

QUICK POLICY INSIGHT

# Reproaches follow North Korea's 'successful' launch of a dysfunctional satellite

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While international condemnation followed North Korea's launch of an earth observation satellite in December, global concerns have stemmed more from the regime's bellicose attitude and from the menace of future military strikes than from the technological or military accomplishments represented by the rocket itself.

North Korea declared the 12 December 2012 launch of the unit — an Unha-3 launcher carrying a satellite that the North Koreans baptised *Kwangmyongsong* (or 'Iodestar') in honour of one of the nicknames of Kim Jong-il, father of current leader Kim Jong-un — a success. The North American Aerospace Defence Command reported initial indications suggesting that an object had, in fact, achieved orbit.

More recent reports, however, suggest that the satellite is out of control and likely not functioning, although still orbiting earth in space.

The December launch followed an unsuccessful attempt in April 2012 to place a similar unit in orbit. That rocket, Kwangmyongsong-3 Unit 1, exploded within 90 seconds of take-off — a disappointment openly conceded by the generally immodest regime.

While the most recent rocket is a satellite, said to be for crop and weather monitoring, a number of foreign governments consider the launch to be a test of the country's ability to launch long-range ballistic missiles<sup>1</sup>.

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<sup>1</sup> Although space launches and missile launches follow different trajectories, the basic technology is identical, as are structural components, engines and fuel. Countries

*(A more in-depth analysis of this capacity and that of the military on the Korean peninsula in general is provided in our Policy Briefing, 'The military situation on the Korean Peninsula'.)*

## North Korea's evolving ballistic missile capacity

North Korea's ballistic missile capability has grown over the years, and the country is likely to maintain and develop military forces against South Korean, Japanese and United States forces in the region.

The country's missile programme has undergone a multi-stage progression: in the 1960s and 1970s, tactical artillery rockets were developed and deployed; in the 1980s, short-range ballistic missiles capable of reaching targets throughout South Korea were the focus; and medium-range ballistic missiles capable of reaching Japan were developed and tested in the 1990s.

The country has gradually increased the range of its missiles.

Systems capable of greater ranges are currently under research and development, though their success has been mitigated. Four previous launches that failed at different stages of the process, suggesting that North Korea has been struggling to make consistent progress since 1998, when the first one took place.

Last April's failed test of another Unha-3 rocket, which the United States claimed was a cover for a ballistic missile test, exploded into about twenty pieces less than two minutes after lift-off.

Despite the failure, the launch drew international condemnation as a serious violation of UN Resolutions on the country's nuclear weapons and ballistic missile programmes. In particular, UNSCR Resolution 1718 calls on the DPRK to 'suspend all activities related to its ballistic missile programme and in this context re-establish its pre-existing commitments to a moratorium on missile launching'. UNSCR 1874 requires that 'the DPRK not conduct any further nuclear test or any launch using ballistic missile technology'.<sup>2</sup>

The UN has called on North Korea to suspend its ballistic missile system.

**Table 1:**  
North Korean Long-Range  
Missile Launches

Date	Launcher (rocket)	Stated Purpose	Notes
August 1998	TD-1	Experimental satellite launch (Kwangmyongsong-1)	Third stage failure; North Korea claimed satellite placed into orbit.
October 2006	TD-2	One of several launches that 'were part of the routine military exercises [...] to increase the	First stage failure after 42 seconds.

commonly include long-range missiles in carrier rockets for satellites. In North Korea the Unha rocket relies heavily on military technologies used in *Nodong* and *Musudan* missiles (two types of ballistic missiles built by North Korea).

<sup>2</sup> United Nations, Resolution [1718/2006](#) (14 October 2006).

		nation's military capacity for self-defence.'	
April 2009	Unha-2 (TD-2)	Communications satellite launch (Kwangmyongsong-2)	Third stage failure; North Korea claims satellite successfully placed into orbit.
April 2012	Unha-3 (TD-2)	Earth observation satellite launch (Kwangmyongsong-3)	Rocket exploded 90 seconds after launch near the end of the firing of the first stage of the rocket.
December 2012	Unha-3 (TD-2)	Earth observation satellite launch (Kwangmyongsong-3)	The satellite reached orbit, but may no longer be operational.

*Source: James Martin Centre for Nonproliferation Studies, Monterey Institute (with additions)*

## The limits of the DPRK's technology

Despite the advances gradually made by the DPRK, the country's technological accomplishments are limited. Most of the know-how for its missiles was obtained by copying Soviet- or Chinese-made equipment — likely without licensing agreements — with no or only little indigenous improvements.

North Korea's technology is mostly borrowed and largely outdated.

The debris recovered after the December 2012 launch, for example, suggests that North Korea still uses one fuel pump for each of the four rocket engines<sup>3</sup> of the first stage. This has serious negative ramifications: variations in the pumps' performance will lead to uneven thrust between the four engines, creating a high risk that the launcher will quickly fail. More advanced missiles use a larger single pump in order to have the same pressure and thrust in each rocket engine. However, since the beginning of the DPRK programme, this rather obvious step has not been made.

The satellite launched into orbit appears to outside observers not to be functional ... at least for now.

Few days after the launch, conflicting reports emerged about the status of North Korea's satellite. Several American news agencies (including NBC News and Fox News) quoted a Harvard astronomer saying the rocket was tumbling and after demonstrating the absence of any signal from the spacecraft, he suggested that it was most likely dormant or dead. South Korea's Defence Ministry, however, reported the satellite was orbiting normally. In any case, the probe is continuing to complete orbits and could do so for several years.

<sup>3</sup> copies of the USSR developed SCUD rocket engine also used in the DPRK's NODONG missile

## Political and social motivations for the recent launch

Pyongyang may have felt political and social pressures — in addition to military ones — to launch the rocket.

In addition to military motivations underlying the recent launch, Pyongyang may have been responding to political and social pressures.

The regime notably desired to restore prestige it lost with the failure of April's launch. The December launch occurred only a few days before the one-year anniversary of the death of Kim Jong-il, during the celebration of the 100<sup>th</sup> birthday of country's founder Kim Il-sung, and one year after Kim Jong-un came to power. The recent satellite was a propaganda effort, underscoring North Korea's emergence as a developed state.

## International responses

The UN Security Council and various countries condemned the move.

The UN Security Council immediately condemned North Korea's satellite launch and mentioned 'an appropriate response'. US Ambassador Susan Rice stated that the launch violates two Council resolutions and demonstrates that the DPRK 'is determined to pursue its ballistic missile program without regard for its international obligations.' South Korea's UN ambassador, Kim Sook, also described the launch as a 'blatant violation' and as a dangerous challenge to the regional security situation.

South Korea's president-elect, Park Geun-hye, had advocated a rapprochement with the North. Despite the launch, Park said humanitarian aid, including medicine and daily goods, will flow to North Korea and she declared to be open to conditional talks with North Korea's leader Kim Jong Un. However, analysts said Park vague promises of aid and engagement are not likely to be enough to push Pyongyang to give up its nuclear weapons ambitions, which Seoul have demanded for true reconciliation. North Korea has always tried to apply pressure during South Korean transition, it is therefore likely that they will do something to try to test and tame Park.

Even China expressed 'regret'. This does not mean, however, that Pyongyang will be harshly punished by Beijing, its principal ally and trading partner.

The launch will also harden Japanese views, on North Korea and on China, with which Japan's relations are already strained. Japan's alliance with the United States may well be consolidated as a result.

Even China, North Korea's sole major ally, expressed disapproval of the launch. Hong Lei, the foreign ministry spokesman, said, 'we express regret at the Democratic People's Republic of Korea's launch in spite of the extensive concern of the international community'. China is North Korea's biggest trading partner and provider of aid, and is considered one of the few nations — if not the only — with influence over Pyongyang.

But the deeper worry abroad may be the possibility of a burgeoning Asian arms race.

Yet the relationship between the two is unlikely to change much, if only because they share a common discomfort with the US military presence in the region. According to Jia Qingguo, associate dean of the School of International Studies at Peking University, the Chinese government may chose to support UN sanctions, but will remain careful not to harm Pyongyang.

Ultimately, the greatest risk posed by the North Korean launch — and

the one most feared abroad — may not simply be Pyongyang's development of long-range ballistic missiles, but the potential for an arms race. If North Korea pursues its military development, this might encourage the US to develop a missile shield defence system in Asia (thereby protecting sections of the US from Asian attacks, as well as South Korea from the North). The virulence of international condemnation to North Korea's most recent launch may thus be anticipatory — a caution against far more serious possible outcomes than another dysfunctional satellite orbiting earth.