NRA, Japan
Nuclear Regulation Authority

Effort to Nuclear Security Regulation in Japan

IPPAS National Workshop

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OUTLINE

○Experience of hosting IPPAS missions in Japan

○Conclusion of previous missions

○Progress in enhancing the nuclear security regulation in Japan

○Significance of hosting the 2024 IPPAS mission

1. Previous and future IPPAS missions in Japan

○February 2015: the first IPPAS mission

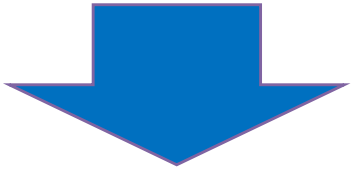
○November 2018: follow-up IPPAS mission

○June/July 2024: Next IPPAS mission

1. Previous and future IPPAS missions in Japan

Background on Japan's Request for the 2015 IPPAS Mission

- Since 2005, efforts had been made to enhance PP regulations
  - Adopted IAEA INFCIRC/225/Rev.5 in 2011/ 2012
  - NRA was established in Sep. 2012
- Many countries have hosted the IPPAS Mission



- To obtain peer review comments by international experts for further improvement
- To build confidence with the public and international community on the status of nuclear security in Japan

2. Conclusion of previous missions

○2015 IPPAS mission:

Nuclear security in Japan has been significantly enhanced during recent years after Fukushima. This includes a revision of laws and ordinances, not only to develop requirements for the Fukushima-Daiichi plant as it is being decommissioned, but also to strengthen security and safety at the other nuclear facilities in Japan.

○2018 IPPAS mission:

Japan has a robust nuclear security regime that meets the intent of the CPPNM and its 2005 Amendment. Nuclear security is important, and there is strong leadership at the NRA and at the nuclear facilities to sustain the regime.

<u>For the Response to National Level Recommendations and Suggestions provided during the 2015 IPPAS mission:</u>

Two recommendations and 9 suggestions related to nuclear security at the national level were provided by the 2015 IPPAS mission. These recommendations and suggestions were CLOSED, as they were confirmed to have been addressed appropriately.

3. Progress in enhancing the nuclear security regulation since the 2015 IPPAS mission

i. Introduction of trustworthiness determination program (November 2017)

ii. Enhancement of nuclear security capabilities within the NRA

iii. Strengthening of computer security measures

iv. Strengthening of the efforts addressing the interface with nuclear safety

(Item 1, 2 and 3 are responses to recommendations and suggestions by 2015 IPPAS mission)

3. Progress in enhancing the nuclear security regulation since the 2015 IPPAS mission

Introduction of trustworthiness checks program

○2015 IPPAS mission's Recommendation：
The Government of Japan should adopt regulations for trustworthiness in accordance with the established policy and legal framework.

- The introduction of the trustworthiness checks has been completed. (Nov. 2017)

(Object persons)
- Those who regularly enter protected areas and others specified in the Ordinance
- Those who are to be designated to be in a position to know confidential physical protection information regarding specified nuclear fuel material for their duties

(Methods of conducting trustworthiness determination)
- Review of self-declared information
- Alcohol test
- Aptitude test

(Matters to be checked)
- Record of overseas travel
- Relationship with other countries
- Relationship with organizations (including criminal syndicates) that may commit terrorism or other criminal acts
- Capacity to distinguish right from wrong
- Criminal or disciplinary record related to the physical -protection of nuclear fuel material

- Confirmed that the recommendation was CLOSED, in the 2018 IPPAS follow-up mission.

3. Progress in enhancing the nuclear security regulation since the 2015 IPPAS mission

Enhancement of nuclear security capabilities within the NRA(1/2)

○2015 IPPAS mission's Suggestion：

The NRA may consider recruiting the approved number of PP inspectors in order to meet the number of places (43) provided for in the existing legislation.

Point of Time	Number of Inspectors	Contents
2015 IPPAS mission (Feb. 2015)	34	
2018 IPPAS follow-up mission (Nov. 2018)	38	
Present (Scheduled for June 2023)	52	Assigned 19 resident inspectors to each Regional Office and increased the number of inspectors for cyber security

- Confirmed that the Suggestion was CLOSED, in the 2018 IPPAS follow-up mission.

3. Progress in enhancing the nuclear security regulation since the 2015 IPPAS mission

Enhancement of nuclear security capabilities within the NRA(2/2)

○2015 IPPAS mission's Suggestion：

The NRA may consider formalizing a certificate programme for testing and certification of PP inspectors.

○Suggestion of IRRS Report (Apr. 2016)：

NRA should consider improving training and retraining of its inspectors in order to improve their competencies for inspections, associated assessments and decisions making.

- NRA introduced the new qualification system of nucleation inspectors, etc. in Oct. 2017 based on the suggestions of IPPAS and IRRS.
- This system includes the structured curriculum, capacity test and authorization system for qualifying PP inspector.
- Confirmed that the Suggestion was CLOSED, in the 2018 IPPAS follow-up mission.

3. Progress in enhancing the nuclear security regulation since the 2015 IPPAS mission

Strengthen computer security measures

○2015 IPPAS mission's Suggestion：

The NRA should consider further strengthening its ability to effectively inspect computer security at nuclear facilities with dedicated computer security experts.

- New position of "Cyber Security Officers" who conducts advanced examinations and inspections specializing in cyber security was created and there are currently three Cyber Security Officers.
- Increased the number of inspectors for cyber security from two at the time of the 2015 IPPAS to eight (including above-mentioned inspectors exclusive to cyber security), who have national qualifications of information technology engineer, etc.
- Confirmed that the Suggestion was CLOSED, in the 2018 IPPAS follow-up mission.

3. Progress in enhancing the nuclear security regulation since the 2015 IPPAS mission

Strengthening of the efforts addressing the interface between security and nuclear safety(1/2)

NRA that has unitarily jurisdiction over 3S (Safety, Security and Safeguards) regarding the nuclear facilities is making effort for the harmonization of 3S.

○Suggestion of IRRS Report (Apr. 2016) :

NRA should consider expediting improvements in the arrangements to assess, oversee and enforce nuclear safety and security in an integrated manner.

- Introduction of the system for determination of personal trustworthiness regarding NRA staff (Apr. 2018)
  - ✓ The staff taking charge of nuclear safety regulation have become able to have access to the information regarding PP regulation, if necessary.

3. Progress in enhancing the nuclear security regulation since the 2015 IPPAS mission

Strengthening of the efforts addressing the interface between security and nuclear safety(2/2)

- Effort regarding the interface between nuclear safety and nuclear security in emergency
  - ✓ Establishment of the case of nuclear security in the emergency category.
  - ✓ Centralization of initial response system in the event of a nuclear security incident
  - ✓ Participation of the person in charge of nuclear safety in the PP training

- Efforts for Information Sharing for Examination and Inspection
  - ✓ Establishment of the effective coordination between the staff in charge of nuclear safety regulation and safeguards and the staff in charge of physical protection regulation during examination
  - ✓ Implementation of the initiative that when the staff in charge of nuclear safety regulation become aware of any issues related to physical protection during the course of an inspection, they inform the department in charge of the issue.

4. Progress of nuclear security regulation since the 2018 IPPAS mission

i. Introduction of regulations for radioactive isotopes (September 2019)

ii. Evolution of Regulatory Inspection Program including PP inspection (started in April 2020)

iii. Clarification of the position of nuclear security regulation in the legal text

iv. Establishment of regulatory requirements for computer security in the review standards

v. Consideration of institutionalization of NMAC regulations (under consideration)

(Item 3,4 and 5 are responses to the suggestions provided through the 2018 IPPAS follow-up mission)

4. Progress of nuclear security regulation since the 2018 IPPAS mission

Introduction of the RI Security Regulation

Background: Introduction of RI regulation

- Considering the NRA's survey and the IRRS recommendation in 2016, the NRA organized the Study Team. Taking into account the output by the Study Team, the NRA presented the bill containing the RI security regulation of highly dangerous radioisotopes.
- The RI security regulation based on the bill came into effect in September 2019, which is in line with international standards (e.g., Code of Conduct, NSS-14).
- It is the first time when the RI security regulation will be reviewed by the up-coming IPPAS Mission.

Scope of Security Regulation

- Specific Radioisotopes are defined and regulated as highly dangerous radioisotopes.
- Based on the Graded Approach, the specific radioisotopes are categorized into three groups, referring to D1-value and D2-value described in the IAEA technical document.

Example for commonly used sources

- Gamma knife (Co-60)

- Industrial gamma radiography (Ir-192)

- Blood irradiation (Cs-137)

- Remote after loading system (Ir-192)

4. Progress of nuclear security regulation since the 2018 IPPAS mission

Outline of Security Measures for Specific RIs

【Response】
Prepare procedure to ensure immediate response when theft is detected.

【Detection】
To discover and assess an attempted intrusion to unauthorized removal.

【Delay】
Ensure sufficient delay until security authority arrives.

【Access Control】
To provide access controls to source location, which effectively allow authorized persons only to access.

Security Measures

【Detection】
- Installation of surveillance camera and intrusion detection device

【Delay】
- Room compartmented with solid barrier walls and in robust lockup against intrusion
- Measures (e.g., tie-down) against unauthorized removal

【Response】
- Installation of communication device and development of emergency response manual
- Education and training

【Access Control】
- Identification and confirmation by key custodian, use of ID cards

【Other Measures】
- Designation of security manager
- Security information Management
- Development the security plan
- Periodical check, etc.

4. Progress of nuclear security regulation since the 2018 IPPAS mission

Evolution of Regulatory Inspection Program including PP inspection

Previous Regulatory Inspection Program (- March 2020)

- Complex and overlapping multiple inspections – Complicated and Fragmented
- Detailed specifications regarding inspection targets and inspection timing – Lack of flexibility
- The inspection results focus on the existence of nonconformities and violations, and administrative measures based on the inspection results require licensees to correct the nonconformities and violations as necessary – not encouraging licensees to proactively and continuously improve

New (Current) Regulatory Inspection Program (From April 2020 -)

- Single Comprehensive Inspection: Multiple inspections by the NRA have been consolidated into a single “Nuclear Regulatory Inspection”.
- Free Access: Inspection at anytime, anywhere, and on any item
- Feedback involves both enforcement and supplemental inspection
  - New inspection program covers all safety related activities from designing to decommissioning, include construction, operation, maintenance, repair, procurement, quality management…
  - Free-access to facility and information

4. Progress of nuclear security regulation since the 2018 IPPAS mission

PP Inspection on NPPs

- Items to be confirmed by PP inspections (in accordance with the Reactor Regulation Act)
  - ✓ Implementation status of measures based on the security plan
  - ✓ Implementation status of PP measures required by NRA Ordinances

- PP inspection method (based on the PP inspection guide)
  - ✓ Performance-based inspection

- Review by PP inspections (based on the PP inspection guide)
  - ✓ Various activities concerning PP measures;
    - are implementing adequately
    - have been evaluated periodically their effectiveness

    (Through confirmation of the activities based on the Collective Action Program (CAP), walkdown and interview, etc.)

4. Progress of nuclear security regulation since the 2018 IPPAS mission

Clarification of the position of nuclear security regulation in the legal text

○2018 IPPAS mission's Suggestion：

To meet the mid-term strategy of the NRA regarding harmonization of Safety, Security & Safeguards, the NRA may consider specifically referring to Security along with Safety in relevant NRA documents.

- Status of Response
  - ✓ Under the Act for Establishment of the Nuclear Regulation Authority, the Nuclear Regulation Authority has the mission "to ensure safety".
  - ✓ This Act was amended to add "matters related to the protection of nuclear fuel materials, radioisotopes", as one of NRA's affairs. With this addition clarified in the Act "security" is placed in a parallel position to "nuclear safety".
  - ✓ Therefore, there is no longer a need to use the enumerated expressions such as ""safety and security" or the interpretation that ""security"" is included in the broad sense of ""safety"" in relevant documents under the Act developed by the NRA as suggested by the IPPAS mission.
- The detailed response status will be explained in the 2024 IPPAS mission.

4. Progress of nuclear security regulation since the 2018 IPPAS mission

Establishment of regulatory requirements for computer security in the review standards

○2018 IPPAS mission's Suggestion：

The NRA may consider reviewing their requirements on computer security in the review standards and guidelines on computer security to determine if any important elements in the guidelines might be included in the review standards.

- Status of Response
  - ✓ The review standards were revised to add important requirements for computer security, based on the content of the provisions of the Guidelines and taking into account the latest IAEA NSS documents, etc. The revised version applies to nuclear power plants and reprocessing facilities that are deemed to have a significant impact in the event of sabotage or destruction of the information systems of nuclear facilities (March 2022).
  - ✓ The review standards for other types of nuclear facilities will be revised after inspection and investigation of the status of computer security measures at each facility.
- The detailed response status will be explained in the 2024 IPPAS mission.

4. Progress of nuclear security regulation since the 2018 IPPAS mission

Consideration of institutionalization of NMAC regulations

○2018 IPPAS mission's Suggestion：

The NRA may consider reviewing, and revising if necessary, nuclear material accounting and control regulations to ensure they meet nuclear security objectives of protecting against insider threats, especially for bulk nuclear material facilities.

- Status of Response
  - ✓ The nuclear material accounting and control for nuclear security purposes (NMAC) is recognized to be very effective in advancing protection against insider threats., Its importance is especially high at low-enriched uranium fuel fabrication facilities and MOX fuel fabrication facilities that handle a large amount of bulk nuclear fuel material.
  - ✓ ・We are currently conducting a study on the possibility of introducing NMAC at the above facilities.
- The detailed response status will be explained in the 2024 IPPAS mission.

5. Significance of hosting the 2024 IPPAS mission

i. From the viewpoint of promoting continuous improvement of the regulatory system, it would be meaningful to receive an evaluation of the implementation status of the legal amendments when receiving IRRS and IPPAS.

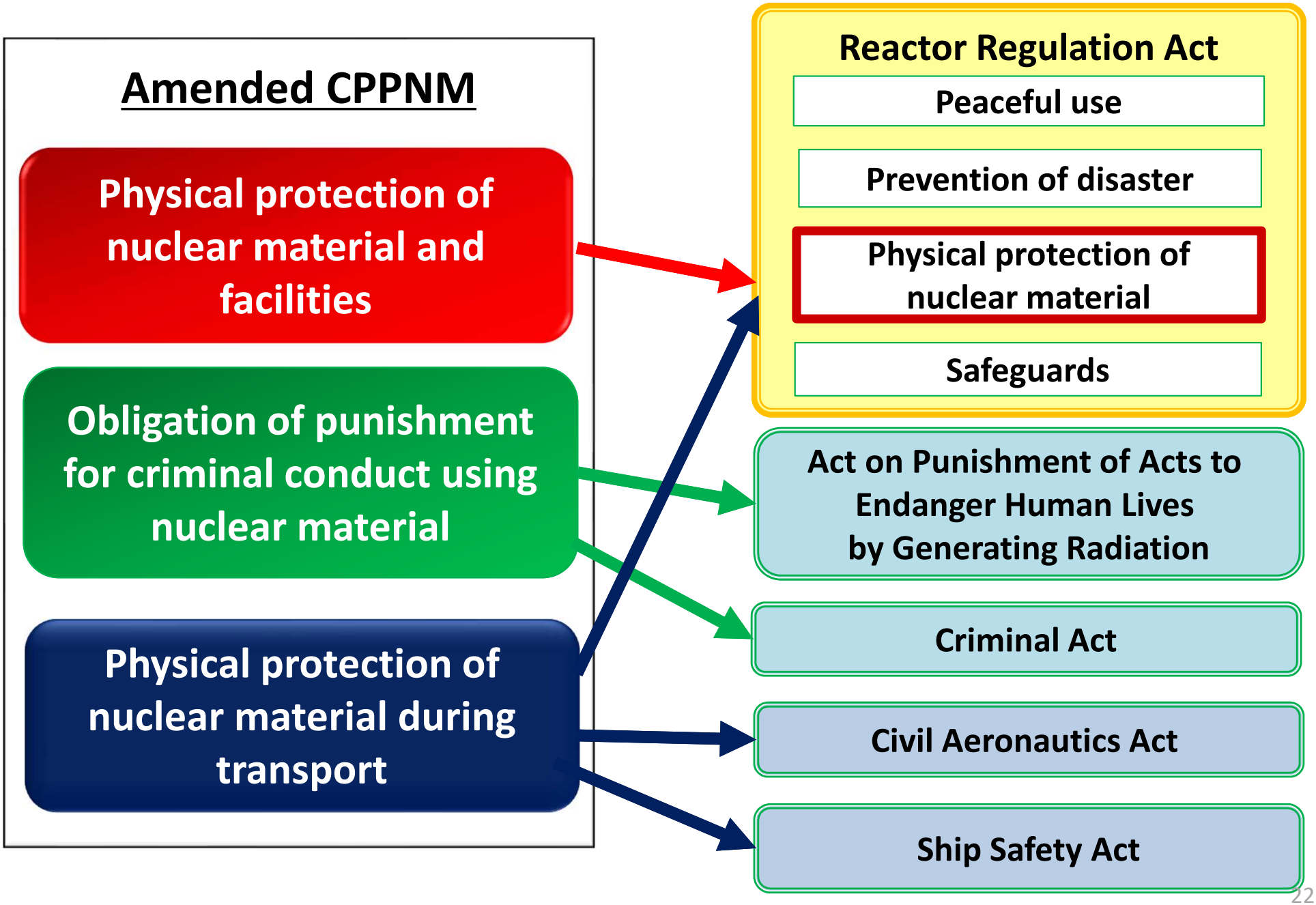
ii. After the change of the Chairman, the NRA discussed the activity policy of the NRA for the next five years at the NRA's Committee meeting in October 2022. Among the activity policies, the policy to host IRRS and IPPAS was indicated in the section "External Evaluation by International Organizations".

iii. As approximately five years have passed since the introduction of the RI Security Regulation, we believe that an external review of nuclear security in general by an international organization would contribute to the improvement of the regulatory system.

iv. In addition, we see hosting the IPPAS mission as an opportunity to discuss with international nuclear security experts, and hope not only to receive recommendations and suggestions but also to obtain information on some practices of other countries and some advice on how to respond to the recommendations and suggestions.

（Reference Materials）

Enforcement of Amended CPPNM by Acts



National Framework for Nuclear Security

International Cooperation	Regulation			Response to Emergency / Contingency
	Nuclear Fuel Material Nuclear Facility	Radioisotope	Transport	
Ministry of Foreign Affairs (MOFA)	**Nuclear Regulation Authority (NRA)** ✓ Division of Nuclear Security: Protecting nuclear material ✓ Division of Radiation Regulation: Protecting RI			**CAS** Cabinet Secretariat
				MOD Ministry of Defense
	MLIT		**MLIT**	**FDMA**
			Ministry of Land, Infrastructure, Transport and Tourism	Fire and Disaster Management Agency
	MHLW	**MHLW**	**PSC at local areas**	**NPA**
		Ministry of Health, Labor and Welfare	(Local) Public Safety Commission	National Police Agency
	MAFF	**MAFF**	**Japan Coast Guard**	
		Ministry of Agriculture, Forestry and Fisheries		

Legal Instruments for Regulation of Nuclear Material and Facilities in Japan

Atomic Energy Basic Act

Reactor Regulation Act

Order for Enforcement of the Reactor Regulation Act

Ordinances by Nuclear Regulation Authority (NRA) for:

- Use
- Fabrication and enrichment activity
- Reprocessing activity
- Refining activity
- Inspection, etc.
- Nuclear reactors (4 types)
- Storage of spent fuel
- Disposal activities (3 types)
- Fukushima Daiichi NPS
- Transportation

Regulatory Framework for PP Requirements