Summary of Country Reports

—Current Status of 11 FNCA Member States*—

11th Workshop on Nuclear Security and Safeguards Project of Forum for Nuclear Cooperation in Asia (FNCA)

February 15, 2022

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), Viet Nam (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 and independent regulatory body, instead of "Philippine Nuclear Regulatory Commission" to "Philippine Atomic Regulatory Commission" submitted to Congress.

* **Independent**: Australia (ARPANSA, ASNO)

Safeguards (1)

Implementation of International Treaties and Agreements

- Member of **NPT** (Nuclear Nonproliferation Treaty): 12/12 states
- **CSA** (Comprehensive Safeguards Agreement) in Force: 12/12 states (VOA is in force in China)
- **AP** (Additional Protocol) in Force: 11/12 states
- **IS** (Integrated Safeguards): 6/12 states

	NPT Member	CSA in Force	AP in Force	Integrated safeguards
Australia	✓	✓	12 Dec.1997	✓
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	
Viet Nam	✓	✓	17 Sep. 2012	＊2

＊1 Philippines got Broader Conclusion from IAEA in May 2013 and implementing IS in 2017.
＊2 Viet Nam got Broader Conclusion from IAEA in May 2015.

Safeguards (2)

Updates on Safeguards Implementation of 2020-2021

◆ **Bangladesh**:

- IAEA Inspectors visited Rooppur Nuclear Power Plant (RNPP 1 & 2) and carried out design information verification (DIV) activities in accordance with the Safeguards Agreement (INFCIRC/301) on 29 November 2021. IAEA's Department of Safeguards acknowledged that the results of DIV were satisfactory.
- 'National Policy for Nuclear Safeguards and Management of Nuclear Materials' is now on the approval process.
- Bangladesh officially requested IAEA for IAEA State System of Accounting for and Control of Nuclear Materials Advisory Service (ISSAS) and an ISSAS mission is scheduled to be hosted in first quarter of 2022.

Safeguards (3)

Updates on Safeguards Implementation of 2020-2021

- **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. Routine IAEA inspection to Shidao Bay HTGCR Reactor.
- **Indonesia**: Physical protection routine inspection one time in a year for each nuclear facility (on September - October 2021), Safeguards routine inspection two times for each MBA (Pre PIV & AP, PIV), Technical Workshop on AP declaration using PR3, PIV with IAEA on July 2021 for RI-B, RI-C. and RI-G , Annual Safeguards Review Meeting on 15 July 2021SNI by IAEA on 29 - 30 November 2021 for RI-C , CA by IAEA on 29 November 2021 for Serpong Nuclear Research Complex.

Safeguards (4)

Updates on Safeguards Implementation of 2020-2021

- **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 2020, 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 undeclared removal of nuclear material. In 2021, the shipment of all fuel assemblies in Spent Fuel Pond at Unit-3 to the Common Spent Fuel Storage and re-verification by the IAEA were successfully completed.
- **Kazakhstan**: Kazakhstan chaired Working Group B of the CTBTO Preparatory Commission, the Law about "Semipalatinsk Nuclear Safety Zone" is adopted, reactor testing of SNP-fueled irradiation devices is conducted, participation of Kazakhstan in the World Nuclear Association (WNA) Symposium, participation in the Nuclear Disarmament Verification Expert Group, preparatory work to establish a Regional Nuclear Disarmament Verification Center has begun, preparatory work for CTBT calibration testing has begun.

Safeguards (5)

Updates on Safeguards Implementation of 2020-2021

- **ROK** : In 2020, a total of 95 IAEA inspections were performed, including unannounced inspections and physical inventory verification. Also, 9 complementary accesses were conducted for the provision of information under the AP. The safeguards conclusion of IAEA inspections were 'satisfactory' for all the times, and a broader conclusion was made.
- **Malaysia**: The new Atomic Energy bill is schedule to be table in Parliament by Q4 2022; Malaysia had received IAEA Safeguards Annual Inspection on the 2nd and 3rd of November 2020; Malaysia currently implementing IAEA Comprehensive Capacity-Building Initiative for SSACs and SRAs (COMPASS) in accordance with its project schedule. Preparatory activities on AP implementation are on going to ensure groundworks are ready once ratification of AP is decided by Government.

Safeguards (6)

Updates on Safeguards Implementation of 2020-2021

- **Mongolia**: AP declarations are submitted in a timely manner. The Rules on Nuclear material accountancy and control was approved by Government Resolution No. 229 on on December 23, 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. Migration of Protocol Reporter 2 to Protocol Reporter 3.Conducted an awareness seminar on the Additional Protocol to the Regulatory Body (Nuclear Regulatory Division) and to revive AP Outreach program to Universities and Industries.

Safeguards (7)

Updates on Safeguards Implementation of 2020-2021

- **Thailand:** Annual activity requirements for CSA/AP obligations are Physical Inventory Verification, Design Information Verification, and Nuclear Materials Accountancy Reports. Pre-DIQ for Suranaree University of Technology Research Reactor was submitted to the IAEA in 2020. The AP declarations have been updated, composing of fifteen declarations and four quarterly declarations. OAP, Department of Foreign Trade and Thai Customs cooperate on information sharing regarding commodity required to be declared.
- **Viet Nam:** 128 reports of nuclear research reactor, 104 LOF reports under CSA (2021); NNSA Webinars for International Safeguards Professionals (WISP) (2021); International Training Course on Nuclear Material Accounting and Control for Practitioners Q1 (2022); IAEA Safeguards inspector team in 2021.

Nuclear Security (1)

Implementation of International Treaties and Conventions

- **CPPNM** (Convention on the Physical Protection of Nuclear Material): 11/12 states
- **CPPNM Amendment***: 9/12 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
Australia	22 Oct 1987 in force	Ratification 17 Jul 2008	Ratification 16 Mar 2012
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	Ratified 16 June 2021	Signature 15 Sep 2005
Thailand	27 Mar 2018 in Force	Ratification 27 Mar 2018	Signature 14 Sep 2005
Viet Nam	03 Nov 2012 in force	Ratification 03 Nov 2012	Accession Sept 2016

Nuclear Security (2)

Updates on Nuclear Security Implementation of 2020-2021

◆ **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 Cost Guard, Bangladesh Customs, Nuclear Power Plant Company Bangladesh Limited, Bangladesh Police, Intelligent Agencies, etc. participated in the expert mission.
- 'National Nuclear Security Policy' is now on the approval process.
- Bangladesh is preparing to request for the International Physical Protection Advisory Service (IPPAS).

Nuclear Security (3)

Updates on Nuclear Security Implementation of 2020-2021

- **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 2020-2021

- **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 he 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. Cyber Security Guidance for Nuclear Facility released in 2019;Practicl arrangement on cooperation on nuclear forensic with IAEA signed in 2020;Practicl arrangement on cooperation on Nuclear Security of Major Public Event with IAEA signed in 2021.

Nuclear Security (5)

Updates on Nuclear Security Implementation of 2020-2021

- **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 2021 ; number of trainings completed and planned. ORTN-BRIN conducted Security Risk Assessment, Performance Testing and Contingency Plan in 2021 as required by BAPETEN Chairman Regulation as well as BATAN Standard. In 2021 ORTN-BRIN and BAPETEN conducted cyber security WS supported by U.S.DOE. In 2021, ORTN-BRIN continued to conduct Physical Protection training course at Nuclear Security Support Center (NSSC) in Serpong site. BATAN's NSSC in collaboration with NNSA/INS/U.S. DOE conducted National Nuclear Security Training Course virtually in 2021 and one regional (SEA) course on Insider Threat Mitigation in September 2021 virtually. Per 1 September 2021, BATAN's name is no longer used, and now so-called Nuclear Technology and Research Organization (ORTN) - under the National Research and Innovation Agency (BRIN). ORTN-BRIN NSSC in collaboration with NNSA/INS/U.S. DOE will conduct National Nuclear Security Training Course virtually in 2022.

Nuclear Security (6)

Updates on Nuclear Security Implementation of 2020-2021

- **Japan:** The new performance-based inspection system started in April 2020 in which security inspections are more focused on activities with higher security risks. This new inspection system allows for comprehensive oversight of licensees' nuclear security practices. Under this inspection system violations of the security plan of Kashiwazaki-Kariwa Nuclear Power Station were identified. Currently, supplemental inspections are underway to address these violations. Regarding RI security, 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 based on IAEA guidance (NSS). ISCN was designated as the Collaborating Centre of IAEA on nuclear security in November 2021.
- **Kazakhstan**: IGR research reactor fuel enrichment reduction, nuclear-hazardous object "Experimental Field", located at the STS was transferred to the responsibility of the National Guard of RK, construction of RONA repository, training courses for nuclear security forces, construction and equipping of a test site of the National Guard of RK, security enhancement work to the nuclear-hazardous object "Aktan-Berli" was competed, integrated studies of STS territory were completed.

Nuclear Security (7)

Updates on Nuclear Security Implementation of 2020-2021

- **ROK**: A guidance document for physical protection examination and inspection was completely revised in their format and the details were supplemented to provide a basis for efficient and thorough regulatory implementation. In addition, systematic standards for cyber attacks were prepared by setting up the guidelines for cyber incident response training in nuclear facilities and cyber security review and inspection for wireless connection of nuclear facilities.
- **Malaysia**: Participation and implementation of activities in 2021 was almost via online with various counterparts such as IAEA and NNSA. Those activities include National Workshop on Threat Assessment and Design Basis Threat, AELB/NSDD Nuclear Security Detection Peer-to-Peer Engagement, The Nuclear Threat Initiative (NTI) and Pacific Forum on the amended Convention of the Physical Protection of Nuclear Materials (A/CPPNM), Development of Regulations for the Physical Protection of Nuclear Material and Nuclear Facilities Workshop etc.

Nuclear Security (7)

Updates on Nuclear Security Implementation of 2020-2021

- **Mongolia**: Mongolia acceded to the Treaty on the Prohibition of Nuclear Weapons (TPNW) on December 10, 2021 becoming the 57th state party. Joining this treaty would "meet the fundamental interests of national security". National action plan on the implementation of the United Nations Security Council Resolution 1540 was developed.

- **Philippines**: Review of the INSSP schedule for 2022 which includes Nuclear Energy. Continue collaboration with IAEA, US DOE and other organizations for seminars, workshops, etc on Nuclear Security for Nuclear Material and Radioactive Material including the NSDD program. Establishment of Nuclear Forensics of which the PNRI NFG participates in the CMX-7. Collaboration with PNRI Nuclear Training Center in the introduction of three (3) days Pilot training course on Security of Radioactive Material for Security Officers and Regulatory 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 that a million this 2021 due to COVID-19. Participated in the IAEA CRP on the Advance Maintenance, Repair and Calibration of Radiation Detection Equipment.

Nuclear Security (8)

Updates on Nuclear Security Implementation of 2020-2021

- **Thailand**: In January 2021, OAP and World Institute for Nuclear Security (WINS) signed an MOU to support the establishment of the National Nuclear Security Support Centre (NSSC) in Thailand. The project, funded by the Weapons Threat Reduction Programme of Global Affairs Canada (GAC), supports international commitments to enhance competence. ISO92223:2017 is pursuing the certification process for OAP's nuclear security training activities. In the process of drafting the Nuclear Security Regime. Thailand held annual training workshops for the frontline officers in Nuclear Security Incident Response and Nuclear Forensics.

- **Viet Nam**: 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); 2020 - Decree No. 142/2020/ND-CP of the Government: Regulations on the conduct of radiation work and service activities to support the application of atomic energy; 2021 - IAEA Project – Radiation Portal Monitoring (RPMs) installed in Tan Son Nhat Airport; 2020-2021 ensured nuclear security for MPEs (ASEAN activities in Viet Nam, Congress Regular Meeting); participated in a series of virtual meetings in 2020-2021.

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. product nuclear security science popularizing video.

Nuclear Security Culture (2)

Methods and Plans to Foster Nuclear Security Culture

- **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), ORTN-BRIN conducting self-assessment on nuclear security culture for entire workforce by using on-line survey cause of pandemic COVID-19; Indonesia shared experience on self assessment of nuclear security culture at research reactor to IAEA member States through IAEA Workshop on Nuclear Security Culture and Self-Assessment, in 2018 the report submitted to the IAEA-TECDOC CRP on nuclear security culture enhancement solutions. The IAEA has offered to Indonesia to be the first country to hold a Seminar for Senior Managers on Nuclear Security Culture, which is planned for Q1 2022.

Nuclear Security Culture (3)

Methods and Plans to Foster Nuclear Security Culture

- **Japan**: NRA Commissioners regularly hold nuclear security briefings for executives of operators and conduct interviews to them to communicate the expectation for their leadership in nuclear security, and if necessary, directly request them to take the lead in fostering nuclear security culture.
- **Kazakhstan:** Nuclear Disarmament Verification Initiative, participation of national and international training courses in collaboration with IAEA, JAEA, US/DOE and etc.
- **ROK:** organized and hosted a regional workshop on Asia's considerations of nuclear security on 23-24 March 2021. This workshop aimed at enhancing awareness of nuclear security in Asia by discussing the perception of nuclear security threats and analyzing nuclear security priorities in the region, and providing relevant information regarding the A/CPPNM and its review conference.
- **Malaysia**: Conducted nuclear security culture self assessment and Nuclear Security Culture Campaign on Cyber Security and Physical Security was conducted at Malaysian Nuclear Agency. Implementation of IAEA Coordinated Research Project - Design and development of a Knowledge-Based Model and Software Module for Intelligent & Integrated Nuclear Security System for Malaysian Nuclear Agency.

Nuclear Security Culture (4)

Methods and Plans to Foster Nuclear Security Culture

- **Mongolia:** Cooperation with Executive office of the NEC and US department of Energy, Sandia National Laboratory jointly organized the virtual training course on "Transportation response" was held on September 28-30, 2021. Total of 34 employees from 22 government agencies were attended this training and acquired knowledge and skills to organize prevention and response activities during the transportation of radioactive materials.
- **Philippines:** Incorporated nuclear security culture topic in the Pilot Training Course with PNRI-NTC. Strengthening nuclear security culture in the workplace.
- **Thailand:** Continuous training, stakeholder communications, and revision of regulations and guidelines under the Nuclear Energy for Peace Act.
- **Viet Nam:** Developed and implemented of regulatory documents (Circular 01/May 2019 on security of radioactive sources; and Decree No. 142/2020/ND-CP of the Government: Regulations on the conduct of radiation work and service activities to support the application of atomic energy), continue fostering Nuclear Security Culture (NNSA NSC workshop 2021).

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, Directorate of Competency Development (BRIN's Training Center/ BAPETEN, BRIN**	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
Viet Nam	**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)
Directorate of Human Resource Development and Competency – BRIN, instead of BATAN-CET. Both ETC and CET will always work together.
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.)

Capacity Building (4)

Nuclear Security (and Safeguards) Training Centers Cont.

List of the Training Centers

Philippines: Philippine Nuclear Security Support Center is underway. Developed two (2) modules for National Coast Watch Center and for Philippine AirForce on Awareness and Basic Radiological Detection Workshop.

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

Viet Nam: Technical Support Centre for Radiation & Nuclear Safety and Emergency Response (VARANS/TSC)