

ANALYSIS

Climate change threatens millions of North Koreans. Is Pyongyang doing enough?

Ongoing food insecurity shows DPRK's vulnerability to global warming, amid doubts about its commitment to climate action

Bryan Betts February 23, 2022



NK News (file) | Smoke from factories or power plants fills the sky in Pyongyang on Sept. 8, 2015

The summer downpour began after a month of drought. Rivers became swollen with muddy waters that pushed up against their banks and finally overflowed. The floodwaters surged into the hinterlands, wiping out roads and railways and bridges, inundating farmland and submerging homes, or in some cases washing them away entirely. Landslides brought mountains tumbling down with terrible force.

The [flooding](#) that hit North Korea in early Aug. 2021 marked the second straight year that torrential rains wreaked havoc on the country and its people — displacing 5,000 by [North Korea's own account](#) and likely contributing to the [food insecurity](#) issues that appear to be driving its [emphasis on agriculture](#) this year.

In a country where the memory of catastrophic drought and famine remains fresh, such natural disasters underscore a discomforting reality: Climate change is not a theoretical future problem, but an imminent threat to the well-being of millions of North Koreans.

“In the past few years, [North Korea] had its longest drought in more than a century. It’s had its rainiest season in more than a century,” Robert Templer, a senior consultant to the U.N., told *NK News*.

“So we’re seeing a lot of fairly dramatic and persistent changes in the weather — not really one-off events, but a continuing series of weather changes, which of course is an indicator of climate change when it happens over a lengthy period.”



North Korean state television shows flooded homes in South Hamgyong province after heavy rains last summer | Image: KCTV (Aug. 5, 2021)

North Korean leader Kim Jong Un acknowledged as much after the floods, [calling](#) for “thorough-going measures to overcome abnormal climate the danger of which has become higher in recent years.” Such dangers, [experts say](#), range from increased crop failure and inland flooding that [affects](#) its [nuclear facilities](#), to sea level rises that could damage naval infrastructure and [inundate coastal cities](#).

North Korea ostensibly recognizes the need to take action as a party to major treaties and conventions on global warming, most notably the [Paris Agreement](#). Yet Pyongyang also continues to funnel significant resources to its nuclear and missile development programs, raising questions about its commitment to upholding its obligations under those treaties.

“One [typhoon] alone is enough to derail a harvest in impacted areas,” Benjamin Habib, a senior lecturer at La Trobe University, told *NK News* late last year. “When you’ve got three coming through successively [as in 2020], hitting the same areas, significant impact to buildings, infrastructure and farmland, that puts an already stressed food system in a really precarious position.”

He continued: “Now have that compounded on top of the border closures because of COVID. The North Korean food system and economy is in its darkest moment, I think, since the famine.”

Table 2-9 DPR Korea laws related to climate change

| № | Law | Date enacted | Remarks | № | Law | Date enacted | Remarks |
|----|---|---------------|-----------------|----|--|---------------|----------------|
| 1 | Law on Agriculture, DPR Korea | 18 Dec. 1998 | Decree № 290 | 28 | Law on Livestock Farming, DPR Korea | 12 Jan. 2006 | Decree № 1523 |
| 2 | Law on Aliens Enterprise, DPR Korea | 5 Oct. 1992 | Decision № 19 | 29 | Law on Management of Pyongyang City, Capital of DPR Korea | 26 Nov. 1998 | Decree № 286 |
| 3 | Law on Aliens Investment, DPR Korea | 5 Oct. 1992 | Decision № 17 | 30 | Law on Management of Veterinary Medicine, DPR Korea | 24 June 1998 | Decision № 121 |
| 4 | Law on Atomic Energy, DPR Korea | 12 Feb. 1992 | Decision № 15 | 31 | Law on Medicines Management, DPR Korea | 12 Nov. 1997 | Decision № 101 |
| 5 | Law on Automotive Traffic, DPR Korea | 12 Feb. 1997 | Decision № 83 | 32 | Law on Medium and Small Power Stations, DPR Korea | 11 April 2007 | Decree № 2206 |
| 6 | Law on Barrage, DPR Korea | 21 Mar. 2001 | Decree № 2140 | 33 | Law on Meteorology, DPR Korea | 9 Nov. 2005 | Decree № 1368 |
| 7 | Law on Border Quarantine of Animals and Plants, DPR Korea | 16 July 1997 | Decision № 89 | 34 | Law on Nature Reserve, DPR Korea | 25 Nov. 2009 | Decree № 445 |
| 8 | Law on City Management, DPR Korea | 29 Jan. 1992 | Decision № 14 | 35 | Law on Organic Industry, DPR Korea | 23 Nov. 2005 | Decree № 1396 |
| 9 | Law on Coal, DPR Korea | 7 Jan. 2009 | Decree № 3044 | 36 | Law on Pollution Prevention in Taedong River, DPR Korea | 10 Feb. 2005 | Decree № 946 |
| 10 | Law on Control of Thermal and Pressure Equipment, DPR Korea | 24 Jan. 2007 | Decree № 2125 | 37 | Law on Prevention of Infectious Diseases, DPR Korea | 5 Nov. 1997 | Decision № 100 |
| 11 | Law on Crude Oil, DPR Korea | 10 Jan. 2007 | Decree № 2112 | 38 | Law on Prevention of Sea Pollution, DPR Korea | 22 Oct. 1997 | Decision № 99 |
| 12 | Law on Education, DPR Korea | 14 July 1999 | Decree № 847 | 39 | Law on Protection and Control of Land and Environment, DPR Korea | 27 May 1998 | Decision № 116 |
| 13 | Law on Electric Power, DPR Korea | 20 Dec. 1995 | Decision № 65 | 40 | Law on Protection of Scenic Beauty Spot and Living Monument, DPR Korea | 13 Dec. 1995 | Decision № 64 |
| 14 | Law on Energy Management, DPR Korea | 4 Feb. 1998 | Decision № 108 | 41 | Law on Protection of Useful Animals, DPR Korea | 26 Nov. 1998 | Decree № 283 |
| 15 | Law on Environment Impact Assessment, DPR Korea | 9 Nov. 2005 | Decree № 1367 | 42 | Law on Public Health, DPR Korea | 3 Apr. 1980 | Law № 5 |
| 16 | Law on Environmental Protection, DPR Korea | 9 Apr. 1986 | Law № 5 | 43 | Law on Rivers and Streams, DPR Korea | 27 Nov. 2002 | Decree № 3436 |
| 17 | Law on Export and Import of Technology, DPR Korea | 10 June 1998 | Decision № 119 | 44 | Law on Road Traffic, DPR Korea | 6 Oct. 2004 | Decision № 709 |
| 18 | Law on Fish Farming, DPR Korea | 18 Dec. 1998 | Decree № 288 | 45 | Law on Sanitation, DPR Korea | 15 July 1998 | Decree № 123 |
| 19 | Law on Fishery, DPR Korea | 18 Jan. 1995 | Decision № 49 | 46 | Law on Science and Technology, DPR Korea | 15 Dec. 1988 | Decision № 14 |
| 20 | Law on Foreign Trade, DPR Korea | 10 Dec. 1997 | Decision № 104 | 47 | Law on Sewer, DPR Korea | 10 Dec. 2009 | Decree № 486 |
| 21 | Law on Forest, DPR Korea | 11 Dec. 1992 | Law № 9 | 48 | Law on Tideland, DPR Korea | 20 July 2005 | Decree № 1199 |
| 22 | Law on Fruit Culture, DPR Korea | 4 Dec. 2002 | Decree № 3453 | 49 | Law on Underground Resources, DPR Korea | 8 April 1993 | Law № 14 |
| 23 | Law on Fuel for Resident, DPR Korea | 18 Dec. 1998 | Decree № 287 | 50 | Law on Veterinary and Anti-epizootic, DPR Korea | 17 Dec. 1997 | Decision № 105 |
| 24 | Law on Joint Venture, DPR Korea | 8 Sep. 1984 | Decision № 10 | 51 | Law on Wastes Disposal, DPR Korea | 26 April 2007 | Decree № 2215 |
| 25 | Law on Land Planning, DPR Korea | 27 Mar. 2002 | Law № 12 | 52 | Law on Water Resources, DPR Korea | 18 June 1997 | Decision № 86 |
| 26 | Law on Land, DPR Korea | 29 April 1977 | Law № 9 | 53 | Law on Waterway, DPR Korea | 10 Mar. 2004 | Decree № 314 |
| 27 | Law on Landscape, DPR Korea | 25 Nov. 2010 | Decision № 1214 | | | | |

A list of all North Korean laws related to climate change, as delineated in the country's "Second National Communication on Climate Change" in 2012
/ Image: National Coordinating Committee for Environment; edited by NK News

DOMESTIC POLICY

Counter to its reputation as the “[hermit kingdom](#),” North Korea is an active participant in international climate change diplomacy, and the country claims to have instituted major environmental protection and land management policies over the years.

The DPRK’s apparent enthusiasm for climate change action, experts say, stems in large part from the trauma of the 1990s Arduous March famine, when economic collapse and natural disasters contributed to the mass starvation of hundreds of thousands, if not millions, of North Koreans.

“Faced with aggravated environmental conditions, the North Korean regime came to feel keenly that revamping its environmental policy for improved land management and environmental protection was a matter of national security in the era of climate change,” Choi Hyeonjung of the Asan Institute for Policy Studies writes in a [research report](#) on North Korea’s climate change policy.

The new emphasis on the environment manifested in a number of ways, including new legislation and the creation of the Ministry of Land and Environmental Protection in 1996. As of 2012, the country [says](#) it has enacted 53 laws related to climate change on subjects ranging from forests to city management, and according to Choi, around 80% of this legislation went into effect after the mid-1990s.

Habib of La Trobe University caveated that the legal framework in North Korea differs substantially from the precise, contractual laws in place in other countries, calling the DPRK’s environmental legislation “more so guiding statements about how government entities should interpret things.”

“Statement of intent at best. Complex legal regime? No, that’s not what these things are,” he said.

Table 2-10 Environmental conventions/protocols signed by DPR Korea

| Conventions/Protocols | Date |
|---|--------------|
| United Nations Convention on Biodiversity | 26 Oct. 1994 |
| United Nations Framework Convention on Climate Change | 05 Dec. 1994 |
| Vienna Convention on the Protection of Ozone Layer | 05 May 1995 |
| Montreal Protocol on Substances that Deplete the Ozone Layer | 06 May 1995 |
| Stockholm Convention on Persistent Organic Pollutants | 19 Aug. 2002 |
| Cartagena Protocol on Biosafety | 29 July 2003 |
| United Nations Convention on Combating Desertification | 28 Mar. 2004 |
| Kyoto Protocol to the United Nations Framework Convention on Climate Change | 27 Apr. 2005 |
| Basel Convention on Trans-boundary Movements of Hazardous Wastes and their Disposal | 10 July 2008 |

A list of all environmental conventions signed by North Korea, as delineated in the country's "Second National Communication on Climate Change" in 2012 | Image: National Coordinating Committee for Environment; edited by NK News

INTERNATIONAL AGREEMENTS

In addition to its domestic policies, the DPRK has ratified a gamut of major international agreements on climate change and environmental protection — including the [Vienna Convention](#) on protecting the ozone, [Montreal Protocol](#) on phasing out ozone-depleting substances, the U.N.'s [Convention on Biodiversity](#) and Framework Convention on Climate Change ([UNFCCC](#)), as well as the [Kyoto Protocol](#).

Under the Kyoto Protocol, advanced economies bore the primary responsibility for reducing emissions and providing assistance to developing countries like North Korea, and as a result, Pyongyang's diplomacy "focused on obtaining international aid and cooperation by claiming advanced economies' responsibilities for causing climate change," Choi writes.

On this front, the DPRK achieved some success: For example, the country [reported](#) that it undertook 15 major cooperation projects relating to climate change from 1997 to 2012 that received some \$15 million in funding.

But the situation has changed since North Korea ratified the Paris Agreement in 2016. Under the treaty, all parties, including North Korea, must outline emission targets known as nationally determined contributions (NDC) and provide regular updates on progress toward achieving them.

While developing nations can still receive assistance for climate change measures under the agreement, they can no longer do so as so-called free-riders.

"Now that North Korea does have obligations under the current Paris Agreement, to me that's really the point where we're going to see, OK, is North Korea actually serious about climate change action, or were they just taking advantage of the fact that they didn't have any obligations under the Kyoto Protocol?" said Chad Miller, a researcher at the Database Center for North Korean Human Rights (NKDB).



A display at the 26th U.N. Climate Change Conference (COP26) in Glasgow, which North Korea's ambassador to the U.K. attended | Image: [COP26](#) (Oct. 31, 2021)

FROM PARIS TO GLASGOW

In November, North Korea's Ambassador to the U.K. Choe Il [joined](#) the 26th U.N. Climate Change Conference (COP26) in Glasgow, the most important climate conference since the negotiation of the Paris Agreement at COP21 in 2015.

That a diplomat was the one leading the delegation was a bit unusual. The DPRK had switched to sending environment ministry officials at the last two COPs in 2018 and 2019, a change that some had interpreted as a sign that North Korea was taking climate change action more seriously.

But in Choe's case, his attendance appeared to reflect the fact that ministry officials could not travel to Glasgow due to the DPRK's COVID-19 restrictions, rather than a change in policy or approach. That North Korea sent a delegation at all was significant as it marked one of the only times the country's officials have joined an international gathering in person since the pandemic began.

The DPRK's delegation remained out of the spotlight as major G-20 economies like the U.S. and China [unveiled](#) new pledges to cut greenhouse gases and combat deforestation. The U.N. consultant Templer suggested Choe likely had limited latitude to negotiate as an ambassador, and emphasized that North Korea is not a "critical player" since it's not a major emitter.

Still, Habib of La Trobe said it's important for North Korea to show it's committed to climate action by sending a delegation if it wants to "get a slice of the pie" when it comes to development assistance.

In the most recent update to its [NDC targets in 2019](#), the DPRK said it expects its carbon dioxide emissions to reach 218 million tons in 2030 and pledged to "reduce 35,800,000 tons of [greenhouse gases] per year" by that time. But it added that it can reduce an additional 78.8 million tons by 2030 "in case of the positive collaboration with the international community."

"My reading of the NDC was that they're saying we need the help: We can fulfill our promises if you give us assistance, if we get the money and resources to do this," Habib said.

So far, North Korea has focused more on responding to the effects of climate change (adaptation) than on reducing those effects through measures like cutting emissions (mitigation).

The DPRK's latest [progress report](#) on implementing U.N. sustainable development goals, for instance, highlights adaptation-related countermeasures like relocating “coastal vulnerabilities” and building “breakwaters” to protect against typhoons, but it offers few details about how to achieve its emission-reduction targets.

Yet the Paris Agreement does not include a mechanism for penalizing countries that fail to live up to their commitments, and Templer said there isn't significant pressure on developing countries like North Korea to begin with.

“But clearly the longer the delay in actually shifting toward a carbon-free or more lower carbon energy mix ... the more difficult it becomes,” he said, adding that North Korea faces serious problems in accessing financing to take necessary adaptation measures.



North Korea's ongoing reforestation campaign dating back to 2015 could contribute to climate change mitigation | Image: Sogwang

MITIGATION MEASURES AND ENERGY

Despite its policy weighted toward adaptation, North Korea has taken some measures that contribute to climate change mitigation, and experts say there are a number of ways in which the country could do more — if and when significant economic development becomes a possibility.

One mitigation strategy that the DPRK has pursued is [registering clean energy projects](#) under the U.N.'s Clean Development Mechanism (CDM), including six hydropower plants and two plants fired by recaptured methane gas from coal mines. By doing so, the country can earn credits to sell on the international carbon market.

Sanctions, however, pose an obstacle to monetizing these credits, and Habib said the collapse of the carbon market about a decade ago means such projects are not currently a “viable source of foreign income,” though that could change as more “carbon price mechanisms” come into force.

The DPRK's ongoing reforestation drive also has multiple climate change benefits, both in terms of mitigation and adaptation. In recent years, this "[war to improve nature](#)" under Kim Jong Un has sought to remedy the [widespread deforestation](#) during and after the Arduous March famine, with the country [estimated](#) to have lost 30% of its forest cover from 1990 to 2010.

The campaign has seen [limited success](#), though illegal logging in part due to Chinese timber demand remains a problem. More trees can prevent soil erosion and deadly landslides, thus minimizing damage from natural disasters, and scientists [say](#) reforestation can also contribute to offsetting emissions in the long term through carbon sequestration.



North Koreans ride bikes in front of a power station in North Hwaha province. While the DPRK produces relatively little electricity, it's aging Soviet-era power stations do so inefficiently. | Image: Eric Lafforgue (Sept. 10, 2008)

Sustaining gains made through North Korea's reforestation drive, however, will require improvements to the country's energy situation, according to David von Hippel, a senior associate with the Nautilus Institute who has extensively studied the subject.

Von Hippel said that while the entire DPRK only uses about as much electricity as Washington, D.C., but does not produce that electricity efficiently. The country gets about 30% of its electricity from coal, much of it produced by Soviet-era power stations, as well as on an ad hoc basis from diesel and gasoline generators imported from China.

This energy mix gives the country ample room for the country to transition to more efficient energy sources, according to Von Hippel.

Clean energy like wind and solar is one way North Korea could accomplish this, Von Hippel said, though he noted the country doesn't have great wind resources to power turbines. He described DPRK officials whom he has interacted with as "always interested" in renewable energy and energy efficiency, suggesting potential for cooperation.

Despite this, Von Hippel said North Korea's greenhouse gas emissions are bound to increase if the country ever becomes a fuller part of the world economy and ramps up development, regardless of how much it relies on clean energy.

"They're not going to end up with less emissions than they have now because their emissions now are constrained by the fact that they don't have the energy supplies that they need, and they're stuck with that," Von Hippel said.



A North Korean woman collects corn that had fallen on the road in North Hwanghae province. Climate change could exacerbate food insecurity in the country. | Image: Eric Lafforgue (Sept. 7, 2012)

THE FUTURE OF DPRK CLIMATE ACTION

As with so much about the country, details on how North Korea is implementing its climate strategies are in short supply, and the pandemic has only made it harder to verify what's happening on the ground.

“Everybody’s out of North Korea right now. There are no NGOs working in there, so it’s just increasingly hard to know what action will be taken, if any,” said Miller of NKDB. “Honestly, things may be getting worse.”

For now, it appears unlikely that Pyongyang will step back from its Paris Agreement commitments: Experts told *NK News* that North Korea risks little by participating in climate change diplomacy, and the issue provides a rare means to engage the country apart from harder security problems related to the regime’s nuclear and missile programs.

Remaining a party to climate agreements also has propaganda value for Pyongyang, Miller said, as the DPRK seeks to pin the blame for global warming on the U.S. and the West. A foreign ministry spokesperson, for instance, [denounced](#) the U.S. for withdrawing from the Paris Agreement under former President Donald Trump.

A bigger motivating factor for North Korea’s climate action is likely to be concerns about agriculture and food supply, particularly due to the country’s stagnant trade during the pandemic and apparent food supply issues. According to Habib, Pyongyang’s commitment to climate policy is “molded together now” with its interest in receiving assistance for agricultural capacity building.

It’s possible that last year’s flooding will further exacerbate food insecurity in the country. Habib noted that “there’s always a lag” between natural disasters and their impact on the food system, citing the effects of 2020 typhoons in 2021. The U.N. World Food Program has [estimated](#) an “uncovered food gap” of 860,000 metric tons due to a harvest shortfall in 2020.

Templer, the U.N. consultant, was pessimistic that North Korea will bump up climate action on its list of priorities.

“I think it will muddle through in many ways,” he said. “I don’t see dramatic changes. Climate change is very important, but it’s also relatively slow moving in terms of its impact.”

Even so, Templer said every passing year only provides more evidence of the reality of climate change and of the enormous threats it poses — to the DPRK and to the world.

“I’d say in North Korea, they’re not deniers in any way. They seem to have a firm grasp on the science and recognition of the issue,” he said. “I think they may be struggling with the financial and political aspects of climate change, and in that case, they are in the same boat as pretty much every country on Earth.”

Edited by Arius Derr

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