

The UN's Sustainable Development Goal 15 in South Korea:  
Environmental peacebuilding through inter-Korean forestry  
cooperation on the Korean Peninsula

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## **Abstract**

Environmental issues transcend political boundaries, and deforestation and forest degradation in North Korea pose a threat to the ecological stability of the entire Korean Peninsula. Despite the ongoing political tensions and sanctions between South Korea and North Korea, there has been a history of cooperation in the forestry sector. In the aftermath of the Korean War (1950-1953), the Korean Peninsula suffered significant deforestation and forest degradation. However, while South Korea achieved forest recovery through effective reforestation policies in the 1970s and 1980s, the forested areas in North Korea have continued to decline over time. Research on environmental peacebuilding has shown that cooperation on shared environmental challenges can serve as a tool for transforming conflicts, even in the face of difficult political situations. In this context, forestry cooperation between South and North Korea emerges as an opportunity to address environmental challenges, while making progress towards SDG 15: Life on Land, and promote dialogue, trust, and a more sustainable future. Therefore, this dissertation aims to explore the significance of inter-Korean forestry cooperation in promoting environmental peacebuilding and advancing SDG 15 on the Korean Peninsula. Through the examination of the current status of deforestation and forest degradation, past inter-Korean forestry initiatives, and their capacity to facilitate collaboration between the two Koreas, this study seeks to enhance our understanding of how environmental cooperation, specifically in the realm of forestry, can foster connections in a region that is divided and influenced by political and ideological differences, such as the Korean Peninsula.

**Keywords:** reforestation and forest degradation, inter-Korean cooperation, forestry policies, environmental peacebuilding, Korean Peninsula

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## **List of Abbreviations**

SDG: Sustainable Development Goal

UN: United Nations

ROK: Republic of Korea

NKWP: North Korean Worker's Party

NGO: Non-governmental organization

SFM: Sustainable forest management

GHG: Greenhouse gases

FAO: Food and Agriculture Organization

DMZ: Demilitarized zone

KFS: Korea Forest Service

FFP: Forest for Peace

GOK: Green One Korea

IUCN: International Union for Conservation of Nature

WWF: World Wildlife Fund

HSF: Hanns-Seidel-Foundation

PF: Peace Forest

GAO: Green Asia Organization

DPRK: Democratic People's Republic of Korea

OECD: Organisation for Economic Cooperation and Development

## 1. Introduction

The Korean Peninsula, historically divided by political tensions and conflict, is home to vast natural resources and cross-border ecosystems. Forests in the region are fundamental for achieving the UN Sustainable Development Goals (SDGs) as they provide multiple economic, social and environmental benefits to both South Korea and North Korea. Among these goals, SDG 15: Life on Land, focuses on the protection, restoration and promotion of sustainable use of terrestrial ecosystems (UN 2015). In South Korea, the achievement of SDG 15 acquires a unique significance by considering inter-Korean forestry cooperation on the Korean Peninsula. This approach seeks to address environmental challenges on the region, such as deforestation and forest degradation, by leveraging the shared interests in forest conservation and management as a means to promote dialogue, build trust and contribute to a more sustainable future for both South and North Korea. Therefore, this dissertation analyses the opportunities and challenges of environmental peacebuilding through inter-Korean forestry cooperation.

After years of Japanese occupation (1910-1945) and the Korean War (1950-1953), in the early 1960s, South Korea was a poor and underdeveloped country with devastated forests (Korea Forest Service 2014). In the 1970s and 1980s, the South Korea government made a significant effort in establishing a nation-wide program for reforestation and sustainable forest management, the National Reforestation Programme, which successfully restored forest ecosystems in the Republic of Korea (ROK) (Bae, Joo, and Kim 2012, 205; Korea Forest Service 2014). On the other hand, following the division of the Korean Peninsula after World War II, the North Korean Worker's Party (NKWP) assumed control in the northern region. Since the beginning of its existence, the North Korean government followed forestry policies directed towards the exploitation of natural resources for economic development (K.-S. Park, Lee, and Park 2013). Eventually, the lack of sustainable forest management policies led to an accelerated forest degradation and deforestation in North Korea (Ji, Shin and Lee 2022, 561), which was further exacerbated by a severe famine in the 1990s (K.-S. Park, Lee, and Park 2013, 24).

The current geopolitical situation on the Korean Peninsula is complex and delicate, with a fragile relationship between both Koreas and tensions escalating due to North Korea's military provocations (Isozaki 2022). Although cooperation between both Koreas has been historically weak and limited, forestry cooperation emerges as an opportunity to engage with North Korea, in a less politicized context (Motylińska 2022, 9; Seliger 2020, 147; H.-A. Choi 2022, 173). Deforestation and forest degradation in North Korea is emerging as a problem for

both Korea, as it is threatening the stability of ecosystems of the entire Korean Peninsula (M. S. Park and Lee 2014, 5163). For better or worse, environmental issues know no borders and transcend political ideologies. Therefore, the transboundary nature of these challenges provide an opportunity for joint efforts on the Korean Peninsula towards sustainable development and the implementation of the UN 2030 Agenda, agreed and accepted by South Korea and North Korea (G. Choi 2021; Kwon 2021). Accordingly, acknowledging the fragile South-North Korean relations, South Korea should engage with North Korea through a cooperative approach based on small-scale and feasible forestry initiatives that allow to make progress towards achieving sustainable forest management while simultaneously fostering dialogue and building trust between the two Korea (Motylińska 2022, 10; Seliger 2020, 143).

The aim of this dissertation is to explore the role of inter-Korean forestry cooperation as a means to promote environmental peacebuilding and advance SDG 15 on the Korean Peninsula. By analysing the current state of deforestation and forest degradation, past inter-Korean forestry initiatives and their ability to foster collaboration between the two Korea, this research aims to contribute to the understanding of how environmental cooperation, in this case forestry, can contribute to building bridges in a region divided and marked by political and ideological differences, such as the Korean Peninsula.

### **1.1 Selected Sustainable Development Goal and the Korean Peninsula**

In 2015, the United Nations established the 2030 Agenda for Sustainable Development, which consisted in a set of 17 goals to be adopted by all the member states, in order to achieve sustainable development by the end of 2030 (UN 2015). This dissertation focuses on SDG 15: Life on Land, which aims to “protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss” (UN 2015). However, this work will specifically concentrate on target 15.2 of SDG 15, which seeks to halt deforestation and forest degradation through the promotion of sustainable forest management practices, as well as afforestation and reforestation (UN 2015).

The Korean Peninsula holds great geopolitical and historical significance. After World War II, the region was divided into North and South Korea along the 38th parallel (Hong 2000). Soon after, the Korean War (1950-1953) further consolidated this division, establishing separate governments in the South (Republic of Korea) and the North (Democratic People’s Republic of Korea) (ibid.). South Korea underwent a remarkable



transformation from an authoritarian regime to a liberal democracy, experiencing rapid economic development and becoming a world leader in technology. In contrast, North Korea adopted a socialist state model under the totalitarian communist regime of Kim Il Sung (Shin 2016). Since then, the North pursued a policy of self-reliance called *Juche*, and has faced international isolation due to its nuclear weapons programme and human rights problems.

## **1.2 Methodology and limitations**

This dissertation adopts an analytical approach, based on the examination of secondary sources related to the study of peacebuilding efforts through environmental cooperation, as well as academic research on previous inter-Korean environmental cooperation.

This research faces certain limitations, the main one being the collection and interpretation of data. North Korea is widely known for its hermeticism, which poses significant difficulties in data collection. This lack of transparency makes it difficult to obtain information on specific topics such as forestry and forest management cooperation. In addition, another major constraint is the language barrier, as much of the information available on inter-Korean forestry cooperation is only accessible in Korean. Given these limitations in data collection and interpretation, this dissertation focuses mainly on South Korea, as North Korean information on inter-Korean forestry cooperation initiatives could not be explored due to the scarcity of information.

## **1.3 Structure of dissertation**

This dissertation is structured into seven sections. The [first section](#), the introduction, provides a comprehensive overview of the topic by establishing connections between environmental peacebuilding, inter-Korean forestry cooperation, and SDG 15. It also outlines the aim of the dissertation, its methodology and limitations. The [second section](#) focuses on the literature review, examining the concept of environmental peacebuilding, exploring environmental cooperation in conflict-prone areas, and analysing key concepts relevant to the forestry sector. Moving to the [third section](#), a global and regional perspective is presented, analysing deforestation and forest degradation while highlighting the distinctions between the South and North Korean forestry situations. In the [fourth section](#), an in-depth analysis of environmental peacebuilding through inter-Korean forestry cooperation is conducted, encompassing its historical background, the role of NGOs, and an assessment of its potential and challenges. The [fifth section](#) evaluates and provides recommendations on how South Korea can enhance inter-Korean relations through forestry cooperation. The [sixth section](#)

concludes the dissertation with a synthesis of the most important points. Lastly, the [seventh section](#) presents the list of resources used to support the dissertation.

## **2. Literature review**

### **2.1 Conceptualizing environmental peacebuilding**

In recent decades, the relationship between the environment and security issues has been drawing greater attention due to the worrisome global environmental crisis. Although the link between the environment and security has been a subject of research since the 1950s (Brown 1954), with the Brundtland Commission report in 1987, *Our Common Future*, the idea that environmental stress could be a source of conflict became more popular in the political and academic discourse. With the new millennium, literature on the environment-conflict nexus started to shift the focus from environmental challenges being the source of violence and competition, to the idea that environmental cooperation could be a tool for conflict transformation.

Research on the connections between environmental issues, environmental cooperation, and peace is categorized by scholars using a variety of labels, such as “environmental peacemaking”, “environmental peacebuilding”, “environmental peace perspective”, “ecological diplomacy”, and “science diplomacy” among other terms (Ide 2019, 2). In this dissertation, the term used will be environmental peacebuilding as it is a concept that focuses on the role of the natural environment in mitigating and transforming violent conflict as well as politically fragile settings, and on the ways in which the environment can contribute to peace, instead of create conflict (Floyd and Matthew 2013, 10; Ide et al. 2021, 3). Environmental peacebuilding should be understood as an umbrella term that refers to a variety of issues that are all connected by an interest for the interrelationship between the environment, conflict and peace (Maas, Carius, and Wittich 2013). One of the most inclusive understandings of environmental peacebuilding is the one defined as “multiple approaches and pathways by which the management of environmental issues is integrated in and can support conflict prevention, mitigation, resolution and recovery” (Ide et al. 2021, 2-3).

The existing literature on environmental peacebuilding suggests that conflicting parties can set aside their differences and work together in the face of common environmental issues, leading to more harmonious and sustainable relations between them (Ide 2019, 1; Krampe, Hegazi, and VanDeveer 2021, 1). Therefore, even when the relationship is hostile or characterized by mistrust, shared environmental issues are a great opportunity for cooperation

between actors, as environmental concerns may be less politically sensitive topics and encourage actors to cooperate (Conca and Dabelko 2002, 230-36; Ide et al. 2021, 4).

In the context of environmental peacebuilding, environmental cooperation is considered successful when it contributes to develop more peaceful relations between the conflicted parties. The understandings of peace in the environmental peacebuilding literature are varied, although they generally reflect a holistic and interdisciplinary approach to peacebuilding. Despite the fact that there is no common definition of peace, there is the perception of peace as a continuum reaching from negative to positive forms of peace, rather than an “all-or-nothing” state of peace (Ide 2019, 3-4; Goertz, Diehl, and Balas 2016, 27; Conca and Dabelko 2002, 9). Within this continuum, Tobias Ide (2018, 4) identifies three forms of peace. At one end of the spectrum, there lies the negative form of the term, “negative peace”, which refers to the absence of violent conflict, when war and ongoing military conflict are absent from the relationship (Galtung 1967,12; Goertz, Diehl, and Balas 2016, 36). The second phase of peace in the continuum is when, due to the positive symbolic relationships between the different groups, a symbolic rapprochement occurs (Ide 2019, 4). Finally, on the other end of the spectrum, peace is perceived as “positive peace”, when there is a substantial integration of the involved parties in terms of institutions and/or trans-societal relations (Ide 2019, 4; Galtung 1967, 12; Goertz, Diehl, and Balas 2016, 40).

## **2.2 Understanding environmental cooperation in conflict-prone areas**

Much of the literature on environmental peacebuilding focuses on whether environmental cooperation has the potential to be an important catalyst to lower tensions, broaden cooperation, encourage demilitarization, and foster sustainable peace (Conca and Dabelko 2002, 9; Krampe, Hegazi, and VanDeveer 2021, 1). Furthermore, there is strong theoretical foundation for the idea that environmental collaboration may have beneficial implications for peace, as environmental peacebuilding approaches cooperation as a win-win solution and moves away from the zero-sum logic of conflict (Conca and Dabelko 2002, 9; Dresse et al. 2019, 99; Song and Hastings 2020, 1813). However, empirical research on environmental peacebuilding has produced inconsistent outcomes (Song and Hastings 2020, 1813), and despite the spread of the idea, there is a lack of knowledge regarding the appearance and the functioning of environmental cooperation in conflict-prone areas (Cabada and Waisová 2018, 5).

There are cases in which environmental cooperation in prone-conflict areas has resulted in positives outcomes for the region, for instance Cambodia, Laos, Thailand and

Vietnam in 1995 agreed on the foundation of a regional institution, the Mekong River Commission (Song and Hastings 2020, 1813; Cabada and Waisová 2018, 12). In the same line, in the Israeli-Palestinian context, a water cooperation project called the “Good Water Neighbours” has promoted, to some extent, dialogue and cooperation between Israelis, Palestinians and Jordanians (Song and Hastings 2020, 1813; Ide and Fröhlich 2015). In the case of South and North Korea, research on the Korean peninsula show that the impact of environmental peacebuilding on inter-Korean relations is limited (Song and Hastings 2020, 1813). Nonetheless, despite the seemingly minor impact of environmental peacebuilding on the Korean conflict, since 2000, both parties have made efforts to cooperate on environmental issues despite the ups and downs of inter-Korean relations (Song and Hastings 2020, 1814).

According to research that examined various case studies, including the situation of South and North Korea, environmental cooperation and political conflict can coexist, but under specific circumstances (Cabada and Waisová 2018, 13). Other insights drawn are that the cooperation begun when the intensity of the conflict was low, therefore, cooperation on common environmental issues has not led to a decrease in conflict intensity, although once started, it can withstand political conflict (Cabada and Waisová 2018, 13). Furthermore, research shows that in areas of political conflict, environmental cooperation largely depends on external actors such as NGOs and international organizations (Song and Hastings 2020, 1814; Cabada and Waisová 2018, 13; Kim, Jeong, and Park 2020). Lastly, in order to successfully cooperate on environmental terms, conflicting parties need to overcome significant barriers such as the lack of trust and stability, as well as administrative-judicial restrictions on communication, which complicate any type of cooperation (Seliger 2020, 143; Cabada and Waisová 2018, 14).

Finally, academic analysis suggests that it is feasible to use environmental cooperation as a tool for conflict transformation, however, it is still unclear how the positive spin-offs of environmental cooperation could spread into the political realm (Waisová 2014, 19; Cabada and Waisová 2018, 14). In the case of the Korean peninsula, in order to overcome some of the obstacles regarding the fragile political inter-Korean relations, scholars advise starting cooperation with small-scale cooperative initiatives in the framework of multilateral agreements rather than top-down political efforts, which might be less successful (Motylińska 2022, 10; Seliger 2020, 143). Similarly, borrowing trust from an international setting is a strategy for moving forward in the absence of original trust (Seliger 2020, 144; Motylińska 2022, 10). Therefore, to overcome the issue of mistrust between North Korea and South Korea, framing forestry cooperation within the UN Sustainable Development Goals has the

potential to provide a more secure framework for cooperation on the Korean peninsula (Seliger 2020, 145).

### **2.3 Understanding sustainable forest management and other key concepts**

There are a few concepts regarding target 15.2 that should be briefly explained and addressed. Forestry cooperation is important for addressing global challenges related to deforestation, climate change, and biodiversity loss, as well as the promotion of sustainable forest management. The FAO (2023) describes sustainable forest management (SFM) as a “dynamic and evolving concept, which aims to maintain and enhance the economic, social and environmental values of all types of forests, for the benefit of present and future generations”. Therefore, SFM is a set of practices and strategies used to ensure that forests are used and maintained in a way that is environmentally, socially, and economically sustainable. It involves balancing the need for economic development and resource use with the protection of forest biodiversity and ecosystem services, as well as the well-being of forest-dependent communities (FAO 2023).

The concept of deforestation refers to the cleaning or removal of forests or trees from a particular land area, often resulting in permanent loss of forest cover (Allen and Barnes 1985, 165; FAO 2020b, 13; Hosonuma et al. 2012, 3). Deforestation can occur for a variety of reasons, including agriculture, whether for commercial or subsistence ends, mining, infrastructure, and urban expansion among others (Hosonuma et al. 2012, 3; Kissinger, Herold, and De Sy 2012, 10). The destruction of forests is a significant environmental issue, as it can result in a range of negative impacts on the planet, including loss of biodiversity, soil erosion, increased greenhouse gas emissions, and changes to local and global climate patterns (IUCN 2021; Pendrill et al. 2019, 1). The loss of forest also has social and economic impacts, including the displacement of indigenous peoples and local communities, and the loss of important ecosystem services such as clean water, air quality regulation, and natural resources like timber and non-timber forest products. (WWF 2023).

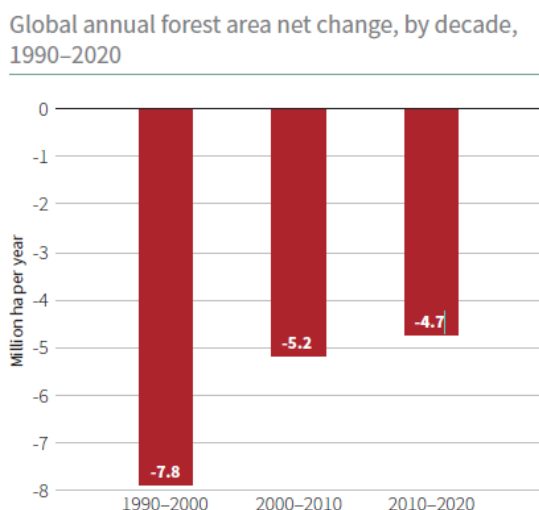
Forest degradation refers to the decline in forest quality and productivity as a result of natural or human-induced factors (Hosonuma et al. 2012, 3; FAO 2020b, 95). It is a process that occurs when the ecological integrity of forests is compromised, resulting in changes in their structure, composition and function. Unlike deforestation, a damaged forest is expected to recover naturally if the process is not hindered (Hosonuma et al. 2012, 3). Some of the drivers of forest degradation are timber extraction and logging, uncontrolled fires, livestock grazing in forests, and fuelwood and charcoal production (Hosonuma et al. 2012, 3).

Reforestation and afforestation are both practices aimed at increasing the number of trees in a particular area to restore the ecological integrity of a degraded or deforested landscape. Reforestation refers to the process of replanting or regrowing trees in an area where forests have been removed or destroyed, either naturally or as a result of human activities (FAO 2020b, 13). On the other hand, afforestation is the process of establishing a new forest in an area that was not previously forested (FAO 2020b, 13).

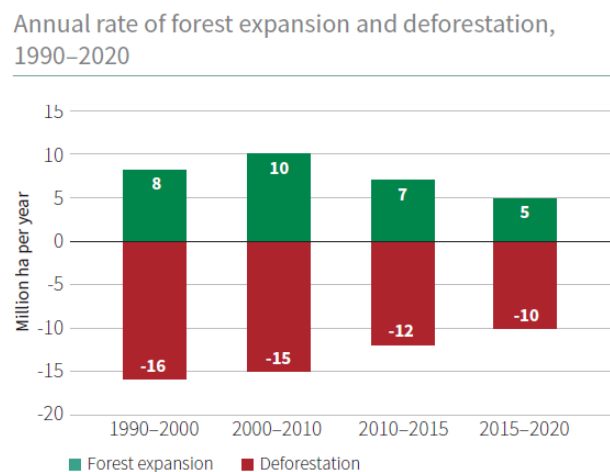
### 3. Global and regional situation with regard to deforestation and forest degradation

#### 3.1 Global situation

Forests account for almost one-third of the planet’s land area and are home to most of the world’s land-based biodiversity. Nonetheless, despite initiatives to halt deforestation and restore degraded lands, the forest area keeps shrinking (FAO 2020a, 5). Since 1990, 178 million ha of forests have been destroyed worldwide, an area similar to that of Libya (FAO 2020, 2). Looking at forest area trends over the past three decades, with the relatively scarce reliable data, one can cautiously conclude that global forest area is declining, but the rate of loss has slowed (FAO 2020b,15). Over the period 1990-2020, the global rate of net forest loss decreased significantly due to reduced deforestation in some countries and increased forest area in others as a result of afforestation and natural expansion of forests (FAO 2020a, 2). The net forest loss rate lowered from 7.8 million ha per year in the decade 1990-2000, to 4.7 million ha per year in the most recent decade (see Figure 1) (FAO 2020b, 15).



**Figure 1.** Global annual forest area net change, by decade, 1990-2020 (FAO 2020b, xi)



**Figure 2.** Global annual rate of forest expansion and deforestation, 1990-2020 (FAO 2020b, xii)

Since data on net forest area change alone are not sufficient to characterize the multifaceted nature of land-use dynamics, data on forest expansion and deforestation must also be taken into account. Deforestation is estimated to be responsible for the loss of some 420 million ha of forest over the period 1990-2020 (FAO 2020b, 18). The global deforestation rate decreased from 15.8 million ha per year in 1990-2000, to 10.2 million ha per year in 2015-2020 (See Figure 2) (FAO 2020b, 18). Therefore, although deforestation persists, the rate of forest loss has significantly decreased. Further analysis of the data reveals that, between 2015 and 2020, Africa experienced the greatest annual rate of deforestation, at 4.41 million ha, followed by South America at 2.96 million ha, and Asia at 2.24 million ha (FAO 2020b, 19). On the other hand, the rate of afforestation and natural forest expansion, projected to be approximately 5 million ha per year over the same time period, which were not enough to make up for the loss of forests (see Figure 2) (FAO 2022, 5).

Understanding the causes of deforestation and forest degradation is crucial in order to halt these tendencies. Although there are wide differences among the factors responsible for deforestation over time and in different geographical areas, agriculture is regarded as the most important direct cause, being responsible for almost the 90 percent of global deforestation (Hosonuma et al. 2012, 5; Pendrill et al. 2019, 7; FAO 2022, 28). According to research, the growth of cropland contributed to 52.3% of deforestation, while the expansion of livestock grazing caused 37.5% (FAO 2022, 28). Analysis of the data on drivers of deforestation (FAO 2022, 28) shows how the main factors vary by continent: more than 75% of the deforestation in Asia and Africa was caused due to cropland. Livestock grazing dominated in South America and Oceania, whereas infrastructure and urbanization prevailed in Europe. Other direct drivers of deforestation are mining, timber extraction and logging activities, fuel wood collection and charcoal production (Kissinger et al. 2012).

Not all forests are the same type of forests. They can be classified into naturally regenerated forests and planted forests. Naturally regenerating forests, which are mainly composed of trees that have grown there naturally, account for the 93 percent of the world's forest land (FAO 2022, 6). Within naturally regenerating forests, there are primary forests which account for around one-third of the world's forests and consist of native tree species and show no obvious traces of human interference or disruption in ecological processes (FAO 2022, 6). An estimated 47 million ha of primary forests have been lost around the world since 2000, with the loss rate decreasing more than half during the last decade (FAO 2022, 6). More than 90 percent of the world's forests have undergone natural regeneration, yet the extent of these forests has shrunk since 1990, despite a declining rate of loss (FAO 2020a, 4).

On the other hand, planted forests which are mainly made up of intentionally seeded or planted trees, account for the 7 percent of the worldwide forest area (FAO 2020b, 30), and albeit the rate of growth has decreased from 1.4 percent per year to just less than 1 percent during the past ten years, the area of planted forests has expanded (FAO 2020a, 4).

Forest deterioration is hard to measure, but it is likely getting worse. Forest degradation is aggravated all around the world by human activities, adverse climatic conditions, fires, pests, diseases and other environmental perturbations (FAO 2022, 8). Deforestation and land degradation contributes to the loss of biodiversity, the rise of new diseases and climate change. Therefore, forests and trees are crucial for halting climate change and advancing toward a more sustainable future. As a source of greenhouse gases (GHGs) through deforestation and degradation and as a sink for GHGs by absorbing carbon through photosynthesis and storing it in biomass and soils, forests play a critical role in the global carbon cycle (FAO 2022, 9). More than half the carbon reserves in soils and vegetation around the world—662 billion tonnes—are found in forests (FAO 2022, 9). Despite the ongoing decline in forest land, reforestation, better forest management and other factors have contributed to trees absorbing more carbon than they released during the last decade.

Progress towards accomplishing target 15.2 to end deforestation and restore degraded forests is measured by indicator 15.2.1, which tries to assess progress towards sustainable forest management (UN 2015). Evaluating progression towards a more sustainable governance of forests is a challenge, as there is no quantitative and measurable quality that fully encompasses the many facets of sustainable forest management. However, a set of five sub-indicators were established to monitor progress toward the economic, social and environmental aspects of sustainable forest management (FAO 2020b, 7). These five indicators are: forest area annual net change rate, above-ground biomass stock in forest, proportion of forest area located within legally established protected areas, proportion of forest area under long-term forest management plans, and forest area under independently verified forest management certification systems (ibid.).

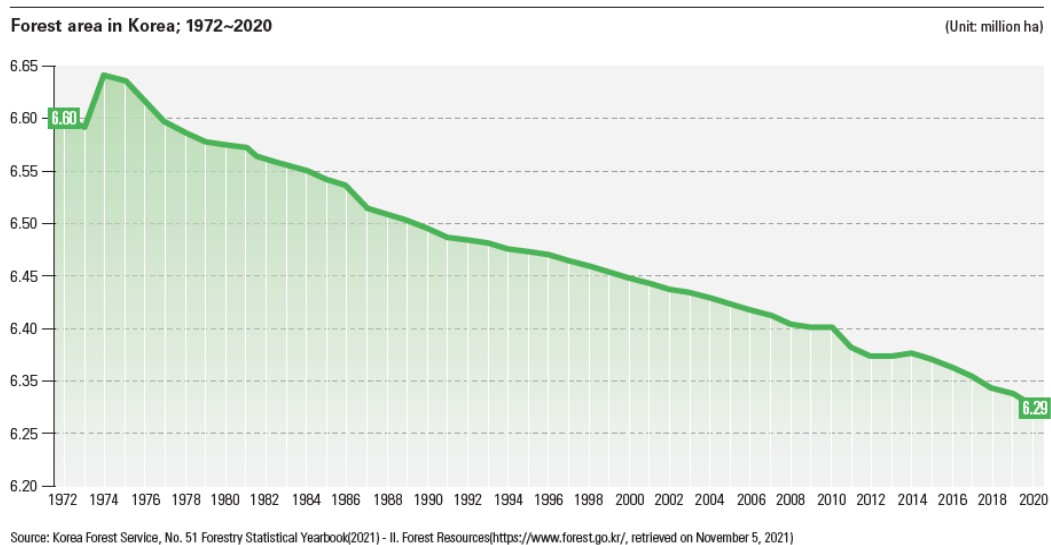
Despite the world is ongoing loss of forest land on a daily basis, effective sustainable forest management is being achieved. According to the extended report on SDG 15 (UNSD 2022), there are now 35% more forests protected by certification schemes than there were in 2010, and the percentage of forests in protected areas rose globally from 17% to 18%, which is more than 700 million ha of forests being under legally protected areas (FAO 2020a, 7). Additionally, the above-ground biomass supply has improved worldwide, and forests are storing more carbon and biomass per hectare (UNSD 2022). Furthermore, there has been an



increase in the proportion of forests around the world that fall under a long-term management plan, rising from 54% in 2010 to 58% in 2020 (UNSD 2022). Therefore, although there is still a long way to go to achieve sustainable forest management around the world, progress is being made in the right direction.

### 3.2 The Korean Peninsula situation

Forests on the Korean peninsula have been decreasing over time. A study using satellite images analysed patterns of forest change on the Korean peninsula (Dong et al. 2020), and the results show that forest cover on the peninsula dropped from 66.0% in 1990 to 63.3 % in 2015. North Korea lost 517,600 ha of forest between 1990 and 2015, a significant amount more than South Korea’s 85,100 ha. Between 1990 and 2000, North Korea’s forest loss was 4.2 times greater than South Korea’s, and between 2000 and 2015, it was 7.3 times greater (Dong et al. 2020, 73627). Regarding South Korea, after the national reforestation programme launched in the 1970s, Korea’s forest area has been steadily declining (see Figure 3), dropping from 6.60 million ha in 1972 to 6.29 million ha in 2020 (Statistics Research Institute 2022, 99), experiencing a net forest change rate of -1.0% during 2000-2020 (Global Forest Watch 2022; J. Park, Lim, and Lee 2021, 10). On the other side, North Korea’s forest cover experienced drastic changes between 1990 and 2015, as the forest cover dropped from 67.9% in 1990 to 63.8% in 2015 (Dong et al. 2020, 73627). However, from 2000 to 2020, the country registered a positive net forest change rate of 1.1% in tree cover (Global Forest Watch 2022).



**Figure 3.** Forest area in Korea; 1972-2020 (Statistics Research Institute 2022, 99)

According to the FAO's Global Forest Resources Assessment from 2020, severe climatic events, insects, diseases, and wildfires are among the common forest disturbances that have a major impact on forests. This indicates that disturbances like forest fires also have an effect on the decline in forest area, and that forest loss is not simply a result of the conversion of forests to other land uses. In the case of South Korea, the frequency of forest fires has shifted from a long-term downward trend to a recent increase in forest fires affecting larger areas of forest cover (Statistics Research Institute 2022, 100), this can be represented by the data of area damaged by forest fires which between 2010 and 2014 reached an average of 429.6 ha per year, and from 2015 to 2020, the annual average reached 1,557.5 ha of damaged forest area due to forest fires. As for North Korea, due to the lack of data and inaccessibility of the region, little research has been conducted specifically on forests affected by forest fires. However, research indicates that North Korea is particularly vulnerable to large fires due to cultivation in high altitude terrain and the use of slash-and-burn method of field management (Jin and Lee 2022, 2).

In recent years, there has been a steady increase in the number of protected areas in South Korea. As of 2022, the Republic of Korea had a total of 3,467 protected areas, of which 735 had management effectiveness evaluations (UNEP-WCMC 2023). There has been significant progress toward the protection and maintenance of biodiversity and natural and cultural resources. In 2007, South Korea had only 3,879 km<sup>2</sup> of protected land area (Statistics Research Institute 2021), accounting for 3.89% of the total area; by 2023, the area covered has increased to 16,917 km<sup>2</sup>, equivalent to a coverage of 16.97% (UNEP-WCMC 2023). On the other hand, both the International Union for Conservation of Nature (IUCN) and the UN have formally recognized 34 protected areas as part of North Korea's natural protected area network (McCarthy et al. 2021, 294), although none of them have management effectiveness assessments (UNEP-WCMC 2023). These 34 protected areas occupy 2,976 km<sup>2</sup> of land area, representing a terrestrial protected area coverage of 2.44%, a significantly lower percentage than its neighbouring country's coverage rate (UNEP-WCMC 2023).

#### **4. Position of South Korea regarding forestry cooperation on the Korean Peninsula**

##### **4.1 Historical background of forestry cooperation efforts between South Korea and North Korea**

Forestry cooperation efforts between South Korea and North Korea have a long and complex history. Following the Korean War in the 1950s, the two countries have remained politically and ideologically divided, leading to a lack of cooperation in various fields, including

forestry. However, efforts to cooperate on forestry related issues began to emerge in the 1990s (M. S. Park 2015, 5242; Motylińska 2022, 7), when both Koreas began to face serious environmental challenges, including deforestation and forest degradation, soil erosion, and water pollution.

Environmental cooperative projects between the South Korea and North Korea have progressed very slowly. The first theme of inter-Korean environmental cooperation was the proposal of establishing a transboundary natural reserve on the Demilitarized Zone (DMZ) to protect its natural resources and biodiversity (Motylińska 2022, 7). Although academic research on the subject began in the mid-1960s, the proposal did not gain sustained support until the 1990s (Hayes and Cavazos, 2013, 2; Brady 2021, 192), and it was not until the first inter-Korean Summit in 2000 and the second in October 2007 that direct bilateral discussions on environmental cooperation around the DMZ were initiated. However, real steps towards environmental cooperation on the border were never taken (Motylińska 2022, 7). Between 2009 and 2011, under the Lee Myoung-bak administration, a whole new series of proposals on inter-Korean environmental cooperation in the DMZ were drafted (Motylińska 2022, 8). Nonetheless, once again, they were not implemented. Subsequently, under the administration of President Park Geun-hye (2013-2017), the rhetoric of building an eco-peace park in the DMZ and the idea of a *Green Détente* were once again promoted, although also without success (Seliger 2020, 136; Motylińska 2022, 8). Thus, although there has been some discussion about creating a transboundary nature reserve in the DMZ, experts suggest that an environmental project in the DMZ is hardly feasible (Seliger 2020, 137), as it is far from being a space that is alien to the political and security interests of both Koreas.

Despite the failure of the DMZ environmental initiative, there have been improvements at the government level in environmental cooperation. During Kim Dae Jung's presidency (1998-2002), a policy of reconciliation and collaboration was fostered (M. S. Park 2015, 5244), and in 2000 Chairman Kim Jong Il and President Kim Dae Jung signed the June 15 Joint Declaration. This declaration, which is an agreement on collaboration and exchange in various disciplines, including environmental issues, plays a vital role as a key negotiating tool for inter-Korean forestry cooperation (M. S. Park 2015, 5244). In 2005, during the 15th Inter-Korean Ministerial Talks, North and South Korea decided to establish and operate an Inter-Korean Agricultural Cooperation Committee. This agreement was significant, as forestry projects were selected as one of the five agricultural projects for inter-Korean cooperation, and both countries committed to work together to conserve lands and

ecosystems by building tree nurseries and controlling diseases and insect pests (Park 2015, 5245).

In recent years, inter-Korean forestry cooperation in the border provinces of Gangwon and Gyeonggi has become a significant area of cooperation between the two Koreas. The province of Gangwon, which is divided by the frontier into North Gangwon (North Korea) and South Gangwon (South Korea), focused on cooperative disease and insect pest control (M. S. Park 2015, 5247), such as supplying North Korea with chemicals and equipment in exchange for North Korea sending forestry technicians trained in the control of specific forest pests and diseases. This inter-Korean exchange began in 2001, and control operations against the insect pests were carried out in 11,100 ha of the Kumgang Mountain region and on 8,500 ha of the North Gangwon Province until 2008, in accordance with a petition from North Korea (M. S. Park 2015, 5247). On the other hand, the Gyeonggi Province concentrated on building nurseries for reforestation. The South Korean province provided with seeds, equipment, chemicals, fertilizers and technology, while North Korea supervised the joint initiative's tree nurseries (M. S. Park 2015, 5247).

Inter-Korean forestry cooperation has also been developing through the independent organization Korea Forest Service (KFS) (Korea Forest Service n.d.), established in 1967 by the South Korean government and overseen by the Ministry of Agriculture, Food and Rural Affairs (MAFRA n.d). This organization has been actively engaging in joint projects with North Korea since the early 2000s, and KFS has been making various efforts to repair damaged forests in North Korea and carry out phased forest restoration operations through mutual collaboration with North Korea (Korea Forest Service n.d.).

A more optimistic trend has been noticed in the development of non-governmental cooperation initiatives. Since 1999, Forest for Peace (FFP), an NGO focused on forestry, has been engaged in reforestation activities in North Korea (M. S. Park 2015, 5247). Initially, FFP held a meeting with North Korea's Asia Pacific Peace Committee in 1999 to discuss the restoration of forested areas that had been devastated (Moon and Park 2004, 77; Song and Hastings 2020, 1819). The NGO responded to the requests from North Korea for materials, including seeds and fertilizers, and sent 100 tons of pine tree seeds, 2 tons of plastic sheeting, and 1.5 tons of fertilizer (Moon and Park 2004, 77.). Subsequently, FFP supported the establishment of tree nurseries in Pyongyang and Mount Kumgang and implemented measures to control the insect pest known as pine needle gall midge in the latter region (M. S. Park 2015, 5247). Afterwards, FFP also dispatched additional shipments consisting of

various supplies and forestry equipment such as seeds of *Castanea cretana* and *Pinus densiflora* in order to help rehabilitate North Korean forests (ibid., Moon and Park 2004, 77).

Apart from FFP, several South Korean NGOs have collaborated in conducting forest-related activities. During the early 2000s, the Korea Society of Tree Protection joined hands with the Mount Kumgang International Tourism Cooperation to provide pest control equipment and products to contain the spread of insect pests in Mount Kumgang, North Korea (Song and Hastings 2020, 1820). Meanwhile, the Korea Forestry Successor Association and the Korea Forest Management Association supplied tree seedlings, additionally, with other non-forestry organizations such as the Korean Rotary Club, the New Millennium Life Movement, the Republic of Korea National Red Cross, and humanitarian NGOs which also contributed to these efforts (ibid.).

In 2007, South Korean NGOs established a non-governmental organization network called Green One Korea (GOK) to facilitate forestry cooperation between the two Koreas (Song and Hastings 2020, 1819). The initiative aimed to enhance environmental cooperation between the two Koreas by providing technical assistance, expertise, and resources to support North Korea's environmental conservation efforts. Under GOK, South Korea and North Korea jointly established tree nurseries in multiple regions of North Korea such as Hoeryong, Gaepoong, Gosung and Pyongyang (M. S. Park 2015, 5248). Additionally, GOK carried out tree plantation activities and supported the management of forest diseases and insect pests throughout North Korean regions (ibid.). In 2014, Green One Korea launched the Annual Northeast Asia Forestry Cooperation Conference, which has been primarily focused on environmental cooperation in North Korea (Song and Hastings 2020, 1820). During the third conference in 2017, North Korea's representatives began actively seeking assistance, and in 2018, the South Korean delegation proposed an agenda that focused on identifying ways to support afforestation in North Korea (ibid.).

Starting in 2015, a coalition of international non-governmental organizations such as IUCN and WWF, alongside the Hanns-Seidel-Foundation (HSF) of Germany, collaborated to assist North Korea in becoming a member of several significant international organizations and conventions, such as the Ramsar Convention on Wetlands or the East Asian Australasian Flyway Partnership, as well as to enhance its understanding of environmental issues, with a particular focus on biodiversity, climate change, and nature conservation (Seliger 2020, 140). Furthermore, as a result of the collaboration with these international non-governmental organizations (INGOs), North Korea established an agency to collaborate directly with the Green Climate Fund, the largest global fund dedicated to help fight climate change, and

initiated a preliminary “readiness” project in conjunction with the UN FAO (Motylińska 2022, 9).

#### **4.2 Comparison between the forestry policies implemented in South Korea and North Korea**

Following the Korean War (1950-1953), the Korean peninsula suffered from significant deforestation and forest degradation, and since the end of the war, South Korea and North Korea have pursued different forestry policies and practices, reflecting the different political and economic systems in the two countries. South Korea’s forest area made up 35% of its total land area in the 1950s. However, with the successful implementation of the National Reforestation Program in the 1970s and 1980s, the country was able to restore its forests, and by the 1990s, the forest area had increased to 60% (Ji, Shin, and Lee 2022, 562; Korea Forest Service 2014). In contrast, North Korea’s attempts at forest restoration were unsuccessful, and deforestation has actually increased since the mid-1980s due to energy and food shortages, leading to more logging and accelerated deforestation (M. S. Park and Lee 2014, 5165).

In 1973, the government of South Korea implemented the National Reforestation Program, a government-led initiative that enabled the country to achieve afforestation. The program was composed of two long-term plans: The First 10-year Forest Rehabilitation Plan (1973-1978), and The Second 10-year Forest Rehabilitation Plan (1979-1987). The First Plan aimed to rapidly plant trees across one million hectares by utilizing state-level administrative powers, such as finance and law enforcement (Oh et al. 2020, 4). During the initial plan, erosion control measures were implemented on a total area of 41,932 hectares, and the government announced a Nationwide Tree Planting period and Arbour Day to encourage greater public involvement (ibid.). Furthermore, the plan prohibited slash-and-burn farming, which was a leading cause of deforestation and forest degradation (M. S. Park and Lee 2014, 5167).

The Second Plan of South Korea had the goal of developing large-scale commercial forests that could meet domestic demand for sustainable timber resources (Korea Forest Service 2014, 12). To support both private and national forests, the government implemented a range of forestry policies, including forest restoration, increased protection, and the establishment of development funds (M. S. Park and Lee 2014, 5167). Measures to control erosion were also carried out in conjunction with reforestation projects to prevent natural disasters (ibid.). The Korea Forest Service took over the Second Plan’s implementation from

the Ministry of the Interior, with a primary focus on creating a new economic block in the mountains, rather than improving afforestation (Oh et al. 2020, 4). Policies were put in place to expand economic afforestation, establish a national afforestation system, create large forestry complexes, and implement comprehensive regional afforestation. Priorities shifted towards economic forestry development, technology diffusion, total national participation, and development support, away from afforestation, mental orientation, heteronomous participation and regulation (Oh et al. 2020, 4).

South Korea's forest rehabilitation has several success factors. Firstly, the government displayed a strong commitment to rehabilitating the degraded forests, investing significant financial resources and human capital into the effort (Ji, Shin, and Lee 2022, 562). To raise awareness and engage citizens in reforestation, the government promoted a nationwide forest rehabilitation campaign, including nationwide tree planting periods. Another essential success factor was the establishment of governance for forest rehabilitation, allowing better coordination and implementation of policies and programs between different government agencies, private sector entities, and local communities (ibid.). Additionally, the expansion of alternative energy use and fuel forest creation played a vital role by reducing the demand for traditional wood-based fuels and easing the pressure on natural forests (ibid.). Lastly, international cooperation in the forest sector enables South Korea to access new technologies and knowledge in forestry management, improving its capacity and developing a comprehensive approach to forest rehabilitation (Ji, Shin, and Lee 2022, 564).

North Korea adopted a distinct approach from South Korea by nationalizing its forests following the Korean War (K. -S. Park, Lee, and Park 2013, 21). The reforestation programs were designed to support heavy industry and were implemented as part of the country's post-war rehabilitation and economic development objectives (M. S. Park and Lee 2014, 5170). Commercial forests were constructed in the 1960s to supply local industries with raw materials (ibid.). However, the population growth in the 1970s led to increased demand for food, prompting the conversion of forests into agricultural areas for food production (K. -S. Park, Lee, and Park 2013, 23). In 1997, the Land Law further encouraged the development of terraced uplands, exacerbating the problem of deforestation and forest degradation in North Korea (ibid.).

During the 1990s, North Korea faced a huge political and economic crisis, which was further aggravated by natural disasters in the mid-1990s, resulting in severe energy, flood, and economic difficulties, a crisis period known as the "Arduous March" (K. -S. Park, Lee, and Park 2013, 24). In response to the national-scale deforestation during this time, North

Korea launched the Forest Restoration Battle program to rehabilitate its landscapes. The government formulated a 10-Year National Forest Restoration Plan (2014-2023) and initiated the National Reforestation Campaign in 2015, with the aim of reforesting 1.68 million hectares of degraded forest areas over the next decade (Ji, Shin, and Lee 2022, 564). Since the late 1990s, North Korea has placed emphasis on forest management for land protection, leading to the establishment of the Ministry of Land and Environmental Protection in 1998 (M. S. Park and Lee 2014, 5170).

In terms of forest policies, South Korea and North Korea differ in three main aspects: their approach to designing integrated policies for reforestation, their forest protection policies, and their level of involvement in international forest cooperation (M. S. Park and Lee 2014, 5171). While South Korea incorporated various policies such as energy security, agricultural and economic development, land management, and reforestation in a comprehensive manner, North Korea failed to integrate energy and food policies adequately into their reforestation policy (ibid.). In terms of forest protection policy, South Korea incorporated forest protection as a component of land management from the initial stages of its forest restoration policy after the Korean War (M. S. Park and Lee 2014, 5172). In contrast, North Korea began to prioritize forest management for land protection in the late 1990s. South Korea's approach to international forest cooperation involved receiving financial and technological assistance from international organizations and developed countries to aid in their forest restoration efforts, while North Korea's participation in international projects as a beneficiary has been hindered by its isolation from the international community and economic sanctions, limiting its access to resources and technology for reforestation (J. B. Park and S. Lee 2020, 52).

#### **4.3 NGOs and their role in bridging South Korea and North Korea cooperation**

The relationship between South Korea and North Korea has been marked by political tensions and division for several decades. However, amidst this challenging environment, non-state actors, particularly NGOs, have emerged as key actors in inter-Korean forestry cooperation, especially when they have a close relationship with the South Korean government (Song and Hastings 2020, 1818). Multiple NGOs have acted as intermediaries and fostered communication, cooperation, and peace-building efforts between the two countries. Through different initiatives, NGOs have played a crucial role in bridging the gap and promoting understanding between South Korea and North Korea.



Since the late 1990s, a number of NGOs based in South Korea have taken significant initiatives in carrying out forestry cooperation projects within North Korea. These organizations, including the Peace Forest (PF), the Korea Society of Tree Protection, the Mount Kumgang International Tourism Cooperation, the Korea Forestry Successor Association, and the Korea Forest Management Association, have actively participated in efforts aimed at strengthening forestry activities in North Korea (Song and Hastings 2020, 1819). South Korean NGOs have made valuable contributions by providing resources and expertise in various forestry-related areas. In the early 2000s, these NGOs provided assistance to North Korea in the form of seedlings, pest control products, machinery, and specialized knowledge (Song and Hastings 2020, 1819). Thus, supporting reforestation efforts, promoting sustainable forest management, and mitigating the impacts of deforestation in North Korea.

The South Korean government has played a crucial role in facilitating and supporting forestry cooperation between NGOs in South Korea and North Korea (Song and Hastings 2020, 1819). Joint declarations and agreements between the two Koreas have served as a catalyst for collaboration and provided a framework for meaningful engagement (ibid.). As previously mentioned, in April 2007, the establishment of the NGO network called Green One Korea (GOK) marked a significant milestone in promoting forestry cooperation. GOK was formed based on the 10.4 Declaration, which was announced during the inter-Korean Summit in 2007, and the declaration placed strong emphasis on fostering cooperation in establishing tree nurseries and enhancing forestry management practices (Song and Hastings 2020, 1819). The establishment of the GOK network, with the South Korean government support and the 10.4 Declaration, provided a basis for forestry cooperation between South Korea and North Korea, contributing to building trust, promoting dialogue, and approaching common environmental objectives in both countries.

The establishment of Green Asia Organization (GAO), a quasi-NGO with close ties to the South Korean government, exemplifies the utility of state-NGO relationships in promoting forestry restoration and interaction with North Korea (Song and Hastings 2020, 1819). According to Song and Hastings (2020, 1819), the quasi-NGO was able to utilize governmental resources and funding for projects, and it facilitated cooperation even during periods of high tensions, such as when UN sanctions created difficulties for inter-Korean cooperation. For instance, despite facing resistance from North Korea, in 2015, GAO provided financial support for an agroforestry complex in the North Hwanghae region, utilizing the South Korean government's inter-Korean cooperation fund to subsidize the

project. A fund which was established with the aim of fostering exchange and collaboration between the two countries in order to contribute to the restoration of the Korean community in 1990 (Song and Hastings 2020, 1819).

International NGOs based in South Korea, including the Hanns Seidel Foundation (HSF), a German NGO, have also played a significant role in implementing successful cooperation projects in North Korea (Song and Hastings 2020, 1820). The close partnership between HSF and the South Korean government has enabled them to collaborate effectively, share information and knowledge, and receive financial resources (ibid.). With the support from the European Union, HSF took the lead in initiating afforestation projects in North Korea, involving North Korean government agencies and research institutes, including the Ministry of Land and Environment Protection of North Korea (HSF n.d.; Song and Hastings 2020, 1820). In addition to the afforestation initiatives, HSF has been actively involved in providing training programs focused on sustainable forestry management, in order to promote the implementation of sustainable practices and the preservation of forest resources (HSF n.d.). Overall, HSF has facilitated communication and exchanges between North and South Korea, creating platforms for dialogue and cooperation on environmental conservation and forestry-related issues.

NGOs can act as intermediaries on the Korean Peninsula, helping bridge the gap between North and South Korea. When tensions runs high between conflicting parties, it becomes challenging for state actors to engage in cooperation projects or establish communication channels (Song and Hastings 2020, 1822). In the context of the Korean Peninsula, the South Korean government has faced difficulties in directly engaging North Korea on environmental issues, however, NGOs have been able to adapt to changing circumstances and maintain a relative dialogue with North Korean actors (ibid.). Environmental cooperation is an area particularly agreeable to cooperation as do not necessarily require direct participation of state actors, unlike other areas such as military incidents or political negotiations (Seliger 2020, 148). Therefore, by focusing on shared environmental objectives, NGOs can foster cooperation, build trust, and contribute to peacebuilding efforts between North and South Korea.

#### **4.4 Evaluation of the potential for forestry cooperation as a means of promoting peace and reconciliation**

Forestry cooperation on the Korean peninsula has the potential to have a positive impact on various aspects related to environmental sustainability and peacebuilding, which can

contribute to the normalization and stability of the relationship between South Korea and North Korea. There are different mechanisms through which forestry cooperation has the potential to contribute to move conflicting parties towards different stages of the peace continuum.

The first mechanism is improving the environmental situation. Therefore, from a peacebuilding approach, if environmental challenges and threats such as forest degradation and deforestation on the Korean peninsula are successfully addressed, the tensions between parties are likely to lessen (Ide 2019, 5). Thus, by effectively tackling threatening environmental issues, tensions are likely to diminish, and a more sustainable environment can contribute to a more stable and harmonious relationship between the two Korea. On the other hand, from an environmental perspective, by collaborating in the implementation of conservation and restoration measures, North and South Korea have the potential to mitigate deforestation and forest degradation while fostering sustainable, long-term management of their forest resources (Seliger 2020, 147), which contribute to the preservation of ecosystems and biodiversity on the Korean Peninsula.

The second mechanism is increasing understanding and trust. When there is cooperation in dealing with the consequences of environmental problems, mistrust and prejudice between conflicting groups is lessened, and the search for common ground and mutual interests is simplified (Ide 2019, 5). According to Motylińska (2022, 10), the two Koreas can foster trust and comprehension through collaboration and the establishment of opportunities for mutually advantageous interactions. Historical instances demonstrate that cooperative endeavours have been more successful when carried out by non-state actors. For example, the Korean Federation for Environmental, a South Korean NGO, and the Environmental Protection Agency of the DPRK established an agreement on inter-Korean environmental cooperation in 2002 (R. E. Kim 2015, 17). Another case is the creation of the Green Asia Organization in 2013, a public-private partnership involving various organizations from both Koreas (ibid.). Hence, to promote understanding and trust, at first, it may be more beneficial to pursue collaborative efforts involving non-state actors.

The third aspect focuses on cultivating interdependence. Shared environmental concerns highlight the interconnection between groups and facilitate reciprocal benefits, thereby fostering collaboration (Ide 2019, 5). By engaging in cooperative efforts to protect forests and address related environmental issues on the Korean peninsula, interdependence can be cultivated by recognizing the interconnectedness of their natural ecosystems and the necessity for joint action. Research argues that environmental collaborative initiatives

enhance the relations among state actors, strengthening their interdependence and fostering a shared identity between previously opposing parties (Song and Hastings 2020, 1813). Additionally, through collaborative forest conservation and prevention efforts, North and South Korea can mutually benefit from sharing knowledge in forest management, conservation techniques, and sustainable practices. Furthermore, facilitating cross-border collaboration and communication among government agencies, research institutions, NGOs, and local communities contributes to interdependence by encouraging joint problem-solving and cooperation.

Lastly, the fourth mechanism in fostering cooperation to address environmental challenges involves the establishment of institutions (Ide 2019, 5). As social groups collaborate on environmental issues, they often create specialized institutions that serve as platforms for communication, coordination, and conflict resolution (*ibid.*). Therefore, the creation of institutions plays a crucial role in reducing the likelihood of violent interactions, at the same time that it provides a structured framework for collaboration (Motylińska 2022, 10). However, as Ide points out (2019, 8), in post-civil war contexts, the creation of intergroup institutions is often limited due to ongoing insecurity and a lack of trust between the parties involved. This situation is applicable to South Korea and North Korea, as they have not established any joint institution specifically focused on dealing with environmental issues on the Korean Peninsula.

#### **4.5 Examination of the challenges and obstacles to inter-Korean forestry cooperation**

Inter-Korean forestry cooperation faces several challenges and obstacles that hinder its progress and effectiveness. These challenges come from the complex political dynamics, historical tensions, and practical limitations between North and South Korea. Despite a shared interest and the urgent need for collaboration in addressing environmental issues, the path towards meaningful collaboration and joint initiatives between North and South Korea faces significant challenges, particularly during periods of tensions and crisis.

Although all types of cooperation have struggled to overcome hostility and generate sustained exchanges between the two Koreas, state-led cooperation, in contrast to NGO-led initiatives, has had less success during periods of tension (Song and Hastings 2020, 1821). This is because state-state cooperation projects, such as those pursued by the South Korean government and local governments, are more susceptible to changes in political factors compared to NGO-led cooperation (*ibid.*). An example highlighting these challenges is the sinking of the Cheonan, a South Korean navy ship sank by North Korea, in 2010.

Consequently, South Korea imposed sanctions, known as the May 24 measures, which restricted interactions with North Korea, and as a result, forestry cooperation temporarily came to a halt (ibid.). However, starting from 2014, NGOs began to engage in environmental cooperation with North Korea again, despite the sanctions still being in place (ibid.). Thus, the Cheonan incident exemplifies how political tensions and sanctions can significantly affect the progress and continuity of environmental cooperation initiatives between North and South Korea.

Sanctions and restrictions on North Korea have a limiting effect on inter-Korean forestry cooperation. Since 2006, the UN has sanctioned North Korea for developing nuclear weapons, imposing restrictions on trade and economic activities, hindering cooperative projects. As an example, the failure to reach an agreement on inter-Korean forest cooperation in 2018 was attributed to the North's demand for prohibited materials and monetary support due to UN sanctions (S. Il Kim, Jeong, and Park 2020, 312). These restrictions have also significantly impacted international organizations and NGOs operating in various sectors, including forestry, hindering their efforts to promote cooperative projects (Ji, Shin, and Lee 2022, 567). Furthermore, these sanctions and restrictions contribute to an atmosphere of mistrust and political tensions, posing challenges in establishing and maintaining cooperative relationships, as well as, leading to temporary or permanent suspension of cooperation, such in the case of the May 24 measures. Overall, the sanctions impede the exchange of resources, technology, and expertise, fostering mistrust and tension while disrupting inter-Korean cooperation.

The lack of proper linkages and coordination between major actors from North and South Korea, as well as international organizations, has posed significant challenges to the continuity and sustainability of inter-Korean forest cooperation (Kim, Jeong, and Park 2020, 323). This may be due to the North Korean government's concern about the influence of international stakeholders and knowledge sharing on their society and the potential threat to their political and economic system (ibid.). North Korea is reluctant to engaging in activities conducted by North Koreans outside their country or involving the participation of foreign experts within North Korea, as this increases the pressure for the country to open up to the outside world (Reed 2005), and presents opportunities for exposure to different perspectives, ideas, and values, which might be considered as a threat to the North Korean regime.

North Korea's capacity to receive technological and institutional support from South Korea has been questionable (Kim, Jeong, and Park 2020, 324). While North Korea has shown a preference for materials and monetary assistance, these types of support may be

restricted by UN sanctions. Additionally, it is difficult to secure long-term budgets for inter-Korean forest cooperation in South Korea, and the significance given to such cooperation can be influenced by the political climate and ideological conflicts of the country (ibid.). Moreover, North Korea faces political obstacles in accessing funding from the international community, putting the sustainability of inter-Korean forest cooperation at risk (ibid.). To overcome these challenges, North Korea needs to foster a cooperative environment and build trust with South Korea and other international stakeholders in order to secure the necessary funding and support (Kim, Jeong, and Park 2020, 324).

#### **4.6 Expectations for the coming 5-10 years**

In the next five to ten years, various circumstances and future changes may influence expectations for peacebuilding through inter-Korean forestry cooperation. The current political dynamics on the Korean peninsula are not the most favourable for inter-Korean cooperation, with tensions rising and North Korea conducting more missile tests than ever before. Given the current relationship between the two Koreas, forestry cooperation is very unlikely. If there were to be any cooperation initiative between South and North Korea, it would most likely be small-scale projects carried out by international NGOs, with little influence on improving the relationship between both countries.

It is complicated to foresee a near future in which South Korea and North Korea improve their relationship through environmental cooperation. Tensions on the Korean Peninsula are quite high, with aggressive actions and responses between North and South Korea, creating a fragile situation with risks of confrontation and escalation. Therefore, although environmental issues, such as deforestation and forest degradation, need to be tackled in order to achieve sustainable development and SDG 15 on the Korean Peninsula. Given the current state of affairs between South Korea and North Korea, inter-Korean forestry cooperation does not seem very likely in a short-medium term.

### **5. Evaluation of progress towards SDG 15 and recommendations for inter-Korean forestry cooperation**

In South Korea, it has been reaffirmed that the decrease of forest areas, reduction in biodiversity, and the growing threat to endangered species are persistent challenges that require urgent attention to achieve SDG 15 (Statistics Research Institute 2023, 9). Despite ongoing efforts and initiatives, there are still major challenges that need to be addressed, as the decline in forest areas and the reduction of biodiversity are crucial factors that directly hinder South Korean progress toward SDG 15: Life on Land. Moreover, in comparison to

other OECD countries, South Korea has a lower proportion of protected areas dedicated to terrestrial and freshwater biodiversity (Statistics Research Institute 2023, 103). This indicates that further attention and action is needed to improve ecosystem protection and work to halt the decline in forest areas in South Korea.

The limited information available regarding North Korean progress towards the SDGs, including SDG 15, hinders a fair and comprehensive evaluation of the state of SDG implementation on the Korean Peninsula. However, according to the North Korean Voluntary National Review on SDGs (DPRK 2021), whose reliability can be questioned due to the lack of transparency of North Korea, the forest recovery campaign launched in 2015, is resulting in a decrease in non-forest tree land area and an increase in forest area. Regarding the protection of areas important to biodiversity, the North Korean report indicates that there has been an increase in biosphere reserves. Nevertheless, according to an international report on SDGs, North Korea still faces significant challenges in effectively protecting areas crucial for biodiversity and little progress has been made (Sachs et al. 2022, 263).

In both countries on the Korean Peninsula, major challenges are considered to remain in relation to SDG 15: Life on Land (Sachs et al. 2022, 262-65). However, the assessment of progress towards this goal differs between the two countries. In South Korea, progress is considered to be stagnant (Sachs et al. 2022, 262-65). This suggests that, despite efforts and initiatives, South Korea faces considerable obstacles to effectively address key SDG 15 targets, such as shrinking forest areas, declining biodiversity and the growing threat to endangered species. On the other hand, in North Korea, progress is improving, although it is still considered insufficient to achieve SDG 15 (Sachs et al. 2022, 262-65). However, limited information and data availability make it difficult to comprehensively assess the effectiveness of progress towards SDG 15. Overall, both South and North Korea continue to face major challenges around SDG 15, and collaboration and targeted actions are crucial for both countries to overcome them and make significant progress towards achieving SDG 15 on the Korean Peninsula.

With regard to the analysis in this dissertation, multiple obstacles and challenges to peacebuilding through inter-Korean forestry cooperation are mentioned. Barriers that hinder inter-Korean cooperation are related to the fragility of state-led cooperation to changes in political factors, the sanctions and restrictions on North Korea that limit cooperation, the lack of linkages between both Korean countries, and North Korea's capacity to receive South Korean support. This section introduces some recommendations South Korea should take into account in order to enhance inter-Korean forestry cooperation. The strengthening of

inter-Korean forestry cooperation is fundamental to lead to effective forest restoration, biodiversity conservation, and sustainable development on the Korean Peninsula, while making progress toward achieving SDG 15. At the same time, these recommendations aim to promote sustainable peacebuilding by fostering trust, dialogue, cooperation, and mutual benefits between South and North Korea. The recommendations are the following:

1. Emphasize small and feasible projects during difficult inter-Korean relations.

Establishing small-scale projects that are realistic and achievable, facilitates progress and cooperative engagement by both South and North Korea, as small-scale projects that focus on less politically sensitive issues, such as deforestation and afforestation, are more likely to be accepted by both sides in the conflict (Seliger 2020, 147). Moreover, by setting achievable goals, the chances of success are higher. Therefore, the success of smaller projects would function as a confidence-building effort and help to gradually build a foundation of trust between South and North Korea on which more important and politically sensitive cooperation could be built in the future. At the same time, small-scale projects allow for greater flexibility and carry a lower level of risk compared to large-scale initiatives. Thus, in times of intensifying inter-Korean relations, small and viable projects are more resilient and less likely to come to a halt. Overall, emphasizing small, feasible projects is an effective strategy to lay the groundwork for deeper engagement and ultimately contribute to peacebuilding efforts on the Korean Peninsula.

2. Utilize NGOs as intermediaries in inter-Korean cooperation.

NGOs have played a significant role in facilitating cooperation, even during periods of escalated hostility between South and North Korea (Song and Hastings 2020, 1814). For successful inter-Korean forestry, it is vital to continue to build on the experience and networks of NGOs as intermediaries to overcome initial trust issues and maintain engagement between both countries on the Korean Peninsula. NGOs can help overcome initial trust issues as they can provide a neutral platform for dialogue and cooperation, bridging the gap between conflicting parties. In addition, they can help maintain the engagement between South Korea and North Korea during periods of high-tensions by keeping the lines of communication open and preventing the complete breakdown of dialogue. Furthermore, NGOs often have more flexibility to adapt to changing circumstances and can contribute to bring valuable expertise and knowledge on forestry issues, providing capacity-building support to stakeholders on both sides of the Korean Peninsula. In summary, leveraging NGOs as intermediaries in



inter-Korean cooperation can overcome initial barriers and work towards a better sustainable forest management on the peninsula.

3. Utilize international frameworks and engagement for safer and inclusive cooperation

As the SDGs are accepted by North Korea, international frameworks such as the UN Sustainable Development Goals provide a more secure environment for inter-Korean cooperation. These frameworks borrow trust from the international setting and mitigate risks, facilitating cooperation between South and North Korea (Seliger 2020, 145). By aligning inter-Korean projects with the SDGs, a wide range of actions can be undertaken to improve forestry issues on the peninsula, allowing for meaningful engagement in North Korea, as the SDGs provide common ground and a rationale for cooperation that both Koreas should build on. Furthermore, while direct bilateral forestry cooperation between North and South Korea is the ultimate goal, international projects should be considered, as they allow obtaining the trust of the international community, overcoming the problem of lack of trust between the two Koreas. In sum, the use of international frameworks and commitments can provide a more secure and inclusive environment for inter-Korean forestry cooperation that could help pave the way for long-term dialogue and collaboration on the Korean Peninsula.

4. Foster collaborative research with North Korea to embrace mutual understanding and forestry strategies

South Korea should seek opportunities for collaborative research and data sharing with North Korean experts, as it is essential for gaining a more comprehensive understanding of inter-Korean forest cooperation policies and developing joint approaches. Active participation of North Korea forestry experts in research initiatives facilitates understanding of their challenges and priorities in forest conservation and restoration. Joint approaches and knowledge sharing initiatives enable the identification of common objectives, areas of collaboration and potential synergies in inter-Korean forestry cooperation. Additionally, collaborative research provides a platform for building trust between researchers, creates opportunities for mutual benefits and capacity building, and offers the opportunity to establish long-term partnerships and lay the foundation for sustained cooperation in inter-Korean forestry. Overall, through the active participation of North Korean experts, researchers can bridge knowledge gaps, build trust and establish relationships that contribute to the success of inter-Korean forestry initiatives.

While these recommendations are valuable for peacebuilding through inter-Korean forestry cooperation, there still exists limitations that need to be considered. First, even small

and feasible projects on forestry cooperation might be subject to political sensitivity and become involved in larger political dynamics, which could result in setbacks regarding inter-Korean forestry cooperation. Second, focusing on small-scale projects may limit the scope and impact of the collaborative initiatives. Since these projects might work as confidence-building measures, their scale might not be sufficient to influence larger systemic issues or make a meaningful contribution to peacebuilding efforts between South and North Korea. Therefore, it is important to make sure that while working on minor projects, there is a long-term goal for larger and more comprehensive cooperation. Third, although using NGOs as intermediaries can be advantageous for South Korea, it is important to acknowledge that they might face limitations in resources, accessibility, and are vulnerable to changes in their financial or operational capabilities. Fourth, while international frameworks offer a more secure setting for collaboration, their success depends on the willingness and dedication of all parties involved, including North Korea. Therefore, the effectiveness of international frameworks in facilitating cooperation, in part, relies on the political will of both Korean governments. Fifth, collaborative research with North Korea might be affected by limited access to data and expertise, potential restrictions on information sharing, and differences in research procedures and approaches. These challenges may hinder the comprehensive understanding of inter-Korean forest cooperation initiatives and reduce the impact of collaborative efforts.

## **6. Conclusions**

This dissertation analyses the potential of inter-Korean forestry cooperation as a means to promote environmental peacebuilding and contribute to the achievement of SDG 15. Forests on the Korean Peninsula play a key role in promoting sustainable development, offering numerous economic, social and environmental benefits to both South and North Korea. Despite their historical division and the presence of political tensions and conflicts, addressing deforestation and forest degradation in North Korea provides an entry point to prioritize environmental challenges, while facilitating dialogue, trust-building and more sustainable future for both South and North Korea.

In assessing the importance of protecting, restoring and promoting sustainable terrestrial ecosystems (SDG 15), this study explored how inter-Korean forest cooperation can serve as a catalyst for positive change. The importance of collaborative efforts between South and North Korea is highlighted by the transboundary nature of environmental problems, as North Korea's forest problems threaten the stability and sustainability of ecosystems

throughout the Korean peninsula. Therefore, while political tensions and sanctions have hindered cooperation in various sectors, deforestation and forest degradation underline the importance of joint efforts and provide a unique opportunity to transcend political divisions and focus on shared interests.

Environmental peacebuilding scholars argue that environmental issues can be used to mitigate conflict and promote peace through cooperation on environmental challenges. However, studies on environmental cooperation in conflict-prone areas have produced mixed outcomes and there is a need for further future research on how the positive outcomes of environmental cooperation can extend to the political domain. In the case of the Korean Peninsula, scholars have argued that the best strategy for South Korea to engage with North Korea on environmental issues is to start cooperation with small-scale initiatives and borrowing trust from international settings, by using frameworks such as the UN SDGs.

The global situation regarding deforestation and forest degradation highlights the ongoing challenges faced in preserving forest ecosystems. Agriculture, including cropland expansion and livestock grazing, remains the primary direct cause of deforestation, along other factors such as mining and infrastructure development. However, on a global scale, progress has been made in sustainable forest management, with increased forest protection and the implementation of long-term management plans. On the Korean Peninsula, forest cover has decreased over time, with North Korea experiencing greater forest loss compared to South Korea. Progress towards sustainable forest management, and thus towards SDG 15, has been insufficient and the regional situation highlights the need for concentrated efforts to address deforestation, forest degradation and the sustainable management of forest resources.

Inter-Korean forestry cooperation efforts have been characterized by slow and limited success. The two countries have faced environmental challenges, including deforestation and forest degradation, but their political and ideological differences have hindered effective collaboration. However, there have been some positive developments in forestry cooperation. At the governmental level, initiatives such as the June 15 Joint Declaration, paved the way for inter-Korean forestry cooperation. On a provincial level, there has been inter-Korean forestry cooperation to conduct insect pest control, exchange of supplies and equipment, and jointly establish tree nurseries for reforestation. Furthermore, NGOs have played a significant role in inter-Korean forestry cooperation, acting as intermediaries bridging the gap, promoting understanding, and contributing to peacebuilding and environmental efforts between South and North Korea.

Inter-Korean forestry cooperation has the potential to contribute to the normalization and stability of the relationship between South Korea and North Korea through improving the environmental situation, increasing understanding and trust, cultivating interdependence, and establishing institutions. However, inter-Korean cooperation also faces significant challenges related to political dynamics, historical tensions, and practical limitations that hinder meaningful forestry collaboration. These major obstacles are the susceptibility to changes in political factors and periods of tensions, sanctions and restrictions, North Korea's reluctance to engage with external actors, and their capacity to receive technological and institutional support. Nonetheless, given the current political dynamics on the Korean Peninsula, the rising tensions between the two Koreas do not create a favourable environment for inter-Korean forestry cooperation.

The evaluation of progress towards SDG 15 highlights persistent challenges in both South and North Korea. Therefore, several recommendations are made to enhance inter-Korean forestry cooperation and, thus, advance towards sustainable forest management. South Korea should emphasize small and feasible projects to gradually build confidence, strengthen support of NGOs as intermediaries, enhance the utilization of safer international frameworks, and foster collaborative research for more understanding. However, there still exist some constraints such as political sensitivity, resource limitations, low political will, and limited data, that can undermine joint efforts. Clearly, rising tensions on the Korean Peninsula will shape and determine the future of inter-Korean forestry cooperation. Nevertheless, the prioritization of collaborative efforts to address deforestation and forest degradation is essential in advancing the protection, restoration and promotion of terrestrial ecosystems, while simultaneously forging the path towards the normalization of relations between South Korea and North Korea.

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