Increasing Non-proliferation through Collaboration between NWS and NNWS

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Abstract

The Russian invasion of Ukraine can generate momentum either to motivate a country to start a nuclear weapon program or, on the opposite side, to enhance non-proliferation. The nuclear weapon states have a vital position. They have an option, either to disseminate nuclear weapon technology to gain allies or to maintain non-proliferation. Indonesia once wanted to become a nuclear weapon state, but after the change of power by the late of the 1960s, Indonesia decided to start supporting non-proliferation and has even become one of the countries that voiced and fought for this issue. Meanwhile, the United States, as the first nuclear weapons state, has helped other countries to develop the peaceful use of nuclear energy. This research uses a descriptive qualitative method to analyse open-source data on state nuclear non-proliferation efforts and collaboration between non-nuclear weapon states and nuclear-weapon states. This paper tried to examine the relationship between nuclear weapon states and non-nuclear weapon states with a study case on U.S.-Indonesia relations with expectations this paper can present and recommend practical mechanisms to increase non-proliferation through state collaboration after the invasion Russia-Ukraine.

Introduction

Russia's invasion of Ukraine, which began in early 2022, impacted various things, including non-proliferation. How Russia uses nuclear weapons to threaten other countries, so they do not get involved is the concern of various parties, be it the State, experts, or non-proliferation activists [1-9]. They stated that this invasion has implications for non-proliferation efforts built so far. Referring to the views of experts in the field of non-proliferation, some experts argue that this invasion can be a stimulus for nuclear proliferation, where this invasion can turn a non-nuclear weapons state (NNWS) into a nuclear weapons state (NWS) [4-6]. Others argue that the invasion does not impact non-proliferation; it does have non-proliferation implications that make a country review its security status against nuclear weapon threats, but the determinant remains with NWS [7-9]. The sanctions that would be received if NNWS chose to become NWS and quit the NPT and the possible loss of support from allied countries meant that the option of switching to NWS would be of little concern to NNWS as a result of Russia's invasion of Ukraine.

When referring to history, nuclear non-proliferation from the beginning was a global effort between countries to prevent the spread of nuclear weapons. Since the NPT defines NWS and

NNWS, non-proliferation efforts through the NPT as a basis rest on the grand agreement that for NNWS not to proliferate, NWS must undertake disarmament efforts to reduce global arms reserves, and both the NWS and NNWS can access peaceful nuclear technology under IAEA safeguards. Even though each party has its constraints to keep complying with and trying to achieve the goals of the NPT, where the spread of nuclear weapons is a threat to the NWS and the sanctions that will be received if leaving the NPT are keeping the NNWS from turning into the NWS, greater collaboration between the NWS and the NNWS are needed to strengthen trust and accountability and help rebuild common ground and commitment to advancing all of the goals of the NPT. Russia's invasion of Ukraine shows the importance of non-proliferation and disarmament efforts so that this invasion can be used as a momentum to review how well the past NWS/NNWS collaboration can strengthen non-proliferation, what additional steps can the NWS and NNWS take to strengthen non-proliferation and how NWS and NNWS can respond to potential threats observed during the Russia-Ukraine Invasion.

This study uses a qualitative technical approach to collect and examine information related to cases. The sources of information used were open sources including peer-reviewed academic articles, news reports, and government testimonies and statements by subject matter experts (SMEs). The method of collecting data through various data sources (data triangulation) is used to increase the internal validity of a study.

Past NWS/NNWS Collaborations

NWS and NNWS collaborate on various cooperative activities that either directly or indirectly promote non-proliferation. The nuclear umbrella is one way that NWS and NNWS collaborate. The nuclear umbrella is the commitment of a nuclear-armed nation to defend non-nuclear allies. The idea of nuclear deterrence gave rise to the nuclear umbrella as in NATO, U.S. nuclear power was assumed to be the main component of defense against a potential Soviet invasion of Western Europe. The nuclear umbrella is also an effort to prevent these nations from developing their own nuclear weapons programs by offering protection and deterrence. The United States is one of the NWS that pledged its role as a nuclear umbrella for many non-nuclear allied countries, mainly within NATO itself. Then there is South Korea through the ROK-US mutual security treaty, Japan after the second world war with the condition that Japan would not produce nuclear weapons, and Australia [10-12]. Collaboration in the form of a nuclear umbrella also adheres to the concept of nuclear sharing, in which nuclear weapons owned by the NWS are placed in the NNWS area. This concept only applies to NATO. The U.S. has previously placed tactical nuclear weapons on South Korea, but these weapons were withdrawn [12]. Currently, the credibility of expanding U.S. deterrence in Japan and Korea rests on the deployment of American troops there rather than on the presence of nuclear weapons.

The nuclear weapons-free zone (NWFZ), of which five are in force, is another way states work together to support non-proliferation. The main goals of NWFZs are to keep nuclear weapons outside of the zone, prevent nuclear-armed nations from using or threatening to use nuclear weapons against states inside the zone and prevent the establishment of new nuclear-armed states

or capabilities on their territory [12-15]. Another form of collaboration that has established is the non-proliferation initiative, this collaboration is in the form of a voluntary initiative that has a golas to complement the aims and objectives of the NPT. The five main regimes supporting the NPT include the Global Initiative to Combat Nuclear Terrorism (GICNT), Missile Technology Control Regime (MTCR), Nuclear Suppliers Group (NSG), Proliferation Security Initiative (PSI), and the G7 Global Partnership Against the Spread of Weapons of Mass. Destruction (G7)) [16].

Indonesia's Status

Indonesia has a solid and good track record regarding non-proliferation and disarmament activities. As NNWS, Indonesia does not have a nuclear weapons program. However, by the middle of the 1960s, Indonesia had shown an interest in developing a nuclear weapons program. The first president of Indonesia had clear intentions to start a nuclear weapons program, but the plan was never taken past the idea stage [17]. Following the change of power, the Indonesian government pledged to support the non-proliferation of nuclear weapons and the NPT's objective and has proven its dedication. Indonesia is an active participant in most relevant agreements and organizations, including [17-19]:

- the Treaty on the Non-proliferation of Nuclear Weapons (NPT) as NNWS in 1970 and ratified it in 1979.
- In 1999, Indonesia became the first nation in Southeast Asia to be bound to the Additional Protocol's more rigorous verification requirements.
- Indonesia is a member of the Treaty on the Southeast Asia Nuclear-Weapon-Free Zone (the Bangkok Treaty), which entered into force in 1997.
- Indonesia signed the Comprehensive Nuclear Test Ban Treaty (CTBT) in 1996, ratifying it in February 2012.
- In 2003, Indonesia started implementing the IAEA Integrated Safeguards, including the additional protocol.
- Indonesia signed the Treaty on the Prohibition of Nuclear Weapons (TPNW) on September 20, 2017.

Indonesia continues to advocate strongly for protecting NNWS' rights to peaceful uses of nuclear technology [17]:

- Indonesia stated at the 2010 General Conference of the IAEA in support of the newly created ASEAN Regulatory Network (ASEANTOM), which facilitates collaboration for the security of the peaceful use of nuclear technology.
- In November 2013, Indonesia hosted the 4th Asia-Pacific Safeguards Network and held the Comprehensive Test Ban Treaty – Regional Conference for States in Southeast Asia, the Pacific, and the Far East in May 2014.
- In February 2018, the IAEA and Indonesia signed a practical arrangement promoting enhanced peaceful nuclear technology cooperation among developing countries.

Indonesia is not a part of the multilateral export control regimes and PSI. Indonesia has their own approach to this issue, and due to their developing country status, ideology, and foreign policy, Indonesia is unconvinced of the value of multilateral export control regimes and considers that these regimes are impeding access of NNWS to technologies associated with peaceful uses of nuclear energy [20]. Indonesia also participate in International Partnership of Nuclear Disarmament Verification (IPDNV) [21]. The challenge for Indonesia in the non-proliferation and disarmament effort is that Indonesia needs more human resources and technical capacity relevant to non-proliferation and nuclear security.

Science and Technology and Non-proliferation

Science and technology (S&T) play an important role in non-proliferation. S&T helps prevent the spread of nuclear weapons. Science and technology are essential in identifying the dual-use and WMD-specific technologies that need to be controlled, as well as what technologies to manage and how. Technology for detecting proliferation must be improved by developing detection and monitoring methods [22]. The goal of technology efforts in this field is to improve capabilities for data collecting, detection, monitoring, and analysis.

In order to keep track of non-proliferation commitments, international organizations are essential. The IAEA's nuclear safeguard inspections are crucial to any regime implementing the NPT. The participants' wide disparity in technological skill provides one of the difficulties, emphasizing the need for shared or cooperative technology and highlighting the significance of institutional monitoring. Therefore, efforts to continuously improve the technology used for the IAEA safeguards program in order to support international inspections are essential, the technologies among other things,

- Method and equipment for sealing and providing long-term material and equipment surveillance.
- Detection, monitoring, and verification technologies, such as land-based, airborne, and space-based remote sensing, near-infrared reflectance, and ground-based radiation and optical detectors and imagers.
- Methods and equipment for measuring nuclear materials and monitoring the operation of nuclear processes, such as reprocessing spent fuel and separating plutonium.
- New information management methods and technologies.
- Nondestructive assay of nuclear materials.

Some states have advanced capabilities in this technology, especially NWS. For example, the US, maintaining independent detection, monitoring, and verification capabilities is essential to the US because, during the Cold War, technological efforts in this area were focused on countering the Soviet threat. Vice versa, other nuclear weapons countries also made efforts in this field.

Additional Step and Respond

Past collaboration between NWS/NNWS has strengthened the non-proliferation:

- Nuclear umbrella play a role in prevent non-nuclear allies from developing their own nuclear weapons programs by offering protection and deterrence.
- NWFZ keep nuclear weapons outside of the zone and play role in prevent the establishment of new NWS or capabilities on their territory. The recognition from NWS will strengthen the NWFZ.
- Non-proliferation initiative plays a critical role in addressing gaps in the existing non-proliferation,

Addressing the gap and maximize the opportunities from past collaboration will strengthen the non-proliferation. Collaboration with technology working group should be expanded, referring from International Partnership for Nuclear Disarmament Verification (IPNDV), IPNDV presents a form of collaboration between countries, be its NWS or NNWS, where they work together with technical approaches to overcome critical gaps and technical challenges related to nuclear disarmament.

Collaborations approaches such as the IPNDV need to be expanded, kind of mechanism to facilitate coordination of non-proliferation R&D also exchanges information to advance the non-proliferation objectives as addresses earlier that science and technology play an important role in non-proliferation. This form of collaboration efforts with goals that can strengthen trust and accountability is needed.

Conclusions

Whether the Russia-Ukraine conflict impacts non-proliferation or not, what is certain is that this conflict shows us the importance of non-proliferation and disarmament efforts, in which nuclear weapons can be used to threaten other countries. Global efforts through collaboration between NWS/NNWS must be carried out both by strengthening existing collaborations and by expanding collaboration with technical approaches and involving various parties to strengthen trust and accountability.

This paper needs to address the gaps from the past collaborations and propose a form of collaboration with a technical approach that can be carried out by NWS/NNWS.

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