



THAILAND'S ADDITIONAL PROTOCOL: EXPERIENCE AND CHALLENGES

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Abstract

As a State party to the Nuclear Non-Proliferation Treaty (NPT), Thailand has implemented the Comprehensive Safeguards Agreement (CSA), INFCIRC/241, since 1974. In order to fulfill international obligations under the NPT and to provide transparency on nuclear energy uses, Thailand signed the Additional Protocol on 22 September 2005 and prepared the regulatory legal framework and implementation for ratification. After 12 years work conducted by the Office of Atoms for Peace (OAP) and relevant authorities, the Additional Protocol entered into force on 17 November 2017. National and international support, experiences, challenges and procedures to implement the Additional Protocol in Thailand will be explained in this paper.

Introduction

Thailand complies with legal and illegal instruments, as shown in Table 1. The Additional Protocol (AP) was signed in 2005, after more than 10-year effort, finally, Thailand brought the AP entry into force on 17 November 2017. By the long achievement history, Thailand has played lots of attention to have AP in place. At present, the most challenging is how to implement AP with CSA. With this task, Thailand has to maintain the effective implementation of both the CSA and the AP by developing both safeguards infrastructure and the competent human resource development.

Table 1 International instruments relating to Non-proliferation regime

International agreement and convention	Year	Effective year	Status
The Nuclear Non-Proliferation Treaty	1972	1972	In force
The Comprehensive Safeguards Agreement	1974	1974	In force
Convention on Early Notification in the Event of a Nuclear Accident	1986	1989	In force
Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency	1986	1989	Signed
Southeast Asia Nuclear-Weapon-Free Zone (SEANWFZ) Treaty or Bangkok Treaty	1995	1995	Signed
The Comprehensive Nuclear-Test-Ban Treaty	1996	2018	Ratified
Convention of Physical Protection of Nuclear Materials (CPPNM)	2018	2018	In force
IAEA Additional Protocol	2005	2017	In force

International cooperation

International partnerships for Additional protocol entry into force.

- ✓ Department of Energy (US DOE), United State
- ✓ Japan Atomic Energy Agency, (JAEA), Japan
- ✓ Australian Safeguards and Non-Proliferation Office (ASNO), Austria
- ✓ International Atomic Energy Agency

The assistants were from national and international through workshops, trainings, meetings, etc. relating to the CSA and AP.

The international supports were:

- ✓ provide appropriate trainings the CSA and AP for OAP staff to achieve the effective implementation AP together with the CSA;
- ✓ Set up the outreach program;
- ✓ AP-Commodity Identification Training;
- ✓ Mockup exercise and verify the research and development relating fuel cycle without nuclear material;
- ✓ Mockup complementary access.
- ✓ The NNSA/US DOE Roadmap Actions for DOE Cooperation with Thailand/OAP on the Additional Protocol and SSAC were initiated from 2009 to 2015.

U.S. Study Tour for Partner Principals on the Additional Protocol"



Participants were mostly the top-level from six countries in Southeast Asia; this event was the one of driving force for the AP ratification in Thailand

Following activities

- ❖ **-Workshop on Regulatory Development:** focused on reviewing and commenting on Thailand's draft safeguards regulations by experts from NNSA/USDOE and IAEA.
- ❖ **-Joint Workshop on Additional Protocol Preparation and Outreach between AELB, Malaysia and OAP:** concentrated on the Additional Protocol preparation and outreach which aimed to allow AELB and OAP colleagues to gain knowledge on AP preparation and mock-up practice for gathering AP related information from intergovernmental organizations and stakeholders. The joint workshop was a forum for information exchange among expert and participants.

Based on international assistant activities leading up the country have a confidence to be the AP State. In Thailand, the most important part to drove and supported the successful AP ratification was the awareness, concerns, and prioritization on the peaceful use of nuclear energy among the decision-makers.

Challenges

More than ten years, Thailand has challenged with variety issues such as

- ✓ a lack of knowledge/experience on the AP,
- ✓ a difficulty on enforcement of the NEPA,
- ✓ insufficient competent staff and information, and
- ✓ different attitudes.

Afterward the challenge of as a State having both the CSA and AP is

- ✓ collect information from relevant stakeholders who are not a license holder under the NEPA and not involving nuclear material.
- ✓ enhancing the safeguards human resource development is a necessary part to sustain the CSA and AP system in Thailand.

Regulatory Framework

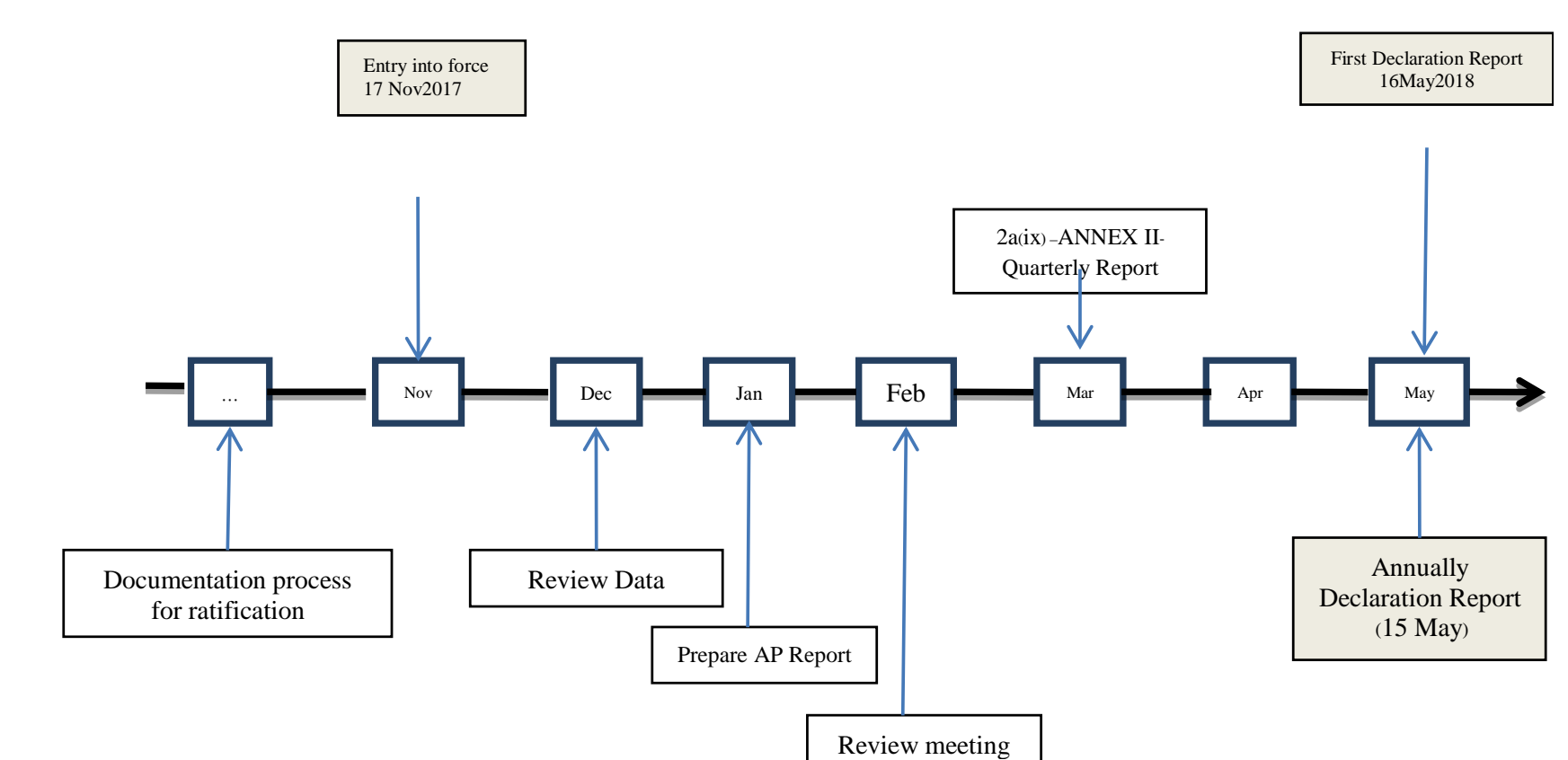
Table 2. Relation between NEPA and Additional protocol Article 2 (3,4,5)

AP Issues	Legal Instrument/Mechanism/NEPA
2.a(i) - government fuel cycle R&D (w/o nuclear material)	Section 89 (Any person who conducts a nuclear fuel cycle-related research and development not involving nuclear material shall submit a notice to OAP) Section 90 (Any person who conducts the nuclear activity shall submit a notice to OAP)
2.a(ii) - Information identified on operational activities of safeguards relevance at facilities and LOFs where nuclear material is customarily used.	Section 36 Licensing Process
2.a(iii) - buildings on sites	Section 36 Licensing Process /CSA
2.a(iv) - Annex I activities	Section 90 (Any person who conducts the nuclear activity shall submit a notice to OAP)
2.a(v) - capacities and locations of mines and concentration plants	Section 36 Licensing Process
2.a(vi) - source material holdings	Section 36 Licensing Process/CSA
2.a(vii) - exempted material	Section 36 Licensing Process/CSA
2.a(viii) - changes in location of waste	Section 89 (Any person who conducts a nuclear fuel cycle-related research and development not involving nuclear material shall submit a notice to OAP)
2.a(ix)(a) declaration in Annex II	The draft Act on Trade Control of Weapon of Mass Destruction related items (TCWMD) of Ministry of Commerce, Department of Foreign Trade
2.a(x) - R&D and fuel cycle plans	Section 89 (Any person who conducts a nuclear fuel cycle-related research and development not involving nuclear material shall submit a notice to the OAP) Section of 91 (Any person who conducts the nuclear activity shall submit a notice to OAP)
2.b - private fuel cycle R&D (w/o nuclear material)	Section of 89 (Any person who conducts a nuclear fuel cycle-related research and development not involving nuclear material shall submit a notice to OAP) Section of 91 (Any person who conducts the nuclear activity shall submit a notice to OAP)
4.9 Complementary Access	Chapter XIII - Safety, Security And Safeguards

Nuclear Energy for Peace Act, B.E. 2559 (2016) "NEPA" enables Thailand for accession to the number of international instruments such as the Convention on the Physical Protection of Nuclear Material, the Comprehensive Nuclear-Test-Ban Treaty, Additional Protocol, IAEA's Joint Conventions on safety of spent fuel management and the Safety of Radioactive Waste Management. For AP ratification preparation, the Thailand government set up the "AP ratification Working Group" with responsibility for technical supporting information and preparation for AP declaration reports as well as relevant information to implementation AP. NEPA lays the basis to the accession of international instruments, including AP.

AP Implementation

Timeline for AP Declaration Process



The first declaration on Article 2a(ix), exporting items in the AP Annex II, has been submitted timeliness. Department of Foreign Trade, Ministry of Commerce is responsible for export control for dual-use item relating to the AP Annex II. Unfortunately, the draft TCWMD Act has not effective yet, it is planned to enter into force at the beginning of 2019. Based on Harmonized System Codes (HS code) of the export items list, the export statistical information is sufficient to provide the AP declaration reports of 2.a(ix).

The initial declaration report, there were several authorities involved in this task such as

- ✓ - OAP (licensing database system)
- ✓ - research institutions
- ✓ - universities

The IAEA's tool, the Protocol Reporter software, PR3, is beneficial for preparation and submission of the Additional Protocol declaration report. Thailand prepared and submitted the first declaration, the initial declarations after entry into force with correctness and timeliness.

Conclusion

Thailand has fulfilled with the peaceful use of nuclear energy. After 12 years effort, Thailand is a state with both comprehensive safeguards agreement and Additional Protocols in force. The key factors of achievement are the national infrastructure, the concerning of the decision maker and the assistant from the good international partnership. The top-level or decision maker play the key role to approve the international instrument. The challenges are the awareness of AP and the lack of cooperation from the non-nuclear licensing. The practical operation procedure sustains the effective AP implementation. Right now, Thailand is on the first year of AP in place, the country ongoing for the broader conclusion that all nuclear material in country remained in peaceful activities.