Iran's Ballistic Missile & Space Program

Gawdat Bahgat

Near East South Asia Center for Strategic Studies (NESA)

National Defense University (NDU)

Introduction

- The largest & most diverse in the ME, though not the most lethal.
- JCPOA failed to slow the progress of Iran's missile capabilities.
- US & European pressure since Jan 2017 has had no impact either.

The argument

- Missiles play a prominent role in Iran's defense & deterrence strategy for 3 reasons: A) The experience of Iran-Iraq War; B) Military imbalance with regional adversaries, Missiles are seen as an "equalizer"; C) A symbol of scientific & technological advances.
- Missiles are considered essential to the survival of the Islamic Republic. Iran is highly unlikely to accept restraints on its missile program.

Background

- Three developments gave birth to Iran's missile program in the 1970s: A) Massive oil revenues; B) The Shah's ambition to be the dominant regional power; C) Britain's withdrawal from "east of Suez".
- 1974 Defense Industries Organization was founded.
- 1977 Cooperation with Israel "Project Flower".
- 1980-88: Scud-B from Libya & Scud-C from North Korea/Shahab series
- Since the 1990s: A) Cooperation with foreign powers (N Korea, Russia & China); B) Investment in indigenous capability.

Current capabilities

- Iran’s arsenal comprises a mix of short-range/medium-range, liquid-fueled/solid-fueled, anti-ship and air-defense missiles that can reach almost all countries in the ME & South Asia and U.S. military bases and troops in the region.
- Missile defense system S-300 & Bavar-373 (belief)
- Underground production & launching facilities

Missile program – An assessment

- Iranian military leaders claim that the county has become self-sufficient & is able to domestically produce all its missiles.
- Feb 2019: NYT: US has sought to sabotage Iran's missile program by slipping faulty parts & materials into its aerospace supply chains.
- Major shortcoming: Accuracy of Iran's missiles is highly questionable.
- Late 2017: Ayatollah Khamenei decided that Iran will not develop ballistic missiles with a range exceeding 2,000 km. Since then the focus has been more on enhancing the accuracy and less on increasing the range.

Space program- background

- 2003 the Iran Space Agency (ISA) was founded
- Since 2009 Iran has dedicated a National Day of Space Technology to celebrate its scientific achievements.
- Feb 2009 Tehran successfully used the Safir space-launch vehicle (SLV) to send the Omid satellite into space
- A more powerful one, Simorgh, was designed to send up a heavier payload.
- Other satellites include Rassad & Navid-e Elm-0 Sanat (Harbinger of Science & Industry)

Space program – US reaction

- Building & developing the capacity to place satellites into earth's orbit provide Iranian engineers with critical experience that can be used to boost their ability to launch long-range missiles, including ICBM.
- Peaceful & military applications are inseparable.

Space program – An assessment

- Despite some progress, Iran still has a relatively weak space-industrial base. Many technological hurdles still need to be overcome.
- Iran has a record of using electronic forms of attack against space systems, including jamming & spoofing.
- Despite some similarities between the technology necessary to manufacture satellite-carrying rockets & the one required to make ICBMs, there are fundamental differences as well. SLVs have never been transformed into ICBMs.

Israel- Missiles

- Israel has one of the most technologically advanced missile arsenals in the world.
- Shortly after the country was born Rafael was established as the defense ministry's national research & development laboratory.
- In late 1950s/early 1960s Israel was engaged in an arms race with Egypt. Within this context Rafael launched Israel's first rocket – the Shavit-2 and entered partnership with French company Dassault Aviation to produce Jericho-1. Later the country developed Jericho-2, Jericho-3 & other missiles

Israel – Missile defense systems

- Given the country's small size & relative lack of "strategic depth," Israeli leaders consider ballistic missiles an existential threat.
- In collaboration with the US, Israel has created a multilayered missile-defense apparatus that is one of the most advanced in the world.
- September 2016 Washington pledged to provide $38 billion in military aid, including $5 billion in defense appropriations for missile defense programs FY 2019 – FY 2028.
- Patriot, Arrow, Iron Dome, David's Sling/Magic Wand.

Saudi Arabia

- KSA is not known to have its own missile industry & has, instead, relied almost exclusively on foreign powers to build relatively modest missile capabilities.
- 1980s: KSA bought the Chinese Dongfeng-3
- 2007: KSA purchased Dongfeng-21, anti-ship AGM-84L Harpoon (manufactured by McDonnell Douglas) & the land-attach Storm Shadow (made in the UK).
- Missile defense systems: PAC-2, PAC-3 & THAAD
- GCC: lack of coordination & collective strategy.

International system

- Iranian leaders claim that their missile programs are totally separate from their nuclear program & their missiles are not designed to carry nuclear heads.
- 1987: The Missile Technology Control Regime (MTCR)
- 2002: The Hague Code of Conduct (HCoC)
- 2003: The Proliferation Security Initiative (PSI)
- There is no legally binding international treaty banning the manufacture of and trade in ballistic missiles.

United Nations Security Council Resolutions

- Resolution 1696 (2006)
- Resolution 1737 (2006)
- Resolution 1747 (2007)
- Resolution 1803 (2008)
- Resolution 1929 (2010) “..shall not undertake any activity related to..”
- Resolution 2231 (2015) “..call on Iran to refrain..”
- President Rouhani: “Iran needs no one’s permission to build missiles”
- Missile tests: provocation not violation.

The way forward

- Ballistic missiles are likely to maintain their key role in Iran's defense & deterrence posture.
- Under both Pahlavi & Islamic regimes Iran has perceived itself as a regional power. Missiles play a role in power projection.
- Missile capabilities should neither be overestimated nor underestimated.
- Iran does not have ICBMs, its program is conventional.
- Rapid advances in missile technology add uncertainty (i.e. hypersonic missiles)

The way forward

- So far regional & global powers have focused on curtailing supplies to Iran. Equal efforts are needed to address the demand side. Tehran's determination to acquire & develop missile capabilities & its willingness to pay a high price need to be examined.
- Iran's missile program cannot be separated from the regional arms race & can only be adequately addressed within a broad discussion of the regional security landscape.