A POLICY STUDY USING SELF-ASSESSMENT TOOLS TO ASSESS THAILAND'S READINESS AND TO STRENGTHEN NATIONAL NUCLEAR SECURITY REGIME

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Abstract

In 2018, the Office of Atoms for Peace (OAP), Thailand conducted a policy study to consider approaches and measures appropriate for Thailand's current situation on nuclear security as well as in compliance with international legal instruments and standards. The study aimed to assess nuclear security needs and priorities as well as draw significant results and recommendations to strengthen the national nuclear security regime. The research team led by the then OAP Deputy Secretary-General executed a study with qualitative methodology including literature reviews on related nuclear security measures, gaps analysis by using IAEA self-assessment tools, in-depth interviews with key persons involving with national security and/or nuclear security, and assessment of national nuclear security capabilities to pave the way forward. The team used Integrated Nuclear Security Support Plan (INSSP) and Nuclear Security Information Management System (NUSIMS) as the self-assessment tools to identify gap analysis in nuclear security and make a comparison in the ASEAN community. The results from the study showed many strengths as well as several downsides of Thailand's nuclear security that lead to a policy decision making on nuclear security in the office such as an establishment of OAP Nuclear Security Working Group and drew the national nuclear security strategy both in short-term and long-term planning.

1. INTRODUCTION

Nowadays, international security is a key issue that every state particularly pays attention to because major violent events can cause instability and various insurgencies in a country. Nuclear security is considered being one of the international concerns since it is well known that a nuclear security event could cause loss and broad damage to the public and environment both nationally and internationally. Besides, we can observe that a state can turn into a state with more power in negotiation after an announcement of nuclear weapon possession. Therefore, nuclear security to prevent nuclear terrorism has become a concern for the global community.

Thailand is located in the middle of Southeast Asia mainland which is attached to several neighboring countries and this leads Thailand to be one of the main transports and logistics centers in the region. Therefore, Thailand tends to encounter with cross-border malicious activities. Illicit trafficking continues an international issue as a part of nuclear security events. Besides, the records on IAEA's Incident and Trafficking Database (ITDB) has proved that nuclear and radioactive materials are currently at risk to be smuggling, exporting, and may be used in nuclear terrorism around the world [1].

As the nuclear regulatory body in Thailand, the Office of Atoms for Peace (OAP) has recognized the importance of nuclear security regulation by putting an effort into the development of comprehensive nuclear law and regulations. As clearly seen OAP has involved and conducted many activities to fulfill the commitment to

strengthen the national nuclear security regime. In this policy study conducted in 2018, the OAP team led by the then OAP Deputy Secretary-General and the now OAP Secretary-General, Ms. Vilaivan Tanjoy, aimed to consider approaches and measures appropriate for Thailand's current situation on nuclear security and how to improve and implement the OAP nuclear security action plan.

The study was started from a literature review of related international obligations on nuclear security, counterterrorism initiatives to weapons of mass destruction, IAEA's documents, and others. The team designed to review the main international requirements and expected to see a whole picture of important information on nuclear security. The review process helped the team to identify the key elements that needed to consider in the self-assessment process. The team studied the key responsibilities of OAP and national authorities such as Police, Military, National Security Council, etc. to see a whole picture of the national nuclear security legislative framework. The team also included the current security situation and status of nuclear security in the country such as a cooperation of relevant competent authorities, roles of the country leaders in driving national nuclear security, and how to implement measures in a nuclear security event. Moreover, the team requested to interview policymakers and experts from national authorities and IAEA to pull together different points of view to push forward Thailand's nuclear security regime. After all the mentioned information and data were collected, the team conducted the self-assessment process by using the IAEA's self-assessment tools in nuclear security along with experience, comments, and suggestions from the relevant key persons and policymakers. It is challenging to cover all parts of this policy study in this paper, therefore we decided to mainly focus on details regarding important international security requirements and how we used the IAEA's self-assessment tools to assess Thailand's readiness and to strengthen national nuclear security regime.

2. LITERATURE REVIEWS ON RELATED NUCLEAR SECURITY MEASURES REQUIREMENTS

2.1 United Nation Security Council resolutions (UNSCR)

The international community emphasizes global counterterrorism of using weapons of mass destruction and development of nuclear weapons and this can be seen from the United Nations Security Council Resolutions. Regarding nuclear technology, the International Atomic Energy Agency (IAEA) is an organization that is committed to promoting the implementation of nuclear peaceful uses and IAEA is the primary coordinating organization in accordance with relevant treaties and conventions. Thailand has shown the commitment of the mentioned UNSCRs by proclamation laws and regulations and expresses the support and collaboration with the United Nations.

In this literature part, the team went through the most relevant UNSCRs: 1373, 1540 and 1566. First, UNSCR 1373 (2001) is a resolution that has been discussed in the case of terrorist robbery of a passenger plane to crash the World Trade Center in New York, the USA on 11 September 2001. Resolution 1373 requires the UN Member States to suppress terrorism which includes financial sanctions, political, immigration measures, and intelligence exchange. Resolution 1373 also encourages all Member States to become a member of the thirteen of UN international conventions and relevant protocols and Thailand became a member for a total eleven of conventions and protocols [2].

Second, UNSCR 1540 (2004) requires all States to adopt and enforce appropriate laws and effective measures to prevent the proliferation of weapons of mass destruction (WMD) and their means of delivery to non-State actors, in particular for terrorist purposes. Thailand has adopted and revised related acts and regulations to implement resolution 1540 [3], particularly, the Nuclear Energy for Peace Act (2016) that clearly states about nuclear security regulation.

Third, UNSCR 1566 is a resolution that defines the definition of "terrorism" and "criminal act" more clearly than in UNSCR 1373 [4]. Thailand has defined the definition of "terrorist act" and "weapon of mass destruction" according to resolution 1566 as seen in the Counter-Terrorism and Proliferation of Weapon of Mass Destruction Financing Act B.E. 2559 (2016) [5].

2.2 Treaties and Conventions

The problems of global nuclear weapons development and nuclear terrorism lead the international community to create many treaties and conventions to make them rely on international jurisdiction. This paper went through the Nuclear Non-Proliferation Treaty (NPT), the Southeast Asian Nuclear-Weapon-Free Zone Treaty (SEANWFZ) and the Convention on the Physical Protection of Nuclear Material and its Amendment (CPPNM and its Amendment) since those legal binding instruments Thailand has driven and strictly implemented to build up the national nuclear security regime.

The Treaty on the Non-Proliferation of Nuclear Weapons or Nuclear Non-Proliferation Treaty (NPT) [6] is a multilateral treaty and its main objective comprises of the three pillars: nuclear disarmament, nuclear non-proliferation, and peaceful use of nuclear energy. Thailand became a member of NPT on 7 December 1972 and under the treaty, Thailand has implemented the Comprehensive Safeguards Agreement since 1974 and signed the Additional Protocol in 2005 to affirm its transparency in the peaceful use of nuclear energy. The Office of Atoms for Peace is the main organization responsible for Thailand's implementation of the NPT including the commitment to nuclear safeguards obligations, legislation, and submit reports of nuclear material information and related activities to the IAEA.

The Southeast Asian Nuclear-Weapon-Free Zone Treaty (SEANWFZ) or Bangkok Treaty [7] is a regional multilateral treaty agreed by Thailand and the other nine ASEAN countries. At the Treaty Meeting in Bangkok on 15 December 1995, ASEAN Member States signed the Bangkok Treaty and it later entered into force on 28 March 1997. The treaty aims to create peace, freedom, and neutrality of the countries of the ASEAN region by stipulating conditions prohibiting the States Parties developing, producing, possessing or controlling nuclear weapons and also to create stability in the region after the Cold War. This nuclear-free zone includes the territories of States Parties, continental shelf, and specific economic zones that extensive cover land, sea, territorial waters, seabed under the ground and airspace over the land. This treaty is counted as one of the five treaties of nuclear-weapons-free zones around the world [8] which is an important foundation for international security and a peaceful global community.

The Convention on the Physical Protection of Nuclear Material and its Amendment aim [9, 10] for worldwide effective protection of nuclear materials and nuclear facilities in peaceful uses, as well as to prevent and combat malicious acts relating to nuclear materials and facilities. The CPPNM and its Amendment apply to peaceful nuclear materials during use, maintain, between international transportation, and peaceful nuclear facilities. However, the convention does not apply to nuclear materials used or retained for military purposes. Thailand by OAP has regulated the peaceful use of nuclear energy in the country since 1961 under the Atomic Energy for Peace Act (1961) [11]. After using the Act for more than forty years and because of nuclear technology has been growing fast, Thailand needed to update the nuclear laws and regulations not only for the updated safety standards but also to comply with nuclear safeguards and security. Office of Atoms for Peace took an extensive effort for almost ten years to bring Thailand to move forward on the peaceful use of nuclear technology. In 2016, the Nuclear Energy for Peace Act (NEPA) B.E. 2559 (2016) [12] was approved by the cabinet and entered into force on 1 February 2017. The NEPA has provisions that are beneficial for Thailand to foster several conventions to better shape nuclear utilization in a peaceful direction especially the Convention on the Physical Protection of Nuclear Material and its Amendment (CPPNM and its Amendment). The CPPNM and its Amendment entered into force in Thailand on 19 July 2018.

2.3 IAEA Nuclear Security Series

International Atomic Energy Agency (IAEA) is an international organization that has the main objective to support the development of peaceful use of nuclear technology. Furthermore, IAEA supports and builds international nuclear security through assistance from Member States in dealing with nuclear-related threats and creating nuclear security capacities. Publication of IAEA's Nuclear Security Series can support Member States by providing international consensus guidance on all aspects of nuclear security and assist them to implement their obligation for nuclear security. The IAEA Nuclear Security Series (NSS) comprises four categories of publications: nuclear security fundamentals, recommendations, implementing guides and technical guidance. This study reviewed the IAEA Nuclear Security Series No. 20 (nuclear security fundamentals) [13], Objective and Essential Elements of a State's Nuclear Security Regime. The NSS No. 20 defines a nuclear security regime intending to protect individuals, property, society and the environment from the effects of nuclear security

incidents. Member States shall have appropriate and effective systems and measures to reflect the risks that may be harmful to people, property, society and the environment. This fundamentals document lists twelve essential elements of an effective and appropriate nuclear security regime that Member States should apply insofar as reasonable and practicable. It also defines and specifies the responsibilities of the relevant organizations, threat assessment framework, planning and preparedness to respond to a nuclear security event, and international cooperation.

2.4 Theory and concepts of public policy

A broad definition of 'public policy' means a principle in which a government with policymakers decide, choose, and determine by setting goals, objectives, outcomes, planning projects or plan with methods, and commit to the budget allocation. It aims to solve problems to achieve public benefits and in accordance with the situation needs of relevant stakeholders and the public. The purpose of this study was to propose guidelines and measures to strengthen nuclear security in Thailand by focusing on the improvement of policies, procedures, operations, and mechanisms for policy implementation. The public policy process is based on data collection, categorization, and synthesis by policymaking. The public policy process can be summarized as in a cycle of these steps: agenda setting, policy formulation, legitimation, implementation, evaluation and policy maintenance, succession or termination [14]. The team applied the public policy cycle to prepare action plans to implement the results from the self-assessment tools in practical implementation by drawing the national nuclear security strategy both in short-term and long-term planning.

3. IAEA SELF-ASSESSMENT TOOLS

3.1 Integrated Nuclear Security Support Plan (INSSP)

Integrated Nuclear Security Support Plan (INSSP) is a self-assessment tool developed by IAEA to assist Member States, upon request, to review and assess their nuclear security gaps and needs [15]. INSSP is designed as a set of questions that will help the States to identify the strengths or weaknesses of the country's nuclear security regime. INSSP contains the basic information of the security regime, based on the IAEA Nuclear Security Series, such as the Nuclear Security Recommendations on Physical Protection of Nuclear Material and Nuclear Facilities (INFCIRC/225/Rev.5), which refers to activities carried out in accordance with the physical protection system of nuclear material, nuclear facilities, radioactive material storage, both during operation and transportation. After receiving a request informed by the State, the IAEA works with the State to consolidate and identify its prioritized nuclear security needs into the INSSP tool, therefore each state's INSSP is conducted to fit the needs of the State and it will be restricted document after all information is officially filled out and submitted to the IAEA. The INSSP questions are grouped into six functional areas as below:

- Legislative and Regulatory Framework;
- Threat and risk assessment;
- Physical protection regime;
- Detection of criminal and unauthorized acts involving material out of regulatory control;
- Response to criminal and unauthorized acts including material out of regulatory control;
- Sustaining a nuclear security regime.

INSSP was initially introduced in Thailand since 2009, Thailand by OAP started working with the IAEA regarding using the INSSP to enhance the national security regime. Earlier, OAP conducted activities by hosting several meetings and workshops to collect information and attempted to complete the draft of Thailand's INSSP. In 2014, OAP coordinated and requested IAEA assistance on applying INSSP and also prepared an internal process to adopt this self-assessment tool. First, the OAP Secretary-General established the Integrated Nuclear Security Support Plan (INSSP) Working Group in OAP to effectively function on this mission. Then OAP hosted the first INSSP Meeting and invited relevant competent authorities and stakeholders to collect the primary information regarding the nuclear security regime in the country. Afterward, OAP hosted a meeting with the IAEA experts and competent authorities to together develop the first version of Thailand's INSSP. Subsequently, the INSSP Working Group proposed Thailand's INSSP to get approval from the OAP policymakers before its official submission to the IAEA. OAP has implemented and conducted activities to fulfill the needs as stated in the country's INSSP since 2014. It is necessary to assure that the information in the INSSP is up to date with the current global situations and Thailand is able to use INSSP with the highest benefits, therefore OAP plans to review the INSSP every three years.

In 2017, OAP reviewed Thailand's INSSP by cooperation with nearly twenty intragovernmental organizations to identify gaps and needs. OAP hosted two national workshops. Both workshops were conducted among the relevant competent authorities, while the second workshop Thailand received support from the IAEA subject matter experts. Thailand officially submitted the INSSP to the IAEA in April 2018. The INSSP has initiated the implementation of nuclear security activities that are now functioning according to the plan. After the INSSP submission, OAP updated online information on Thailand's nuclear security status in Nuclear Security Information Management System (NUSIMS) to make it consistent with the INSSP. It is noted that both IAEA-developed self-assessment tools, INSSP and NUSIMs, were useful and informative mechanisms to complete this work.

This policy study concentrated information from the updated version of Thailand's INSSP (2017) and the team summarized the strengths and weaknesses of the six functional areas of the INSSP. The INSSP reflects some of the interesting strengths, for example, Thailand well prepared in the legal framework as clearly seen from the Nuclear Energy for Peace Act (2016) which has provisions covering regulations on nuclear security and comply with international instruments. Thailand has conducted threat and risk assessment and it may need to be reviewed due to the current global situation is continuously changing. Thailand also considers requesting International Physical Protection Advisory Service (IPPAS) mission again. Thailand has investigated crimes and unlawful offenses related to nuclear material and radioactive materials that are out of regulatory control by using the network of frontline officers. Regarding the weaknesses, one topic which seems challenging is a lack of nuclear security culture. Also, Thailand should establish a human resource development program in nuclear security in order to provide sustainable nuclear security regime.

3.2 Nuclear Security Information Management System (NUSIMS)

Nuclear Security Information Management System (NUSIMS) is an online tool developed by IAEA to assist Member States to take advantage of their self-assessment in terms of readiness and potential for national nuclear security [16]. NUSIMS is a web-based platform designed for Member States to use freely for their self-assessment methodology by answering "yes or no" questions with reasons and/or supporting evidence. The NUSIMS questions are categorized into six nuclear security areas:

- Nuclear fuel cycle facilities and nuclear material;
- Radioactive material and associated facilities and activities;
- Transport security;
- Nuclear Security Detection Architecture;
- Response to nuclear security events;
- Information and computer security.

It is noted that NUSIMS is consistent with and can enhance information from INSSP because it provides an in-depth information outline and it displays data in summary charts. Therefore, most of the information from INSSP can be used to answer questions in NUSIMS. If Member States have separately assigned persons who are responsible for INSSP and NUSIMS, so it will be beneficial to encourage these representatives to have a good information collaboration and support each other. All of the information on NUSIMS is confidential and can be accessed only by the State. NUSIMS is beneficial for the IAEA to jointly plan for further development activities or programs of Member States. Principally, NUSIMS evaluates information based on State's laws, regulations, other relevant documents and information from Thailand's INSSP. After completing all the questions in NUSIMS, Member States not only see the summary results in levels of progress (very low, low, medium, and good) but also can compare their scores to indicate the country's progress in each nuclear security area with other States in the region. Thus, Thailand can compare the scores with the countries in Asia and the Pacific which is a good approach as the purpose of using NUSIMS is to allow Member States that need to develop their nuclear security capabilities to assess themselves and can use the NUSIMS analysis results to prepare an action plan to improve their nuclear security potential and progress.

The team used the updated analysis results (2018) from NUSIMS system, and we found similar results as shown in the INSSP, as mentioned previously. In NUSIMS, Thailand has almost completed all of the requirements for nuclear security capability development and the average scores showed that Thailand has the medium-level progress in all of the six nuclear security areas. Thailand should plan to improve nuclear security measures to encounter nuclear-related cybersecurity together with strengthening the nuclear security measures for radioactive material and associated facilities and activities and also nuclear security during transportation.

4. CONCLUSIONS AND FUTURE CHALLENGES

This policy study assembled useful information on nuclear security measures, guidelines, recommendations in the context of Thailand and from international organizations, together with using IAEA's self-assessment tools, comments and suggestions from the interview of key persons, and applying the theory and concepts of public policy. The results from the study showed many strengths as well as several downsides of Thailand's nuclear security regime. Specific policies were drawn from the study results through six measures including legislative and regulatory measures, threats and risk assessment, physical protection, detection of criminal acts, security response, and sustainability. The results will be postulated as a recommended implementation plan in a form of OAP nuclear security roadmap and will be reflected in the national security policy hereafter. The results also provide insightful information for a project grant proposal related to national nuclear security.

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