

Summary of Country Reports

—Current Status of 11 FNCA Member States*—

10th Workshop on Nuclear Security and Safeguards Project
of Forum for Nuclear Cooperation in Asia (FNCA)

February 19, 2021

*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, instead of “Philippine Nuclear Regulatory Commission” to “Philippine Atomic Regulatory Commission” submitted to Congress.

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 2019-2020

◆ Bangladesh:

- Nuclear material accounting reports and AP declarations are submitted in a timely manner. IAEA Safeguards Inspectors carried out safeguards inspection in December 2020 for Rooppur Nuclear Power Plant and Atomic Energy Research Establishment(AERE). IAEA Inspectors conducted Design Information Verification (DIV) for Rooppur Nuclear Power Plant and DIV and Physical Inventory Verification (PIV) for AERE.
- ‘National Policy for Nuclear Safeguards and Management of Nuclear Material’ was drafted by Bangladesh Atomic Energy Regulatory Authority. Several stakeholder-meetings were held to facilitate necessary input and feedback from different organizations relevant to the implementation of IAEA safeguards in the country.
- Bangladesh is preparing to request for the IAEA State System of Accounting for and Control of Nuclear Materials Advisory Service (ISSAS) to be conducted this year.

Safeguards (3)

Updates on Safeguards Implementation of 2019-2020

- ◆ **China:** 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. The first IAEA inspection to Shidao Bay HTGCR Reactor.
- ◆ **Indonesia:** Routine safeguards inspection 2 times for each MBA (Pre PIV & AP, PIV); Physical protection routine inspection one time in a year for each nuclear facility (21 on September - 16 October 2020); PIV and CA with IAEA on 6 - 14 August 2020 for RI-A, RI-C, RI-E and RI-G; Annual Safeguards Review Meeting on 10 August 2020; SNI by IAEA on 3 - 4 December 2020 for RI-C; CA by IAEA on 1 December 2020 for Serpong Nuclear Research Complex; numbers of training completed and planned for 2019-2020.

Safeguards (4)

Updates on Safeguards Implementation of 2019-2020

- ◆ **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 2019, 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 have been applied to confirm no removal of nuclear material.
- ◆ **Kazakhstan:** Supporting the efforts for nuclear nonproliferation, commissioning new infrasound station to register unauthorized nuclear explosions at the nuclear test sites worldwide; Conversion of research nuclear reactor VVR-K from highly-enriched to low-enriched uranium under project on research reactors conversion, Installation of Radionuclide Monitoring Station within CTBTO.
- ◆ **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 (5)

Updates on Safeguards Implementation of 2019-2020

- ◆ **Malaysia:** New Atomic Energy bill contained basic requirements for safeguards elements as well as State System of Accounting for and Control nuclear materials, information and activities under Additional Protocol and prohibition of nuclear weapon development; Malaysia received IAEA Safeguards Inspectors from 9th – 11th November 2020 for the annual inspection; Malaysia is also pleased to announce that we will be participating in the pilot phase of the new initiative launched by the IAEA in September 2020, Comprehensive Capacity-Building Initiative for SSACs and SRAs (COMPASS) which will be implemented starting 2021. We have been working closely with the IAEA to identify our needs and the types of assistance covered by the package.
- ◆ **Mongolia:** At the meeting of the Government of Mongolia on December 23, 2020, the Rules on Nuclear material accountancy control was approved by Resolution No. 229.

Safeguards (6)

Updates on Safeguards Implementation of 2019-2020

- ◆ **Philippines:** Nuclear Material Accounting reports and AP declarations are submitted annually through the Secure Communication. Integration of Safeguards to the Regulatory Process (i.e. Licensing, Enforcement) and development of regulations for Safeguards and Additional protocol. To conduct an awareness seminar on the Additional Protocol to the Regulatory Body (Nuclear Regulatory Division).
- ◆ **Thailand:** Annual activity requirements for CSA/AP obligations are Physical Inventory Verification, Design Information Verification, and Nuclear Materials Accountancy Reports. The DIQ for Suranaree University of Technology Research Reactor submitted to the IAEA. The AP declarations have updated, composing of fourteen declarations and four quarterly declarations. The target for broader conclusion plans to finish in 2021.
- ◆ **Vietnam:** 108 reports of nuclear research reactor, 74 LOF reports under CSA (2018); Workshop on radiation safety for safeguards inspectorate Q3 (2018). 6th year of AP implementation (2019); IAEA Safeguards inspector team in 2020.

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	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 2019-2020

◆ Bangladesh:

- Bangladesh hosted an Expert Mission on Nuclear Security Detection Architecture in Dhaka from 24-27 February 2020. This event was organized as a part of scheduled activities under the Integrated Nuclear Security Support Plan (INSSP) for Bangladesh. IAEA expert as well as representatives from different organizations relevant to the implementation of nuclear security activities in the country such as Ministry of Science and Technology, Bangladesh Atomic Energy Regulatory Authority, Bangladesh Atomic Energy Commission, Nuclear Security and Physical Protection System Cell, Border Guards Bangladesh, Bangladesh Coast Guard, Bangladesh Customs, Nuclear Power Plant Company Bangladesh Limited, Bangladesh Police, Intelligent Agencies, etc. participated in the expert mission.
- ‘National Nuclear Security Policy’ was drafted by Bangladesh Atomic Energy Regulatory Authority. Several stakeholder-meetings were held to finalize this policy.

Nuclear Security (3)

Updates on Nuclear Security Implementation of 2019-2020

◆ Bangladesh(cont.):

- A research project, 'Factors that can influence culture for safety, organizational culture and human performance at nuclear and other facilities in Bangladesh' is ongoing under the IAEA Coordinated Research Project (CRP) 'I22004' entitled 'Organizational Culture Basis for Successful Performance in Nuclear Power Plants'. Actively participated all the RCM of this CRP. It is expected that the outcomes of this project will help to enhance the understanding of parameters related to and needed for improvement of organizational factors and human factors in the organization's culture for safety and security in Bangladesh.

Nuclear Security (4)

Updates on Nuclear Security Implementation of 2019-2020

- ◆ **China** : 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; Signing the Agreement between the IAEA and CAEA concerning the designation of the CAEA as an IAEA collaborating Center in 2019.

Nuclear Security (5)

Updates on Nuclear Security Implementation of 2019-2020

- ◆ **Indonesia:** BAPETEN Physical Protection regulation is under revision to comply with INFCIRC/225/Rev.5), BAPETEN, BATAN and security authorities conducted. Performance Testing Course (blended training face to face and virtually) to evaluate PPS implementation in Serpong Nuclear Research Center 2020 ; number of trainings completed and planned. BATAN conducted Security Risk Assessment in 2019 based on BATAN Chairman Regulation / BATAN Standard; and Contingency Plan Course in Serpong in 2020. 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. BATAN's NSSC in collaboration with NNSA/INS/U.S. DOE will conduct National Nuclear Security Training Course virtually in 2021 and one regional (SEA) course on Insider Threat Mitigation in September 2021 virtually.
- ◆ **Japan:** The Notification and the Operational Guidelines were issued, and 12 Ordinances had been revised by March 2019, resulting in the full incorporation of the system to determine trustworthiness of personnel into Japan. 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 (6)

Updates on Nuclear Security Implementation of 2019-2020

- ◆ **Kazakhstan:** Opening of the International Low Enriched Uranium Bank; Completion of Design on construction of physical barriers at the territory of STS for nuclear proliferation threat reduction.
- ◆ **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:** Completed the establishment of Physical Protection (PP) Laboratory in 2018, supported by Canada. Malaysian Nuclear Agency was conducted the Nuclear Security Conference 2019 on 11 – 12 November 2019; Malaysia has ratified the Treaty on the Prohibition of Nuclear Weapons (TPNW) on 30 September 2020. Signing the Partnership Agreement (PA) Between IAEA and AELB on the Establishment of a Loaner Pool For Radiation Detection Equipment on 25 September 2020.

Nuclear Security (7)

Updates on Nuclear Security Implementation of 2019-2020

- ◆ **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 of the INSSP will be this 2021 which includes Nuclear Energy. Continue collaboration with US DOE ORS with planned Virtual (Refresher) Workshop on Radiological Source Security Inspection and Transportation Security for Nuclear Regulatory Division personnel. PNRI mobile expert support team deployed in the Feast of the Black Nazarene, a religious event with attendance of five (5) million last 2020 and only less than a million this 2021 due to COVID-19.

Nuclear Security (8)

Updates on Nuclear Security Implementation of 2019-2020

- ◆ **Thailand:** Co-host for the virtual GICNT activity with Australia on Best Practices in Forensics Experts and Law Enforcement Cooperation in August 2020. Nuclear Forensics Workshop for the Frontline Officers in September 2020. World Institute for Nuclear Security (WINS) and OAP signed the MOU to enhance Thailand's capacity building and develop the Nuclear Security Support Center (NSSC) in January 2021. The Nuclear Security Working Group has revised roles, functions, and composition.
- ◆ **Vietnam:** June 2018 - INSSP updated. 2019 - New Regulatory of security of rad source; T3 course and operator training with DOE/NNSA's Office of Nuclear Smuggling Detection and Deterrence (NSDD); meeting with Stimpson Center (USA). 2020: IAEA Project - Border Monitoring Equipment Upgrade for Tan Son Nhat Airport, Vietnam; participated in a series of virtual meetings in 2020.

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 :** 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; conduct online training and workshop during Covid-19 pandemic.
- ◆ **Indonesia:** CSCA/BATAN: conducting self-assessment on nuclear security culture for radioactive source facility in Pasar Jumat (2018-2019), final report has completed in 2020; 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:** Nuclear Disarmament Verification Initiative, participation in Stockholm Initiative on Nuclear Disarmament and Support for the NPT, signature of TPNW.
- ◆ **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 incorporated in the 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.
- ◆ **Vietnam:** Developed and implemented of regulatory documents (Circular 01/May 2019 on security of rad sources; and Government Decree on Requirements for radiation work), continue fostering Nuclear Security Culture.

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	VARANS / TSC	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 Radiation & Nuclear Safety and Emergency Response (VARANS/TSC)