

Reduction of Energy and Food Security in DPRK due to Deforestation

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Abstract

The Democratic People's Republic of Korea, or the DPRK, is one of the poorest country in world facing chronic economic, energy and food security issues. Prolonged improper management of economic and natural resources has led to extreme poverty, malnutrition and critically vulnerability to nature's forces. Persistent deforestation and forest degradation in the DPRK has national and global consequences which has attracted attention from international community, whose offering financial and technical assistance for targeted interventions. Through REDD+ programs, the DPRK has the opportunity to establish its credentials as a responsible nation while improving the quality of life of its population. This study offers an enabling context under which suitable climate change action related to forestry can be identified and implemented in the DPRK.

Key words : Energy, Food security, Natural Resources, REDD+ programs

1. Economy, Political Environment and International Relations

North Korea, formally known as Democratic People's Republic of Korea (the DPRK), is one of world's most centralized and least open economies with chronic issues. Years of large scale diversion of public resources on military resources, under-investment in industrial capabilities and weak international trading relations have severely depleted public finances and consumption. At a nominal GDP (2014) of around USD 17 Billion with less than 1% average growth rate over last decade, representing

0.03% of world economy, and a budget of around USD 3 Billion, the DPRK's economic leverage on a regional and global economy is virtually miniscule.¹

Domestically, the DPRK government is a single-party state based on socialist political and economic ideals diligently committed towards an improving standard of living of its populace with minimum inequality.² Most of investment projects public, financing forms the major source and private financing sources are still at a nascent stage. The DPRK government routinely pursues economic development strategies to enhance productivity and a secular sectoral growth. However, constraints with historical

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roots have so far restricted flexibility of the DPRK government to make dramatic changes in its economic system.

In the last several decades, people and government of the DPRK have suffered from hostile international sanctions and isolation inhibiting their access to basic finance, knowledge and technology which are common basis in many developing countries in Asia.^{3,4} Over the last decade, China has been the DPRK's primary trading partner with 85% of its bilateral trade covering only basic goods such as coal.⁵ Political leadership in the DPRK has recently (2018) made unprecedented attempts to restore its relations with the international community, especially with the United States of America. Under Trump administration and South Korea under President Moon Jae-in, both countries are showing reasonable promise of peace, regional integration and economic cooperation. It is anticipated that any progress in this front will pave ways for the reduction of UN sanctions, flow of aid, free trade, foreign currency earnings, governance reforms and bilateral cooperation in the Korean peninsula and with other Asian countries.^{6,7}

2. Food and Energy Security, Climate Change

Since mid-1990s, food security of the DPRK population has been under pressure due to depleted agri-

culture production and inadequate supply chains, both of which restricted individual population's access to food, severe famine and widespread starvation. The productivity levels of nearly 37% agriculture-employed populations have suffered from lack of arable land, diminished soil quality, fertilizer shortage, dated farming practices, inadequate irrigation, and productivity tools. International food aid to the DPRK peaked around 2009 but since has declined. Although a market based system introduced in 2002 has found some success in supplementing ration public distribution system and cooling food inflation levels to a limited extent,⁸ current domestic production are unable to satisfy demand leading to malnutrition.

With less than 30% of population who has access to electricity, the DPRK lags behind most of the developing countries in Asia. This has immense adverse consequences on the productivity from economic activities and the standard of living of general population. As of 2015, the energy supply was 45% based on fossil fuel (predominantly coal, crude oil and petroleum for which it is a net importer) and 55% on hydroelectric plants.^{9,10} Construction of fossil fuel (coal fired) power plants and insufficient power distribution are key bottlenecks in widespread energy inclusion. The DPRK currently does not draw any sizable energy from cleaner sources such as nuclear, renewables or natural gas, leading to annual excess carbon dioxide emission of estimated 50

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million MT.¹¹ The DPRK anticipates international community support in reducing its reliance on coal fired power plants though the development of renewable energy sources which include on-shore and off-shore wind farms, solar PV systems, and biogas power. In addition, the DPRK aims to replace conventional cook stoves with eco-friendly efficient wood stoves in rural households, where boughs or branches are used instead of charcoal, and contribute to protection of the trees in a sustainable manner. Small scale biomass facilities can be established to support energy needs of village people.

Extreme climate actions such as frequent droughts and flooding have led to a degradation of natural resources, including forest reserves and agricultural production, demanding immediate intervention. Surveys indicate that fatality rates from floods have been consistently increasing from 1980s due to inadequate irrigation infrastructure and receding forest coverage.¹² With its mountainous terrain and particular meteorological characteristics, notably summer typhoons, the DPRK has experienced severe landslides with critical negative impact on livelihoods of its rural population. An extensive conversion of forests to agricultural land - involving removal of natural forests on high slopes - trigger the occurrence of massive landslides which jeopardize the life and property of population, disrupt the critical power infrastructure and decline of soil fertility and crop productivity. The temperate climate with rainfall concentrated in summer, long bitter winters, occasional typhoons and limited investment in climate resilience through adaptation measures have increased vulnerability of the country.

3. DPRK Forest Laws and Policies

The DPRK announced Act on Land Reform of North Korea in 1946 nationalizing all lands and forestland. This Act instituted the Decree on Forest Land Management reorganizing organization for for-

est administration and restoring distressed forest resources. Land Law legislated in April 1977 further regulated forest construction and management. The Forest Act introduced in December 1992 supported by Land Law of 1977, Environmental Protection Law of 1986, and Control Law on Land and Environmental Protection of 1998 laid the foundation for managing DPRK's forestry and farmland resources. In November 2010, Act on Green Spaces was legislated for both rural and urban areas.¹³

The DPRK instituted Forestry Administration in 1958 to implement its forestry agenda in alignment with national economic development policies. The newly formed Forestry Administration focused upon timber and forest resources to stimulate growth of heavy industries. In the 1960s, focus of DPRK's forest policy shifted towards developing commercial forests which supplied raw materials for local industry. In 1970s, with an increase in population and food demand, the focus of forestry policies shifted towards expansion of agricultural lands. Several projects announced in 1976 and later the Land Law of 1977 focused upon enhancing agricultural production using terraced upland cultivation, forest and water conservation, irrigation and land rearrangement which led to forest degradation and deforestation.

As forest degradation and deforestation showed no sign of abatement, the DPRK decreed the Forest Act in 1992, and established Ministry of Land and Environmental Protection in 1998. Since 2000, "Surimwha - Wonrimwha" has been emphasized as a core policy for establishing forests and management. The DPRK launched its first ten-year plan (2001-2010) to plant trees in support of its greening and gardening efforts, and followed it up with its second ten-year plan (2013-2022) to rehabilitate forest and promote agroforestry.¹⁴

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4. Forest Resources and REDD+

With around 20% agriculture land and 45% forest coverage,¹⁵ the environmental resources of the DPRK offer great potential for its sustainable development and growth. However, dependence of 77% rural and 28% urban populations on wood for cooking (2008) leads to over exploitation of forest resources.¹⁶ Wood removals for energy continue to be a prominent cause of deforestation with multifaceted impact often directly affecting livelihoods, seasonal crops and fodder for livestock.

Having recognized the negative impact of deforestation and its consequences, the DPRK has established a ten-year reforestation plan (2014-2023) under which it expects to scale up agro-forestry and sustainable forest management. The plan proposes a set of policies to be implemented nationwide, such as expansion of fruit cultivation, sericulture and economic forests; comprehensive use of mountain resources to contribute to development of local economies; improvement of local people's livelihoods through rural development; environmental protection to prevent natural disasters; and food security and improvement of people's livelihoods through the development of agriculture and light industry. For this the DPRK requires technical expertise, inputs and institutional capacity building.

In this context, DPRK could benefit from "Reducing Emissions from Deforestation and Forest Degradation, as well as Conservation, sustainable management of forests and land use and forest conservation (REDD+)" activities which follow United Nations Framework Convention on Climate Change (UNFCCC) consultations to slow, halt and reverse forest cover and carbon loss. The DPRK REDD+ activities may include emission reduction from forest degradation

and deforestation, forest carbon stock conservation and enhancement, and sustainable forest management. To actively promote REDD+ activities DPRK may develop a relevant national action plan, establish national or subnational reference emission level from forests, and identify a reliable forest monitoring system.¹⁷

5. DPRK Experience with UNFCCC Clean Development Mechanism

In 2004, the DPRK submitted initial national communication report to UNFCCC. In 2008, the DPRK established its Designated National Authority to process Clean Development Mechanism (CDM) projects to overcome limitations in conventional financing sources for its marginally commercial projects through certified emission reduction credits. Since 2015, the DPRK has approved six CDM projects and instituted the relevant framework. Due to unilateral nature of its projects and limited leverage of development cooperation framework for CDM process the DPRK's CDM projects are considered to be at relatively low level.¹⁸

According to the DPRK's intended national determined contribution (INDC) submitted to UNFCCC in September 2016, the DPRK has committed to reduce its carbon dioxide emission by 40.25% by 2030 with support of international community. The list of the submitted INDC includes scaling up the utilization of renewable energy development; and managing and developing forest in a sustainable manner.¹⁹

6. Role of International Community

In addition to UNFCCC, the DPRK is also party to other intergovernmental agreements and conventions

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like United Nations Convention on Biological Diversity, and the United Nations Convention to Combat Desertification.²⁰ In recent past, the DPRK has also mobilized support for forest conservation and management from organizations such as UNDP, UNFAO; EU and other countries; and international civil society organizations.

To contribute greenhouse gas emission reduction under REDD+ linked with forestry intervention, COP encourages all willing Parties to support developing countries by addressing their institutional needs through capacity-building and technical assistance.²¹ The COP also encourages interested stakeholders to support implementation of REDD+ activities to maintain sustainability of forests, improve food security and set out operational framework and plans for future implementation. COP also anticipates assistance from public and private circles as well as official development assistance from concerned government and international financial institutions. However, due to limited membership of the DPRK in related institutions, only emergency relief support has come from them in the past.

7. Conclusion

The DPRK is in midst of an unprecedented geopolitical shift where its international relations are making progress every passing day. As the country opens up its humanitarian situation, depleting natural resources, infrastructure, social services and governance requirements demand immediate international intervention to protect and preserve the life and dignity of its people. The impacts of climate change on population with enormous dependence on natural resources and their vulnerability to nature's forces are in spotlight. Vast but depleting forest resources of DPRK offer an opportunity to restore balance between humans and nature, and improve standards of living of dependent population. The proposed REDD+ program can be expected to provide immediate relief and serve as a foundation for any prospective climate change adaptation and mitigation activities.

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