Letter of October 2000. SYRIA'S MISSILE DETERRENT: FINAL BREAKTHROUGH?

Vadim Kozyulin

PIR ARMS CONTROL LETTERS
LETTER OF OCTOBER 2000

On September 23, 2000, Israeli Arrow-2 radar detected Scud-D test on the territory of Syria. Thus, there is proof that Syria has succeeded in testing the Scud-D missile system which it procured from North Korea about six months ago. Its range is 700 km and enables the Syrian strategic forces to hit targets across the entire territory of Israel. The missile's are long range thus allowing Syria to deploy its launchers in the depth of its territory making it more difficult to detect and destroy them in case of conflict.

NATO Classification	**Scud A**	**Scud B**	**Scud-C**	**Scud-D**	**CSS-6**
Original name	R-11M (USSR)	R-17E (9K72), R-300E (USSR)	-	R-17 (trial version) (USSR) No-dong-1 (DPRK)	DF-15 (China)
US Classification	SS-1b	SS-1c (T-7B)	SS-1d (KY-3)	SS-1f	M-9
Maximum range, km	150	300	500	700	600
Payload (kg)	-	985	500	700-1,000	500
Accuracy (in meters)			1,500	2,000	300
Year and country of origin	1955 USSR	1962 USSR	1988 DPRK	tests in 1979–85 USSR; 1988-94 DPRK	Early 1980s China
Quanity in Syria	-	About 200	About 60	N.A.	About 30 launchers

The North Korean Scud-D missile system (also called No-dong-1 or Ro-dong-1) has a potential range of 1,000-1,300 km and is one of the most advanced technological achievements of Pyongyang. The availability of Scud-D to Syria was a surprise to Israel. However, the Israeli Chief of the General Staff stated that Israel was following developments in Syria and had the potential required to adequately respond to these threats.

According to some experts, Syrian Scud-D and Scud-C missiles acquired from North Korea are designated for delivering chemical warheads to distant areas in Israel. Beside Scud-C and Scud-D arsenals, about 200 Scud-B missiles can be also armed with chemical agents, including VX gas.

Both Scud-D and Scud-C have a longer range in comparison with Scud-B and, in case of war with Israel, these two missile systems may have the same effect for Israel as Soviet ICBMs had for the USA during the Cold War. Obviously, Scud-B missiles have higher accuracy and are more suitable for *point* strikes against Israeli military facilities. The longer range of Scud-C and Scud-D missiles enable Syria to use them in the delivery of chemical agents to destroy the mobilization centers of Israeli reservists. Their low accuracy (1.5 and 2 km respectively) indicates that these missiles will be more efficient for chemical warfare to inflict massed casualties and cause panic. This deduction is proved by the following facts:

The Number of Scud Missiles and Launchers

	Number of missiles for one launcher
Usual number	10
DDR (before unification with West Germany)	5
Syria (near Hama)	2

Two brigades of Scud-C (18 launchers each) have been deployed 25 km east to Hama. It is noteworthy that the number of missiles attributed to each launcher is not typical: two missiles per launcher. It is common around the world to assign 10 missiles to a Scud launcher to economize on expensive launching vehicles (e.g. in East Germany one launcher had five missiles with chemical and nuclear warheads). Thus, Syria's strategic plan is to fire its missiles in several salvos inflicting devastating damage to the enemy.

On March 27, 2000, Israel deployed a few Arrow-2 missile defense units along its border with Lebanon. This system (which costs $1.3 billion) has enabled Israel to become the first state in the world capable of effectively intercepting ballistic missiles, including Scuds (of Syria, Iraq, and Iran). On September 22, 2000, the Israeli laser gun was successfully tested and destroyed two flying projectiles of the *Katyusha* type.

Israel gained experience intercepting Scuds during the Gulf War and can repel a Scud-B attack. However, it can hardly resist Scud-C and Scud-D salvos, which could be launched from any place in Syria. At present, when Israel has limited missile defense capabilities, Syria has the capability of *assured penetration* through Israeli defense by making a massive missile strike.

Syrian Missile Contacts: A Chronology

Year	Supplier	Type of missiles	Notes
1974	USSR	Scud-B	Supplies from the USSR
1983	USSR	SS-21	Supplies from the USSR
May 1986	USSR	SS-23	The USSR presumably signes a protocol of intentions to supply Syria with SS-23s. In July 1987, the Soviet Union officially refuses to carry out these plans due to the weak financial situation of Syria.
1987-1989	China	M-9 (missile developed especially for retransfer)	Syria commences negotiations with China concerning M-9 supplies. Libya promises to finance the deal. China also holds negotiations with Iran and Pakistan.
Late 1989 - early 1990	DPRK	Scud or Scud-C	Syria holds negotiations with North Korea concerning the purchase of modernized Scud or Scud-C systems.
April 1990	DPRK, retransfer from China	Silkworm	A North Korean defector in Zaire argues that in April 1990, North Korea re-transferred Chinese Silkworm missiles to Syria and Iran. A Israeli spokesman states that Syria acquired Chinese M-9 missiles ($300 million).
1990	China	M-9	According to the CIA, Syria signs a $385-million contract with China to buy 30 mobile M-9 launchers and an undisclosed number of missiles. Saudi Arabia allegedly sponsored the deal.
March 1991	China	M-9	According to US sources, Syria signs a contract with China to obtain M-9 missiles but no missiles had yet been supplied.
April 1991	China	M-9	China transfers 30 M-9 missiles to Syria.
May 1991	DPRK China	Scud-C M-9	A top-ranking Israeli military officer argues that Syria spends $200-400 million per year to purchase a brigade of Scud-C missiles and the unknown amount of M-9 missiles from China.
March 1991	DPRK	Scud-C	First active missile contacts between Syria and North Korea. Pyongyang

			sells to Damask 24 missiles and 20 launchers.
June 1991	China	M-9	A Chinese ship carrying M-9 missiles is tracked heading from China to Cyprus. The Chinese Embassy in Washington denies all knowledge of the supply. However, in August 1991, military intelligence sources maintain that Syria possessed 24 M-9 launchers.
June 1992	China	M-9	German intelligence informs that China supplied Syria with M-9 missiles.
March 2000	DPRK	Scud-D	Supplies of the undisclosed number of missiles and launchers are completed. According to some sources, the missiles were delivered to Syria via Libya.

The emergence of new North Korean missiles in Syria after the successful tests of Israeli missile defense system demonstrate the possibility of a new cycle of arms races in the Middle East where Israel's high technological capabilities have to compete with the relatively cheap, and not that advanced, WMD systems of the *poor*.

Syria and Israel both explicitly and secretly violate international treaties and regimes to prepare for a new military confrontation to control the Golan Heights. According to the Syrian Foreign Minister, Syria is still at war with Israel and producing missile weapons to resist a larger Israeli WMD potential.

Nowadays, Syria possesses some of the most advanced strategic weapons among the Arab states. According to some estimates, Syria can threaten Israel with about 400-600 ballistic missiles, including Scud-C, Scud-B, M-9, and SS-21. Syria is also believed to be developing missiles with a longer range and increasing its annual missile production capacity from 10 to 50 missiles.

The Syrian arsenal of Scud missiles contains about 190 Scud-B and 60 Scud-C missiles with 24-36 launchers. Scud missiles are stored in underground storage facilities and thus are not vulnerable to air attacks. Syria also possesses FROG-7 and SS-21 missiles (18 launchers each) with the maximum range of 70 km and an accuracy of 500 and 100 m, respectively.

However, Israel is the indisputable leader in this arms race. Some experts presume (on the basis of computer modeling) that in the case of an armed conflict with Israel, Israel could destroy the Syrian air defense system in 40 minutes and the Syrian army within 10-14 days. Syrian missile and chemical

weapons enable Damask to threaten the enemy, in the form of a preventive or retaliatory strike. with unacceptable damage

Israel's Government spokesman, Dani Nave, recognized that Syrian Scud-C missiles did not break the strategic balance, since its program of missile development was several years behind modern requirements.

The Syrian missile program will become out-of-date as Israel and the USA develop their laser missile defense project. On September 19, 2000, the US program of developing an air-based laser gun reached half way and if the process follows the planned schedule, the first Boeing-747-400 with laser weapons aboard will become operational in 2002. Laser weapons will be able to detect Scud missiles at the moment of launch and destroy them near the launching point. There is no doubt that Israel as usual will become the first state after the USA to procure laser gun. The latter, in conjunction with Arrow-2 land-based missile defense system, will become a reliable shield for a relatively small territory of Israel.

Syria is also developing its missile technology:

Syrian Missile Program

Year	Activities
Early 1980s	Syria tries to replicate foreign technology for Scud-B and SS-21 production to develop indigenous missile production capabilities. Missiles are armed with conventional and chemical warheads.
1986	Syria has sufficient technology to manufacture Scuds with chemical warheads and, perhaps, SS-21 missiles. Libya presumably assisted Syria in its efforts, since Tripoli allegedly procured CW from the USSR.
1990	According to Israeli military sources, Syria addresses North Korea for assistance in developing ballistic missiles. China, under US pressure, had earlier refused to supply Syria with missiles.
1993	According to an Israeli spokesman, Chinese specialists are working in Syria to develop the production of missile guidance systems.
1996	China and North Korea help Syria to develop two missile production centers. China also trains Syrian specialists in this area. Israeli Prime Minister Benjamin Netanyahu argues that Scuds produced in Syria had the same capabilities as missiles manufactured abroad.
August 19, 1996	Israel TV announces that Syria has conducted Scud-C tests to check its army's readiness.
1972 – till now	Syria takes the first steps to develop chemical weapons. In 1986, Syria possessed a huge arsenal of mustard (HD) and nerve gas.

	In 1990, Damask had several hundred tons of CW. Chemical agents included sarin (GB), mustard (HD), and VX. Delivery systems included air and artillery munitions and jet projectiles. By the late 1980s, Syria armed most of its modern missiles with chemical warheads. At present, Syrian strategic chemical arsenal consists of sarin. However, recent reports indicate that Syria learned to manufacture and tested missiles armed with VX warheads.
1990s	Syria develops a cruise missile. Experts believe that an improved guidance system, satellite navigation technology, and decoys will enable Damask to acquire a relatively accurate and barely detectable missile.
1997	According to Israeli military sources, Syria succeeds in producing modern warheads.
1997	Syria tests the technology of filling Scud-C warheads with nerve gas.
1997	China assists Syria in the modernization of Scud-B missiles; North Korea and Iran (with Chinese assistance) participate in constructing underground facilities near Aleppo and Hama for the joint production of Scud-C missiles (under North Korean technology and M-9 missiles under Chinese technology). Production of Scud-C missiles should have started in 12-18 months, and M-9 production in the next two or three years.
1997	China supplies Syria with the technology for guidance systems, rocket engines, solid fuel, and other ballistic missile technologies.
1998	According to some sources, Syria may begin to cooperation with Western and Chinese companies to create advanced CW and BW warheads.
Since 1995 - till now	Activities to develop unmanned aircraft on the basis of MiG-21s begin. Western European technologies enable this outdated aircraft to become an efficient delivery system with a range of 1,600 km.

Syria's success in missile production raises concerns about the possible export of missile technology to other states. The experience of North Korea demonstrates that, after obtaining Chinese assistance in developing cruise and ballistic missiles, Pyongyang became the primary exporter of missiles and missile technologies to the Middle East, including Syria, Libya, Iran, Egypt, and, presumably, Iraq. One may assume that Syria, which is in hard financial straits, will not hesitate to sell missile technologies.

According to its military concept, Syria believes that Israel, with its aggressive and expansionist policy, plans to conquer territory from the Nile River to the Euphrates as is stated in the Bible. Syrians are sure that to enhance its

domination in the region, Israel is doing its best to weaken and alienate the coalition of Arab states.

Thus, according to the Syrian military, strategic forces serve as deterrence against the Israeli military machine. The Gulf War demonstrated that, due to the effectiveness and mobility of the missile systems, despite the low physical damaged caused by them, the psychological effect of missile strikes on the population and economy of Israel were effective and successful. These conclusions are driving Syria to increase the number of missiles.

Besides, Damask is quite concerned about the strategic alliance between Turkey and Israel. Syria cannot boast of good relations with Turkey. The Turkish Defense Minister once said that, in case of war, the Turkish Army was sure to defeat Syria in one day. If Syria has to fight on two fronts, it will probably rely on its missile and chemical weapons.

Among other recently acquired Syrian weapons, only Kornet-E and Metis-M anti-tank missile systems belong to advanced defensive weapons. Syria has not lately purchased other weapons, which may affect the balance of power in the region. Its defense budget is sufficient only to maintain its huge arsenal of tanks (4,650), most of which are vulnerable to modern weapons (chiefly T-55 tanks of Soviet origin), and an enormous arsenal of old MiG-21 aircraft. The technological gap between Israeli and Syrian military equipment can be measured not by "generations" of weapons development but by "epochs".

Since Syria lags behind with its aircraft and air defense system, the only way out is to rely on its missile arsenal, which may save some chances for victory in potential armed conflict. Financial difficulties of the state leave Syria no opportunity to purchase new aircraft or air defense systems. Under these circumstances, the acquisition of Scud-D enables Syria to demonstrate its military might, this supposition is supported by the hasty tests of North Korean missiles.

The development of Syrian armed forces in the last decade has clearly indicated that Damask needs external financial or technological assistance to maintain its defense capabilities. The US withdrawal from the ABM Treaty would be a gift to Syria, since in this case Russia and China would have no restrictions on the transfer of military technologies, including counter-missile defense systems.