



PERSPECTIVES

THE BEGIN-SADAT CENTER FOR STRATEGIC STUDIES

Iranian Progress Towards Nuclear Weapons Via North Korea

Lt. Col. (ret.) Dr. Raphael Ofek and
Lt. Col. (ret.) Dr. Dany Shoham

BESA Center Perspectives Paper No. 415, February 22, 2017

EXECUTIVE SUMMARY: This analysis argues that Iran is steadily making progress towards a nuclear weapon and is doing so via North Korea. Iran is unwilling to submit to a years-long freeze of its military nuclear program as stipulated by the July 2015 Vienna Nuclear Deal. North Korea is ready and able to provide a clandestine means of circumventing the deal, which would allow the Iranians to covertly advance that nuclear program. At the same time, Iran is likely assisting in the upgrading of certain North Korean strategic capacities.

While the Vienna Nuclear Deal (VND) is focused on preventing (or at least postponing) the development of nuclear weapons (NW) in Iran, its restrictions are looser with regard to related delivery systems (particularly nuclear-capable ballistic missiles) as well as to the transfer of nuclear technology by Iran to other countries. Moreover, almost no limits have been placed on the enhancement of Tehran's military nuclear program outside Iran. North Korea (NK) arguably constitutes the ideal such location for Iran.

The nuclear and ballistic interfaces between the two countries are long-lasting, unique, and intriguing. The principal difference between the countries is that while NK probably already possesses NW, Iran aspires to acquire them but is subject to the VND. Iran has the ability, however, to contribute significantly to NK's nuclear program, in terms of both technology (i.e., by upgrading gas centrifuges for uranium enrichment) and finance (and there is an irony in this, as it is thanks to its VND-spurred economic recovery that Iran is able to afford it).

This kind of strategic, military-technological collaboration is more than merely plausible. It is entirely possible, indeed likely, that such a collaboration is already underway.

This presumption assumes that Iran is unwilling to lose years to the freeze on its military nuclear program. It further assumes that NK is ready and able to furnish a route by which Iran can clandestinely circumvent the VND, thus allowing it to make concrete progress on its NW program. And finally, it assumes that the ongoing, rather vague interface between the two countries reflects Iranian advances towards NW. The following components and vectors comprise that interface.

From the 1990s onward, dozens – perhaps hundreds – of NK scientists and technicians apparently worked in Iran in nuclear and ballistic facilities. Ballistic missile field tests were held in Iran, for instance near Qom, where the NK missiles Hwasong-6 (originally the Soviet Scud-C, which is designated in Iran as Shehab-2) and Nodong-1 (designated in Iran as Shehab-3) were tested. Moreover, in the mid-2000s, the Shehab-3 was tentatively adjusted by Kamran Daneshjoo, a top Iranian scientist, to carry a nuclear warhead.

Furthermore, calculations were made that were aimed at miniaturizing a nuclear implosion device in order to fit its dimensions and weight to the specifications of the Shehab-3 re-entry vehicle. These, together with benchmark tests, were conducted in the highly classified facility of Parchin. Even more significantly, Iranian experts were present at Punggye-ri, the NK nuclear test site, when such tests were carried out in the 2000s.

Syria served concurrently as another important platform for Iran – until the destruction by Israel of the plutonium-based nuclear reactor that had been constructed in Syria by NK. According to some reports, not only were the Iranians fully aware of that project in real time, but the project was heavily financed by Tehran. Considering Iranian interests, it was probably intended as a backup for the heavy water plutonium production reactor of Iran's military nuclear program, and possibly as an alternative to the Iranian uranium enrichment plant in Natanz in the event that it is dismantled.

While the Iranian heavy water plutonium production reactor differed from the NK gas-graphite reactor, the uranium enrichment routes of both countries are based on the gas centrifuge technique. In that respect, Iran seems to be ahead of NK, particularly in developing and manufacturing advanced centrifuges of carbon fiber rotors.

A meaningful event took place in September 2012, when Daneshjoo, then the Iranian Minister of Science and Technology, signed an agreement with NK establishing formal cooperation. The agreement formally addressed such civil applications as "information technology, energy, environment, agriculture and food". However, the memorandum of the agreement was ratified by Ali Akbar Salehi, head of the Atomic Energy Organization of Iran. Iranian Supreme Leader Khamenei has since clarified that the agreement is an "outcome of the fact that Iran and NK have common enemies, because the arrogant powers do not accept independent states." It is reasonable to infer that the agreement went far beyond its alleged civilian sphere.

The September 2012 agreement was probably intended to mask an evolving Iranian-NK cryptic interface, intended by Iran to compensate technologically for the following development. About two months earlier, President Obama had sent this secret message to Iran's leaders: "We are prepared to open a direct channel to resolve the nuclear agreement if you are prepared to do the same thing and authorize it at the highest levels and engage in a serious discussion on these issues." This message paved the way towards talks that started in Kazakhstan in February 2013, continued through the November 2013 Geneva and March 2015 Lausanne interim "Framework" agreements, and culminated in the VND. The final agreement involved freezing substantial portions of Iran's nuclear program in exchange for largely decreased economic sanctions on Iran.

In tandem with the 2012-13 events, a permanent offshoot of Iranian missile experts was established in NK that supported the successful field test of a long-range ballistic missile in December 2012. Ballistic, or ballistic together with nuclear warhead capabilities, are presumably included in the Iranian-NK missile cooperation. Iran and NK upgraded the Shehab-3/Nodong-1 liquid-fueled motor missiles in a quite similar (though not identical) fashion, with Iran producing the Ghadr (range 1600 km) and Emad (range 1700 km) derivatives. In addition, components of the liquid-fueled motor missile Musudan (also called the BM-25), which has a range of 2,500-4,000 km and was successfully field-tested in NK in 2016, have been supplied to Iran in the past by NK. The more advanced solid-fueled motor technology, which included the NK KN-11 submarine-launched ballistic missile and the Iranian Sajjil missile (range 2,000 km), was apparently developed collaboratively by the two countries. Also, a new NK ballistic missile test site was revealed in 2016 in Guemchang-ri – and it closely resembles the Iranian ballistic missile test site near Tabriz.

A delegation of Iranian nuclear experts headed by Mohsen Fakhrizadeh-Mahabadi, director of the Iranian NW project, was covertly present at the

third NK nuclear test in February 2013. This test was apparently based – unlike the previous plutonium-core-based field tests – on an HEU (highly enriched uranium) core nuclear device (as, presumably, were the fourth and fifth nuclear tests, which took place in 2016). In 2015, information exchanges and reciprocal delegation visits reportedly took place that were aimed at the planning of nuclear warheads. These include four NK delegations that visited Iran up until June 2015, one month before the VND was completed. It may be noted that in August 2015, a new gas centrifuge hall apparently became operational in the NK main uranium enrichment facility.

Finally, in April 2016, a remarkable clash arose between Deputy Secretary of State Antony Blinken and Rep. Brad Sherman (D-CA) during a US House Foreign Affairs Committee hearing. They locked horns over planes that fly between Iran and NK, which should land and be rigorously inspected in China so as to ensure the prevention of NK proliferation of nuclear and missile technology, let alone actual nuclear weapons, to Iran. Sherman charged that this had not been handled with sufficient care by the Obama administration.

All in all, a major consequence of the VND is that the Obama administration shot the US in the foot. It is expected that the terms of the VND and the abundance of money transacted as a result with Iran – about US\$150 billion – will substantially facilitate the advancement of the NW and ballistic missile programs of both Iran and NK.

The chronology, contents, and features of the overt interface between Iran and NK mark an ongoing evolutionary process in terms of weapons technologies at the highest strategic level. The two countries have followed fairly similar nuclear and ballistic courses, with considerable, largely intended, reciprocal technological complementarity. The numerous technological common denominators that underlie the NW and ballistic missile programs of Iran and NK cannot be regarded as coincidental. Rather, they likely indicate – in conjunction with geopolitical and economic drives – a much broader degree of undisclosed interaction between Tehran and Pyongyang.

The current Iranian-NK interface, which appears to be fully active, presumably serves as a productive substitute for the Iranian activities prohibited by the VND. It enables Iran, in other words, to continue its pursuit of NW. If not strictly monitored by the western intelligence communities, this cooperation might take the shape of conveyance from NK to Iran of weapons-grade fissile material, weaponry components, or, in a worst-case scenario, completed NW. To an appreciable degree, Iran is simultaneously assisting in the upgrading of NK strategic capacities as well. The Trump administration

would be well advised to meticulously and rigidly ascertain that such developments do not take place.

Lt. Col. (ret.) Dr. Raphael Ofek is an expert in the field of nuclear physics and technology, who served as a senior analyst in the Israeli intelligence community.

Lt. Col. (ret.) Dr. Dany Shoham is an expert in the field of weapons of mass destruction, who served as a senior intelligence analyst in the Israel Defense Forces.

BESA Center Perspectives Papers are published through the generosity of the Greg Rosshandler Family