



MONTHLY REPORT

Nuclear Risk Assessment

Korean Peninsula
2023/12



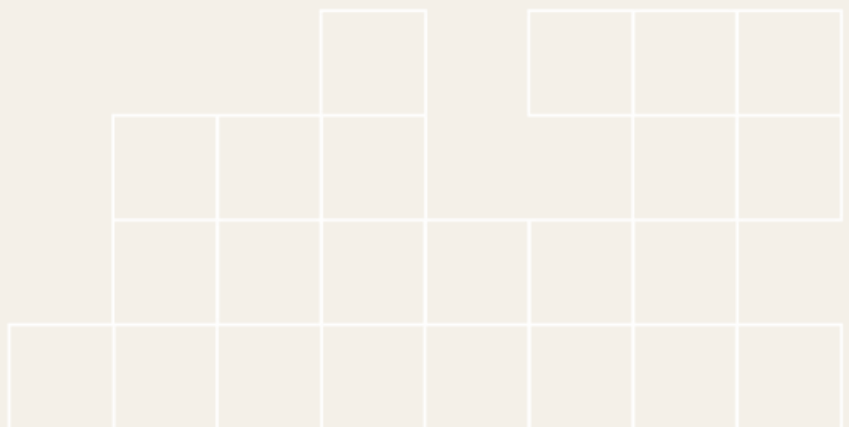
Open Nuclear Network

One Earth Future's Open Nuclear Network programme is a non-aligned, non-governmental entity that seeks to increase security for all States by ensuring that nuclear decision makers have access to high quality, shareable open source information which enables them to make the best decisions in the face of escalating conflict.

Nuclear Risk Assessment Report

Nuclear risk can emanate from various factors. These range from the more obvious military developments and incidents that could lead to increased tensions and possibly even nuclear misuse, to the often overlooked domestic and external contexts in which a country perceives its circumstances and, based on those perceptions, makes decisions that have direct or indirect implications for nuclear risk.

In an attempt to more comprehensively assess nuclear risks on and around the Korean Peninsula, this monthly Report examines the DPRK's and the ROK's nuclear and military spheres, as well as activities and policy decisions across main domestic and foreign policy spheres that could impact nuclear risks.



Methodology & Scope

The “ONN Nuclear Risk Assessment Report” strives for objectivity and accuracy through collection, research and analysis of open source information.

The Report focuses on the DPRK and the ROK; other key regional State actors – namely China, Japan, Russia, and the United States – are covered as part of the context in which Pyongyang and Seoul act and make their decisions, but they themselves are not the main objects of this Report’s analysis.

The Report consists of three sections: Nuclear, Military and Political.

The **Nuclear section** covers notable developments with direct implications for nuclear capabilities and dynamics on and around the Korean Peninsula. These include the DPRK’s nuclear and missile development and tests; military activities related to US extended deterrence to the ROK and in the region; as well as major nuclear policy changes.

The **Military section** covers key military-related developments that may not have direct implications for nuclear capabilities and postures but could lead to heightened nuclear risks. These include the two Koreas’ conventional military build-ups or military exercises, or unusual moves by the DPRK’s Korean People’s Army (KPA) or inter-Korean military conflicts.

The **Political section** addresses key domestic and external factors that could impact Pyongyang’s decisions on its nuclear posture. Examples include notable domestic political, economic and social developments, as well as its ROK and foreign policy trends. This section may also address domestic pressures in the ROK or changes in Seoul’s foreign policy that could have repercussions for nuclear risk, such as the public discourse in the ROK on acquiring its own nuclear capabilities or significant policy changes related to the ROK-US alliance or inter-Korean relations.

For busy readers, these three sections are preceded by key takeaways from each chapter.

To produce this monthly Report, ONN regularly monitors, collects and analyzes text, satellite imagery and ground photos and videos in publicly and commercially available sources from China, the DPRK, Japan, the ROK, Russia and the United States. Secondary and tertiary sources are used only if primary sources are unavailable. ONN observes a [Code of Ethics](#) for collection, research and analysis.

Nuclear Risk Takeaways

Nuclear. Military. Political.



NUCLEAR

The ROK and the United States convened for their second Nuclear Consultative Group (NCG) meeting while continuing to implement commitments made in the Washington Declaration and at the Camp David Summit on US extended deterrence and trilateral cooperation with Japan. The DPRK responded to the second Nuclear Consultative Group meeting with an intercontinental ballistic missile (ICBM) launch that also served to further refine the design of its first solid-propellant ICBM. The DPRK has possibly also started commissioning its light-water reactor at Yongbyon, though its intended purpose remains unclear.



MILITARY

Some ten days after the successful launch of the DPRK's first spy satellite, the ROK military demonstrated its own advancement in space-based surveillance with the launch of a spy satellite and the test flight of a solid-propellant carrier rocket. The ROK defense ministry also announced its mid-term defense plan for the coming five years, which not only seeks to strengthen conventional deterrence capabilities against the DPRK but also seeks to enable the ROK to reinforce its position as a world-leading arms exporter.



POLITICAL

In an end-of-year Plenary Meeting of the Workers' Party of Korea (WPK), Kim Jong Un stated that unification with South Korea "can never be achieved" and described the state of inter-Korean relations as that of two "hostile states". The DPRK and Russia continued expanding their economic exchange, potentially involving sanctioned activities, while the Russian Armed Forces Chief of Staff stated that "comprehensive cooperation" with the DPRK has been established. The DPRK's Vice-Foreign Minister headed the first diplomatic visit to China since 2019 in preparation for the 75th anniversary of the establishment of diplomatic relations and expressed an interest in multilateral cooperation with China for regional peace and stability.



US-ROK Meet for NCG Meeting, Continue to Implement Plans on Strengthening Extended Deterrence Commitments; DPRK Conducts Tenth Successful ICBM Launch; Yongbyon's Light Water Reactor Possibly Being Commissioned

The ROK and the United States convened for their second Nuclear Consultative Group (NCG) meeting while continuing to implement commitments made in the Washington Declaration and at the Camp David Summit on US extended deterrence and trilateral cooperation with Japan. The DPRK responded to the second Nuclear Consultative Group meeting with an intercontinental ballistic missile (ICBM) launch that also served to further refine the design of its first solid-propellant ICBM. The DPRK has possibly also started commissioning its light-water reactor at Yongbyon, though its intended purpose remains unclear.

The ROK and the US convened for their second NCG meeting on 15 December while continuing to implement commitments made in the Washington Declaration and at the Camp David Summit on US extended deterrence and trilateral cooperation with Japan.

- In their [second NCG meeting](#), the US reaffirmed its extended deterrence commitments, which are “[backed by the full range of U.S. capabilities including nuclear](#).” The two sides also reviewed progress made since the [Washington Declaration](#) in different NCG workstreams, [including on](#): “guidelines; security and information sharing protocols; nuclear consultation processes in crises and contingencies; nuclear and strategic planning; U.S.-ROK conventional and nuclear integration (CNI); strategic communications; exercises, simulations, training, and investment activities; and risk reduction practices.”
- [On 19 December](#), the Japan-ROK-US missile information-sharing system started operations. This is in line with the [Camp David Summit](#) agreement and will allow the three countries to jointly detect and evaluate North Korean missiles in a more integrated manner.
- Also in December, the ROK and the United States continued with their [commitment](#) to conduct joint military exercises more frequently. [On 19 December](#), the United States and the ROK conducted joint special operation drills, while [on 20 December](#), the United States deployed two B-1B strategic bombers near the Korean Peninsula for joint Japan-ROK-US aerial exercises.
- Developments in December demonstrate that the US and the ROK continue to implement commitments made in the Washington Declaration and at the Camp David Summit, particularly on expanded information sharing, extended deterrence consultations, and tangible deterrence assurances. A KCNA commentary on [21 December](#) criticized these developments, referring also to an earlier statement on [17 December](#) by a spokesperson for the Ministry of National Defense of the DPRK. The earlier statement warned that “any attempt to use armed forces against the DPRK will face a preemptive and deadly counteraction.”



Nuclear
(cont.)

US-ROK Meet for NCG Meeting, Continue to Implement Plans on Strengthening Extended Deterrence Commitments; DPRK Conducts Tenth Successful ICBM Launch; Yongbyon’s Light Water Reactor Possibly Being Commissioned

The launch of a Hwasong-18 solid-propellant intercontinental ballistic missile (ICBM) on 18 December marked the tenth successful ICBM launch by the DPRK. While the 18 December launch was reported by DPRK state media to be a direct response to the second NCG meeting, it also served as another example pointing to the possible practice of the Strategic Rocket Force to accelerate initial deployment of ICBMs by fielding missiles that are still subject to further technical improvements.

- The launch of a Hwasong-18 ICBM on 18 December was the tenth successful flight of an ICBM and the third flight of a solid-propellant ICBM (the Hwasong-18) by the DPRK (Table 1). To date, all ICBM launches have been carried out with highly lofted trajectories.

	Date	Apogee	Distance	Flight time
Hwasong-14	4 July 2017	2,802 km	933 km	~39 minutes
Hwasong-14	28 July 2017	3,724.9 km	998 km	~47 minutes
Hwasong-15	29 November 2017	4,475 km	950 km	~53 minutes
Hwasong-15**	24 March 2022	6,248.5 km	1,090 km	~68 minutes
Hwasong-17	18 November 2022	6,040.9 km	999.2 km	~69 minutes
Hwasong-15	18 February 2023	5,768.5 km	989 km	~67 minutes
Hwasong-17	16 March 2023	6,045 km	1,000.2 km	~69 minutes
Hwasong-18	13 April 2023	Below 3000 km	About 1000 km	Unknown
Hwasong-18	12 July 2023	6648.4 km	1001.2 km	~75 minutes
Hwasong-18	18 December 2023	6518.2 km	1002.3 km	~74 minutes

Table 1. DPRK ICBM Flight Tests*



Nuclear (cont.)

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*Possible partial or failed tests of the Hwasong-17 ICBM, conducted on 27 February, 5 March, 16 March, 4 May, 25 May and 3 November 2022, are not included in this table. Apogee, distance, and flight time as reported by DPRK state media except the 13 April 2023 launch, which was reported by [Yonhap](#).

**While the DPRK reported the event as a Hwasong-17 launch, UN Member State information provided to the UN Panel of Experts on the DPRK suggests that a Hwasong-15 may have been launched instead ([S/2022/668](#)).

- Though the DPRK reported that the 18 December launch was a “drill” to send a “[powerful warning](#)” against provocations of “hostile forces,” including the second Nuclear Consultative Group meeting, minor adjustments made to the [transporter-erector-launcher](#) and [markings on the missile body](#) suggest that the launch also served to [further refine](#) the overall design of the missile system as a part of an ongoing development and certification programme.
- The 18 December launch is not the first time the DPRK has referred to an ICBM launch as a “drill”. Namely, the [February 2023 Hwasong-15 launch](#) and the [March 2023 Hwasong-17 launch](#) were also described as “drills” in an apparent attempt to demonstrate the full combat readiness of the missile units in addition to technological system readiness. In both launches, however, design adjustments made to the missiles, such as streamlining of the [body](#) and [engine compartment](#), could be spotted. The fact that the missiles launched in these drills appear slightly different from those launched during test flights points to the possible practice of the Strategic Rocket Force to field ICBMs soon after one or two initial tests are conducted, even though the missiles fielded are still subject to further technical improvements.

The DPRK may be in the process of commissioning its Light Water Reactor (LWR) at Yongbyon. While LWRs are generally used for electricity generation, it cannot be excluded that the DPRK intends to use the reactor to produce plutonium for its ambitious nuclear weapons production plans.

- On 21 December, IAEA Director General Rafael Grossi [stated](#) that strong and warm water outflow from the LWR's cooling system suggests that the LWR is being commissioned and has reached criticality.
- While water outflow from this [new outlet channel](#) added in October/November 2022 can be observed in satellite imagery available to ONN since at least November 2022, the [uninterrupted outflow since early October 2023](#) suggests that the DPRK has transitioned from an intermittent to a more continuous testing and/or commissioning period for the reactor using this channel. The ROK's defense ministry has [assessed](#) that the DPRK is continuing to test operations after it detected a loading of a small amount of nuclear material and predicts the LWR will be in full operation by summer 2024.



Nuclear (cont.)

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- The LWR's planned purpose remains unclear. While LWRs are generally used for electricity generation, it [cannot be excluded](#) that the DPRK intends to use the reactor to produce weapons-grade plutonium, which would allow it to bolster its decreasing plutonium reserves. In the long term, it could make it less reliant on its more plentiful highly-enriched uranium to achieve its weapons production objectives, including on miniaturization. If used to produce electricity, however, it could help to address the country's [severe energy problems](#) by supplying the nearby vicinity and serving as a prototype for potential future reactors.
- In his [report](#) at the Workers' Party of Korea's (WPK) Plenary Meeting on 31 December, Kim Jong Un called for "steadily increasing the production of nuclear weapons" and referred to a "nuclear weapons production plan" for 2024. This is in line with [last year's](#) call for "mass-producing" tactical nuclear weapons and to "exponentially increase the country's arsenal." The DPRK last mentioned plans for nuclear energy in its five-year plan issued at the [Eight Party Congress](#) in 2021, when Kim Jong Un called for the "launching" of a "nuclear power industry" and cited plans for nuclear-powered submarines.



Military

ROK Military Makes Advancement in Space-based Surveillance, Releases 266 Billion USD Mid-term Defense Plan

Some ten days after the successful launch of the DPRK's first spy satellite, the ROK military demonstrated its own advancement in space-based surveillance with the launch of a spy satellite and the test flight of a solid-propellant carrier rocket. The ROK defense ministry also announced its mid-term defense plan for the coming five years, which not only seeks to strengthen conventional deterrence capabilities against the DPRK but also seeks to enable the ROK to reinforce its position as a world-leading arms exporter.

Following the DPRK's [successful spy satellite launch](#) on 21 November, the ROK sent its first spy satellite into orbit on a US rocket and another civilian satellite on a test carrier rocket developed by its military. With announcements of plans to launch more satellites from both Koreas, the competition in space on the Peninsula is expected to continue in 2024.

- Launched from California's Vandenberg Space Force Base on 2 December, a US Falcon-9 rocket sent the ROK's [first indigenous spy satellite](#), equipped with electro-optical and infrared sensors, into space. [Four more spy satellites](#), equipped with synthetic aperture radar sensors, are scheduled to be put into orbit by 2025. Altogether, the five satellites are expected to provide regular coverage on the DPRK [every two hours](#), reducing the ROK's dependency on satellite intelligence provided by allies. Additionally, the ROK military plans to launch dozens of smaller satellites by 2030 that will enable the military to monitor the DPRK [every 30 minutes](#).
- On 4 December, the ROK military successfully inserted a [civilian synthetic aperture radar satellite weighing](#) 100 kg into orbit with the third test flight of a solid-propellant carrier rocket. The 4 December launch is part of a wider effort of the ROK military to acquire its [own launch capabilities](#) to put 500 to 700 kg payload into low earth orbit.
- Space has developed into an area for competition between the two Koreas. While the DPRK is the first to put a satellite into orbit and the first to successfully launch a spy satellite using its own carrier rocket, the ROK has developed the [largest and most capable carrier rocket](#) on the Peninsula to date and a more robust [satellite industry](#). The competition in space between the two Koreas is expected to continue in 2024, as DPRK leader Kim Jong Un ordered the launch of [three more spy satellites in 2024](#) during a [party plenum meeting](#) in late December 2023.

On 12 December 2023, the ROK defense ministry announced its mid-term defense plan for 2024 to 2028 period, during which it seeks to spend nearly 266 billion USD to maintain and strengthen its 500,000 troops and military technologies. Continued investment in the domestic defense sector is also planned to enable the ROK to become a top arms exporter, which in turn is intended to further consolidate the ROK's conventional military superiority against the DPRK.



Military (cont.)

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- The [new mid-term defense plan](#) seeks to strengthen the ROK's domestic deterrence capabilities under the (1) Korea Massive Punishment and Retaliation, an operational plan to incapacitate the DPRK leadership, (2) the Kill Chain, a system to carry out pre-emptive strikes and (3) the Korea Air and Missile Defense system. Under the plan, the ministry seeks to spend nearly 350 trillion won (~266 billion USD) over the next five years. The new plan represents a 10% increase in spending over the [2019 to 2023 period](#). In a 4.2% increase from the previous year, the [2024 defense budget](#) was also set at 59.4 trillion won (~45 billion USD).
- To support the three-pronged system, the ROK military seeks to further develop its own surveillance capabilities, ballistic and cruise missiles, anti-ballistic and anti-aircraft missiles and a series of weapon platforms such as advanced artilleries, mobile missile launchers, fighter jets, surface vessels and submarines capable of launching submarine-launched ballistic missiles (SLBMs).
- The growth of the defense sector in the ROK has enabled the country to become the ninth biggest arms exporter that took [2.4% share of global arms exports during the 2018 to 2022 period](#). In 2022 alone, arms exports increased to from 7.25 billion USD a year earlier, and the number is likely to [increase more](#) in 2023 and 2024. The ROK aims to become the [fourth largest arms exporter by 2027](#). Currently, China holds this position [with a global market share of 5.2%](#). The rapidly growing defense industry and the profit it generates should in turn stimulate the research and development of advanced technologies, further consolidating the ROK's conventional military superiority vis-à-vis the DPRK.



Political

Kim Jong Un Declares Two Koreas Hostile States, Unification Not Achievable; DPRK-Russia Economic, Military Cooperation Potentially in Sanctioned Activities; DPRK First Post-pandemic High-level Visit to China

In an end-of-year Plenary Meeting of the Workers' Party of Korea (WPK), Kim Jong Un stated that unification with South Korea "can never be achieved" and described the state of inter-Korean relations as that of two "hostile states". The DPRK and Russia continued expanding their economic exchange, potentially involving sanctioned activities, while the Russian Armed Forces Chief of Staff stated that "comprehensive cooperation" with the DPRK has been established. The DPRK's Vice-Foreign Minister headed the first diplomatic visit to China since 2019 in preparation for the 75th anniversary of the establishment of diplomatic relations and expressed an interest in multilateral cooperation with China for regional peace and stability.

In what may be the culmination of a long-term shift in inter-Korean policy from a special relationship to that of two "hostile states", Kim Jong Un stated that "reunification can never be achieved". He also called for a reform of the governmental agencies handling inter-Korean affairs. A subsequent meeting to "dismantle and reform" the agencies held on 1 January was led by Foreign Minister Choe Son Hui, suggesting that the United Front Department may be reorganized under the Foreign Ministry to reflect the approach of a state-to-state relationship.

- From 26 to 30 December 2023, the 9th Plenary Meeting of 8th Workers' Party of Korea Central Committee was [held](#) in Pyongyang. The DPRK holds a plenary meeting in December annually to address the previous year's state policy and budget implementation and to set the direction for the upcoming year. Kim Jong Un often addresses foreign policy issues in a report on the final day of the meeting.
- In his address on 30 December 2023, Kim Jong Un [stated](#) that "reunification can never be achieved with the ROK authorities" due to their policy of unification through "absorption" under "liberal democracy." He further noted that the situation requires the DPRK to adopt a new stance on inter-Korean relations and unification policy. Referring to the state of inter-Korean relations as that of "two states hostile to each other and the relations between two belligerent states," he called for a reform to the United Front Department (UFD), the organization handling inter-Korean relations, as well as other related organizations.
- On 1 January 2024, Foreign Minister Choe Son Hui [led](#) a consultative meeting to "dismantle and reform the bodies in charge of the affairs related to the south." UFD Director Ri Son Gwon participated but was not mentioned by his official title. This may indicate that the UFD is in the process of being reorganized under the Ministry of Foreign Affairs for inter-Korean relations to be handled as a matter of state-to-state affairs.
- The proclaimed policy reorientation follows years of more minor changes to the DPRK's approach to inter-Korean relations under Kim Jong Un, which intensified following the collapse of the summits in 2019. This [includes](#) the continued decline in the use of unification language and the disappearance of the South Korea page in the domestic newspaper Rodong Sinmun in 2020, the [demolition](#) of the inter-Korean liaison office in 2020, and a 2021 [statement](#) by the leadership that key inter-Korean organizations no longer have a reason to exist.



Political (cont.)

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From 11 to 15 December, a Russian delegation visited Pyongyang for meetings with the DPRK minister of External Economic Relations and the DPRK Premier. The visit came alongside reports from ROK officials that the DPRK is attempting to dispatch workers to Russia, which is sanctioned under UN Security Council (UNSC) Resolutions, and indications in satellite imagery available to ONN of continued significant DPRK-Russia shipping exchange. The Chief of Staff of the Russian Armed Forces stated on 21 December that Russia has established “active and comprehensive cooperation” with the DPRK, which suggests that the shipping exchange could include sanctioned military equipment.

- On 11 December, Primorsky Krai Governor Oleg Kozhemyako arrived in Pyongyang for [talks](#) on cooperation in culture, tourism, and sports. On 12 December, he [met](#) with the DPRK Minister of External Economic Relations Yun Jong Ho. Following the meeting, a protocol was signed between the Committee for the Promotion of International Trade of the DPRK, an organization [tasked](#) with promoting joint ventures and foreign investment with foreign local governments, and the Primorsky Krai Government of Russia. On 14 December, Kozhemyako also [met](#) with the DPRK Premier Kim Tok Hun.
- The ROK National Intelligence Service [stated](#) on 12 December that it had detected signs that the DPRK is seeking to dispatch workers to Russia. Similarly, a Unification Ministry official [commented](#) that “signs of such deployment have been detected overseas”, indicating such activities were taking place outside of the Korean Peninsula. Providing work authorizations for DPRK nationals abroad is prohibited under UNSC Resolution [2375](#).
- Analysis of satellite imagery available to ONN from December [showed](#) a continued significant shipping exchange between the DPRK and Russia, although it is not possible to verify the content of the shipments from satellite imagery. On 21 December, Russian Armed Forces Chief of Staff Valery Gerasimov [stated](#) that “Russia has established active and comprehensive cooperation with North Korea.”

A high-level DPRK delegation visited China for the first time since 2019 and expressed an interest in further strengthening multilateral cooperation with China on regional peace and stability, which may indicate a desire for security cooperation beyond the existing bilateral fora. The visit also came alongside the highest recorded trade figures since 2019 and the near-full resumption of major trading routes between the countries, reflecting the increased emphasis on bilateral economic cooperation.

- On 15 December, talks were [held](#) between Pak Myong Ho, DPRK Vice-Minister of Foreign Affairs and Sun Weidong, Chinese Vice-Minister of Foreign Affairs. It was the first publicly reported high-level diplomatic visit from the DPRK to China since 2019. The two sides discussed strengthening and developing bilateral relations and strategic cooperation in 2024.



Political (cont.)

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- Pak Myong Ho [met](#) with Chinese Foreign Minister Wang Yi on 18 December. During the meeting, Pak Myong Ho expressed that the DPRK is willing to continue to “strengthen multilateral cooperation with China to safeguard common interests and maintain regional peace and stability,” potentially signaling an interest in security cooperation beyond the bilateral fora. The two sides also agreed to “host a series of commemorative events” for the 75th anniversary of establishing diplomatic relations in 2024. In a new year’s letter exchange between Kim Jong Un and Xi Jinping on 1 January, the two leaders [referred](#) to 2024 as the “year of China-DPRK friendship.”
- Trade figures [released](#) in December indicate that DPRK-China trade is at its highest since 2019. Also in December, Air Koryo [resumed](#) its Pyongyang-Shenyang route after nearly four years, meaning that nearly all major routes between the DPRK and Northeast China that were closed due to Covid-19 have now re-opened.



**OPEN NUCLEAR
NETWORK**
a programme of One Earth Future

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