

**Confidential**

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# **RUSSIA**

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Evgeny Buzhinskiy reports from Moscow:

(UN) REALISTIC THREATS?

DPRK'S AND IRAN'S MISSILE PROGRAMS

## **SUMMARY**

The beginning of 2016 was marked by growing activity of DPRK leaders in implementing their national program to develop medium- and long-range ballistic missiles. Iran, in its turn, conducted two test launches of missiles used by the national armed forces. Such activity triggered protests of the global community, first of all, of their neighboring countries and the permanent members of the United Nations Security Council. In case of North Korea, the concerns are aggravated by the fact that the country persistently continues "persuading" the global community that its nuclear program is advancing and that soon North Korea will have a thermonuclear bomb.

Lieutenant General (Ret.) Evgeny Buzhinskiy, Chairman of PIR Center's Executive Board, and former head of the International Treaty Directorate of the Russian Defense Ministry, is skeptical about nuclear and, all the more so, thermonuclear capabilities of North Korea, believing they are largely exaggerated. Although North Korea has mastered the technology required to develop and test nuclear devices, DPRK still has no technology needed to develop nuclear warheads, believes the prominent military expert.

In this issue of Russia Confidential, Evgeny Buzhinskiy offers an insight into DPRK's true achievements in the development of long-range ballistic missiles that can hit targets within the United States, about which the North Korean leaders have talked so much. In addition, the expert will share his opinion whether Teheran's missile program poses any threat to the global community.

## A MYSTERIOUS STORY, OR FACTS AND SPECULATIONS ABOUT NORTH KOREA'S MISSILES

From December 2015 to March 2016, DPRK performed several launches of *Nodong* ballistic missiles, including one submarine-based launch. It also launched a small satellite, using a three-stage liquid fuel *Unha-3* rocket. To assess how serious are the threats stemming from those launches, it is necessary to separate facts from speculations about DPRK's missile program.

Pyongyang's missile program goes back to early 1960's, when it purchased the *Luna* and *Luna-M* unguided solid fuel missiles from the Soviet Union (designated *Frog-5* and *Frog-7* in North Korea). Later, in 1980, it bought three tactical ballistic missile systems (TBMS) with the liquid-fuel missile *8K14* (*Scud-B*, designated *Hwasong-5* in North Korea). Soon, the North Koreans copied that missile and launched local manufacture. Late in 1980's, DPRK developed, with the help of Chinese experts, an improved missile designated *Scud-C* (*Hwasong-6*).

DPRK started developing its own ballistic missile (BM) in 1988. The declared goal was to develop a single-stage liquid fuel medium-range ballistic missile (MRBM) *Nodong-1* with a separating warhead. Iran and Libya were directly involved in program implementation. Late in 1990's, the missile was passed into service (launch weight - 16 tons; fitted with a 1,000 kg separating warhead; range - 1,000 km; with the warhead weight reduced to 700 kg, range increases to 1,300 km).

In 2007-2008, DPRK passed into service the mobile missile system (MS) *KN-02* with an operational-tactical missile, with *Tochka*, a single-stage solid fuel missile manufactured by the Soviet Union, being its prototype (it was transferred to DPRK by Syria in the mid 90's).

In October 2010, two new single-stage ballistic missiles carried by mobile launcher vehicles were demonstrated during a military parade in Pyongyang. One is an analogue of Iran's *Shahab-3M*, and the other looks like the Soviet submarine-launched ballistic missile *R-27*. In the United States, these missiles were designated *Nodong-2010* and *Musudan* (Russian experts claim that it was just mock-up missile that was demonstrated during the parade).

It can be easily explained how DPRK got the *Nodong-2010* missile, since Iran's *Shahab-3M* was developed in cooperation with North Korea's experts. As regards the *Musudan* missile, the United States have been reporting that DPRK has such missile since 2002, although they believe it has not been put into service, as no launches of this missile have been detected.

➤ Generally, the story of the *Musudan* missile is quite mysterious. It is unclear why it was developed and why it was (allegedly) transformed from a naval into a road-mobile missile. With the declared range (up to 4,000 km), it is unlikely to be able to hit targets in South Korea, while such range is excessive for Japan; and this single-stage missile will never reach the continental part of the United States, to which it is supposed to be a threat. Why and for what targets was it developed and why hasn't it been tested so far?

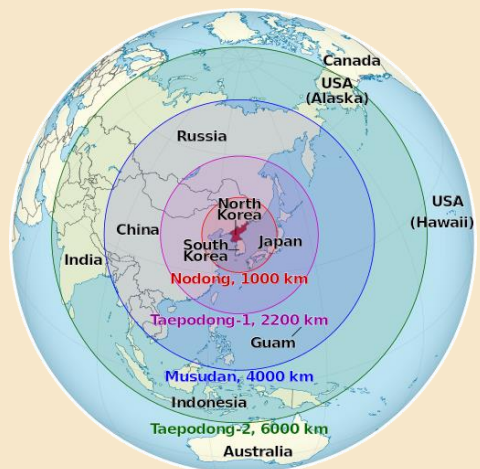


Fig. 1. Maximum range of North Korea's missiles, based on Western estimates. Source: BBC

- *KN-08, believed by the Americans to be a road-mobile intercontinental ballistic missile (ICBM), is another "mysterious" missile that is regularly included by the United States in the list of existing threats. However, this missile can be only solid fuel. And DPRK has no experience in developing powerful engines for solid fuel missiles. Indeed, Pyongyang has the solid fuel missile KN-02 with a range of 140 km, a copy of the Soviet tactical missile Tochka, and that's where North Korea's "solid fuel" experience ends. Naturally, no test launches of the "intercontinental threat" to the United States have ever been performed.*

The prospects of building up DPRK's missile capabilities are connected with the development of two-stage liquid fuel long-range ballistic missiles of Taepodong type. The program was launched in the 1990's.

- The development of the Taepodong-1 MRBM started in the 1990's. This missile uses the main stage of *Nodong-1* as the first stage and the main stage of *Scud-C* as the second stage (launch weight - 22 tons; range - 2,300 km with a 1,000 kg warhead or 3,000 km with a 500 kg warhead). The first and the only test of *Taepodong-1* was performed in August 1998, when it was used to launch North Korea's communication satellite *Gwangmyeongseong-1*. For this purpose, the missile was transformed into a carrier rocket, with a third stage added (the main stage of the *Tochka* missile). While the first and second stages worked in a normal mode, the third stage separated, but soon fell, together with the satellite, into the Pacific Ocean, 1,600 km away from the launch point. After that, the *Taepodong-1* program was closed.
- In parallel with the *Taepodong-1* MRBM development, work was being done on the program to develop the Taepodong-2 ballistic missile (launch weight - 60-85 tons, range - 3,500-6,000 km with a 1,500 kg or 500 kg warhead, respectively). Its first launch test was conducted in July 2006 and failed. Nevertheless, work on this program continued, notwithstanding the protests of the global community.
- In April 2009, DPRK launched the three-stage space carrier rocket Unha-2 with the communication satellite *Kwangmyongsong-2*. During the launch, the technology used in the *Taepodong-2* missile was tested, in particular its most critical element, first-stage liquid-fuel engine with thrust of over 100 tons. Pyongyang officially announced that the satellite was launched to the low earth orbit, although external sources did not confirm that.
- In April 2012, DPRK launched the three-stage carrier rocket Unha-3 with the first version of the Earth observation satellite *Kwangmyongsong-3*. Similarly to the preceding launch, that launch was used to test the technology of the *Taepodong-2* missile, but also failed. Another launch of *Unha-3* with the second version of *Kwangmyongsong-3* took place in December 2012. It was partially successful, since the satellite was delivered to the sun synchronous orbit, but it failed to stabilize its orientation with respect to the Earth. And, finally, February 2016 saw another launch of the *Unha-3* carrier rocket with the artificial satellite *Kwangmyongsong-4*, which was recognized to be successful.

*So, what is the Unha-3 carrier rocket that should become the basis for the development of an intercontinental ballistic missile under the Taepodong-2 program?*

*First of all, it is safe to say that it is not an intercontinental ballistic missile. It can deliver satellites to a height of up to 400 km, while an ICBM reaches a height of 1,000 km or more before it heads to the Earth surface. Furthermore, the second and third stages of this rocket are not powerful enough to deliver a 1,000 kg warhead to an intercontinental range. And even if the warhead weight is reduced to 500 kg, the shooting range of this missile will not exceed 5,500 km.*

- **Therefore, Unha-3 is unviable as an intercontinental ballistic missile in the current configuration.**

In addition, the history of ICBM development in the Soviet Union, in the United States, in China and in France shows that carrier rockets have never been transformed into ICBMs, but very often it was vice versa (the *R-7* and the *Jupiter-C* were used for the first launches in the Soviet Union and in the United States, respectively). As a rule, it takes several days to several weeks to prepare a carrier rocket launch, while an ICBM should be ready for immediate use. And, finally, flight tests should include at least several dozens of launches.

*So, the Unha-3 carrier rocket obviously can not be transformed into an ICBM. Even if North Korea's specialists replace the second-stage and third-stage propulsion engines with more powerful engines, they have to address the problem of protecting the third stage from overheating in the dense layers of the atmosphere and perform the required flight test cycle. In addition, missiles with such weight and dimensions can not be mobile, while shaft-based missiles are too vulnerable to a preventive strike due to a small territory and lack of strategic depth.*

#### A MISTY IMMINENCE, OR RISKS OF ICBM DEVELOPMENT BY IRAN

The situation with Iran's missile program is fundamentally different from that in North Korea. After Iran and the six international mediators adopted the Joint Comprehensive Plan of Action (JCPOA) in 2015, the Teheran's capabilities to return to its military program of nuclear weapon development became very limited, at least for the next 15 years. So, the issue regarding Iran's capability to deliver nuclear weapon using ballistic missiles was removed from the agenda.

*Indeed, Iran has a quite advanced missile program, but it is rather limited in terms of possible evolution into an intercontinental ballistic missile development program. In my view, it is absolutely obvious that Iran has no need to develop a missile with a range exceeding 2,400 km, since all its potential enemies are within this range. Moreover, there is no evidence that Iran is trying to develop a missile with a greater range (let alone an intercontinental missile).*

There are no grounds not to believe the statement made by the Iran's Minister of Defense, Brigadier General Hossein Dehghan, who said that all work done to improve the existing ballistic missiles and develop the advanced ones is aimed at increasing their accuracy and deadly force. It is difficult to argue against the fact that the situation in the region forces Iran (just as the other countries surrounding it) to build up their defensive and offensive capabilities. What is meant here are only conventional weapons, of course.

However, officers from the intelligence services of certain countries (mainly Israel) still insist that Iran plans to develop an ICBM with a range of up to 10,000 km, which can hit targets on the East Coast of the United States. The US intelligence service believes this is unlikely to happen, although can not be completely ruled out. With all respect to the professionalism of Israel's specialists, their estimates seem to be extremely subjective.

Teheran is usually believed to be able to develop its own ICBM by implementing one of its two existing projects:

- First - continue work to develop a solid fuel two-stage and then three-stage medium range missile (3,500 km with a payload of 1,000 kg) and an intercontinental range missile (up to 10,000 km). Iran designed a prototype two-stage missile

designated *Sejil-2*, although that program did not progress further. Based on the experience of France and China that successively passed from MRBM development to ICBM development, it takes 10 to 15 years to implement such program (including a full cycle of flight tests). Anyway, even if Iran starts test flights of this missile, which cannot be hidden, the global community and the countries perceiving Teheran as a threat to their national security will have at least 4-5 years to respond.

- Second - design a liquid-fuel missile with a greater range under the program on *Simorgh* carrier rocket development, an absolute analogue of North-Korea's *Taepodong-2* program mentioned above, with all its inherent drawbacks and uncertain prospects of success.

It is important to note that in terms of international law Iran's missile program has never been perceived by the United Nations Security Council as a separate threat and was included in the package connected with its nuclear program, which was reflected in UN SC resolutions 1737 and 1929. The UN SC resolution 1929 (2010) rules that "Iran shall not undertake any activity related to ballistic missiles capable of delivering nuclear weapons, including launches using ballistic missile technology," and it was due to a violation of that resolution that the United States government imposed additional sanctions on Iran following missile tests in October 2015. However, in January 2016 all previous resolutions of the United Nations Security Council in relation to Iran's nuclear program ceased to be effective and were superseded by resolution 2231.

It limited, for eight years, supply of any materials or technology connected with any programs of ballistic missile improvement or development to Iran, providing that all such supplies require preliminary approval by the Security Council. As regards further development of the program itself, Iran is not subject to any legally binding restrictions, although the country was called upon "not to undertake any activity related to ballistic missiles designed to be capable of delivering nuclear weapons." In the JCPOA, ballistic missiles are mentioned only in the context of lifting of sanctions introduced against Iran's nuclear program - in eight years or after the date when the IAEA presents a report supporting its broader conclusion.

#### CONCLUSIONS AND CONSEQUENCES: HOW RUSSIA WILL REACT

Two conclusions can be made based on the foregoing.

- As regards **North Korea** - its government is obviously working on the development of a ballistic missile of a greater range (it is still too early to speak of intercontinental range), but great technological difficulties and limited material and financial resources (including limitations resulting from the sanctions imposed by the United Nations Security Council) make it impossible to achieve that goal in mid-term.
- As regards **Iran** - its program for ballistic missile development and improvement, without nuclear component, poses no threat to international security and has a purely regional dimension.

Based on this assessment, Russia's position with respect to the development of long-range (intercontinental) ballistic missiles by these countries should rest on the unacceptability of potential destabilization of the situation in the potentially explosive regions of the world - on the Korean Peninsula and in the Persian Gulf.



As regards North Korea's efforts to develop such missile, Russia will retain its tough stance on hindering the implementation of the existing programs in this field, including support of the sanction initiatives of the United States, Republic of Korea and Japan at the United Nations Security Council.

Russia's position on Iran's missile programs is more shaded. I think that the Russian government will continue to believe that Teheran has no need and concrete plans to develop ballistic missiles with a range exceeding 2,400 km. In case conclusive evidence becomes available (e.g. flight tests) that missiles with a greater range are being developed, Russia's position may become tougher.

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[...]

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