

Why Is Inter-Korean Forestry Cooperation Hard to Accomplish?

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Deforestation is a severe environmental problem in North Korea. Beginning in 2001, the government implemented ten-year reforestation projects with few positive outcomes. Inter-Korean forestry cooperation began in 1999. Local governments and NGOs were the main implementers of cooperative projects from South Korea. The two Koreas had also been seeking financial and technical support from international organizations. This study examines the cooperative networks between government agencies, NGOs, and international organizations and financing possibilities to identify the reasons why so little has been accomplished. It also provides a meaningful contribution to the understanding of comparative relationships among the stakeholders and practical recommendations to improve the effectiveness of cooperative forestry programs in North Korea.

Keywords South Korea, North Korea, reforestation, international cooperation, international aid, development assistance

Introduction

North Korea has suffered through various natural disasters and been subjected to economic sanctions resulting in economic deadlock with negative GDP growth in 2015 and 2017 (Bank of Korea 2018). Subsequently 70 percent of North Koreans are struggling to secure food (Meade and Rosen 2013). The country is also facing serious energy supply problems. Major sources of energy (coal and crude oil) are used to fulfill industrial demand, whereas residents in remote areas use firewood for heating and cooking, exacerbating deforestation and forest degradation (Hayes, Von Hippel, and Bruce 2011) in the absence of government monitoring (Park, Lee, and Park 2009). According to the Global Forest Resources Assessment led by the Food and Agriculture Organization (FAO) of the United Nations (UN), North Korean forest land areas declined by 38.6 percent between 1990 and 2015 (1.9 percent/year) (FAO 2015).

Deforestation is a severe environmental problem with a long history in North Korea. North Korea's deforestation program dates back to 1961 when the nation's founder Kim Il Sung put into use arable land on mountain slopes (Teplyakov and Kim 2012). By the early 1990s, addressing food and energy shortages added a new incentive to strip the mountainsides. In 1995, the worst floods of the century displaced 5.4 million people and destroyed 330,000 hectares of agricultural land, according to the official government reports (Noland, Robinson, and Wang 2001), drawing international attention. As a result, land management programs for environmental protection were introduced. A "Ten-Year Reforestation Plan" was carried out from 2001 to 2010. Unauthorized logging and conversion of forests into agricultural land were banned (Teplyakov and Kim 2012).

Despite the ban, deforestation never slowed. Even primary forests in the Baekdu Mountain Protected Areas (BMPA) were extensively harvested. A study estimated that by 2007, around 50 percent of the total primary forest area within the BMPA, as well as 75 percent of the primary forest landscape in the core area, had been logged (Tang et al. 2010).

Almost every year in the period between 1990 and 2015, natural disasters—mostly floods—affected North Korea's population and economy. The direct damage caused by major disasters between 1987 and 2012 is estimated to be almost US\$ 24 billion (Centre for Research on the Epidemiology of Disasters 2015). In other words, the annual cost to recuperate damaged areas, crops, and infrastructure is almost US\$ 1 billion.

These issues can be tackled with the help of key programs, such as reforestation and sustainable forestry. Both practices help reduce flood hazards and soil deflation as well as provide opportunities to increase crops and provide wood to use as fuel for cooking and heating houses. North Korean leader Kim Jong Un realized the magnitude of the issue and showed a strong desire for reforestation when he declared "a war on deforestation" in North Korea (Korea Forest Research Institute 2015). As a hasty prescription, the Department of Forest Sciences was established at Kim Il Sung University in 2017, and young professors of the department were sent to the University of British Columbia in Canada for academic exchange in 2018 (*National Post* 2018).

Forest governance, a critical issue in North Korea, is a decision-making procedure that includes a set of political, economic, socio-cultural, technological, and historical processes associated with the relationship between forests and people (Park 2015). Little is known about decision-making process regarding internal forests in North Korea. The country has been struggling with reforestation policies and programs were rendered ineffective by economic problems and political isolation.

The objectives of this study are to analyze the cooperative network among the two Koreas and international organizations that have supported reforestation projects in North Korea and to examine financing possibilities for successful

implementation of the cooperative forest projects between the two Koreas. This study also identifies reasons why cooperative projects have been so sluggish and been relatively unsuccessful.

Impact of Domestic Politics in the Two Koreas on Inter-Korean Forest Cooperation

South Korea began to implement inter-Korean forest cooperation projects—including reforestation, construction of tree nurseries, and control of tree pests and diseases—to improve the sustainability of forests in North Korea in 1999 (*ibid.*). In South Korea, central government agencies, including the Ministry of Unification (MoU) and the Korea Forest Service (KFS), have ostensibly managed inter-Korean forest cooperation. However, most cooperative projects have actually been implemented by local governments or non-governmental organizations (NGOs) in South Korea over the last twenty years (*ibid.*).

The Lee Myung-bak administration of South Korea in 2008 established the first government-directed comprehensive policies to aid combating deforestation in North Korea. The National Institute of Forest Science (NIFoS) of South Korea assessed the state of forest losses in North Korea with the help of satellite images, and government funded research was conducted following the establishment of domestic and international cooperative measures for reforestation in North Korea. A “Special Task Force for North Korea Reforestation” was created within the Presidential Committee on Green Growth (PCGG) of South Korea, and several closed-door intra-governmental meetings were held in order to investigate the state of deforestation in North Korea and to prepare countermeasures. The task force consisted of commissioners of the PCGG and related South Korean government agencies, including intelligence agencies. The meetings were mainly on internal governance issues, such as role-sharing between the agencies and the potential conflicts among them. In addition, the possibility of cooperative reforestation projects with international organizations, such as the FAO and UN Environment Programme (UNEP), were also explored in these discussions. As a result, the FAO and KFS signed a memorandum to support reforestation projects in North Korea in late 2009. A few months later, however, all reforestation projects were stopped because of the measures imposed by South Korea on North Korea on May 24, 2010 in response to the sinking of the *ROKS Cheonan* on March 26, 2010 (*New York Times* 2010).

The Park Geun-hye administration of South Korea launched the Presidential Committee for Unification Preparation (PCUP) in order to promote the “Green Détente” as one of the main national political agendas. This played a vital role in attracting attention from both inside and outside the country, and raised awareness of the importance of unification. One item on the PCUP’s agenda was

reforestation projects in North Korea. Consequently, the Green Asia Organization was established as an NGO in South Korea. On March 28, 2014, President Park Geun-hye announced the Dresden Doctrine (also called the Unification Doctrine) in Dresden, Germany, which included three main agendas: expansion of humanitarian assistance, construction of infrastructure for public welfare, and recovery of national homogeneity (*The Economist* 2014). The Dresden Doctrine proposed creating a “rural complex” as a way to build infrastructure in remote areas of North Korea where people suffer from the effects of deforestation. The rural complex mainly involved agriculture, livestock, and forestry projects that included forest restoration, pest control, model farm construction, and joint investigation on the ecological environment in North Korea. By declaring the Dresden Doctrine, the South Korean administration expected to receive support from German and European NGOs that had considerable experience working with North Korea in the fields of agriculture and forestry (Choo et al. 2013).

Despite the administration’s efforts, North Korea was not interested in inter-Korean cooperation and only allowed non-governmental aid agencies to work in this capacity. At the end of 2014, the South Korean government established the “Development Cooperation Division” within the MoU in favor of an integrated approach that specifies cooperation issues including agriculture, livestock, forestry, and health care. The division was designed to take charge of implementing the Dresden Doctrine. Specific plans developed as part of the Dresden Doctrine included developing inter-Korean cooperation projects and attaining cooperative support from international organizations. However, these proposals never came to fruition as the South Korean government received no feedback from the North.

Since President Moon Jae-in’s inauguration, opportunities to expand inter-Korean forest cooperation were maximized. A research project on inter-Korean forest cooperation was launched with a newly organized task force as an initial project of the “Committee for Implementing the Panmunjom Declaration” which was established to implement items agreed to at the inter-Korean summit of April 27, 2018.¹ According to the “Pyongyang Declaration,” issued at the inter-Korean summit in September 2018, the two Koreas agreed to produce successful results in inter-Korean forest cooperation as a part of economic exchange. According to the MoU, KRW\$ 83.7 billion (US\$ 73.13 million) was additionally allocated for inter-Korean forest cooperation in 2019 (*The Korea Economic Daily* 2018). However, representatives of the two Koreas failed to reach an agreement in working-level talks held in December 2018 because of North Korea’s wish for materials and monetary support prohibited by UN sanctions.

North Korea has indicated its preference to cooperate with international or multilateral organizations but not with its conflictive neighbor. However, temporal visitations and advice made by dozens of experts cannot produce successful reforestation projects at the national level. Large-scale reforestation

projects need not only money and labor but policy consistency and political will as well, as witnessed in the successful South Korean case (Lee 2013; Choi, Jeong, and Kim 2019). Even with a positive attitude change in North Korea toward its counterpart, the transferability of South Korea's experiences and technical support to North Korea remains questionable.

International Cooperation for North Korea Reforestation

Currently, over 1,300 multilateral environmental agreements (MEAs) have been produced for the protection of the environment worldwide. North Korea has signed over 200 MEAs: fifteen as a signatory party; forty-four ratification, accession, succession, or similar agreements; and 193 entry-into-forces agreements (Mitchell 2019). As is the case of many developing countries, North Korea lacks sufficient financial and technical capacity to participate in international treaties.

North Korea joined the UN Convention on Biodiversity (UNCBD) on October 26, 1994 and soon developed a National Biodiversity Strategy and Action Plan (NBSAP) that was adopted in 1998 (DPRK and UNEP 2007). The North Korean NBSAP was developed with other national primary industry development plans, including the Forestry Plan and Agricultural Plan (*ibid.*). North Korea also ratified the UN Framework Convention on Climate Change (UNFCCC) in 1994 and the UN Convention to Combat Desertification (UNCCD) in 2003, and developed and adopted its National Action Programme (NAP) in June 2006 to implement the UNCCD from 2006 to 2010 (DPRK 2006).

The legal basis for wildlife and natural resource conservation which could support reforestation is well-developed in North Korea. It includes twenty-five national legal acts and regulations-related issues: the Land Law (1977), the Law on Environment Protection (1986), the Forest Law (1992), the Land Use Planning Law (2002), and a number of national regulations (Park and Lee 2014). These national laws, national programs, and action plans create a sound basis for international aid and assistance for critical areas in many fields, including: (1) information needs, (2) sustainable forest management policies, (3) knowledge sharing, (4) financial aid, and (5) capacity building (Teplyakov and Kim 2012).

There has been a lack of assistance from international financial institutions and bilateral aid programs in North Korea, but the UN system has continued to play an essential role in development assistance, capacity building, facilitation of international contacts for enhanced economic cooperation, and other forms of engagements with the international community (*ibid.*). Other international organizations have also engaged in forest projects in North Korea. For instance, the European Union (EU) funded a project that established a training center for sustainable forestry in North Korea from 2014 to 2017 (Hanns Seidel Stiftung 2018). More recently, the International Union for Conservation of Nature (IUCN)

expressed interest in helping catalyze landscape-restoration initiatives (Hanns Seidel Stiftung 2017). The Global Environment Facility (GEF) also showed interest in supporting forest landscape restoration projects (*Korean Times* 2018).

Over the last decade, North Korea has made several efforts that can be considered progress toward international cooperation. Firstly, there is increased transparency in decision-making processes, particularly those related to international aid. In 2007, the North Korean government improved its level of transparency and cooperation by providing foreign organizations with unprecedented access to the field to conduct damage assessments (Mansourov 2007). Secondly, an enhancement in institutional knowledge and capacity building has been observed. The country has been closely working not only with inter-governmental organizations but also donor organizations and global research institutes in recent years. In 2012, eighty-five North Koreans and fourteen experts from eight countries, including the United States, met to share their expertise and ideas on the means to restore ecosystems and improve the country's food security (Stone 2012). In 2016, environmental experts from sixteen countries including the United States, Canada, the United Kingdom, India, and Malaysia participated in a conference on sustainable development in North Korea, which was jointly held by North Korea's Ministry of Land and Environment Protection (MoLEP) and the Canada-Democratic People's Republic of Korea (DPRK) Knowledge Partnership Program in Pyongyang (University of British Columbia 2016). They shared their diverse views and experiences on sustainable development issues including forest management (*ibid.*). Finally, there has been an increase of stakeholder participation in response to deforestation. For instance, with the World Agroforestry Centre's agroforestry project, an innovative approach was applied to provide food, fodder, and other products for local people, while restoring degraded land. By working with various partners, the project helped establish user groups, design agroforestry systems, and implement agroforestry trials, with monitoring and evaluation occurring at all levels (Xu et al. 2012).

The prospects for cooperation are considerably positive. Reforestation using North Korea's own resources might start in the near future. According to North Korea's official news agency, the North Korean Cabinet adopted a resolution in March 2015 to support national forest restoration activities, covering the funds necessary for forest restoration. The directive also set up a management system, including a supervisory and regulatory task force for forest conservation (KCNA 2015). The importance of reforestation was further underlined by Kim Jong Un on Arbor Day on March 2, 2015. He revealed North Korea's plans to begin an intensive ten-year forestation restoration campaign (*ibid.*). The question of resource availability to implement those plans remains, as past experience shows that plans and statements have had little effect on reforestation in North Korea. Without external technical and financial assistance, North Korea is unlikely to achieve such ambitious goals.

Over the last twenty years, international organizations have built trust with North Korea through pragmatic support policies. The UN, EU Project Support, and a few countries through bilateral organizations including Germany, Australia, Sweden, and Switzerland have implemented repeated and long-term cooperative projects and established stable relationships with North Korea while inter-Korean policies have been frequently interrupted by political and military conflicts between the two Koreas.

The FAO is one of the most active international organizations in the field of forestry, engaging in work such as capacity building for Afforestation-Reforestation Clean Development Mechanism (ARCDM), reforestation for ecological conservation of agricultural farmlands (2006-2009), framework establishment for preventing land degradation, fuelwood plantation building, reconstruction of tree nurseries, and various training programs. The FAO and North Korea signed a Host Country Agreement on January 1, 1998, and on February 9, 1998 another agreement was made to establish the FAO Representation in North Korea. Since then, the FAO has implemented independent or cooperative projects with the UNDP (FAO 2019). Diverse programs have also been implemented by other international organizations, including the International Fund for Agricultural Development (IFAD)'s agricultural development projects addressing issues of fuelwood plantation and erosion control (IFAD 2009); the UNEP's pilot projects of fuelwood plantation, environmental education, and technical assistance in environmental monitoring programs (Ministry of Land and Environment Protection of North Korea 2012); the World Food Programme (WFP)'s reforestation of sloping lands (United Nations 2018); and the UNDP's prevention projects for land erosion, reconstruction of tree nurseries, technical training programs, and cooperative training programs with Beijing Forestry University.

North Korea has implemented cooperative forestry programs with other bilateral organizations such as the Swiss Agency for Development and Cooperation (SDC) and the Italian Agency for Cooperation and Development (AICS). Among the members of the Development Assistance Committee (DAC), Switzerland, Italy, Germany, and the United Kingdom have set up embassies in North Korea and have carried out support programs. The SDC has operated support programs including slope land management and technical support for agroforestry projects with the World Agroforestry Center (SDC 2017). AICS has supported agricultural development projects involving issues of environmental sustainability, capacity building, and food security (AICS 2019). Other bilateral organizations have implemented programs for technology exchange between their research institutes and North Korean technicians.

However, despite these cooperative forestry programs and support activities that have been consistently conducted by various international organizations, North Korea is still suffering from deforestation. In order to improve the effectiveness of these cooperative projects, there needs to be an assessment of

relevant issues. In terms of inter-Korean forest cooperation, only a few researchers have conducted such an assessment. Park (2015), for example, analyzed South Korean policies for inter-Korean forest cooperation and suggested several ways to improve bilateral forest cooperation policies based on the analysis results. Compared to Park (*ibid.*), the present article seeks to include international organizations' efforts for sustainable forestry in North Korea in the assessment of inter-Korean forest cooperation by analyzing the cooperative network among the two Koreas and international organizations. This study also examines financing possibilities for successful implementation of the cooperative forest projects between the two Koreas and identifies reasons why those cooperative projects have been so sluggish and hard to successfully implement. Detailed analysis is provided in the next section.

Materials and Analysis Methods

For political reasons, information on North Korea is scarce and the forest sector is no different in this respect. Little information is provided through official channels although more detailed observations are shared by experts who visit the country or by defectors. Institutions such as the FAO, UNDP, and International Union of Forest Research Organizations (IUFRO) have released a few occasional articles, papers, and proceedings of international meetings on North Korea's forest and environmental sectors. Most South Korean government documents are still classified and, therefore, the present study uses a variety of academic and print sources as well as interviews and personal communications with authorities and experts on North Korea reforestation. In order to indicate the connections between the organizations that participated in the support programs in North Korea, a diagram was drawn based on in-depth interviews with twenty key individuals who were working in these organizations in 2015. There have been no official inter-Korean forest cooperation projects since 2010.

To identify the possible cooperative reforestation programs, we analyzed the gaps between what North Korea preferred, what South Korea could support, and what international organizations actually implemented as support projects. Projects North Korea preferred were analyzed based on national reports and project proposals submitted by the country to the three international environmental agreements: UNFCCC, UNCBD, and UNCCD. Previous projects implemented by international organizations in North Korea were analyzed mostly based on UN activities. A list of projects South Korea proposed were based on reports of national agencies, written in Korean, including KFS, NIFoS, and the Korea Environment Institute (KEI) (e.g. Green One Korea 2009; Gyeonggi Province 2012; Park et al. 2013). These projects were on reforestation, reconstruction of tree nurseries, supply of materials including sapling, seeds, and

equipment, and the establishment of an inter-Korean forestry cooperation center in North Korea.

All of these projects were regrouped according to the Official Development Assistance (ODA) categorization of the Organization for Economic Co-operation and Development (OECD). There are seven categories among which budget support, experts and other technical supports, and project-type interventions were applicable. An extra category for material support (i.e., pesticides, fertilizers, and seeds from South Korea) was included (see Table 1).

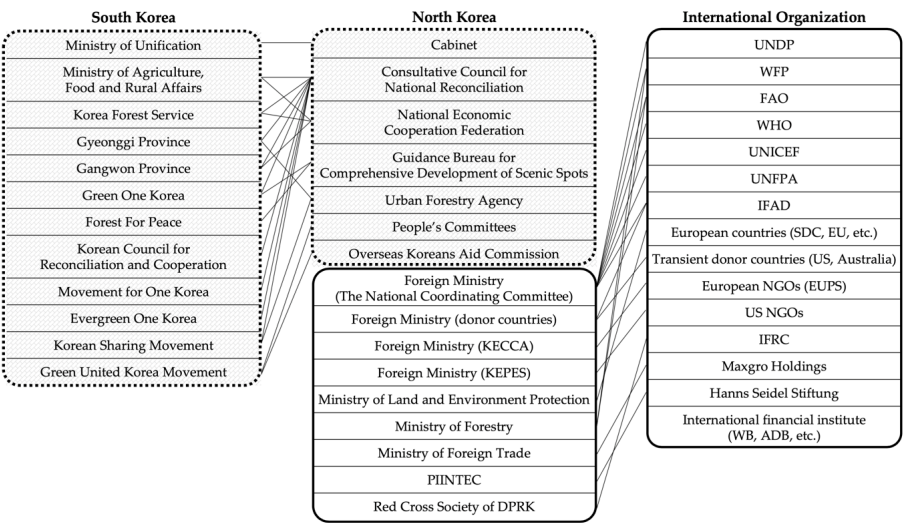
Finally, in order to understand which donors were available for cooperative projects, the organizations were categorized according to their past experiences with support projects in North Korea and their field of expertise. Donors mentioned in national reports of North Korea were defined as “preferred by North Korea.” Donors that South Korea ratified or cooperated with were defined as “accessible by South Korea” (see Table 2).

Results

The South Korean government expects to improve inter-Korean relations through international cooperation. However, the result of the analysis on inter-Korean forest cooperation stakeholder networks indicates that there is a structural problem. As shown in Figure 1, North Korean stakeholders in charge of forest cooperation projects were divided into two groups: one linked with South Korean counterparts and the other with international organizations. This suggests that the South Korean government could not directly help improve its cooperative relationship with North Korea through projects funded by the South and run by international organizations. For example, KFS could only contact the Consultative Council for National Reconciliation (CCNR) of North Korea to deliver project money or materials for reforestation while KFS-funded FAO projects could only contact the Ministry of Foreign Affairs of North Korea. Unfortunately, there is no strong evidence to support the idea that these North Korean counterparts communicate to efficiently and effectively implement reforestation projects. Without proper networking between inter-Korean officials and international organizations, the sustainability of inter-Korean forest cooperation cannot be achieved (Figure 1).

As can be seen in Table 1, there were significant gaps between what North Korea wanted, what South Korea could support, and projects actually implemented by UN organizations. For instance, South Korea preferred educational programs run by South Korean experts for forest managers or officers in North Korea. However, North Korea has demanded educational programs for general issues to be run by international organizations. Consequently, UN organizations implemented environmental monitoring and capacity building for setting up a legal system, sustainable development, and climate change. For project-

Figure 1. Network Structure of the Inter-Korean Forest Cooperation Stakeholders



Source: Authors.

Table 1. Categorization of Aid Projects for North Korea

Category ²	Projects offered by South Korea	Projects preferred by North Korea	Projects implemented by UN
Experts and other technical assistance	Training for forest engineers	Plant disease and pest control training for technicians (United Nations Convention on Biological Diversity 2014)	Capacity building for soil contamination, investigation, and monitoring (UNEP and UNDP 2004)
	Technical training for forest management	Training program for forest educator (United Nations Convention to Combat Desertification 2006)	Capacity building for community on sustainable development (United Nations 2011)
	Education for ecosystem management	Scientist exchange program, seminar, workshop (United Nations Convention on Biological Diversity 2014)	Capacity building to implement CDM projects (Ministry of Land and Environment Protection of North Korea 2012)
	Capacity building for CDM projects	Capacity building for integrated ecosystem and natural resource management (United Nations Convention on Biological Diversity 2014)	

Table 1. Categorization of Aid Projects for North Korea (continued)

Category	Projects offered by South Korea	Projects preferred by North Korea	Projects implemented by UN
		Capacity building for stakeholders (policy maker, decision maker) on climate change response (United Nations Framework Convention on Climate Change 2012)	
Project-type interventions	Forest thinning planning	Capacity building for environmental observation and early warning (United Nations Convention on Biological Diversity 2014)	Legal capacity building for environmental management (Ministry of Land and Environment Protection of North Korea 2012)
	System development for forest resources survey, assessment, monitoring, and management for natural forest protection	Legislation on endangered species conservation, protected areas management, and climate change response (United Nations Convention on Biological Diversity 2014)	Strategizing for sustainable forest management (UNEP and UNDP 2004)
	Technology sharing for reforestation and greening management	Decision making support system for environmental management (United Nations Framework Convention on Climate Change 2012)	Pilot project of firewood management (UNEP and UNDP 2004)
	Forest survey (information construction, forest mapping)	Agroforestry planning and executive model (United Nations Convention to Combat Desertification 2006)	Development of biodiversity survey and monitoring system (UNEP and UNDP 2004)
	Joint response for natural disaster and environmental pollution in border area	Management system for medical plant (United Nations Convention on Biological Diversity 2014)	Strengthening of ecological management of climate change mitigation and energy sector (United Nations 2011)
	Launching joint organization and joint training to respond to forest fires	Slope restoration (United Nations Convention to Combat Desertification 2006)	
	Development of income sources for forest products and cultivation techniques dissemination	Planting technology for fuel wood (United Nations Convention to Combat Desertification 2006)	National system improvement for nature conservation and management (Ministry of Land and Environment

Table 1. Categorization of Aid Projects for North Korea (continued)

Category	Projects offered by South Korea	Projects preferred by North Korea	Projects implemented by UN
		<p>Scientific production and industrialization of seedlings (United Nations Convention to Combat Desertification 2006)</p> <p>Improving timber harvest productivity (United Nations Convention to Combat Desertification 2006)</p> <p>Software development of climate information services and observation network (United Nations Framework Convention on Climate Change 2012)</p> <p>Partnerships with international research institutes (United Nations Convention on Biological Diversity 2014)</p>	Protection of North Korea 2012)
Budget support (sector)	<p>Inter-Korean forestry cooperation center</p> <p>Establishing tree nursery and maintaining equipment</p> <p>Forest monitoring infrastructure development</p> <p>Research center: disease and pest control, forest disaster control, seed management, and tissue culture</p> <p>Exchange center for forest genetic resource conservation</p>	<p>Center for land management technologies (United Nations Convention to Combat Desertification 2006)</p> <p>Protected area management and research institute (United Nations Convention on Biological Diversity 2014)</p> <p>Ecosystem observation center (Mt. Kumgang and Mt. Chilbo National Parks) (United Nations Convention on Biological Diversity 2014)</p> <p>Forest education center (United Nations Convention to Combat Desertification 2006)</p>	Forest management information center (Ministry of Land and Environment Protection of North Korea 2012)

Table 1. Categorization of Aid Projects for North Korea (continued)

Category	Projects offered by South Korea	Projects preferred by North Korea	Projects implemented by UN
Material support	Support for saplings, seeds, fertilizer and machinery materials Providing medicine for pest control, insecticide, and equipment Fuel supply for family use	Support for developing and maintaining nurseries* Pesticides, insecticides, and equipment* Forest management equipment*	

*Requests through various inter-Korean dialogues

Source: Authors.

type interventions too, South Korea wanted to support forest planning system development. Nevertheless, North Korea asked for similar support from international organizations and allowed actual projects to be run by them alone. There were gaps in the budget support category as well: South Korea proposed various infrastructures for inter-Korean cooperation, but North Korea exclusively allowed the UNEP to setup a forest management information center. South Korea could only be actively involved in the case of material support as North Korea demanded and received seedlings, seeds, equipment, fertilizer, and pest control equipment from South Korea. A possible reason for this is that, unlike other categories of support, North Korea could get what was urgently and significantly needed with a minimum level of human exchange between the two Koreas.

Public funds available for the inter-Korean forest cooperation were divided into five types: bilateral ODA, UN, international financial organizations, trust funds, and international NGOs (Table 2). Bilateral organizations included the Japan International Cooperation Agency (JICA), the United States Agency for International Development (USAID), the Millennium Challenge Corporation (MCC), the French Development Agency (Agence Francaise de Development or AFD), and the Federal Ministry for Economic Cooperation and Development (Bundesministerium fur Wirtschaftliche Zusammenarbeit und Entwicklung or BMZ). JICA was in charge of setting aid costs and Yen loan support, but it was not implementing aid projects because of conflicts between the two countries, most prominently North Korea's abduction of Japanese citizens (Hughes 2006). The United States' MCC focuses on a small number of nations based on the evaluation of a recipient countries' income level, ruling system, human resource development, economic freedom, and corruption. North Korea was not eligible for MCC support programs due to its position on nuclear power and its political

Table 2. Funding Sources for North Korea Reforestation

Category	Donors implemented projects in North Korea	Donors preferred by North Korea	Donors accessible by South Korea	Other
Bilateral ODA	Germany (KfW) Switzerland (SDC) EC China (Department of Foreign Aid) UK (DfID) Sweden (SIDA) Denmark (DANIDA) Norway (NORAD) Italy (AICS) France (AFD) Australia (AusAID) Canada (CIDA) Japan (JICA, JSF) US (USAID, MCC)	Germany (KfW) Switzerland (SDC) EC China (Department of Foreign Aid)		
UN organizations	UNICEF WHO UNDP WFP UNESCO FAO IFAD UNEP UNESCAP UNFCCC UNCBD	UNDP WFP FAO UNCBD	UNICEF WHO UNDP WFP UNESCO FAO IFAD UNEP UNESCAP UNFCCC	UNFIP UNDFW
International financial institutions		AF	WB (IBRD, IDA) ADB IMF EBRD	IFC MIGA CFGB
Trust funds	GEF	GEF GCF UNDP-GM	GCF WB ADB IMF	
International NGOs	EUPS Hanns Seidel Foundation IFRC CARITAS GAA Samaritan's Purse	ICRAF ICIMOD		

Note: Please see the Appendix for the full names of the acronyms used in Table 2.

Source: Authors.

system (Millenium Challenge Corporation 2018). A loan from BMZ had the same interest rate, commission, and redemption period as of the International Development Association (IDA). In the case of Russian ODA, there was a prerequisite that North Korea should be debt free. Bilateral ODA projects are usually large scale. The United Kingdom, Germany, and Switzerland have been active in providing aid to North Korea with relations on mutual trust. The South Korean government can develop projects with these EU countries who have a lot of experience in non-political settings. The projects of the United States, Canada, and particularly Japan are unstable as they are frequently affected by political issues with North Korea (Hagström and Söderberg 2006).

A trust fund is money that is kept and managed for donor countries to implement developmental or technical projects by the International Development Bank. The South Korean government can, for example, consider raising trust funds with several countries that donate to the Asian Development Bank (ADB), but raising trust funds again requires North Korean agreement on denuclearization and North Korea should meet the transparency and accountability requirements of the ADB (ADB 2019).

Some NGOs have high accessibility to North Korea and a lot of experience as they have resided in the country and have implemented many projects over a long period of time (Taylor and Manyin 2011). Moreover, they can raise funds by diversifying aid packages and get related information in a comparably easy way. However, they are struggling to monitor their projects particularly after implementation because of North Korean restrictions (Levin and Coleman 2008), resulting in very few projects being sustainably continued.

Discussion and Conclusion

This study has analyzed the cooperative networks between salient stakeholders of the two Koreas and international organizations, and examined possibilities for financing successful implementation of inter-Korean forest cooperation. With this analysis, the study has identified some reasons why inter-Korean forest cooperation has been hard to push forward successfully.

First, there has been no proper linkages between major actors from the South, the North, and international organizations. Thus, continuity and sustainability of inter-Korean forest cooperation could not be achieved. This may be caused by the fact that the North Korean government is probably aware that cooperation with international stakeholders and knowledge sharing may influence their society with different values and could pose a threat to the current North Korean politico-economic system. Activities that were carried out by North Koreans outside the country or by bringing outside experts into the country would increase the pressure for opening the country to the outside (Reed

2005). In the same vein, the experiences of the Hanns Seidel Foundation Korea in working on development projects in North Korea shows that multi-stakeholder cooperation and direct collaborative projects are highly discouraged. In fact, since 2005, the trend has been a reduction of foreign actors along with the streamlining of North Korean contacts to such entities (Seliger 2009). Having a centralized intermediary governmental institution deal with all foreign actors is not effective; however, it may be safer for North Korea to control these entities and avoid unwanted collateral consequences.

Second, North Korea's receptive capacity toward South Korea as a major technological and institutional memory supporter has been questionable. During recent dialogues between the two Koreas in terms of inter-Korean forest cooperation in 2018, the North wished only for materials and monetary support which were prohibited by UN sanctions. However, it is hard to secure a long-term budget for over twenty years in the South. In 2008, KFS reported that about KRW\$ 34 trillion (US\$ 29 billion) would be needed to plant 4.9 billion trees to reforest North Korea (*Korea Herald* 2014). It is highly likely that inter-Korean forest cooperation will waver depending on both Korea's political climate, ideological conflicts, and changes in South Koreans' perception of the importance of inter-Korean forest cooperation. In the meantime, political pressure will be put on other inter-Korean cooperation projects that can bring more immediate results than IFKC.

Lastly, there have been strong political reasons for the North not to receive more vigorous funding from international society and, thus, the sustainability of inter-Korean forest cooperation cannot be secured. A correct understanding of the two Korea's economic situation, cooperative governance influence network, and their respective funds to carry out much-needed activities is crucial to the success of the reforestation initiative. Such a network can better be achieved when North Korea takes the lead in creating a more cooperative environment for building the required level of trust with South Korea and other international stakeholders. Foreign experts have promoted the benefits of engagement in trainings and activities of individuals and organizations, new ways of thinking and increased competence of specialists, and enhanced personal connections (Hayes, Von Hippel, and Bruce 2011). But such a view is not necessarily shared by the North Korean authorities. Similarly, according to Graham et al. (2003), the IUCN's governance principles, such as legitimacy and voice, accountability, performance, fairness, and direction (Borrini-Feyerabend et al. 2013), do not seem to fit well with North Korea's principles of the last fifty years. Achieving them may not be realistic, nor is expecting drastic changes from the regime.

The UN seems to be useful in making international consensus and makes it possible to directly communicate with the North Korean government. However, UN projects can be affected by global political issues and are usually placed under restrictions by the North Korean government. Being heavily dependent on donor

country funds, the UN is reluctant to develop long-term projects that may cause financial instability (World Bank 2018).

International financial organizations, including the World Bank (WB) and ADB, have great experience in aid projects for countries transitioning from socialist regimes and can provide large-scale financial support for projects that need large amounts of money (e.g., infrastructure development). In order to get support, North Korea should join as a member country, fulfill its obligations, and build trusting relationships (Lee and Zang 2013). However, this requires political system transition and approval of key donors, including the United States and Japan.

North Korea may have to create a more cooperative environment conducive to building the required level of trust with South Korea and other international stakeholders. Arrangements should be made to allow key international actors to engage with North Korean partners directly, without an intermediary institution. Meanwhile, South Korea should improve the level of communication and cooperation within the system. Historically, the competition among different stakeholders has produced a perception of conflict among South Korean actors.

Similar situations have arisen in other humanitarian aid programs that were implemented in North Korea by international organizations. Most aid agencies have been constrained by restrictions on collecting data or interacting with people in North Korea (Reed 2005) and faced various obstacles that arise from the instability in relationships between North Korea and UN agencies (Noland 2009). Although there have been some studies assessing cooperative development programs in North Korea, there is lack of research analyzing cooperation in comparative terms. Hence this study provides a meaningful contribution to the understanding of comparative relationships among the two Koreas and international organizations and a practical implication to improve the effectiveness of cooperative forestry programs in North Korea. Further studies are needed to elaborate if the cooperation for forestry projects is different with cooperation for some other humanitarian projects in North Korea.

Notes

1. Exchange rate used in this research is US\$ 1 = KRW\$ 1181.24.
2. ODA categorization includes budget support, core contributions, pooled programs and funds, project-type interventions, experts and other technical assistance, scholarships and student costs in donor countries, debt relief, administrative costs, and other in-donor expenditures (OECD 2018).

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Appendix

This list of acronyms is provided in conjunction with Table 2.

ADB: Asia Development Bank

AFD: French Development Agency

AFoCO: Asian Forest Cooperation Organization

AICS : Italian Agency for Cooperation and Development

AusAID: Australian Agency for International Development

CARITAS: Caritas Internationalis

CIDA: Canadian International Development Agency

CFGB: Canadian Foodgrains Bank

DANIDA: Danish International Development Agency

EC: European Commission

EU: European Union

EUPS: European Union Programme Support

FAO: Food and Agriculture Organization

GAA: German Agro Action

GCF: Green Climate Fund

GEF: Global Environment Facility

GGGI: Global Green Growth Institute

ICIMOD: International Centre for Integrated Mountain Development

ICRAF: World Agroforestry

IFAD: International Fund for Agricultural Development

IFC: International Financial Cooperation

IFRC: International Federation of Red Cross and Red Crescent Societies

IMF: International Monetary Fund

JICA: Japanese International Co-operation Agency

JSF: Japan Securities Finance

KAPES: Korea-America Private Exchange Society

KECCA: Korean-European Cooperation Coordination Agency

KfW: Kreditanstalt für Wiederaufbau

MCC: Millennium Challenge Corporation

MIGA: Multilateral Investment Guarantee Agency

NORAD: Norwegian Agency for Development Co-operation

PIINTEC: Pyongyang International Information Center for New Technology and Economy

SDC: Swiss Agency for Development and Co-operation
SIDA: Swedish International Development Cooperation Agency
UNCBD: United Nation Convention on Biodiversity
UfID: Department for International Development
UNDFW: United Nations Development Fund for Women
UNDP - GM : United Nations Development Programme – Global Mechanism
UNDP: United Nations Development Programme
UNEP: United Nation Environment Programme
UNESCAP: United Nations Economic and Social Commission for Asia and the Pacific
UNESCO: United Nation Education, Science and Culture Organization
UNFCCC: United Nation Framework Convention on Climate Change
UNFIP: United Nations Economic and Social Commission for Asia and the Pacific
UNFPA: United Nations Population Fund
UNICEF: United Nations Children's Fund
USAID: Agency for International Development
WB: World Bank
WFP: World Food Programme
WHO: World Health Organization

References

- AICS (Italian Agency for Cooperation and Development). 2019. "Projects in North Korea." http://openaid.aics.gov.it/en/iati-activities?recipient_country=KP (accessed July 9, 2019).
- ADB (Asian Development Bank). 2019. "Policies and Strategies." <https://www.adb.org/about/policies-and-strategies> (accessed April 29, 2019).
- Bank of Korea. 2018. "2017nyeon bukan gyeongjeseongjangnyul chujeong gyeolgwa" [North Korea's Economic Growth Rate in 2017]. <https://www.bok.or.kr/portal/bbs/P0000559/view.do?nttId=10046122&menuNo=200690&pageIndex=1> (accessed July 9, 2020).
- Borrini-Feyerabend, Grazia, Nigel Dudley, Tilman Jaeger, Barbara Lassen, Neema Pathak Broome, Adrian Phillips, and Trevor Sandwith. 2013. "Governance of Protected Areas: From Understanding to Action." Best Practice Protected Area Guidelines Series No. 20, International Union for the Conservation of Nature (IUCN). <https://www.iucn.org/content/governance-protected-areas-understanding-action> (accessed September 1, 2020).
- Centre for Research on the Epidemiology of Disasters. 2015. "EM-DAT - Emergency Events Database: Korea Democratic Peoples Republic, Country Profile." http://www.emdat.be/country_profile/index.html (accessed July 9, 2020).
- Choi, Gayoung, Yoonjeong Jeong, and Seong-il Kim. 2019. "Success Factors of National-Scale Forest Restorations in South Korea, Vietnam, and China." *Sustainability* 11 (12):

3488.

- Choo, Jangmin, Seongun Jeong, Sora Jeong, and Seongyu Park. 2013. "Hanbando geulin detangteu chujinbangane gwanhan yeongu" [Research on the Korean Peninsula Green Detente Strategy]. Korea Environment Institute. <http://www.dbpia.co.kr/journal/articleDetail?nodeId=NODE06345051> (accessed August 18, 2020).
- DPRK (Democratic People's Republic of Korea). 2006. "National Action Plan to Combat Desertification and Land Degradation in Democratic People's Republic of Korea 2006-2010." https://knowledge.unccd.int/sites/default/files/naps/democratic_people%60s_republic_of_korea-eng2006.pdf (accessed August 18 2020).
- DPRK (Democratic People's Republic of Korea) and UNEP (United Nations Environment Programme). 2007. "National Biodiversity Strategy and Action Plan of DPR Korea." <https://www.cbd.int/doc/world/kp/kp-nbsap-v2-en.pdf> (accessed August 18, 2020).
- FAO (Food and Agriculture Organization). 2015. "Global Forest Resources Assessment 2015." <http://www.fao.org/3/a-i4808e.pdf> (accessed August 17, 2020).
- FAO (Food and Agriculture Organization). 2019. "FAO in the Democratic People's Republic of Korea." <http://www.fao.org/democratic-peoples-republic-of-korea/fao-in-dpr-korea/en/> (accessed July 29, 2020).
- Graham, John, Bruce Amos, and Tim Plumptre. 2003. "Governance Principles for Protected Areas in the 21st Century." Institute on Governance. https://www.files.ethz.ch/isn/122197/pa_governance2.pdf (accessed September 1, 2020).
- Green One Korea. 2009. "Nambug sanlimhyeoblyeogsaeob hyeonhwangbunseog yeongu" [A Study on the Status Analysis of South-North Forest Cooperation Projects]. http://www.prism.go.kr/homepage/entire/retrieveEntireDetail.do;jsessionid=F56847829D499A91FE17613708DC95EF.node02?cond_research_name=&cond_research_start_date=&cond_research_end_date=&research_id=1400000-200900030&pageIndex=2424&leftMenuLevel=160 (accessed August 18, 2020).
- Gyeonggi Province. 2012. "Gyeonggido nambug gyolyuhyeoblyeog 10nyeon baegseo" [Ten-Year White Paper on Inter-Korean Exchange and Cooperation in Gyeonggi Province]. https://www.gg.go.kr/archives/2157216?ggd_term_id=6218 (accessed August 18, 2020).
- Hanns Seidel Stiftung. 2017. "Forest Landscape Restoration - Working Group Workshop in Pyongyang." https://korea.hss.de/en/news/detail?tx_hssnews_ajax%5Baction%5D=detail&tx_hssnews_ajax%5Bcontroller%5D=News&tx_hssnews_ajax%5Bnews%5D=1444&cHash=69f155d36e7377799899c1a1a4112ea9 (accessed July 29, 2020).
- Hanns Seidel Stiftung. 2018. "EU-funded Project on Sustainable Forestry in the DPRK." https://korea.hss.de/en/news/detail?tx_hssnews_ajax%5Baction%5D=detail&tx_hssnews_ajax%5Bcontroller%5D=News&tx_hssnews_ajax%5Bnews%5D=2498&cHash=f9f0fcd8f4e5b32618886827307eb119 (accessed July 29, 2020).
- Hayes, Peter, David Von Hippel, and Scott Bruce. 2011. "The DPRK Energy Sector: Current Status and Future Engagement Options." *Korean Journal of Defense Analysis* 23 (2): 159-73.
- Hughes, Christopher W. 2006. "The Political Economy of Japanese Sanctions towards North Korea: Domestic Coalitions and International Systemic Pressures." *Pacific Affairs* 79 (3): 455-81.
- IFAD (International Fund for Agricultural Development). 2009. "Democratic Peoples' Republic of Korea: Uplands Food Security Project." <https://www.ifad.org/documents/38714182/39733939/korea.pdf/a4cc558c-e4b2-45cb-8edf-a6ea60556310> (accessed

- July 29, 2020).
- KCNA (Korean Central News Agency). 2015. "Joseonnaegag sanlimboggi jeontuleul himissge beollyeonagagi wihan gyeoljeong chaetaeg" [DPRK Cabinet Adopts Forest Restoration Resolution]. <http://www.kcna.kp/kcna.user.article.retrieveNewsViewInfoList.kcmsf#this> (access August 18, 2020).
- Korea Forest Research Institute. 2015. "Nambuk jeongsebyeonhwaee daeeunghan bukan sallimbokgu jeollyak surip" [Establishing Strategies for the Rehabilitation of Forests in North Korea in Response to Changes in the Inter-Korean Situation]. <http://know.nifos.go.kr/book/search/DetailView.ax?sid=3&cid=163151> (accessed August 18, 2020)
- Korea Herald. 2014. "Reforestation North Korea." <http://www.koreaherald.com/view.php?ud=20140327000771> (accessed July 29, 2020).
- Korean Times. 2018. "How to Help Reforestation in North Korea." http://www.koreatimes.co.kr/www/opinion/2018/12/198_259593.html (accessed July 29, 2020).
- Lee, Jong-Woon, and Hyoungsoo Zang. 2013. "Future Development Assistance to North Korea Through the Establishment of Multi-Donor Trust Funds." *North Korean Review* 9 (2): 43-58.
- Lee, Kyung-Joon. 2013. *Successful Reforestation in South Korea: Strong Leadership of Ex-President Park Chung-Hee*. Lee Kyung-Joon, Seoul.
- Levin, Carl, and Norm Coleman. 2008. "United Nations Development Program: A Case Study of North Korea." Permanent Subcommittee on Investigations, United States Senate. <https://www.hsgac.senate.gov/imo/media/doc/UNDPREPORTFINAL.pdf> (accessed August 17, 2020).
- Mansourov, Alexandre Y. 2007. "Disaster Management and Institutional Change in the DPRK: Trends in the Songun Era." Korea Economic Institute Academic Paper Series No9. <http://keia.org/publication/disaster-management-and-institutional-change-dprk-trends-songun-era> (accessed August 17, 2020).
- Meade, Birgit, and Stacey L. Rosen. 2013. "International Food Security Assessment, 2013-2023." United States Department of Agriculture, Economic Research Service. <https://www.ers.usda.gov/publications/pub-details/?pubid=37257> (accessed August 17, 2020).
- Millennium Challenge Corporation. 2018. "Report on Countries that are Candidates for Millennium Challenge Compact Eligibility for Fiscal Year 2019 and Countries that would be Candidates but for Legal Prohibitions." <https://www.mcc.gov/resources/doc/report-candidate-country-fy2019> (accessed August 17, 2020).
- Ministry of Land and Environment Protection of North Korea. 2012. "Democratic People's Republic of Korea: Environment and Climate Change Outlook." <http://wedocs.unep.org/handle/20.500.11822/9679> (accessed August 18, 2020).
- Mitchell, Ronald B. 2019. "International Environmental Agreements Database Project (Version 2018.1)." <http://iea.uoregon.edu> (accessed July 29, 2020).
- National Post. 2018. "UBC to Welcome Six North Korean University Professors for Six Months in 'Unprecedented' Academic Exchange." <https://nationalpost.com/news/canada/ubc-to-welcome-six-north-korean-university-professors> (accessed July 29, 2020).
- New York Times. 2010. "Korean Tensions Grow as South Curbs Trade to North." <https://www.nytimes.com/2010/05/24/world/asia/24korea.html> (accessed July 29, 2020).
- Noland, Marcus, Sherman Robinson, and Tao Wang. 2001. "Famine in North Korea: Causes

- and Cures.” *Economic Development and Cultural Change* 49 (4): 741-67.
- Noland, Marcus. 2009. “The (Non-) Impact of UN Sanctions on North Korea.” *Asia Policy* 7: 61-88.
- OECD (Organisation for Economic Co-operation and Development). 2018. “DAC Statistics: Classification by Type of Aid.” <http://www.oecd.org/dac/stats/type-aid.htm> (accessed August 15, 2020).
- Park, Gyung-seok, Seongyeon Lee, Byeong-il Yoo, Soyeong Park. 2013. “Minganbumun jijacheui bughan sanlimboggu jiwon hwalseonghwa bangan yeongu” [A Study on the Promotion of Reforestation in North Korea by Private Sector and Local Government]. Korea Forest Research Institute. <http://know.nifos.go.kr/book/search/DetailView.ax?sid=1&cid=160222> (accessed August 18, 2020).
- Park, Gyung-seok, Seongyeon Lee, and Soyeong Park. 2009. “1990nyeondae gyeongjenan ihu bughan sanlimgwangli byeonhwa yeongu” [A Study on North Korea’s Change of Forest Policy since the Economic Crisis in 1990s]. *Korean Journal of Unification Affairs* 21 (1): 459-92.
- Park, Mi Sun. 2015. “Inter-Korean Forest Cooperation 1998–2012: A Policy Arrangement Approach.” *Sustainability* 7 (5): 5241-59.
- Park, Mi Sun, and Hyowon Lee. 2014. “Forest Policy and Law for Sustainability within the Korean Peninsula.” *Sustainability* 6 (8): 5162-86.
- Reed, Edward P. 2005. “The Role of International Aid Organizations in the Development of North Korea: Experience and Prospects.” *Asian Perspective* 29 (3): 51-72.
- SDC (Swiss Agency for Development and Cooperation). 2017. “Cooperation Strategy 2017–2020 for the DPR Korea.” https://www.eda.admin.ch/dam/countries/countries-content/the-democratic-people-s-republic-of-korea/en/Strategy_DPR%20Korea_2017-2020_EN.pdf (accessed July 8, 2020).
- Seliger, Bernhard. 2009. “Engagement on the Margins: Capacity Building in North Korea.” <http://keia.org/publication/engagement-margins-capacity-building-north-korea> (accessed August 17, 2020).
- Hagström, Linus, and Marie Söderberg. 2006. “Taking Japan-North Korea Relations Seriously: Rationale and Background.” *Pacific Affairs* 79 (3): 373-85.
- Stone, Richard. 2012. “Seeking Cures for North Korea’s Environmental Ills.” *Science* 335 (23): 1425-26.
- Tang, Lina, Guofan Shao, Zhengji Piao, Limin Dai, Michael A. Jenkins, et al. 2010. “Forest Degradation Deepens around and within Protected Areas in East Asia.” *Biological Conservation* 143 (5): 1295-98.
- Taylor, Mi Ae, and Mark E. Manyin. 2011. “Non-Governmental Organizations’ Activities in North Korea.” Congressional Research Service, Library of Congress. <https://fas.org/sgp/crs/row/R41749.pdf> (accessed August 17, 2020).
- Teplyakov, Victor K., and Seong-il Kim. 2012. *North Korea Reforestation: International Regime and Domestic Opportunities*. Jungmin Publishing: Seoul.
- The Economist*. 2014. “Unification Plans Meet Tough Response from North Korea.” <http://country.eiu.com/article.aspx?articleid=341793018&Country=North%20Korea&topic=Politics> (accessed July 20, 2020).
- The Korea Economic Daily*. 2018. “Panmunjeomseoneon bijundonguan gukoe jechul” [The Ratification Bill for Panmunjom Declaration was submitted to the National Assembly]. <https://www.hankyung.com/politics/article/201809114164Y> (accessed

- August 18, 2020).
- University of British Columbia. 2016. "Media Coverage on Dr. Kyung-Ae Park's Sustainable Development Conference in North Korea." <https://sppga.ubc.ca/news/media-coverage-on-dr-kyung-ae-parks-sustainable-development-conference-in-north-korea/> (accessed July 20, 2020).
- United Nations. 2011. "Strategic Framework for Cooperation between the UN and the Government of DPRK 2011-2015." <https://dprkorea.un.org/en/10157-un-strategic-framework-2011-2015> (accessed August 17, 2020).
- United Nations. 2018. "DPR Korea: Needs and Priorities." <https://dprkorea.un.org/en/10158-dprk-needs-and-priorities-2018> (accessed August 18, 2020).
- United Nations Convention on Biological Diversity. 2014. "Fifth National Report on Biodiversity of DPR Korea." <https://www.cbd.int/doc/world/kr/kr-nr-05-en.pdf> (accessed July 20, 2020).
- United Nations Convention to Combat Desertification. 2006. "National Action Plan to combat Desertification/Land degradation in Democratic People's Republic of Korea (2006-2010)." https://knowledge.unccd.int/sites/default/files/naps/democratic_people%60s_republic_of_korea-eng2006.pdf. (accessed July 20, 2020).
- UNEP (United Nations Environment Programme), and UNDP (United Nations Development Programme). 2004. "DPR Korea: State of the Environment 2003." http://wedocs.unep.org/bitstream/handle/20.500.11822/9690/-DPR_KOREA_State_of_the_Environment_Report-2003DPRK_SOERReport_2003.pdf.pdf?sequence=3&isAllowed=y (accessed August 17, 2020).
- UNFCCC (United Nations Framework Convention on Climate Change). 2012. "DPR Korea's Second National Communication on Climate Change." <https://unfccc.int/sites/default/files/resource/prknc2.pdf> (accessed August 17, 2020).
- World Bank. 2018. "Global Financial Development Report 2017/2018: Bankers Without Borders." <https://openknowledge.worldbank.org/handle/10986/28482> (accessed August 17, 2020).
- Xu, Janchu, Meine van Noordwijk, Jun He, Kwang-ju Kim, Ryong-Song Jo, et al. 2012. "Participatory Agroforestry Development for Restoring Degraded Sloping Land in DPR Korea." *Agroforestry Systems* 85 (2): 191-303.

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