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Executive Summary Report

Today, nine nations possess nuclear weapons, namely: the United States, Russia, China, United Kingdom, France, India, Pakistan, North Korea, and though unacknowledged by Israel, most believe Israel has several hundred nuclear weapons. Dozens of other countries have the capability to produce nuclear arsenals, some rapidly, but with nonproliferation treaties and regimes, the spread of nuclear weapons has been largely restrained - however, this could change.

With the seismic eruption of hostilities between Israel and Hamas and Iran's long-time support for anti-West/Israel movements, and recently, direct U.S. retaliation against the Houthis and amid many attacks by Iranian proxies on U.S. forces to include the deaths of 3 U.S. soldiers with many wounded, Mid East experts are watching Iran closely—and seasoned analysts have a keen eye on Tehran's nuclear program. This ExSum provides a brief synopsis of where analysts believe Iran stands today with regards to nuclear weapons development, speculates on the implications of the development, and forecasts possible futures.

The 2015 Joint Comprehensive Plan of Action (JCPOA) restricted the previously undeclared nuclear weapons development activities that had been ongoing in Iran for years. JCPOA was abandoned by the U.S. in 2018 citing Iran's undeclared illicit nuclear activities, ongoing use of JCPOA released monies (from a relaxation of sanctions) to fund anti-U.S./Israel terrorist groups, and less than adequate restrictions on Iranian long-range missile development. Since the U.S. JCPOA withdraw in 2018, Iran has steadily increased its production of Highly Enriched Uranium (HEU), furthered its long-range missile development, and is suspected to have resurrected its other nuclear weaponization efforts.

Key Points:

- Thankfully, despite emerging advanced technology, developing and fielding an operationally usable nuclear weapon remains complicated. Three aspects must be solved by Iran to achieve a nuclear weapons capability:
 - A Nuclear Fuel Source: Iran has successfully enriched uranium from its natural concentration of .7% to the 60% level, with the capability to close the gap to 90% quickly—approximately 90% enrichment is necessary for a nuclear yield.
 - A Working Weapon: Tehran had already made significant advancements in all the areas needed to begin development of an operationally usable weapon.
 - A Delivery System: Iran has the best ballistic missile program in the region.
- Experts assess that Tehran has the pieces in place to enable a weaponization breakout in weeks-to-months.
- Will the U.S. and especially Israel, tolerate a nuclear Iran? If not, which element of national power, diplomatic, informational, military, and economic, would be employed? The Israelis have a history of using military options to eliminate potential nuclear threats in the region.
- Most likely, Tehran will continue to rattle its emerging nuclear saber publicly (as it has with its stockpiling of HEU) in hopes to parlay a future cessation into greater relaxation of western sanctions. But they could choose to field a nuclear capability in relatively short order, that could elicit bold actions against them, potentially even military options.

DISCUSSION:

What's the status of Iran's nuclear weapons program and how close are they to an operational weapon?

Developing an operationally usable nuclear weapon is complicated. While design plans are available on the dark web today, fielding an operationally usable nuclear weapon is hard. Several key capabilities/technologies are needed. Iran clearly has most of these capabilities, others are uncertain.

- **Needed capability #1 – A Nuclear Fuel Source.** While there are two fuel paths to a nuclear weapon (plutonium and HEU), HEU is the simpler of the two to weaponize and the one Tehran has focused on for decades. After the demise of JCPOA, Iran has steadily increased its production of HEU, and the International Atomic Energy Agency (IAEA) and others are confident Iran has enriched enough uranium to produce five weapons in a matter of weeks. Iran enriches uranium using cascading centrifuge technology. Uranium enrichment increases the concentration of U-235 atom needed for weapons development. Weapons grade uranium is enriched to approximately the 90% level to be capable of a nuclear yield. Iran has stocks of uranium enriched at the 60% level with the capability to close the gap to 90% quickly given their current centrifuge capacity in known (and likely secret) locations.
- **Needed capability #2 – A Working Weapon.** Weapons grade HEU is just a start. To have an operationally deployable weapon, you must have a weapon design and construction that can yield a nuclear detonation. While this forum does not allow for a detailed description of Iranian activities in this area, intelligence gained from the Israelis and IAEA reports confirm that prior to JCPOA (2015) Tehran had already made significant advancements in all the areas needed to begin development of an operationally usable weapon.
- **Needed capability #3 – A Delivery System.** With HEU and a working weapon, one must be able to deliver it to a target. Iran has the most formidable ballistic missile program in the region and its recent successful launch of a 3-stage booster placing an imaging satellite into orbit demonstrates the ability to deliver a weaponized device in the near future.

Capability bottom line. Since the IAEA has been greatly restricted from observing and inspecting Iranian nuclear facilities since the demise of JCPOA, there is much we do not know. That said, experts assess that Tehran has the pieces in place to enable a weaponization breakout in weeks to months. A weaponization breakout can happen when all the pieces are in place to enable an entity to rapidly accelerate weapon development, deployment, and use. Some assess Iran's breakout window is as short as one year.

Implications:

- **A dark red line.** There are few red lines from past or current U.S. or Israeli administrations that are bolder than those in this area: Neither nation will tolerate a nuclear armed Iran. While U.S. red lines have moved in the past (e.g., Syrian WMD use in 2012) and the U.S. frequently employs all elements of international coercion – diplomatic, informational, military, and economic (the latter often the U.S. tool of choice), our Israeli allies strongly lean on a military solution. A read of modern regional nuclear history demonstrates that Israel will engage militarily (albeit often covertly) to slow or halt the development of enemy nuclear capabilities. The Israelis bombed nuclear (or suspected nuclear) facilities in Syria and Iraq. It is also speculated that the Israelis were behind clandestine cyberattacks on Iranian nuclear capabilities as well as assassinations of key Iranian nuclear experts. Israeli leadership has repeatedly made it clear they will militarily strike Iran's nuclear capabilities with or without US permission or support. The implication here is simple: if Iran openly edges too close to nuclear breakout, their nuclear capabilities will almost certainly be attacked.

- **A move to the shadows.** With Iran's resumption of HEU enrichment and the dark red line discussed above, we can expect further weaponization efforts (related to development of the weapon itself and subsequent pairing with a delivery system) to go underground. Tehran may or may not open the doors for a JCPOA follow-on, but if it happens and IAEA inspectors again gain visibility into Iran's nuclear program, we can rest assured that any weaponization efforts will be conducted in unacknowledged facilities that neither the U.S. nor Israelis are aware of. With the amount of HEU the Iranians are purported to have currently, many believe it is feasible to engineer a weaponization breakout from smaller, clandestine facilities.

Forecast:

There are two predominant schools of thought on where this will lead, and the two views diverge related to how Iran seeks to achieve its strategic objectives. Most western analysts agree Iran seeks the destruction of Israel (at least publicly); wants to reduce or eliminate the West's influence in the region; and of course, desires the survival of the Shia led regime in Tehran.

Those who believe the first two strategic objectives dominate Tehran's thinking are convinced Iran is rapidly and clandestinely (except for openly enriching uranium) moving toward a weaponization potential to allow a nuclear breakout. They are convinced Tehran sees the acquisition of a nuclear weapon capability as a guarantor or Iranian sovereignty (think deterrence of U.S. and Israel); a way to gain regional prestige (especially among Muslim nations); a vehicle to bolster internal public support and support of the fundamentalist voices within Iran; and a way to elevate the Shia arm of Islam in the region.

Others believe, despite the inflammatory rhetoric out of Tehran, that Tehran understands crossing the nuclear red line often and boldly drawn by Israel could lead to major conflict which will result in great destruction and further economic turmoil, a further drop in public support for the regime, and a loss of political and Shia influence in regional states, in addition to actions by the United States, be they with soft power alone or with military options.

The most likely forecast is Tehran will continue to rattle its emerging nuclear saber publicly (as it has with its stockpiling of HEU) in hopes to parlay a future cessation into greater relaxation of western sanctions. This politically pragmatic approach allows Tehran to continue to flex its muscle regionally and outsource terror through its proxies, continue to work its agenda to undermine U.S. and Israeli credibility and footprint in the region, and see its regime live to oppress another day.

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