN, BATAN and security authorities conducted Tabletop Analysis to evaluate PPS implementation in Serpong Nuclear Research Center 2019 ; number of trainings completed and planned. BATAN conducted Security Risk Assessment in 2019 based on BATAN Chairman Regulation / BATAN Standard; In 2019 BATAN and BAPETEN conducted cyber security WS supported by U.S.DOE. In 2018, submitted INSSP to the IAEA. In 2019, BATAN Established Design Laboratory of Physical Protection System under Nuclear Security Support Center (NSSC) in Serpong site.
- ◆ **Japan:** The trustworthiness determination program was introduced into Japan by March 2019 with revision of related Ordinances and the issuance of the Notification and the Operational Guidelines; Act on the Regulation of Radioisotopes, etc., and Enforcement Regulation of the Act on the Regulation of Radioisotopes, etc. which took effect in September 2019, established a national framework in Japan for RI security.

Nuclear Security (5)

Updates on Nuclear Security Implementation of 2018-2019

- ◆ **Kazakhstan:** Delivering of the first batch of low enriched uranium to the LEU Bank; Physical Protection Systems (PPS) modernization.
- ◆ **ROK (as of 2016):** revised DBT considering newly emerged threats such as cyber and drone attack; conducted 4 IAEA-ROK Regional Workshops on physical protection inspection, nuclear forensics, cyber security and 3 INSA International Training Courses.
- ◆ **Malaysia:** Conducted the Trilateral Exercise for Malaysia, Indonesia and the Philippines (organized by Malaysia, IAEA) in August 2018; 12 Training to Front Line Officer (FLO) on Nuclear Security To Royal Malaysia Police and Royal Malaysia Customs, Conducted several nuclear security training in Malaysia, Receive the Technical Visit of Senior Officers on National Nuclear Security Implementations from Oman, Lebanon, Botswana and Iran; Produce the Security Plan Guideline (for Cat. 1, 2 & 3 Radioactive Sources) in Oct; Completed the establishment of Physical Protection (PP) Laboratory in 2018, supported by Canada.

Nuclear Security (6)

Updates on Nuclear Security Implementation of 2018-2019

- ◆ **Mongolia:** Radiation Portal Monitors (RPMs) installed at new international airport in cooperation with U.S.DOE; Organized “Train the trainer” course on border control in cooperation with DOE; participated in the United States and China jointly hosted a regional workshop on Counter Nuclear Smuggling from July 10 - 12, 2018.
- ◆ **Philippines:** Review and updated the INSSP in June 2019 to include Nuclear Energy. Establishing NSSC under the supervision of the Nuclear Safeguards and Security Section coordinating with the different stakeholders (PNP, AFP, BoC). PNRI mobile expert support team participated in the 2 Major Public Event in an Urbanized area this 2019 and to the 30th SEA GAMES this November 2019 (Loan of radioactive detection equipment in the SEA GAMES). Bureau of Customs will take over the maintenance of the radiation portal monitors at Port of Manila after the MOA signed by stakeholders concern, PNRI will provide training and reachback support.

Nuclear Security (7)

Updates on Nuclear Security Implementation of 2018-2019

- ◆ **Thailand:** INSSP approved in 2018. CPPNM and its Amendment was in force in 2019. Practical Arrangement with IAEA in nuclear forensics science signed in 2019, followed by Agency Mission to Enhance Nuclear Forensics Capabilities in Thailand. National Workshop on Nuclear Security Information Management System (NUSIMS) in January 2019. Security in the Transport of Radioactive Material for Operators Training Course and National Workshop on Threat Assessment and Development of a Design Basis Threat (DBT) conducted in 2018.
- ◆ **Vietnam:** International Response Training Course on Nuclear Plan for Radiation facility in Apr. 2018, Workshop Security Plan for Radiation facility in May. 2018; Cyber Security in May 2018; Contingency Plan, Workshop on Site Security Plan Development in Jul. 2018. INSSP updated in June 2018, New Regulatory of security of rad source in May 2019.

Nuclear Security Culture (1)

Methods and Plans to Foster Nuclear Security Culture

- ◆ **Bangladesh:** participation of national/international training courses/workshops/meetings in collaboration with FNCA, IAEA, U.S.DOE, Russia; undertaken nuclear safety and security culture awareness programs through poster display; participation in IAEA CRPs in safety and security culture.
- ◆ **China (as of 2018):** organize/ participate in the national/regional/international training courses/workshops in collaboration with IAEA, U.S.DOE; publish magazine titled “China Nuclear Security”; develop curriculums on nuclear security culture to improve the awareness of nuclear security culture for domestic nuclear-related personals.
- ◆ **Indonesia:** CSCA/BATAN: conducting self-assessment on nuclear security culture for radioactive source facility in Pasar Jumat (2018-2019); develop nuclear security culture guidance (in progress), universities to develop curriculum on nuclear security culture (UNHAN’s programe in 2018); Indonesia shared experience on self assessment of nuclear security culture at research reactor to IAEA member States, in 2018 the report submitted to the IAEA-TECDOC CRP on nuclear security culture enhancement solutions.

Nuclear Security Culture (2)

Methods and Plans to Foster Nuclear Security Culture

- ◆ **Japan:** NRA Commissioner holds nuclear security culture briefings for executives of operators and conducts interviews to executives of operators individually. Continued efforts by operators to promote nuclear security culture with the support from ISCN.
- ◆ **Kazakhstan:** Continues efforts to strengthen nuclear security.
- ◆ **ROK (as of 2016):** developed the self-assessment framework for nuclear security culture based on IAEA guideline, and would conduct a pilot program at a nuclear facility in 2016; has conducted an annual survey on Nuclear Security Awareness since 2010.
- ◆ **Malaysia:** shared experience on self assessment of nuclear security culture at Ampang hospital in Kuala Lumpur, the report submitted to the TECDOC CRP on nuclear security culture enhancement solutions; expert mission to support nuclear security culture self assessment in March 2018. Malaysia has also received assistance from the King's College London-led BEIS-Sponsored Nuclear Security Culture Consortium and the Nuclear Security Culture Programme (NSCP).

Nuclear Security Culture (3)

Methods and Plans to Foster Nuclear Security Culture

- ◆ **Mongolia:** Cooperation with Executive office of the NEC and US department of Energy jointly organized the “International response training course” in April 2018. Exercise on preventing crimes and violations in the radiation facility and improving the knowledge and skills of government authorities. “Site security plan” workshop, in May 2019. Draft site security plan has been developed in line with the Mongolian legal system based on IAEA recommendation.
- ◆ **Philippines:** Continue trainings with nuclear security culture module. Future plans for a nuclear security culture awareness training for Nuclear Power.
- ◆ **Thailand:** Continuous training, stakeholder communications, and revision of regulations and guidelines under the Nuclear Energy for Peace Act.

Nuclear Security Culture (4)

Methods and Plans to Foster Nuclear Security Culture

- ◆ **Vietnam:** Conducted a Project “Nuclear security foundation and self-assessment methodology” in 2016, at nuclear and radiation facilities. Under the project, questionnaires (68 questions) distributed to facilities: 4 groups of questions (Attitudes and belief, Facility operational and management systems relating to nuclear security, Management activities, Nuclear security officer actions).

Capacity Building (1)

Nuclear Security (and Safeguards) Training Centers

This chart identifies the existing training centers in the FNCA member countries, which provide trainings to practitioners in the areas of nuclear security and safeguards, and training functions of the centers. Educational programs are not included on the chart.

	Training Center/ Training Provider	Status of Training Center	Target	Training Topics			Cooperation with
				Security	SG	Others	
Bangladesh	TBD / BAEC, BAERA	Planned	International/ Domestic	✓	✓	Border control	IAEA, US/DOE, Russia, JAEA, FNCA
China	SNSTC(COE)/ SNSTC(COE)	In operation	International/ Domestic	✓	✓	Border control	IAEA, US/DOE
Indonesia*1	BAPETEN ETC, BATAN CET / BAPETEN, BATAN	In operation	International/ IAEA courses	✓	✓		IAEA, US/DOE, APSN, PNTR, JAEA
Japan	ISCN / ISCN	In operation	International /Domestic/ IAEA courses	✓	✓		IAEA, US/DOE, EC/JRC
Kazakhstan	TC of INP/ TC of INP	In operation	International /Domestic/ IAEA courses	✓	✓	Radiation Safety and Radiation Monitoring Information Security	US/DOE, Japan

*1 Gajamada University in Indonesia launched master course on nuclear security in 2017.

*2 BAPETEN ETC will be hosted 3rd regional school on nuclear security in October 2018.

Capacity Building (2)

Nuclear Security (and Safeguards) Training Centers

Cont.

	Training Center/ Training Provider	Status of Training Center	Target	Training Topics			Cooperation with
				Security	SG	Others	
ROK	INSA / INSA	In operation	International /Domestic/ IAEA courses	✓	✓	Export control	IAEA, US/DOE
Malaysia	NSSC / AELB	Training class and Testing Lab in operation		✓		Border control	IAEA, ANSTO, US/DOE
Mongolia	TBD / NEC			✓		Border control	US/DOE, IAEA
Philippines	PNRI	NSSC- training modules	Licensee, FLO and other government agencies	✓		Border control	IAEA, US/DOE
Thailand	TBD / OAP, CU*1	Under Consideration	Domestic Competence Authorities	✓	✓	Border control	IAEA, ASNO, US/DOE, JAEA, EC
Vietnam	TSCNSS / VARANS	Planned		✓	✓	Rad Detection	IAEA, US/DOE, JAEA

*1 Chulalongkorn University in Thailand has master course on nuclear security and safeguards for international/domestic students.

Capacity Building (3)

Nuclear Security (and Safeguards) Training Centers

Cont.

List of the Training Centers

Bangladesh: TBD

China: State Nuclear Security Technology Center (Center of Excellence on Nuclear Security)

China Customs Training Center for Radiation Detection (border control)

Nuclear Safeguards Technical Research Laboratory (Safeguards)

Indonesia: Nuclear Energy Regulatory Authority Education and Training Center (BAPETEN ETC)

National Nuclear Energy Agency Center for Education and Training (BATAN CET)

Japan: Integrated Support Center for Nuclear Nonproliferation and Nuclear Security (ISCN)

Kazakhstan: Nuclear Security Training Center

ROK: International Nuclear Security Academy (INSA)

Malaysia: Nuclear Security Support Center (NSSC)

Mongolia: TBD (Executive Office of the NEC is responsible to strengthening human resources in a nuclear and radiation field.)

Philippines: Philippine Nuclear Security Support Center is underway. Developing modules for the target stakeholders, National Training Center

Thailand: Office of Atoms for Peace (OAP), Chulalongkorn University.

Vietnam: Technical Support Centre for Nuclear Security and Safeguards (TSCNSS)