Abstract

**Purpose:** The purpose of this article is to analyze the constraints of defense reform of previous governments and to suggest alternatives in connection with future arms control and the peace process on the Korean Peninsula. This article aims to evaluate the history of previous governments’ defense reforms and traditional arms building efforts, and seek alternatives to overcome constraints in connection with the peace by analyzing EU’s successful cases of arms control. The key is how to build military power that conflicts with disarmament and a peace regime through the denuclearization of the Korean Peninsula, which is supported by the power, and the vision of arms control.

**Method:** For better analysis, this article reviews the previous governments’ defense reform plan and pinpoints the limiting factors and suggests the policy options to overcome by taking a Mahoney’s path dependence theory of four actors as utilitarian, functional, power and legitimacy. In Chapter 2 analyzes ways to enhance arms control in connection with a peace regime. In Chapter 3 describes Defense Reform 2.0 key areas and future challenges. In Chapter 4 explores ways to enhance linkage among Defense reform 2.0 and Arms control, and the peace regime. In Chapter 5 suggests policy options to overcome the restricting factors in Arms reform effort of the previous governments.

**Results:** If we pinpoint the limits of past defense reform effort are as follow. First, as an efficacy aspect, past defense reform lacks efficiency in defense reform process due to the corruption. Second, as functional aspect, past defense reform fails to provide an institutional mechanism for strengthening military space power in order to respond North Korea’s threat. Third, as power aspect, the will to reform the military command has interrupted by the changing of the political leadership. Fourth, as legitimacy aspect, national defense reform has failed to win support from the private and military circle.

**Conclusion:** This article concluded that: First, as utilitarian aspect it should contribute to the national economy by minimizing inefficiency and maximizing efficiency through defense reform. Second, as functional aspect defense reform should provide an institutional mechanism for strengthening military space power at the Joint Chiefs of Staff to respond to threats from North Korea and changes in the changing operational environment. Third, as power aspect, the political will to reform the military command should be continued by the president and defense ministers. Much of Defense Reform 2.0 seeks reform in political terms, and efforts should be made to create crisis-taking shared values for national security, breaking away from the risk avoidance culture. Fourth, as legitimacy aspect, national defense reform should be carried out by due process and win support from the private and military.

**Keywords** Defense Reform, Peace Process, Arms Control, Political Leadership, Space Force

1. Introduction
Since the Moon Jae-in administration took office, the vision and goal of Defense Reform 2.0 is to become a strong army that can respond to all-round threats and a trusted army of people. The achievements of previous governments' defense reforms have had many ups and downs, but they have focused on military restructuring to counter all-round security threats, including North Korea's nuclear threats. However, there is a need for defense reform beyond existing inertia amid growing potential threats just like the recent lack of military resources due to the population cliff, uncertainty of the North Korea's complete denuclearization, and intensifying arms competition in neighboring countries. The key is how to build military power that conflicts with disarmament and a peace regime through the denuclearization of the Korean Peninsula, which is supported by the power, and the vision of arms control.

Amid the spread of transnational threats such as cyber, terrorism, disasters, the spread of infectious diseases and flood in the fourth industrial era due to the development of science and technology, there is a need to push for defense reform in order to respond quickly to the new environment. It has further increased the need for national defense reform, which has undermined people's trust in the military due to growing public demand for human rights and welfare, political involvement of military, and defense industry's corruption.

Tensions between the two Koreas have been escalating due to the North's detonation of a liaison office in the Kaesong Industrial Complex and the North's military threat to respond. Nevertheless, the 9/19 inter-Korean military agreement is maintained in a large framework, and the resulting tension is assessed at a manageable level[1]. Amid the unstable and early stages of operational arms control through the 9/19 inter-Korean military agreement and the vision of denuclearization of the Korean Peninsula through future U.S.-North Korea denuclearization negotiations, linking the direction of defense reform with arms control and the peace process is meaningful to establish a permanent peace in the future.

The purpose of this study is to review the constraints of defense reform of previous governments and to suggest alternatives in connection with future arms control and the peace process on the Korean Peninsula by using Mahoney's Path Dependence theory of four actors as utilitarian, functional power and legitimacy[2]. Path dependence is when the decisions presented to people are rely on prior decisions or experiences made in the past.

This article aims to evaluate the history of previous governments' defense reforms and traditional arms building efforts, and seek alternatives to overcome constraints in connection with the peace by analyzing EU's successful cases of arms control. The previous governments' defense reform plans have been mainly focused on military innovation that emphasizes the strengthening of high-tech-oriented innovative military capabilities in a large framework, military restructuring that emphasizes efficiency-oriented command structure or units, and defense operation innovation that focuses on changes in defense management and operations in relation to weapons systems and materials.

2. Ways to Enhance Arms Control and Its Connectivity with a Peace Regime

According to Tomas C. Schelling & Morton Halperin’s definition of the arms control, it is a strategic concept to enhance security by reducing the risk of war by confirming or restricting and reducing the ban on the construction and deployment of certain military forces through mutual consultation between countries. Hence, arms control limits the possibility of war between potential enemies and the scope and destructive power of the war, and means various forms of military cooperation to reduce the cost of political and economic opportunities for peacetime[3].

Arms control is a security strategy pursuing common security, cooperative security, and comprehensive security, which includes building political and military trust, arms restrictions, and disarmament. Negotiations on denuclearization of the Korean Peninsula between North Korea and the U.S. are at a standstill at the moment. Although the 9/19 military agreement between
the two Koreas achieved a basic operational arms control through the removal of the DMZ GP to ease tensions, cold air is still flowing between the two Koreas after the North Korea' blowing up a liaison office in the Kaesong Industrial Complex due to leaflets insulting the North's supreme leader. In the meantime, there have been several violations of the 9/19 military agreement between the two Koreas, but it has generally been concluded at a manageable level.

The stance of the Moon Jae-in government toward inter-Korean peace is ‘peace through strength[4].’ Arms control must be preceded for the peace process of the Korean Peninsula[5]. However, in order to deal with North Korea which has a potential nuclear capabilities, it is only possible for South Korea to curb North Korea’s provocations with conventional weapons alone within the South Korea-U.S. alliance framework[6]. A peace regime on the Korean Peninsula refers to organizations with control over the rules, principles, procedures and norms agreed upon by the two Koreas and related countries in order to eliminate the threat of war on the Korean Peninsula, to resolve distrust and hostility formed between the two Koreas, and to seek permanent peace and prosperity.

The reason for the need for a peace regime on the Korean Peninsula is to establish a foundation for peace settlement of the conflict between the two Koreas, induce North Korea’s determination to dismantle its nuclear weapons program, and to reduce defense reduction for economic development and peaceful unification. The reason why North Korea is obsessed with signing a peace treaty with the U.S. is to accumulate the justification for the withdrawal of U.S. troops from South Korea by ensuring regime security and converting the armistice into a peace treaty. If the situation on the Korean Peninsula shifts from an armistice to a peace treaty, the justification for the continued presence of U.S. troops stationed on the Korean Peninsula after the Korean War will be weakened. For South Korea, the desirable direction of establishing a peace regime is to push for arms control in the process of building a peace regime without damaging the South Korea-U.S. alliance after North Korea’s CVID(Complete, Verifiable and Irreversible Denuclearization) is realized.

The transition to a peace regime can be considered in three stages. The first step is to prepare for a peace regime, and all of North Korea's asymmetric weapons of mass destruction must be scrapped to restore mutual trust and ease tensions. The second stage is the establishment of a peace regime, during which North Korea must build trust and ease tensions, along with a change in its regime through reform and opening of its regime, and carry out operational arms control based on it. The third stage is a peace settlement period, where structural arms control should be carried out based on confidence building between the two Koreas. At this stage, it is the basic practice of arms control for the two Koreas to shift from building military trust to operational arms control based on mutual trust. The need for arms control on the Korean Peninsula is due to its contribution to the prevention of war, reduction of war damage, economic development, and peaceful unification.

The 9/19 inter-Korean military agreement is a form of initial operational arms control by realizing arms control through inter-Korean exchanges and cooperation and forming trust through the building of a peace regime in the long term Korean unification process. If North Korea is currently regarded as a potential nuclear power state, South Korea needs to respond to the North’s strengthening of its nuclear capabilities by constructing asymmetric power through military space forces within the framework of the South Korea-U.S. alliance. This is because space surveillance assets and interceptor missiles are needed to curb North Korea's nuclear/missile missiles at the launch stage.

3. Defense Reform 2.0 Key Areas and Future Challenges

The South Korean government announced its defense reform 2.0 on July 27, 2018. The major task of defense reform is scheduled to execute by 2022. The defense reform 2.0 is aimed at responding to all-round security threats, an elite team based on advanced science and
technology and fostering a military suitable for advanced countries under the slogan of building a strong military and the implementation of responsible national defense that can support a peace process of the Korean Peninsula[7]. First, its focus is on strengthening asymmetric capabilities against North Korea's nuclear threats. Second, it prepares for the early return of wartime OPCON based on a strong South Korea-U.S. alliance. Third, to establish a new military culture in the era of the fourth industrial revolution through the eradication of corruption related to the acquisition of the defense industry. Defense Reform 2.0 is designed to cope with rapid changes in the security environment and especially emphasizes the construction of military space power to cope with North Korea's nuclear and missile threats <Table 1>[8].

Table 1. Change of national defense reform.

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<td>- Succeeding defense reform 2020</td>
<td>- Realization of multi functional, high-efficiency advanced national defense</td>
<td>- Building the elite army of innovation/creation</td>
<td>- Switch to a command structure led by ROK Army</td>
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<td>- Emphasizing the increase in transnational non-military threats and the increase in North Korea’s nuclear/missile threats and its ability to respond to them</td>
<td>- Transition to ‘active suppression’ against North Korea’s threat</td>
<td>- Focus on securing response capabilities to North Korea’s threats</td>
<td>- Promotion of defense industry, enhancement of human rights protection of soldiers,</td>
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<td>- 3 axis system, strategic target strike, Korean missile defense system, the overwhelming response</td>
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<td>- Improvement of military law system</td>
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<td>- Troop reduction to 500,000</td>
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<td>- Civilianization of the military and guarantee of political neutrality</td>
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<td>- Defense industry R&amp;D investment linked to the fourth industrial revolution AI[9]</td>
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<td>- Building a military space power</td>
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<td>- Strengthening asymmetric capabilities against North Korea’s nuclear threats</td>
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If we pinpoint the limits of past defense reform effort are as follow. First, as an efficacy aspect, past defense reform lacks efficiency in defense reform process due to the corruption. Second, as functional aspect, past defense reform fails to provide an institutional mechanism for strengthening military space power in order to respond North Korea’s threat. Third, as power aspect, the will to reform the military command has interrupted by the changing of the political leadership. Fourth, as legitimacy aspect, national defense reform has failed to win support from the private and military circle.

Defense Reform 2.0 is similar to the existing defense reform in terms of military innovation, military restructuring, and defense operation innovation, which is a big framework of defense reform, but it is different from the existing defense reform in terms of the perception of North Korea’s threats, the selective suggestion of the scope of reform tasks, and the guarantee of the military’s civilian and political neutrality.
Defense Reform 2.0 says it is urgent to build a "strong military" against all-out threats, including threats from North Korea. The 2018 Defense White Paper states, "North Korea's weapons of mass destruction are a threat to peace and stability on the Korean Peninsula," and, "Our military will militarily support efforts to fully denuclearize the Korean Peninsula and establish permanent peace" in the Korean Peninsula[10]. In the defense industry, it suggests curbing North Korea's threats by investing in R&D linked to the fourth industrial revolution and strengthening military space forces. In the military structure sector, the goal is to transfer wartime operational control within the term of the presidential office. At the same time, the Joint Chiefs of Staff's ability to carry out operations is also linked to the transfer of wartime operational control, showing its willingness to achieve its goal within its term.

With the advent of the Fourth Industrial Revolution, the paradigm of defense and war is changing and calling for the development of a new military doctrine. Standards and principles for building and operating military forces in response to the space war era should be presented, and dedicated personnel, mission sharing, and education and training systems should be established. In the field of defense operation, it suggests reducing the number of standing troops to 500,000, achieving the civilian level of the director-general of the Ministry of National Defense, shortening the service period by 18 months, adjusting the number of generals, and expanding the number of female soldiers[11]. At a time when the population cliff is imminent, it is also urgent to come up with measures to secure and operate military personnel in the future. Due to the falling birthrate, the male population aged 20 is estimated to fall to about 220,000 after 2,035. By 2040, the number of available troops will fall to around 150,000[12].

Military Reform 2.0 aims to switch to a South Korean military-led command structure but does not present a military doctrine containing a Korean-style military strategy. It is necessary to establish a Korean-style military strategy not only in North Korea's threats, but also in the implementation of all-out war/local war, or operation of other than War(OOTW) against potential threats[13].

4. Defense Reform 2.0 and Its Enhancement of the Linkage with Arms Control and the Peace Regime

Linking the strengthening of military power through defense reform to the peace process on the Korean Peninsula has some conflicting aspects. The need to strengthen military force to deter North Korea's nuclear weapons program and arms control for the peace process on the Korean Peninsula is a structure that loses balance on one side or the other, so a balanced perspective is needed. South Korea has argued that confidence building is prerequisite for Arms Control. Meanwhile, North Korea changed from disarmament by a package settlement to "step-by-step disarmament." Successful cases of operational arms control include the 1975 Helsinki CBMs, the 1986 Trust and Security Building Measures(CSBMs), and the Vienta CSBMs[14].

In the case of European arms control, the implications for arms control on the Korean Peninsula are as follows. First, the success of European arms control was possible by building military confidence. This is possible when bilateral relations between countries shift from hostile relations to friendly relations and have a firm commitment to peaceful coexistence and elimination of the risk of war. Second, in Northeast Asia, where distrust among countries is deep, political relations must be improved first. Third, the leader's will to control arms is an important factor. Fourth, differences in views on military power reduction and method in the arms control negotiations require long-term debate and coordination. Fifth, implementation is more important than agreement. Measures are needed to verify implementation and sanctions are needed in case of violation. Sixth, military confidence-building should be continued by activating various cooperation bodies. Therefore, arms control is possible only when trust-building between the two Koreas is preceded on the Korean Peninsula. Currently, denuclearization negotiations between the U.S. and North Korea are in a deadlock. It is necessary to revitalize the joint military
committee between the two Koreas through building confidence between the two Koreas. This raises the need to build trust through notification of mutual military training.

To restore political trust between the two Koreas, it is important to restore military trust through various cooperative projects between the two Koreas. Through the declaration of the end of the war between the leaders of South Korea, North Korea, and the U.S. and the Northeast Asian quarantine cooperation involving South Korea, North Korea, China, Japan, and Mongolia, we should end inherent distrust in Northeast Asia and provide a turning point for reconciliation and peace. Due to North Korea’s offering to lift all economic sanctions as a precondition for denuclearization, progress in denuclearization is expected to be difficult without U.S. concessions and compromises. Unless North Korea gives up its nuclear weapons, South Korea also needs to strengthen its deterrence by strengthening conventional power to cope with North Korea’s nuclear weapons and missiles and securing defense-oriented military space power assets by the defense reform 2.0 plan. If North Korea shows sincere efforts to denuclearize and international economic sanctions are lifted, the two Koreas should make efforts to operate the Plan B to build a structural arms control.[15] As long as inter-Korean tensions are maintained and denuclearization negotiations between the U.S. and North Korea are stalled, the South Korean government should continue its efforts to strengthen conventional weapons under Plan A in preparation for North Korea’s EMP attacks using nuclear warheads and surprise attacks with short-range missiles. The power reinforcement sector focuses on strengthening military space power and aims to improve its ability to hit strategic targets by linking with air reconnaissance assets and satellite systems to neutralize North Korea’s ballistic missiles in the early stage of its launch.

The Ministry of National Defense also included a plan to establish a plan B assuming the security situation if denuclearization of the Korean Peninsula progresses in the future. The current basic defense plan, which assumes North Korea’s threat, will be maintained, but it will switch to Plan B if North Korea’s threat is reduced.

5. Conclusion

This article reviews the previous governments’ defense reform plan and pinpoints the limiting factors and suggests the policy options to overcome by taking a Mahoney’s path dependence theory of four actors as utilitarian, functional, power and legitimacy. Looking at the defense reform process of previous governments, Korea’s defense reform strategy in connection with arms control and the peace process can be summarized as follow. First, as utilitarian aspect, defense reform should contribute to the national economy by minimizing inefficiency and maximizing efficiency through defense reform. Second, as functional aspect, defense reform should provide an institutional mechanism for strengthening military space power at the Joint Chiefs of Staff to respond to threats from North Korea and changes in the changing operational environment. An alternative plan should be prepared for the Army Navy Air Force to strengthen its C4ISR capabilities, Integrated protection System against HEMP(High-Altitude Electromagnetic Pulse), Cyber attack[16], and a response posture should be prepared so that cooperation can be exercised in all areas for space operations, such as combat tests and education and training, as well as space-related missions that can efficiently utilize military space forces such as ground control systems, link systems, and satellite assets[17]. Overall, conditions should be created for combatants to focus on training to enhance their actual capabilities.

In addition, the ROK government should strengthen its surveillance and reconnaissance capabilities to monitor North Korea’s ballistic missile launches 24 hours a day and secure precise striking assets that can be neutralized at the initial stage of launch. Third, as power aspect, the political will to reform the military command should be continued by the president and defense ministers. Much of Defense Reform 2.0 seeks reform in political terms, and efforts should be made to create crisis-taking shared values for national security by breaking away from the risk
avoidance culture. At the same time, the legitimacy of strengthening military space power should be promoted through public relations, and the minister should push for reforms to strengthen military space power. Fourth, as legitimacy aspect, national defense reform should be carried out by due process and win support from the private and military, referring to the fact that previous governments have experienced many difficulties in persuading the public\[18\]. The South Korean people may need to monitor the reform effort while providing feedback to the reform policies\[19\]. By continuously emphasizing the success of North Korea's sixth nuclear test and the development of ballistic missiles, it is possible to obtain justification for strengthening military space power. As denuclearization negotiations with North Korea have entered a stagnant phase, the strategies of Defense Reform 2.0 should focus on the establishment of a means of independent response to North Korea’s nuclear weapons with focusing on the construction of a military space force that can proactively respond to North Korea's nuclear and missile attacks, as well as continued efforts to strengthen overall conventional power in case of denuclearization deal’s failure\[20\].

If North Korea genuinely moves toward denuclearization, we should also try to convert the armistice into a peace treaty by shifting from operational arms control to structural one under Plan B of building a peace regime on the Korean Peninsula. To this end, the political leadership needs to establish a civil ecosystem to strengthen military space power with a strong political will. To this end, it is important to have a mindset of security and a willingness to win.

6. References

6.1. Journal articles


6.2. Additional references

7. Appendix

7.1. Authors contribution

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