Abstract

Purpose: This article examines the potential impacts on the security of the Korean Peninsula (KORPEN) due to the slumping defense workforce in the depopulation and aging era and suggests the impact of the Population Dead Cross Phenomenon (PDCP) to be a considerable factor for the future direction of the ROK-U.S. combined defense system.

Method: As a research method, the framework of analysis is to examine the impact of the PDCP and the DPRK military threats on the security of the KORPEN then recommend the future direction for improving the alliance relations in the era of Operational Control Transition (OPCON-T). Due to the limitations and characteristics of this research, this study focused on literature research, official documents from the Republic of Korea (ROK) government and the Ministry of National Defense (MND), academic and dissertations, forums, and seminars related to the demographic and national security studies.

Results: The Republic of Korea is the most rapidly advancing country globally, with a low-birth rate and hyper-aging society. The PDCP in the ROK society is a serious security concern to its conscription-based system. Onlookers expect the low fertility rate to shake the national defense policy of the conscription system by causing a decrease in the working-age population and a mission-critical decrease in the available national defense workforce. The continued reduction of the ROK defense manpower may raise questions about how to effectively command the future combined defense forces after OPCON-T.

Conclusion: In a broader sense, the decline of the ROK population due to the PDCP is a social problem that desperately needs an essential solution. This social problem is also a reflection point for the ROK and the U.S. defense and national authorities, developing the future direction for the ROK-U.S. combined defense system. If the chronic diseases of the PDCP are ignored, it will directly threaten the security of the KORPEN. The ROK and the U.S. should consider multifaceted factors from various angles and prepare for binational decision space to prepare for the realpolitik in shaping the future landscape of the ironclad ROK-U.S. military alliance.

Keywords: Population Dead Cross Phenomenon, Future ROK-U.S. Combined Defense System, ROK-U.S. Military Alliance, ROK Conscription System, Operational Control-Transition

1. Introduction

The Republic of Korea (ROK) is the most rapidly advancing country globally, with a low-birth rate and hyper-aging society [1]. The low-birth and hyper-aging trends are doomed to increase the slowdown of economic growth and welfare demand. These two trends will limit the enhancement of national defense power and securing the required defense budget due to its manpower challenge. This could cause a significant setback to the ROK-U.S. military alliance safeguarding the security of the Korean Peninsula (KORPEN). Furthermore, the Population Dead Cross Phenomenon (hereafter PDCP) occurs when the number of newborn is smaller than the...
number of the deceased, leading to a decrease in the overall population. As seen in industrialized countries and a geographically near-peer, Japan, declining child births and an aging society may lead to a shortage in the civilian and military workforce and a consumption decline, causing dwindling production/consumption, and ultimately the ROK’s national security status.


As described above, the prior research generally emphasized the importance of national defense manpower due to the low-birth and aging population and identified the innovation of the military command structure unilaterally from the ROK’s perspective. Therefore, a research on finding developmental direction suitable for the dynamic security environment of the KORPEN while examining the characteristics of the PDCP from binational standpoint has been somewhat insufficient. Furthermore, the relationship between the PDCP and OPCON Transition(OPCON-T) has not been considered in prior academic research. In this respect, this paper examines the potential im-pacts on the security of the KORPEN due to the slumping defense workforce in the depopulation and aging era and suggests the impact of the PDCP to be a considerable factor for the future direction of the ROK-U.S. combined defense system. The policy promotion and organizational practice are insufficient from the alliance perspective even though the population projection data[9] and the world total fertility rate data[10] by social welfare experts revealing the potential side effects of the PDCP, could seriously impact the security of the KORPEN. Therefore, the practical direction of the future ROK-U.S. combined defense system that the beneficiaries can experience will be proposed. The scope of this study was limited to the developmental direction of the ROK-U.S. military alliance by focusing on its complementary relationship safeguarding the security of the KORPEN against the Democratic People's Republic of Korea(DPRK) military threats.

As a research method, the framework of analysis is to examine the impact of the PDCP and the DPRK military threats on the security of the KORPEN then recommend the practical future direction for improving the binational military alliance in the era of OPCON-T. Due to the limitations and characteristics of this research, this study focused on literature research, official documents from the ROK government and the ROK Ministry of National Defense, academic and dissertations, forums, and seminars related to the demographic and national security studies. This paper consists of the following. First, chapter 2 defines the PDCP by examining the low-birth and hyper-aging situation with the ROK population estimate data and the global fertility rate data. Then, I will explain how the mid-to-long term reduction in the conscription resources could become a serious security concern. Next, chapter 3 examines the combat strength of the DPRK that threatens the security of the KORPEN and explains the structure and function of the current ROK-U.S. combined defense system in peacetime and wartime. Finally, chapter 4
explains potential impacts to the combat readiness posture of the future ROK-U.S. combined defense system due to the PDCP and, in chapter 5, recommends the future direction for improving the alliance relations from binational perspectives while reaffirming potential threats due to the PDCP and ever-increasing DPRK military threats.

2. What is the Population Dead Cross Phenomenon (PDCP)?

The population of a country is the basis of its national power or its state development. Therefore, the low fertility rate has a direct connection to the fate of a nation. Furthermore, the national economic and military powers are closely associated with the population because the defense workforce and production/consumption manpower are contingent on the population[11]. The ROK population trend cannot be reversed in the short- or mid-term. Thus, the constraints on staff, as well as the budget, must address the conditions facilitating the ROK military’s pursuit of its long-term strategy and missions.

According to 2020 World Population Status report, the ROK is the only country with a total fertility rate of less than one among the 37 member countries of the Organization for Economic Co-operation and Development (OECD), meaning that a majority of women do not have even one child during their reproductive years. The ROK has been advancing low-birth and hyper-aging more rapidly than any other country in the world. Since 1983, the ROK has been experiencing low-birth rate at a population replacement level (Total Fertility Rate of 2.1) for the past 30 years[12]. Moreover, at the end of the year 2019, the PDCP has emerged, in which the number of deaths exceeds the number of births for the first time, affecting the overall population. The PDCP, in which the population naturally declines ahead of the number of births, is a shockwave that came nine years earlier than the ROK government forecasted in 2016, affecting virtually all areas of its economy. This phenomenon results from a steady decline in births, falling below 300,000 for the first time last year. On the other hand, the number of deaths was 305,100, an increase of 10,000 (3.4%) from the previous year, the highest since 1970 when the data was first compiled[12]. The ROK is the only country with a difference in population between generations since the Korean War (1950-1953).

Figure 1. Total fertility rates in Korea are the lowest in the OECD.
A structure in which a few young people support many older people will inevitably impede economic growth. As a result, onlookers expect an increased shortage of military personnel and exhaustion of the national pension fund. In addition, as the aging phenomenon overlaps, the working-age population aged 15 years and older will decrease, accelerating low economic growth, and even the existence of the country is expected to be in jeopardy. Experts point out that natural population decline can lead to a shortage of working-age people in the mid-to-long term, undermining the potential growth rate and national competitiveness[13]. The slowdown in economic growth and the increased welfare expenses through the PDCP will cause severe pressure on the national finances. In particular, it will become an essential constraint on military spending and increase. Such extreme demographic changes will put the ROK at an intersection between national security and social security.

Amid the DPRK’s nuclear weapon development, the ROK knows the importance of national defense better than any other country. With the support of the people, successive governments of the ROK have been investing a lot of effort and budget to increase national defense capabilities for self-reliant defense potential. The problem is that the demand for social welfare expenses due to the aging population, which has been in full swing since the 2000s, is expected to impact the defense budget significantly starting 2030. Additionally, the conscription recruitment of military personnel will become a significant challenge. The decrease in the number of young men will bring a change in the current ROK conscription system. As a result, maintaining an army-centric military of 600,000 becomes impossible and the ROK forces has started shrinking since 2017. According to population projections, the population of 20-year olds is 330,000 in 2020 to 230,000 in 2025, then 160,000 in 2040, and so forth. Even if the size of the troops is reduced to 300,000 based on the current defense reform, the newly enlisted soldiers are expected to be 200,000 each year, considering an 18-month service term. Therefore, it would not be easy to maintain sizable troops starting in the year 2025[14]. As the number of conscripts to serve in the ROK military decreases, there is no alternative but to extend the service period again to maintain the current defense manpower under the current paradigm. However, extending the period of mandatory military service once shortened will bring about significant social resistance. As a result, unless the government and politicians are willing to extend the service period, the number of ROK military forces will inevitably decrease in the future. Also, the decline in economic growth, tax revenue, and increase in welfare costs will pressure the ROK government finances invested in defense spending. Thus, in the long term, the ROK’s military force reduction will significantly impact the ROK-U.S. combined defense system. Without a definite alternative, the ROK’s situation casts doubts in its ability to lead the combined defense effort and fulfill its core missions due to defense budget and manpower shortages in the era of OPCON-T.


The CFC, a symbol of the ROK-U.S. combined defense system, was established on November 7, 1978, to respond to the rapidly changing situation around the KORPEN, supplementing the withdrawal of the U.S. ground forces from the ROK and improving the ROK-U.S. combined operational capability[14]. The ROK-U.S. combined defense system is responsible for the security of the KORPEN during wartime under the command and control of the ROK-U.S. Combined Forces Command(CFC)[15]. For more than half a century, the U.S. stationary forces on the KORPEN led to deter, but the defense capabilities were always designed to come from the off- pen. The OPCON-T signifies the ROK military’s intention to implement autonomous defense capabilities with the U.S. bridging and enduring role.

Both countries have been pursuing an establishment of a new alliance military structure suitable for the latest security environment of the KORPEN[16]. During the 46th ROK-U.S. Security
Consulative Meeting(SCM), both countries agreed to three conditions for the OPCON-T: 1) the ROK military’s acquisition of key capabilities, 2) development of the ability to counter the threat of DPRK’s nuclear weapons and missiles, and 3) the security environment around the KORPEN. They further agreed that, the Future Combined Forces Command(F-CFC) would be led by a four-star general from the ROK military, rather than the U.S. military. The OPCON-T implies that the ROK military will occupy a bulk of the total force across all domains in charge of the defense of the KORPEN in the future. In other words, the ROK military will lead most of the critical missions directly related to the deterrence and victory of the war. The ROK military will also prioritize various military operations and policies during peacetime and wartime, including an overall military strategy and detailed operational plans. The ROK-commanded F-CFC will lead the primary core missions to prevent a kinetic conflict on the KORPEN in peacetime and effectively defend enemy wartime aggression. The role of the U.S. military will change to an extended deterrence function through forward stationary forces that augments for the shortcomings of the ROK military's combat capabilities[17].

The ROK’s conventional deterrence strategy is to prepare for the threat of an all-out war perpetrated by the DPRK[18]. The CFC focuses on maintaining the defense line at Military Demarcation Line(MDL) at the beginning of the DPRK’s all-out invasion. The war plan dictates that the Korea People’s Army(KPA) takes the initiative with asymmetric weapons systems, including nuclear missiles, and occupies the KORPEN before the deployment of U.S. augmentation forces[19]. Such a strategy may expose vulnerability to the DPRK’s asymmetric threats, including raids and local provocations and weapons of mass destruction(WMD). Whether the U.S. military’s large reinforcements are capable of deploying to the KORPEN on short notice could also be a challenging task. The most viable support that can quickly answer the call is the U.S. forces stationed in Japan providing access to their staging bases and support structures for the inbound augmentation forces. However, it is contingent on the diplomatic relations between the ROK, the U.S., and Japan[20]. The nature of DPRK’s provocations will also determine the level of probable support that the F-CFC may desperately requires during the road-to-war.

The 2018 ROK Defense White Paper states that within the 1.28 million DPRK troops, its special forces account for 15.6% of the total, or 200,000[21]. In the event of a conflict on the KORPEN, the DPRK would likely utilize the full array of its asymmetric military capabilities in the hopes of achieving a decisive early advantage that would bring about a quick end to the conflict on terms favorable to the DPRK. These massive DPRK Special Forces are highly trained soldiers capable of undertaking reconnaissance, infiltration, sabotage, and assassination missions[22]. The reason that the DPRK is strengthening its special warfare capability is its will to carry out various types of asymmetric warfare by infiltrating into the rear area of the ROK using tunnels during the crisis. The DPRK will likely use special warfare units to support its main force’s offensive operation and disrupt the rear area to engage in acts of sabotage and inflict physical and psychological damage against the ROK populace and could be called upon to deploy WMD including biological and chemical weapons. Historically, the DPRK has used its special forces to engage in acts of low-level aggression and coercion outside of wartime scenarios, including an attempted decapitation raid on the Blue House in the 1960s and Rangoon bombing in 1983. The terrorism of the conventional KPA with the "hit and run" tactic will also try to instill fear and anxiety in the ROK populace and the international community by attempting political and diplomatic coercion to secure the initiative in domestic and foreign issues.

The DPRK possesses up to 60 nuclear weapons and has a maximum of 5,000 tons of biological and chemical weapons, ranking third in the world. The DPRK's WMD program is perhaps the most threatening factor to the security of the KORPEN. The chemical weapons weighing about 2,500 to 5,000 tons, the world's third-largest and biological weapons containing 13 types of pathogens, cannot rule out the possibility that the ROK can instantly be neutralized despite its far more advanced national economic and military defense potentials. In addition, the DPRK can load WMD on long-range cannons and Scud, Scud, and Nodong ballistic missiles that
are capable of hitting any targets south of the MDL[23]. Even if the F-CFC could rapidly be activated to deploy in securing the GSMA, the DPRK's force of 8,800 field artillery and 5,500 multiple rocket launchers will put the ROK-U.S. combined defense system and its missile defense efficacy and large stockpiles of munitions to the ultimate test. The DPRK has been steadily developing its weapons systems to make up for shortfalls of the conventional legacy weapon systems. In 2020, the DPRK claimed a successfully test-fired a new Submarine-Launched Ballistic Missile(SLBM) including Long-Range missiles such as Musudan, KN-08/14, and Taepodong-2[24]. In 2021, the DPRK unveiled a new tactical guided missile, the KN-23, called a 'monster missile,' which can produce significant nuclear-level destructive power with its 2.5-ton non-nuclear warhead armed with conventional high explosives. Recently, the DPRK claimed a successful test-fired newly developed hypersonic missile after claiming a successful test-fired from railway-borne missile launching system. The three-axis system that the ROK has been unilaterally preparing for missile defense against the DPRK is likely to be vulnerable to these recent developments.

Under the DPRK fertility promotion policies, incentivizing citizens with free health care, additional ration, and patriotic recognition that all interpreted as an auspicious sign of national prosperity helped the DPRK's military force reaching 1.30 million troops after the 1950-1953 Korean War. Up until early 1970s, the DPRK maintained an active duty force of 300,000 and they did not grow their size of the force until mid-1970s due to its investment in military advancement after realizing the U.S. military technological superiority. The DPRK began adjusting their military portfolio to include all forms of WMD, plus the artillery, ballistic missiles, and special forces required to offset the U.S. military presence on the KORPEN. According to Global Fire Power’s latest report[25], the DPRK received high praise for the number of launchers, self-propelled artillery, submarines, frigates, corvettes, and fighter jets. However, according to the Bank of Korea’s analysis of major economic indicators for North and South Korea in 2020, the DPRK’s nominal Gross National Income(GNI) is 55 times behind the ROK’s GNI[26]. In other words, the ROK obviously could have far more advanced military technologies with unmatched defense budget. Although the DPRK possesses many conventional military forces, it uses outdated weapons that are technologically inferior to those of the ROK and the U.S., but with one caveat of approximately strong-willed 840,000 DPRK troops always are on stand-by for an all-out invasion within the border area of the MDL. The population of the GSMA in 2020 is 25.96 million, which is 50.1% of the ROK’s national population, and the concentration of population in the metropolitan area is deepening. The history tells us that once the DPRK takes the capital as a hostage, they know too well that they will gain a political and military advantage that enables favorable unification conditions on the DPRK’s terms.

The last threat to the security of the KORPEN posed by North Korea is perhaps the sudden change of the DPRK regime. The collapse of the regime due to instability can translate into a direct threat and ambiguity to the security of the KORPEN. As the collapse of the DPRK becomes a reality, many refugees will also surge in the border areas between China and Russia, thereby creating a pretext for their military intervention into the Korean conflict[27]. The massive refugee surge on the KORPEN will further exacerbate the existing humanitarian crisis by an unimaginable order of magnitude, and third party intervention could instantly turn the KORPEN into a battleground by regional powers escalating into a regional conflict. Therefore, the ROK-U.S. combined defense system should not simply aim to fight well and win in case of the DPRK attack—instead, focus on prevention and deterrence by maximizing readiness during peacetime and interagency crisis response capabilities regarding Non-combatant Evacuation Operations(NEO) during the crisis escalation. Moreover, it would also be commendable to develop combined post-conflict stabilization and reconstruction capabilities. All of which requires readily accessible manpower, appropriate defense budget, and realpolitik communication.

The ROK military should select and prioritize mission capabilities that it can efficiently develop in the face of the DPRK’s threats while considering the impact of the PDCP to its manpower. As an example, it is reasonable to consider continuous support of the intelligence-gathering and
striking ‘critical target’ capabilities by the U.S. As the PDCP pressures the ROK government finances, it could be a burden for the ROK military to lead all the core mission functions. The PDCP will hinder the ROK military from securing the necessary, sustainable, and fully operational defense manpower to endure unwavering operational competencies to deter a potential conflict independently and carry out its five core missions without interruption. In addition, the impacted defense budget caused by the PDCP will be a major roadblock to the ROK and the U.S. defense authorities to limit acquisition of the essential capabilities to meet the Conditions-Based OPCON Transition Plan (COT-P). This statement does not overlook the implications of the OPCON-T. Such implications have the specific goal of developing the level of the ROK military capabilities to deter and protect the security of the KORPEN. However, the ROK’s PDCP situation will likely impose severe constraints on improving its overall defense capabilities that ultimately will translate to either delay or advance the OPCON-T prematurely jeopardizing the security of the KORPEN in case of the DPRK’s attack. Therefore, the future direction needs to contemplate whether the framework of the ROK-led combined defense system is on the glide path to impenetrable war deterrence and powerful retaliatory capabilities while scrutinizing the impacts of the PDCP.

4. The PDCP Effect on the ROK-U.S. Combined Defense System

The PDCP in the ROK society is a serious security concern. While some of these demographic changes are elevated in academic discourse, British military magazine IHS Jane’s Defense Weekly focused on the ROK’s fertility rate as a serious problem. Especially, this low fertility rate is a serious security concern for a nation that relies on conscription. The pundits expect the low fertility rate to shake the national defense policy of the conscription system by causing a decrease in the working-age population and the available defense workforce. Furthermore, the continued reduction of the ROK defense manpower may raise questions about its capability to effectively lead the F-CFC.

Starting in 2025, the ROK would have a difficult time maintaining adequate number of troops to support its current force structure. It is alarming that this will become a significant obstacle to the future ROK-U.S. combined defense system in the face of the OPCON-T. For decades, the combined defense system has relied on the ROK to contribute 90% of the peacetime forces. This is at risk now with planned force reduction from 650,000 to 300,000. As of December 2020, the DPRK’s military has reached 1.30 million active-duty troops in peacetime. By 2032, this number will roughly be over four times that of the ROK-U.S. combined defense system. The DPRK does not have same PDCP issues; therefore its force size is expected to remain the same. The ROK has adopted the conscription system to supplement its military forces since 1957. The conscription system has following disadvantages. First, it causes inefficiency in human resource allocation by failing to consider individual strengths. Second, it causes a problem on national growth such as the opportunity cost of mandatory military service by segregating productive population for 18 months. Additionally, the sharp drop in the defense workforce raises another issue in developing elite military funded by advanced technologies. The current system has difficulty in mastering required combat skills due to the short 18-months service period, particularly the cutting-edge defense technologies for modern warfare require synergetic human operators until the era of full-automation arrives. Hence, the retain-ability to operate such advanced technologies in such a short service obligation period will question the validity and efficacy of the current conscription system. As a result, the ROK military will have no choice but to change its military service system in the near future. The question is whether primarily invested defense technologies can be efficiently operated and managed by a shrinking conscript-centered defense workforce with the short service period.

The Defense Reform 2.0 follows cutting-edge technological platforms and capabilities that need desperate measures for the effects-based validation with practical battle-proven fielding.
The fully unmanned/automated defense system with minimum human resourcing is an unprecedented case, and even the world’s most potent military powers are at developing stages of fully automated defense capabilities at this moment in time[28]. In other words, “Are these artificial defense capabilities reliable, flexible, and affordable to mitigate any vulnerability caused by the lack of human operators due to the impact of PDCP?” Also, the importance of human security is at its highest as a non-traditional threat(COVID-19) lately, which adds more complexity to the future direction of the ROK-U.S. combined defense system when the ROK desperately needs to fulfill binational-agreed COT-P through the combined military training and exercises. In order to minimize any potential gap in defense readiness due to the natural population decline, it is necessary to form a consensus between the ROK and the U.S. on the future direction of the combined defense system with the following caveats:

1. The ROK military should aim at developing elite reserve forces to efficiently marshal available human and material resources to support military operations. The current system needs improvement on the effectiveness of establishing a robust mobilization support and training system. As more than 3.1 million reservists are receiving training annually, various evaluations, complaints, and criticisms about the reservist training appear in various forms through many media outlets. The ROK reserve forces, organized and trained for the industrial age, “mass-army warfare,” where inefficiency masked by the mass, are not optimized to support the digital age, “multi-domain warfare.” This large proportion of the ROK reserve forces is under-utilized and overlooked defense human resource, which could serve as a potential stopgap solution to the ROK defense manpower dilemma. They make up an important share of the country’s defense capacity in wartime. The ROK reserve forces are the only substantive option to make up for the shortfalls in troops reduction due to the PDCP. Given the importance of the reserve forces, changes and innovations in reserve force training and mobilization management are inevitable. Until the ROK military service system finalizes its way ahead, the reserve forces could provide rapid mobilization of overwhelming force to take the war to the enemy only if the ROK military could maintain the well-trained reserve forces.

2. The future ROK-U.S. combined defense system requires active war deterrence and retaliatory capabilities as rapid and decisive as possible to minimize potential damages caused by the DPRK provocation and aggression. The ability to destroy the enemy’s threat capabilities as quickly as possible can be transferred to a successful strategic paralysis, minimizing the chance of the DPRK’s tension escalation on the KORPEN. In other words, the future combined defense system must be prepared to secure survivability in a DPRK invasion and veto the occupation of the capital and essential areas. Therefore, the ROK-U.S. combined defense system needs accuracy and speed that can overtake the DPRK’s “hit and run” tactic. The future combined defense system can be embodied in six mission capabilities to deter war in peacetime and achieve victory in wartime[29].

Table 1. Six mission capabilities of the future combined defense system[30].

<table>
<thead>
<tr>
<th>Items</th>
<th>The future combined defense mission capabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Collect and analyze information to identify an enemy’s military activity</td>
</tr>
<tr>
<td>2</td>
<td>Hold the front line / defend against the enemy’s seize of the critical terrains</td>
</tr>
<tr>
<td>3</td>
<td>Deter and secure enemy access to military force through sea and airspace</td>
</tr>
<tr>
<td>4</td>
<td>Subdue enemy’s diplomatic, informational, and economic center of gravity</td>
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<tr>
<td>5</td>
<td>Counterattack and to annihilate an enemy whose invasion ability is depleted</td>
</tr>
<tr>
<td>6</td>
<td>Shape the information environment to prevent Third Party Intervention</td>
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</table>
The ROK and the U.S. are actively preparing for the COT-P to expand the ROK’s autonomous response capabilities to the DPRK threats and establish a new combined defense system led by the ROK military. The ROK’s transition to wartime OPCON to lead the combined defense and the alliance’s comprehensive defense capability to respond to the DPRK threats is through the three-step combined verification process of the mission performance capability of the F-CFC and the non-traditional threat such as COVID-19 crisis, downgrading the scale and scope of the combined command post training, further handicaps our opportunity to fully implement and assess the three-step combined verification process. As the invisible depopulation war is consuming the workforce, both the ROK and the U.S. should focus on developing core mission capabilities that the shrinking ROK military workforce can lead. In contrast, other critical capabilities should be put on hold until a more definitive solution is realized. Therefore, the ROK military should be able to lead defense and counterattack missions in the early stages of the war before the U.S. and United Nations Sending States (UNSS) reinforcements arrive. The ROK military should have abilities to lead in the following area:

Table 2. ROK military-led operational core competencies after the OPCON-T[30].

<table>
<thead>
<tr>
<th>Items</th>
<th>Operational core mission competencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Gathering intelligence on DPRK military activities south of Pyongyang and Wonsan</td>
</tr>
<tr>
<td>2</td>
<td>Responding and counterattacking the enemy’s aggression and local provocations</td>
</tr>
<tr>
<td>3</td>
<td>Adhering and defending the main front lines</td>
</tr>
<tr>
<td>4</td>
<td>Securing sea and airspace through the navy and air force</td>
</tr>
<tr>
<td>5</td>
<td>Subduing the enemy’s main force by Joint fire support of land, sea, and air forces</td>
</tr>
<tr>
<td>6</td>
<td>Dominating offensive/defensive cyber and information operations</td>
</tr>
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</table>

Once the OPCON-T completes, the future combined defense system will provide a foundation for the ROK military to lead those six mission capabilities. Thus, the ROK military should be responsible for at least 70-80% of the troops and military assets required to achieve the primary missions of identifying, dealing, and suppressing enemy targets for deterrence and execution of the war on the KORPEN. However, it is expected that the PDCP will hinder the ROK military from securing the necessary and fully operational defense manpower to endure unwavering operational competencies to deter a potential war independently and carry out its core missions without interruption due to the manpower shortage. The decline of the ROK population due to the PDCP is a social problem that desperately needs an essential solution[30]. This social problem is also a reflection point for the ROK and the U.S. defense and national authorities in the era of OPCON-T. If the chronic diseases of the PDCP are ignored, it will directly threaten the security of the KORPEN. The ROK and the U.S. should consider multifaceted factors from various angles and prepare for binational decision space to prepare for the realpolitik in shaping the future landscape of the ironclad ROK-U.S. military alliance.

5. Conclusion

The future ROK-U.S. combined defense system is likely to be at disadvantage if the ROK military fails to lead the core mission competencies in the early stage resulting in loss of the initiative to conduct war. Losing initiative will go beyond the security of the KORPEN and ultimately leads to a significant security threat in the Northeast Asia[31][32]. If the ROK military is unable to lead the future combined defense system during peacetime and wartime, which will make
the ROK reliant on the international community to end the Korean conflict on their behalf, thereby increases a perception of incompetency of the ROK military on the international stage. As the world witnessed during the 1950-1953 Korean War, the KORPEN could potentially be a powder keg that geopolitically embeds the possibility that great powers can clash. Therefore, the ROK military needs to be honest with itself and concludes whether it can fully manage the core mission in active war deterrence and independently take major responsibilities for the security of the KORPEN. The current campaign of an elite force powered by advanced technologies has risk factors that should thoroughly be realized in terms of realpolitik and practicality.

The defense manpower must be available for these dedicated tasks to be possible. The drastic reduction in the ROK defense workforce will gradually aggravate the overall combined operational competencies. In other words, it will lead to a situation where more U.S. commitment is inevitable, causing a potential dilemma in allies, partners and friends defense resource allocation and prioritization in the time of need. The possibility cannot be ruled out that such impending situation may set the U.S. and the UNSS for failure to answer a mission-critical call for the time-sensitive reinforcing deployment. It could lead to a fracture in the ROK-U.S. military alliance and the loss of trust in the U.S. partnership. Moreover, it will jeopardize the security of the KORPEN. Even after the OPCON-T, the missions that the U.S. military should continue to lead are the striking ‘critical target’ mission to suppress the DPRK’s centers of gravity and the provision of a nuclear umbrella for the strategic deterrence. The ROK and the U.S. should consider multifaceted factors from various angles and seek a reasonable and collaborative approach. As a result, the ROK military could focus on the effects-based mission competencies that ensure interoperability without a ticking time bomb due to the PDCP dilemma; there is room to rethink the future direction for the ROK-U.S. combined defense system in era of the OPCON-T, but we may not run out of time in the very near future.

When the ROK and the U.S. are systematically and actively preparing for the OPCON-T implementing ways to slow down the impacts of the PDCP, the verification and developmental procedures of technological prowess should not be driven by the political agenda that may jeopardize the future security of the KORPEN. Instead, bilateral efforts should continue developing calibrated and practical designing of the future ROK-U.S. combined defense system while combating the invisible depopulation war with concrete alternatives. As an example, the ROK-U.S. military alliance could become more international and multilateral by adding collective security domains to the ROK’s New Southern Policy (NSP) and the U.S. INDOPACOM Strategy operations, activities, and investments (OAI). Furthermore, the alliance can use the United Nations Command (UNC) as a springboard to jump start multilateral security cooperation by drawing more partners to distribute the burdens of the PDCP. The ROK-U.S. military alliance has been forged in the crucible of combat and has been the linchpin of peace and security in the Northeast Asia for many years. As prior research suggested that the well-trained and managed reserve forces may delay the shortfalls of the future ROK-U.S. combined defense system due to the defense manpower challenge; however, it will not be a permanent solution since the overall population is still on decline. Both the ROK and U.S. should consider the practical timeline of the OPCON-T in prudent manner while revamping an elite reserve forces system suitable for the security situation of the KORPEN until binational decision space is secured for designing the realistic future landscape of the interoperable alliance. Even as strong as the U.S. military power is, the U.S. has never fought wars alone, instead, have been fighting with many allies. Both countries should establish the future direction for the ROK-U.S. combined defense system with an attitude of “a stitch in time saves nine” rather than playing it by ear. The ROK-U.S. military alliance can overcome the PDCP by considering mid-to-long term solutions and be prepared to continue safeguarding the security of the KORPEN just as it did for the last 70 years only if they “look before they leap” for another century of maintaining the ironclad ROK-U.S. alliance.
6. References

6.1. Journal articles


6.2. Books


6.3. Additional references


7. Appendix

7.1. Authors contribution

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<tr>
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<td>-Design ☑</td>
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<td>-Getting results ☑</td>
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