



Iran's Nuclear Program: Challenges and Policy Options

By **Nadav Morag, Ph.D.**, University Dean of **Security Studies**
Colorado Technical University

Recent progress made by Iran in its nuclear weapons development program means that another potential crisis is brewing in the Middle East. It's one that has the potential to be even more impactful to the outside world than the civil war currently occurring in Syria, the ongoing sectarian violence in Iraq or the political and economic instability in Egypt.

What Is Iran Hiding?

Iran is currently pursuing the development of enriched uranium and plutonium — either of which can serve to power the core of a nuclear bomb. Uranium, which exists in underground deposits in various places around the world (including Iran), must be refined and enriched in order to be able to undergo the nuclear chain reaction required for a bomb to explode and release huge amounts of energy. Ninety-nine percent of the uranium that comes out of the ground, Uranium Ore, consists of Uranium-238 and is too stable to constitute most of the bomb—the nuclear chain reaction requires “splitting” the atom by breaking the bonds between the atom's electrons and its proton and neutron nucleus—but 1 percent of that uranium ore includes a less stable variant of the uranium atom, Uranium-235 that can serve this purpose.

Overall, a uranium-based nuclear weapon requires uranium that is “enriched” to about 90 percent, meaning that only 10 percent of it is Uranium-238 and 90 percent is Uranium-235. Iran claims that it is enriching uranium in order to create fuel for nuclear reactors—reactors operate on the basis of creating ongoing small nuclear chain reactions and use Uranium-235 as part of the fuel—but a commercial reactor requires uranium that is enriched to between 3 percent and 5 percent whereas, as noted above, a nuclear bomb requires uranium that is enriched to 90 percent.

While Iran claims to only be enriching uranium to create fuel for nuclear reactors, it refuses to open its nuclear sites to inspection and verification by members of the International Atomic Energy Agency (IAEA), an arm of the United Nations based in Vienna. This, naturally, suggests that the Iranians have something to hide, and few doubt that they are hiding a nuclear weapons development program. Iran is also building a nuclear reactor and reprocessing plant in a facility near the city of Arak. This is considered to represent an Iranian attempt to produce plutonium, which is a man-made element and is produced as a by-product of the operation of a nuclear power plant.

The government of Iran has done its best to spread the various nuclear development sites around the country and to build some of them deep underground in steel-reinforced bunkers in order to protect them from attack by aircraft and/or missiles. Unlike Iraq's exposed nuclear reactor, which was destroyed by the Israeli air force in 1981 before it could become operational, Iran has attempted to protect, or harden, as many sites as it can in order to try and ensure their survivability in the event of an attack.

The regime in Teheran is viewed as a threat not only by the United States and Israel (Iran has called for the destruction of the latter), but also by the Arab states in the Persian Gulf and farther afield. Most of the Arab states fear the combination of Iran's view of itself as a major regional power dominating the Gulf and its attempts to proselytize the Shi'a version of Islam and support Shi'a Arab communities. There seems to be



little doubt that everyone, save perhaps Iran's staunchest allies, the Syrian regime and Hezbollah, would breathe a sigh of relief if Iran's nuclear program were to be taken out of commission. Though, for the Arab states that sigh of relief will probably be inaudible because they will not want to be seen as publically supporting a US or Israeli attack on Iran.

US Defense Options

The United States is certainly capable of inflicting significant damage on Iran's nuclear facilities. With its aircraft carrier groups deployed, or deployable, to the Persian Gulf and the Arabian Sea, and with a vast arsenal of bomber aircraft capable of flying to Iran from the US mainland and of ICBMs (Intercontinental Ballistic Missiles) capable of hitting Iran from missile silos deep in the US, the United States has the capacity to overwhelmingly destroy its targets. Israel, though to a far lesser degree than the US, has the capability to damage the Iranian program through its US-supplied long range F15-I and F16-I aircraft and bunker buster bombs and its medium-range Jericho II ballistic missiles.

With all this military capability, and with a clear interest in derailing Iran's nuclear program, the main questions facing both the United States and Israel have to do with whether the benefits outweigh the costs. Either the US or Israel could attack Iran independently of the other, but the US has a far more robust ability to wage an ongoing operation over Iran and thus do a more complete job of destroying Iran's nuclear facilities. For Israel, an operation of this level of complexity and effort so far from its borders would be unprecedented, and would represent a real stretching of Israel's military capabilities. But Israel can likely still put a serious dent in Iran's program.

At any rate, both countries must ask themselves the following questions:

- Will an attack on Iran produce a strong likelihood that Iran's nuclear program will be significantly damaged?
- What does "significant damage" in this context mean? Since Iran will likely start back up again with its nuclear program, how many years of breathing space will be worth it, given the costs of the attack, until Iran has to be attacked yet again to prevent it from achieving a nuclear weapons capability?

The costs of an attack on Iran will include some international grumbling and some denouncing of US or Israeli attacks. They will also likely encourage Al-Qaeda and like-minded groups to use this as an excuse to try and attack the West — though Al-Qaeda and its fellow-travelers are trying anyway and they don't particularly require something like this in order to be encouraged to attack the US.

However, the real potential challenges for the US and Israel will come from Iran and its proxy, Hezbollah. If Israel attacks Iran on its own, the United States is likely to be seen as having given Israel a green light and thus will be blamed as well, though Iran may not risk attacking the US directly in this case. Iran's options against Israel include firing Iranian ballistic missiles at Israel, ordering Hezbollah to fire thousands of rockets at Israel from its bases in Lebanon, and carrying out terrorist attacks against Israeli targets internationally.

Iran's Capability

If the United States attacks, Iranian options include using Hezbollah — Hezbollah has a significant presence in the United States — and/or Iran's intelligence network in the US to carry out terrorist attacks in the US homeland and attacks against American forces in the Persian Gulf and Afghanistan. Iran also has the



capability to cause serious disruptions to the global economy through attacking Saudi oilfields or trying to block the entrance to the Persian Gulf (known as the Strait of Hormuz) by sinking ships and planting mines there. Even if the United States Navy acts to counter these efforts, which it almost surely will, even temporary disruptions in the oil supply coming out of the Persian Gulf will create tremendous shocks for the global economy. Just the fear of war breaking out will send oil prices skyrocketing.

As the above brief survey suggests, the issues relating to dealing with Iran's nuclear program are complex. There seems to be little doubt that the President of the United States has one of the world's toughest jobs. It is likely that before his second term in office ends, President Obama will need to make decisions regarding Iran, and it is likely that these decisions will form an important part of his presidential legacy.



Nadav Morag, Ph.D., is university dean of *Security Studies* at CTU. He works on projects for the Department of Homeland Security and the Department of Defense, and he is a published author on terrorism, security strategy, and foreign policy. Connect with Dr. Morag on Twitter [@CTUHomeland](#).



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