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JAPAN – U.S. BALLISTIC MISSILE DEFENSE COOPERATION: THE IMPLEMENTATION OF "*THE JOINT STATEMENT OF THE SECURITY CONSULTATIVE COMMITTEE (SCC)*" IN COUNTERING NORTH KOREA'S BALLISTIC MISSILES PROGRAM (2015-2019)

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Abstrak

Asia-Pasifik yang kini lebih dikenal sebagai Indo-Pasifik memiliki situasi geopolitik dan lingkungan strategis yang sangat kompleks yang ditandai dengan konfrontasi dan konflik politik yang masih belum terpecahkan. Salah satu isu tersebut termasuk program rudal balistik Korea Utara. Program rudal balistik Korea Utara telah menjadi ancaman yang berkembang pesat bagi keamanan regional dan global. Kurangnya akuntabilitas program rudal nuklir ini dan kepemimpinan Kim Jong-Un yang tidak menentu juga telah memproyeksikan ancaman bagi Amerika Serikat dan sekutunya, termasuk untuk Jepang. Selanjutnya, aliansi antara Washington dan Tokyo telah mampu menjadi kemitraan keamanan tangguh yang luar biasa dan telah berfungsi sebagai landasan bagi stabilitas kawasan. Kedua negara telah melakukan banyak kerja sama pertahanan di berbagai bidang, termasuk untuk kerja sama pertahanan rudal balistik. Sebagai salah satu bentuk kerja sama pertahanan rudal balistik antara Jepang dan AS, Security Consultative Committee (SCC) sebagai forum pertahanan utama aliansi ini menghasilkan pernyataan bersama yang juga menyoroti kerja sama pertahanan rudal balistik Jepang dan AS untuk mencegah program rudal balistik Korea Utara. Oleh karena itu, artikel ini menganalisa lebih lanjut implementasi pernyataan bersama SCC dalam menghadapi program rudal balistik Korea Utara, khususnya pernyataan bersama pada periode 2015 hingga 2019. Dalam menganalisa hal tersebut, artikel ini menggunakan metode kualitatif yang bersandar pada sumber data primer dan sekunder dan menemukan bahwa Jepang dan AS memang melaksanakan kerja sama yang disepakati pada pernyataan bersama SCC meningkatkan kemampuan untuk sistem pertahanan rudal balistik mereka.

Kata Kunci: Program Rudal Balistik Korea Utara, Kerjasama Pertahanan, Aliansi Jepang - AS, Pernyataan Bersama *Security Consultative Committee* (SCC)

1. Introduction

As an immense region, the Asia Pacific (now more popularly known as Indo-Pacific) has become the new center of economic, political and security gravity of the world in the 21st century. This region has also a very complex patterns of interactions involving great powers and other major and small powers. Besides that, the geopolitics and strategic environment within that region remains complex due to the fact that political confrontation and conflicts remain unsolved in the region (Ministry of Foreign Affairs of Japan, 2019). That complexity includes the development of North Korea's nuclear and ballistic missiles capabilities. North Korea has had inventories of ballistic missile that are sufficiently capable and has continued to develop its nuclear weapons program. Since the administration of Kim Jong Un started in 2012, North Korea has developed and proliferated its ballistic missiles program with various types of missiles. North Korea has also deployed approximately 700 short-range ballistic missiles (SRBMs) that capable to strike most of part of South Korea, 200 Nodong medium-range ballistic missiles (MRBMs) that threaten Japan, and up to 100 Musudan intermediate-range ballistic missiles (IRMBs) (Wertz, 2017). Not only that, Pyongyang has also developed two intercontinental ballistic missiles (ICMBs), which are: the Taepodong-2 with its tests have triggered strong reactions from the international community; and also the road-mobile KN-08 missile which has not been tested yet (Wertz, 2017).

North Korea's ambitions to develop its nuclear and ballistic missiles capabilities have eventually been considered as one of the major threats for the international security as well as have generated the concern from the international community (Kurata & Hellström, 2019). It has become a major threat for the regional security architecture and have also put neighboring countries such as South Korea or the Republic of Korea (ROK)

in an uncomfortable situation as ROK is under a direct threat from DPRK's nuclear ambitions due to its geographical proximity, which located close with North Korea (Kurata & Hellström, 2019).

Within the Asia Pacific region, North Korea's military build-up, its provocative actions, the increased capability of North Korea's weapons of mass destructions (WMDs) have increased the tensions in the region (Government of Japan, 2013). Japan is among the countries in the region that consider DPRK's nuclear and ballistic missiles development as threat. Not only for South Korea and Japan, North Korea also has presented threat for the United States. Since the Cold War, the relations between U.S. and North Korea has been worsened as North Korea has kept on giving near-daily threats toward U.S. and sometimes to its forces in the Pacific. North Korea has become a major security threat to the U.S. and its Asian allies, including for Japan.

Furthermore, North Korea's issue has become the principal security concern in the Japan-U.S. alliance relations. Its continuous and increasing threat of nuclear and ballistic missiles have become the major factors in the shift of many countries's security outlook, including Japan. Considering the fact that Pyongyangs potential threat to the region became more obvious, the U.S allies in the region tried to respond it by elevating the level of military cooperations among them and expand their greater defense self-suffiency (Cronin, 2005). Japan and the U.S. shared over the same security concerns regarding the the development of North Korea's nuclear and ballistic missile programs. The alliance between Japan and U.S. has been established after the World War II (WWII), it was built based on bilateral agreements foundation which define the scope and the form of their defense cooperation.

Not only that, the alliance also has other security arrangements being made in order to support and achieve their common goals. Those security

arrangements are the *Status of Forces Agreement of 1960* (SOFA), *the Guideline for U.S.-Japan Defense Cooperation* that was being codified in 1978 and being updated in 1997 and 2015, as well as *the Security Consultative Committee (SCC)* as the part of Japan-U.S. ad hoc defense meetings and dialogue. This article focuses on the discussion of the security arrangements of the Japan-U.S. alliance in which the *Security Consultative Committee (SCC)* was the main form of it. More specifically, this article explicates the implementation of SCC in countering North Korea's ballistic missile program from 2015 to 2019.

2. North Korea's Ballistic Missile Types and Launches

Since its development from the early 1960s up until now, North Korea has created various types of its missile weapons. Especially in Kim Jong-Un's era, he is bringing brand-new innovations toward the development of their missiles. Its production of two new intercontinental ballistic missiles, the Hwasong-14 and Hwasong-15, has become the most significant development of their missile which likely to reach the United States continental. North Korea also demonstrated another inter-continental ballistic missile, the Hwasong-13, which has not yet been tested (Missile Defense Project, 2018). Its ballistic missiles are divided into several categories based on its range and capabilities, which are the close-range ballistic missiles, short -range ballistic missiles, medium-range ballistic missiles, intermediate-range ballistic missiles, intercontinental-range ballistic missiles, submarine-launched ballistic missiles, and the cruise missiles.

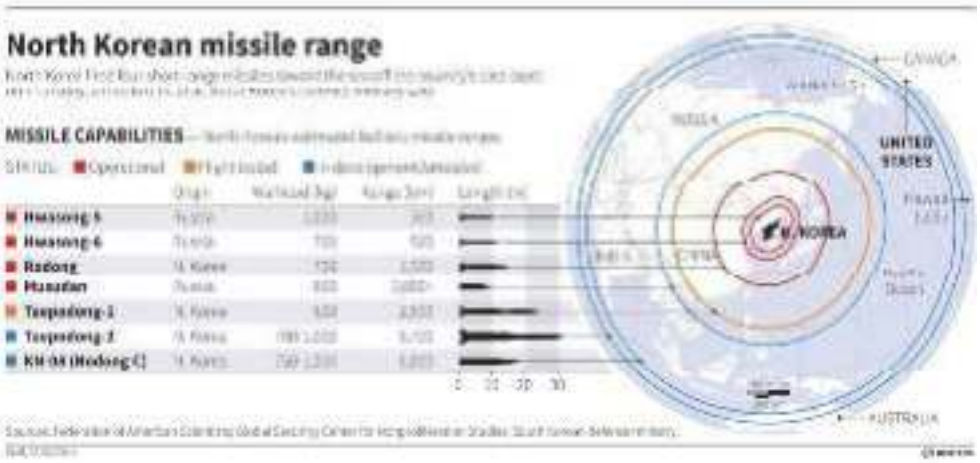

Figure I: North Korea's Missile Range (Source: Missile Defense Advocacy Alliance)

Missile Types	Numbers(s)	Specifications Types
Close-Range Ballistic Missiles (CRBMs)	2	– KN-02 – KN-05
Short-Range Ballistic Missiles (SRBMs)	4	– Hwasong-5 – Hwasong-6 – Hwasong-9 – KN-01 KN-09
Medium-Range Ballistic Missiles (MRBMs)	2	Hwasong-7/Taepodong-1/Hwasong-7 – Rodong-2
Intermediate-Range Ballistic Missiles (IRBMs)	3	– Taepodong-1 – Musudan – Hwasong-12
Intercontinental-Range Ballistic Missiles (ICBMs)	6	– Taepodong KN-08 – KN-14 – Hwasong-14 – Hwasong-15
Intercontinental Ballistic Missile (SLBM) Cruise Missiles	1 2	– Pukguksong-1/Polaris-1/KN-11 – KN-01 – Hwasong-2

Table I: North Korea's Missile Types (Source: Missile Defense Advocacy Alliance)

Not only having innovations toward its ballistic missiles' development, North Korea has also been active in conducting its missiles tests or launches. For instance, in a year only, specifically in 2017, North Korea has conducted 23 tests which include the test of Hwasong-14 and Hwasong-12 that are able to reach the area of Guam, Hawaii, Alaska, and the western half of the United States (Missile Defense Advocacy Alliance,

n.d.). Since the administration of Kim Il-Sung in 1984, to Kim Jong-Il, and until now to Kim Jong-Un's era, specifically until 28 November 2019, North Korea has conducted approximately 93 times of missiles launches for its full flight tests only.

Figure II: North Korea's Missile Launches (Source: Center for Strategies & International Studies)

3. Japan and U.S.' Threat Assessments toward North Korea

The threat assessment will be based on the threat perception conceptualization by Stephen Waltz. Waltz believes that "*aggregate power, geographical proximity, offensive power,* and *aggressive intentions"* influenced the level of threat perceived by states. Therefore, Japan and the U.S.' threat perception toward North Korea will be analyzed in this article.

Japan's Threat Perception

Firstly, for the aggregate power that North Korea has, the writer would like to provide the table of the latest North Korea military strength in 2019. The table will be divided into seven, which are: North Korea's manpower, airpower, land strength, naval strength, logistics, financial, and its geography.

Manpower	Total
Population	25,981,686
Available Manpower	15,045,378
Fit For Service	10,125,601
Reaching Military Age Annually	415,846
Military Personnel	7,500,000
Active Personnel	1,280,000
Reserve Personnel	6,500,000

Table II: North Korea's Man Power (Source: Global Firepower)

Airpower	Total
Aircraft Strength	943
Fighters	458
Attack	199
Transports	6
Trainers	167
Helicopter Strength	291
Attack Helicopters	20

Table III: North Korea's Air Power (Source: Global Firepower)

Land Strength	Total
Combat Tanks	5,025
Armored Fighting Vehicles	10,000
Self-Propelled Artillery	2,300
Towed Artillery	4,500
Rocket Projectors	5,000

Table IV: North Korea's Land Strength (Source: Global Firepower)

Naval Strength	Total
Naval Assets	967
Aircraft Carriers	0
Frigates	5
Destroyers	0
Corvettes	2
Submarines	63
Patrol Vessels	410
Mine Warfare	25

Table V: North Korea's Naval Strength (Source: Global Firepower)

Logistics	Total
Labor Force	14,040,000
Merchant Marine Strength	242
Major Ports/Harbor/Terminals	9
Roadway Coverage	25,554 km
Railway Coverage	5,235 km
Usable Airports	82

Table VI: North Korea's Logistics (Source: Global Firepower)

Financials	Total
Defense Budget	[illegible]
External Debt	[illegible]
Reserves of Foreign Exchange / Gold	[illegible]
Purchasing Power Parity (PPP)	[illegible]

Table VII: North Korea's Financials (Source: Global Firepower)

Geography	Total
Square Land Area	[illegible]
Coastline Coverage	[illegible]
Naval Reserve	[illegible]
Usable Waterways	[illegible]

Table VIII: North Korea's Geography (Source: Global Firepower)

Secondly, for the geographical proximity, amid the distance lies between Japan and North Korea which is around 1,043 km, the capabilities as well as North Korea's ballistic missile tests that fly over the territory of Japan have threaten the country. For instance, the two tests of North Korea's IRBM that fly over Japan on 29 August 2017 and 15 September 2017. Both tests have raised responses and concerns from many actors such as the United Nations, the U.S., South Korea, and especially Japan. Japanese Prime Minister Shinzo Abe said that Japan would never tolerate such dangerous provocation action (BBC News, 2017). Moreover, on Wednesday, 25 September 2019, North Korea also tested at least one of its missiles and it fell in the waters of Japan's Exclusive Economic Zone (EEZ) (Reuters, 2019). From that tests, it has shown the capability of North Korea's ballistic missiles to reach the territory of Japan.

Thirdly, it is about the offensive power that the North Korea has. As a continuation of the aggregate power from the first point, North Korea is ranked 18 out of 137 countries for its military strength based on the annual review conducted by the Global Firepower (Global Firepower, 2019). The military of North Korea has transformed as it is being strengthened by the rise of the asymmetric threat by the capabilities of North Korea, including its missiles (Tasic, 2019). From the military strength as well as its military transformation, especially its missiles, North Korea has the offensive power that the country might utilize to ensure the sovereignty and security of North Korea although it could also pose asymmetric threat for other countries as well.

Fourthly, it is about the aggressive intention. During a ruling party meeting on December 2019, North Korean leader Kim Jong-Un has shown his future intentions for the country by calling for a "positive and offensive measures" in order to fully ensure the sovereignty and security of North Korea as needed by the current changing situation in the region (Sang-Hun, 2019). North Korea's military trends, capabilities, as well as its provocative behaviors have been considered as threat for Japan. Therefore, in the Defense of Japan 2019, Japan stated that:

> *"These military trends in North Korea, coupled with its provocative rhetoric and behavior, such as suggesting a missile attack on Japan, and North Korea's development of WMDs and missiles pose a grave and imminent threat to the security of Japan and seriously undermine the peace and security of the region and the international community* (Ministry of Defense of Japan, 2019)*."*

U.S.' Threat Perception

The threat assessment of the United States is similar with the threat assessment of Japan above, specifically about the aggregate power and the offensive power. Therefore, in this part the writer will only explicate about the geographical proximity as well as the aggressive intention that the

United sees from North Korea. For the geographical proximity, the distance that lies from North Korea to the United States is 10,367 km or it is equal to 6,442 miles. Although the U.S. is having a great distance with the North Korea but the capabilities of North Korean missiles have increased and have been estimated could reach the U.S. North Korea has invested heavily in developing its longer-range ballistic missiles, for instance the development of its two ICBMs, the Hwasong-14 and Hwasong-15 that is likely to reach the continental of the U.S. (Missile Defense Project, 2018). As reported by the Chairman of the House International Relations Committee and the Head of a Special Advisory Panel on North Korea, Benjamin A. Gilman said that for the first time in the U.S.' history that the U.S. is in within North Korea's missile range and unfortunately, they cannot defend against that threat (Gertz, 2008).

Furthermore, for the aggressive intension the United States has considered North Korea as its potential enemy or threat which could be seen from several statements made by the United States, for instance on the National Security Strategy (NSS) of the United States (2017), which stated that:

> *"North Korea is ruled as a ruthless dictatorship without regard for human dignity. For more than 25 years, it has pursued nuclear weapons and ballistic missiles in defiance of every commitment is has made. Today, these missiles and weapons threaten the United States and our allies. The longer we ignore threats from countries determined to proliferate and develop weapons of mass destruction, the worse such threats become, and the fewer defensive options we have* (Trump, 2017)*."*

4. The Establishment of the Japan-U.S. Alliance and Its Defense Cooperation

Since its establishment after the World War II (WWII), Japan-U.S. alliance has been able to serve as a remarkable resilient security

partnership and has served as the cornerstone for the region's stability (Allen & Sugg, 2016). *The Mutual Security Assistance Pact* of the alliance was concluded in 1952 and served as the basis of the security arrangements between Japan and U.S. Those security arrangements include *the 1960 Treaty of Mutual Cooperation and Security*, *Japan-U.S. SOFA*, *the Guidelines for Japan-U.S. Defense Cooperation*, and the *Japan-U.S. SCC (2+2)*. Moreover, that security arrangements as well as the deterrence of the alliance should be strengthened and enhanced regularly to respond to the changing security architecture around Japan that has become more severe in order to ensure peace and stability in East Asia and Asia Pacific in general.

Furthermore, as one of the responds toward the changing security sitation around Japan and the region, Japan and U.S. held *the SCC "2+2" Meeting* in June 2011 to strengthen their alliance and the outcome of it had been written in the joint statement. In that joint statement, both countries have agreed to deepen their cooperation, specifically to emphasize the achievement and future cooperation direction in several operational cooperation areas, including the ballistic missile defense (BMD), surveillance and reconnaissance, space, cyberspace, extended deterrence, humanitarian assistance and disaster relief, trilateral and multilateral cooperation, information security, and cooperation in equipment and technology (Ministry of Foreign Affairs of Japan, 2020).

5. *The Security Consultative Committee (SCC)* (2+2) and Its 2015-2019 Joint Statement

The Japan-U.S. *Security Consultative Committee* (SCC) is the primary decision-making mechanism for Japan-U.S. alliance. The SCC consists of the U.S. Secretaries of Defense and State as well their Japanese counterparts, therefore the SCC is also known as the "2+2". The SCC

usually meets annually or biennially to issues joint statements which portrayed the current concern of the alliance and to provide the concrete short-term guidance for the alliance. Some of the SCC meetings also discuss about the elaboration of the alliance's priorities and their common strategic objectives (Chanlett-Avery, Campbell, & Williams, 2019). Not only that, the SCC meeting have also provided high-level input over the years for the significant changes and initiatives of the alliance, including the importance to bolster the capabilities of the alliance in addressing North Korea's new phase of threat (Chanlett-Avery, Campbell, & Williams, 2019).

Joint Statement of the Security Consultative Committee (SCC)	The Implementation
Joint Statement (April 2015)	• The importance of ongoing collaboration in improving the capabilities of BMD, through: – The deployment of the newest AN/TPY-2 radar (Kyogamisaki) system – The deployment of two additional BMD-capable destroyers
Joint Statement (August 2017)	• Continuous effort to pressure North Korea by cooperating with other countries and take actual actions to end North Korea's nuclear and ballistic missile program • Urging the position of the international community to implement the resolutions from the UNSC
Joint Statement (April 2019)	• Reemphasize international community's commitment to meet the North Korea's abandonment of its weapons of mass destruction, ballistic missiles, and its related programs and facilities in accordance with the relevant UNSC resolutions • Deployment of Aegis Ashore • Introduction of advanced weapon system to Japan, such as: The F-35, F-15, V-22, unmanned vehicles, and the Aegis Ashore • Welcoming the development of the [illegible]

Table IX: The Implementation of Japan-U.S. Ballistic Missile Defense Based on the Joint Statement (Source: Ministry of Foreign Affairs of Japan)

6. The Implementation of Japan-U.S. Ballistic Missile Defense Based on the Joint Statement

From the statements and points of implementation above, this paper will only be focusing on the bilateral defense cooperation between Japan and the U.S., not both countries with the other countries or with the international community. Therefore, in the explanation below the writer will only provide the implementation points of Japan-U.S. bilateral missile defense cooperation.

"The Importance of Sustained Cooperation in Enhancing Ballistic Missile Defense (BMD) Capabilities"
-Deployment of Second AN/TPY-2 Radar (X-Band Radar) System

AN/TPY-2 or the Army/Navy Transportable Radar Surveillance radar is "a high resolution, phased array, X-band radar that is made specifically for missile defense mission". The U.S. has ten of this TPY-2 radars and planned to add two more. Seven of these radars are in terminal mode and assigned to the *Terminal High Altitude Area Defense (THAAD)* units. While, the other five are in forward-based mode which two of them are what have been deployed to Japan in order to monitor the activity of North Korea's missiles. The TPY-2 radars in Japan provide the Ground-based Midcourse Defense (GMD) system with critical sensor monitoring of missiles in the boost/early mid-course process. The radar is able "to detect and monitor missiles in their boost and early mid-course phases, evaluating details such as speed and trajectory" (Missile Defense Project, 2016).

The first AN/TPY-2 in Japan was successfully being deployed to Japan Shariki Air Base to achieve the partial mission capability on October 30, 2006 (Jamison, 2005). Furthermore, on December 26, 2014 the U.S. Department of Defense and Japanese Ministry of Defense announced the deployment of the second AN/TPY-2 radar in Japan in Kyogamisaki in order "*to enhance sensor coverage for ballistic missile*

defense of Japan and the U.S. homeland". *The Kyogamisaki Communications Site (KCS)* radar would connect to the first existing radar in Shariki, northern Japan.

- Deployment of Two Additional BMD-Capable Destroyers

In April 2014, U.S. Secretary of Defense Chuck Hagel announced that the U.S. Navy would keep its commitment to sending two additional BMD-capable ships to the defense of Japan by 2017. Furthermore, on 17 October 2014, the announcement from the U.S. Secretary of Defense was supported by the U.S. Navy announcement that the BMD-capable USS Benfold (DDG 65) and USS Milius (DDG 69) would join the *Forward Deployed Naval Forces (FDNF)* headquartered in Yokosuka, Japan. Moreover, as a part of the long-range plan of the U.S. Navy to put the most advanced and capable units forward, Benfold and Milius would leave their current homeport of San Diego and move forward to Yokosuka in the summers of 2015 and 2017, respectively (Fleet Forces of the United States of America, 2014).

Hereafter, those ships are among the most capable ships on their class and is outfitted with the Mark-41 Vertical Launch System for multiple types of guided missiles as part of their Aegis combat systems. That ships are also capable to launch defensive and offensive operations against any possible conventional and non-conventional military attacks from air, sea and land. Furthermore, combined with the sea-based missile defense systems operated by their counterparts in the Japan Maritime Self-Defense Force, these U.S. BMD-capable forces, as well as the new TPY-2 radar at Kyogamisaki scheduled to start operations in 2014, provide the U.S .- Japan alliance with regional responsive missile defense capability (Fleet Forces of the United States of America, 2014).

Deployment of Japan's *Aegis Ashore*

Aegis Ashore is the land-based variant of the U.S. Navy's Aegis Weapons System which its system integrates the land-based versions of the various components that are used on the Aegis ships, which include the deckhouse, the Mark 41 Vertical Launching System (VLS), AN/SPY-1 radar, and the Standard Missile-3 (SM-3) interceptors. The system and its components are intended to become the mid-course defense against medium and intermediate-range missiles.

Mobility	Stationary with removable facilities for worldwide deployment
Targets	Short-, medium-, and intermediate-range ballistic missiles
Role	Land-based variant of the sea-based Aegis BMD system

Figure III: Facts about Aegis Ashore

Source: Missile Defense Advocacy

In December 2017, the Cabinet of Japan approved the plan to install two Aegis Ashore systems in Japan that is planned to be operated by 2030. In the press conference on 19 December, Japan's former Defense Minister Itsunori Onodera stated that:

> *"The threat against our national security from North Korea's nuclear and missile development has become more serious and imminent than before and has risen to a new level. However, I believe that the introduction of two batteries of Aegis Ashore will make it possible to constantly and continuously defend Japan, fundamentally improving the ballistic missile capability* (Ministry of Defense of Japan, 2017)*."*

In August 2019, the Ministry of Defense presented a comprehensive proposal for the implementation of "*the Aegis Ashore land-based missile*

defense program". The comprehensive plan involves surveys at the deployment candidate sites such as the Mutsumi training area of the Ground Self-Defense Force (GSDF) in Hagi, Yamaguchi Prefecture, and the Araya training area of the GSDF in Akita as the candidate places for hosting the missile defense system. Moreover, in collaboration with private organizations the ministry will also conduct the laser surveys which using aircraft in the Araya training area and 19 other possible sites, all on state-owned land in Akita, Aomori, and Yamagata prefectures (Jiji, 2019).

Introduction of Advanced Weapon System to Japan

Consequently, in order to address the current and future security needs of Japan and the U.S., the ministers of both countries confirmed the significance of modernizing and adapting the new capabilities of the alliance, which include introducing advanced arms systems to Japan. Those advanced weapon systems such as the F-35, E-2D, V-22, stand-off missiles, and the Aegis Ashore. Firstly, the F-35 which is a jet fighter that has the capabilities to operate and survive in a high threat environment that will accompany Japan with strong conventional deterrence as well as promoting stability in the region. Since December 2018, the government of Japan under the Prime Minister Shinzo Abe has approved to strengthen the military capabilites by the increase of Japan's order of F-35 aircraft from 42 to 147. Those increased orders include the 63 F-35As, the variant of F-35's conventional take-off and landing, 42 of F-35Bs, as well as the U.S. Marine Corps' variant of short take-off and vertical landing (STOVL) (Gady, The Diplomat, 2020). Furthermore, the JSDF is also expected to receive six more F-35As in the current Japanese fiscal year that runs from 1 April 2019 to 31 March 2020 (Gady, The Diplomat, 2019). The significant increase of Japan's defense posture was primarly aimed at

bolstering its defence capabilities to anticipate any possible military threats from Pyongyang.

Secondly, the E-2D which on 11 September 2018 the U.S. Secretary of State approved the sale of nine E-2D Advanced Hawkeye (AHE) Airborne Early Warning and Control (AEW&C) aircraft to Japan (Gady, The Diplomat, 2018) to enhance Japan defense capabilities. The statement later was being supported by Japanese Defense Minister Takeshi Iwaya in October 2018 which announced the procurement of the nine E-2D with the estimation of $3.135 billion (Gady, The Diplomat, 2019). The latest version of the E2-D features an AN/APY-9 radar, a mechanically/electronically scanned ultra-high frequency hybrid radar system with a 360-degree coverage capability. The E-2D which was made by the Northrop Grumman can detect the launch of a ground-to-air cruise missile and low-observability aircraft. Furthermore, the delivery of the first E-2D AHE AEW&C aircraft to the Japan Air-Self Defense Force (JASDF) has been taken place on 29 March 2019 (Gady, The Diplomat, 2019).

Thirdly, Japan also equipped its deence capability by having the V-22 which is a combination of a traditional helicopter and a turboprop aircraft with both vertical takeoff and landing (VTOL) and short takeoff and landing (STOL) capability. As for speed and size, the V-22 also outperforms conventional helicopters. In November 2014, Japan firstly announced their intention to procure V-22 Osprey tiltrotor and in July 2015, the Bell-Boeing – Bell Helicopters and Boeing was awarded by the U.S. Navy to form a business partnership to design and manufacture the V-22 with the contract to supply the first five V-22 Osprey tiltrotor aircraft to the JSDF through the Pentagon's foreign military sales program. Furthermore, on 19 July 2016, the U.S. Navy has awarded Bell-Boeing a $545 million contract to build and export four V-22 Osprey tilt-rotor aircraft to Japan. The latest order is part of a $3 billion sale to the Japan Self Defense Forces of 17 V-

22 Osprey military transportation aircraft and facilities associated with that (Gady, The Diplomat, 2016).

Fourthly, the stand-off missiles. In December 2017, Japanese Defense Minister Itsunori Onodera first officially confirmed plans for Japan to buy the mid to long air cruise missiles. He also said the missiles can only be used as stand-missiles for defensive purposes, which can be fired outside the range of enemy threats. From the 2018 defense budget approved at the end of March, the allocated budget for the Joint Strike Missile (JSM) for its F-35A stealth fighters is 2.2 billion yen or $20 million and 30 million yen or $270,000 for research into upgrading existing Japanese F-15 fighters to be fitted with Long-Range Anti-Ship Missiles (LRASM) and Joint Air-to-Surface Standoff Missiles (JASSM-ER) (Montgomery, 2018). Fifthly, the introduction of Aegis-Ashore which the writer will not discuss further as it has been discussed earlier in the previous part of this research.

The Development of SM-3 Block IIA

The SM-3 Block IIA is the result of a joint technology agreement between the U.S. and Japan and has a compact 21-inch diameter to accommodate more rocket fuel, enabling a higher burnout speed, allowing the interceptor to fly further and intercept missiles flying faster. It increases the system's range and the number of targets that it can engage in. For its upgraded kill vehicle, the Block IIA also introduces a more sensitive sensor seeker, more divert features and longer operating times (Missile Defense Project, 2016).

Figure IV: Work-share between Japan and the U.S. for the Development of SM-3 Block II (Source: Defense of Japan 2017)

SM-3 Block IIA is a missile which will be fired from *Aegis* destroyers and will counterbalance ballistic missiles coming in. SM-3 Block IIA would also have improved security coverage, even more robust than its predecessor, SM-3 Block IA. These will also have advanced capabilities for handling incoming ballistic missiles that take a higher trajectory (loft trajectory) than usual trajectories. Consequently, mass development and delivery of the SM-3 Block IIA would greatly boost anti-ballistic missile preparedness in Japan. Japan - U.S.' cooperation and R&D collaboration for the SM-3 Block IIA project helped to improve the relationship between the two countries. It has also played a major role for the defense industry in Japan, thus taking into account the advanced technologies and know-how supported by manufacturing and development (Ministry of Defense of Japan, 2017).

Hereafter, the Block IIA completed its first two flight tests in 2015, and on 3 February 2017 the first successful intercept test of the SM-3 IIA was performed by Japan and the U.S. Japan's government has called for up to 73 SM-3 Block IIA missiles to be purchased. In addition, the U.S. State Department on 27 August 2019 has made a decision to approve a

proposed foreign military sale to the Government of Japan of up to 73 SM-3 Block IIA, with funding estimated at $3.295 billion in cost. This proposed sale would assist U.S. foreign policy and national security by strengthening the security of a major ally in the Asia-Pacific region that is a force for political stability and economic development, and helping Japan establish and retain a strong and efficient self-defense capability is important for U.S. national interests. Not only that, the massive sale from U.S. would provide Japan with significant improved capabilities in ballistic missile defense to help protect Japan's sovereignty (Ministry of Defense of Japan, 2017).

7. Conclusion

For many years, North Korea's nuclear weapons and ballistic missile programs have gained the attention from the international community due to its dynamic developments. The development of North Korea's ballistic missile program actually took off when Kim Jong-Un took power in 2012. North Korea has developed and proliferated its ballistic missiles program with many various types of missiles with the capabilities that able to reach almost the whole area of the region. North Korea has also conducted approximately 93 tests from 1984 until 28 November 2019. Therefore, the ballistic missile program of North Korea has become a very rapidly growing threat to global security and has possessed major threat for the U.S. and its closest ally in the region, that is Japan.

The threat perception toward North Korea is also completed through the assessment of "*aggregate power, geographical proximity, offensive power, and aggressive intentions*" that the North Korea have toward the U.S. and Japan. This changing security environment then led Washington and Tokyo to always strengthen their defense ties.

The Mutual Security Assistance Pact of the alliance has served as the basis of the security arrangements between Japan and U.S. The other security arrangements include the *1960 Treaty of Mutual Cooperation and Security, Japan-U.S. SOFA, the Guidelines for Japan-U.S. Defense Cooperation, and the Japan-U.S. SCC (2+2).*

This article found that several points have been agreed and implemented by the two countries in countering North Korea's ballistic missile program. Those implementations, include: the deployment of the second AN/TPY-2 radar (X-band radar) system; the deployment of two additional BMD-capable destroyers; deployment of Japan's Aegis Ashore; Introduction of advanced weapon system (F-35, E-2D, V-22, stand-off missiles, Aegis Ashore) to Japan; and the development of SM-3 Block IIA. Both countries have also continued their efforts to sustain their alliance to keep the stability in the region by enhancing their ballistic missiles defense system to respond the ballistic missiles program of North Korea.

REFERENCES

Allen, J., & Sugg, B. (2016, July 13). Brookings. Retrieved from The U.S.-Japan Alliance: https://www.brookings.edu/wp-content/uploads/2016/11/fp_20160713_japan_alliance.pdf

BBC News. (2017, September 15). BBC News. Retrieved from North Korea Fires Second Ballistic Missile Over Japan: https://www.bbc.com/news/world-asia-41275614

Chanlett-Avery, E., Campbell, C., & Williams, J. (2019). The U.S.-Japan Alliance. Congressional Research Service.

Cronin, R. (2005). The North Korean Nuclear Threat and the U.S.-Japan Security Alliance: Perceived Interests, Approaches, and Prospects. The Fletcher Forum of World Affairs, 51-74.

Department of Defense of the United States of America. (2014, December 26). US Dept of Defense. Retrieved from Second Missile Defense Radar Deployed to Japan:

https://www.defense.gov/Newsroom/Releases/Release/Article/605330/second-missile-defense-radar-deployed-to-japan/

Fleet Forces of the United States of America. (2014, October 16). Fleet Forces of the United States of America. Retrieved from U.S. Navy's Overseas Force Structure Changes.

Gady, F.-S. (2016, July 22). The Diplomat. Retrieved from Japan to Receive 4 New V-22 Osprey Aircraft: https://thediplomat.com/2016/07/japan-to-receive-4-new-v-22-osprey-aircraft/

Gady, F.-S. (2018, September 11). The Diplomat. Retrieved from US State Department Approves Sale of 9 E-2D Advanced Hawkeye Aircraft to Japan: https://thediplomat.com/2018/09/us-state-department-approves-sale-of-9-e-2d-advanced-hawkeye-aircraft-to-japan/

Gady, F.-S. (2019, September 17). The Diplomat. Retrieved from US Defense Contractor to Build Upgrade Facility for F-35 Stealth Fighters in Japan: https://thediplomat.com/2019/09/us-defense-contractor-to-build-upgrade-facility-for-f-35-stealth-fighters-in-japan/

Gady, F.-S. (2019, June 3). The Diplomat. Retrieved from Japan Takes Delivery of First E-2D Advanced Hawkeye Aircraft: https://thediplomat.com/2019/06/japan-takes-delivery-of-first-e-2d-advanced-hawkeye-aircraft/

Gady, F.-S. (2020, January 8). The Diplomat. Retrieved from Japan to Continue Assembling F-35A Fighter Jets at Home: https://thediplomat.com/2020/01/japan-to-continue-assembling-f-35a-fighter-jets-at-home/

Gertz, B. (2008, July 10). Air Force Magazine. Retrieved from The North Korean Missile Threat: https://www.airforcemag.com/article/0100threat/

Global Firepower. (2019). Global Firepower. Retrieved from North Korea Military Strength: https://www.globalfirepower.com/country-military-strength-detail.asp?country_id=north-korea

Government of Japan. (2013). National Security Strategy of Japan. Government of Japan.

Jamison, P. (2005). U.S. Policy on Missile Defense. Department of Defense of the United States of America.

Jiji. (2019, August 28). The Japan Times News. Retrieved from Japan's Defense Ministry to Redo Surveys for Aegis Ashore Deployment After Flawed Data Revealed: https://www.japantimes.co.jp/news/2019/08/28/national/japans-defense-ministry-redo-surveys-aegis-ashore-deployment/#.XqAhj_0zapr

Kurata, H., & Hellström, J. (2019). North Korea's Security Threats Reexamined. Yokosuka: Center for Global Security, National Defense Academy.

Ministry of Defense of Japan. (2017). Defense of Japan. Ministry of Defense of Japan.

Ministry of Defense of Japan. (2017, December 19). Ministry of Defense of Japan. Retrieved from Press Conference by Defense Minister Onodera: https://www.mod.go.jp/e/press/conference/2017/12/19.html

Ministry of Defense of Japan. (2019). Defense of Japan. Ministry of Defense of Japan.

Ministry of Foreign Affairs of Japan. (2019). Diplomatic Bluebook. Ministry of Foreign Affairs of Japan.

Ministry of Foreign Affairs of Japan. (2020, January 17). Ministry of Foreign Affairs of Japan. Retrieved from Japan-U.S. Security Arrangements: https://www.mofa.go.jp/region/n-america/us/security/index.htmlJamison, P. (2005). U.S. Policy on Missile Defense. Department of Defense of the United States of America.

Missile Defense Advocacy Alliance. (n.d.). Missile Defense Advocacy Alliance. Retrieved from Missile Threat and Proliferation: https://missiledefenseadvocacy.org/missile-threat-and-proliferation/todays-missile-threat/north-korea/

Missile Defense Project. (2016, April 25). Center for Strategic and International Studies. Retrieved from TPY-2 X-band Radar: https://missilethreat.csis.org/defsys/tpy-2/

Missile Defense Project. (2016, June 14). Center for Strategic and International Studies. Retrieved from Standard Missile-3 (SM-3): https://missilethreat.csis.org/defsys/sm-3/

Missile Defense Project. (2018, June 14). Center for Strategic and International Studies. Retrieved from Missile Threat: https://missilethreat.csis.org/country/dprk/

Montgomery, M. (2018, August). Arms Control Association. Retrieved from Japan Looks to Purchase Cruise Missiles: https://www.armscontrol.org/act/2018-07/news/japan-looks-purchase-cruise-missiles

Reuters. (2019, October 1). CNBC. Retrieved from North Korean Projectile Lands in Japan's Exclusive Economic Zone, Tokyo Says: https://www.cnbc.com/2019/10/01/north-korea-launches-apparent-missile-japans-coast-guard-says.html

Reuters. (2019, December 30). The Guardian. Retrieved from North Korea's Kim Jong-Un Calls for 'Offensive' Measures As Nuclear Deadline Looms: https://www.theguardian.com/world/2019/dec/30/north-koreas-kim-jong-un-calls-for-offensive-measures-as-nuclear-deadline-looms

Sang-Hun, C. (2019, December 28). The New York Times. Retrieved from North Korea Leader Urges 'Offensive Measures' at Top Party Meeting: https://www.nytimes.com/2019/12/28/world/asia/north-korea-party-meeting-weapons.html

Tasic, M. (2019). Exploring North Korea's Asymmetric Military Strategy. Naval War College Review, 53-72.

Trump, D. (2017). National Security Strategy of the United States of America. Washington: The White House.

Underscore Commitment to the Asia-Pacific: https://www.public.navy.mil/usff/Pages/41-14.aspx

Wertz, D. (2017). North Korea's Ballistic Missile Program. Washington: The National Committee on North Korea.