Coping with Iran's Nuclear Capabilities

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While the world's attention, at least judging by media coverage, is pointed elsewhere, Iran has proceeded relentlessly with its nuclear project. Iran's reasons for wanting to acquire nuclear weapons have been discussed extensively elsewhere,[1] but certainly producing nuclear weapons has become more of a political decision than anything else. This essay describes in general terms Iran's nuclear capabilities, and reviews the various Iranian options and their ramifications, the active and passive ways of dealing with these capabilities, and the implications of a nuclear Iran for Israel.

Iran's Nuclear Capabilities

Iran has the capability to enrich uranium to any degree it wishes. By mid August 2011 it had enriched more than 4.5 metric tons of uranium to 3.5 percent of uranium 235; of this, 320 kilograms were further enriched to produce some 70 kilograms of about 20 percent enrichment.[2] For the production of 25 kilograms of 90 percent enriched uranium metal, a quantity required for a first core, an amount of approximately 1.3 metric tons of 3.5 percent enriched uranium is needed.[3] If the starting point is 20 percent enriched uranium, the required amount of this material is 0.19 tons. The step from 20 percent to 90 percent enrichment is technically very short. Taking all the available information into account, it appears that Iran currently has the potential to produce some four cores for nuclear explosive devices. This estimate does not take into account the possibility of the production of fissile materials in any concealed or undeclared facilities, or materials obtained from external sources.

Two more steps are needed to turn the fissile material cores into nuclear weapons: manufacturing the explosive mechanism, and packaging this

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mechanism into a military warhead, either aircraft or missile borne. Although the evidence is scant there are strong indications, including in the IAEA reports, that Iran has been working on the explosive mechanism and on the delivery systems. In any case, these two latter steps take much less time to complete in comparison with the first and much more complicated enrichment stage.

It thus seems that all that is needed for Iran's acquisition of nuclear weapons is a political decision to utilize the existing stocks of 3.5 and 20 percent enriched uranium and enrich them to the desired level, around 90 percent. Although estimates vary as to how long it would take Iran to achieve this aim should it decide to do so, the common wisdom is that it would take several months to produce the first weapon and a shorter period to produce each subsequent one.[4] There is little doubt that all the while Iran would continue to enrich uranium, and probably at an increased rate. This "breakout" scenario would likely be detected eventually by the IAEA inspectors if they were still actively verifying the Iranian nuclear installations. However, because of the inherent difficulties in verifying the inspectorate findings, the lag time between the actual activities and their reporting could be quite long.

Therefore, given what is known as of mid 2011, Iran can have 1-2 operational nuclear weapons within a year or so from the moment its leadership decides to make them. Unless Iran makes any move to change its nuclear status, this could remain the assessment for years to come. Coupled with its tested delivery systems, these weapons could reach all West Asian countries, southern Russia, and southeastern Europe.

The Iranian Options

While by all indications Iran is attaining all necessary technical capabilities for the production of nuclear weapons, presuming what Iran's next steps will be is folly. There is a range of options open to Iran; some have been discussed in the past and some seem particularly valid at the present time.[5]

a. Iran could continue on its current course: accumulating quantities of 3.5 and 20 percent enriched uranium, while remaining under IAEA inspections. However, Iranian officials have started obliquely to adopt a policy of ambiguity, [6] and theoretically this could continue for a long time. The benefit of this course of action is that Iran will

accumulate a growing inventory of source material while not overtly breaching the boundaries of permitted activities.

b. Iran may have a parallel concealed uranium enrichment program, or may have managed to divert materials under inspection and produce fissile materials.

c. Iran's leaders may decide to openly pursue its nuclear capabilities and announce that should the conditions be right (e.g., an actual threat to their state), Iran could produce a nuclear weapon in order to enhance its security. It could also either threaten or actually withdraw from the NPT.[7] Although such a withdrawal does not put an end to IAEA inspections, it could certainly complicate matters for the inspectors and extend the period until the world receives adequate warning in case Iran wanted to break out.

d. Either in the next step or in an unrelated one, Iran could carry out an underground nuclear test. Iran would thereby declare its nuclear capabilities to the world, while still not carrying out an overt act of aggression against a foreign state. It would then be in violation of several treaties and obligations, notably the NPT and the CTBT, to which it is a signatory.

e. If the Middle East situation of mid 2011 persists and Bashar Asad retains his presidency, Syria and Iran could be tempted to strengthen their relationship and extend it to military nuclear cooperation, perhaps going as far as stationing Iranian nuclear forces on Syrian territory.

f. Another possibility is Iran's transfer of a nuclear explosive device to Iranian-supported terrorist organization such as Hizbollah or Hamas. Although far less likely, this possibility is not completely out of the question, and blackmail by these organizations (even if the threat does not specifically emanate from Iran) could create havoc in the Middle East.

Would Iran use its nuclear weapons against another state? The common wisdom is that nuclear weapons serve mainly as deterrents. Many researchers postulate that the Iranian regime is rational and would act accordingly. However, Iranian reasoning and decision making processes demand much more extensive study, and the assumption that Iranian rationality would follow traditional Western assumptions may be unfounded.[8]

Preventing a Worse Situation

The first stage, preventing Iran from gaining its nuclear potential, has passed. Iran has reached that objective. Even if Iran were to halt any further development of its nuclear capabilities, the possibility of rollback is not realistic.[9] Therefore, tackling the situation means preventing a deteriorating situation and preparing for eventualities, both politically and militarily, should Iran decide to use its potential for political gains or even decide to produce nuclear weapons. Regime change in Iran might bring about the desired result, but this cannot be assured.

How can the situation be prevented from deteriorating? Creating technical difficulties for the nuclear project has its tactical benefits, but with increasing Iranian achievements these decrease as time goes on. Thus any such difficulties must increase in proportion to the achievements in order to have any discernible effects.

On an overt level, the UN Security Council (SC) imposed several rounds of sanctions on Iran, with most economic and some designed to prevent Iran from increasing its technical capabilities. By their nature, economic sanctions have effects over the long term. Their success is not assured and there is no guarantee they will have any tangible effect on Iran's nuclear program.[10] Moreover, although some important countries went beyond SC sanctions, others, notably Russia and China, did much less and thereby helped Iran.[11] It is also quite certain that although the sanctions are having an economic effect on Iran, the international pressure exerted on Iran did not significantly affect the way the nuclear project has proceeded, especially not on the visible part of this project – the production of fissile materials. Whether the international pressure had any effect on the weaponization part of the program and halted it in 2003 is irrelevant, since there is no doubt that Iran is proceeding with this part of the program independently of the others.

In a covert mode, where details are scant, the more prominent method is the thwarting of Iranian procurement efforts. The extent of successes is not known, and Iran probably succeeds in getting most if not all the equipment and materials it needs, albeit with delays, at very high prices, and in reduced purchase quantities. Another method, extensively reported in the media, is sabotage, in this case the Stuxnet cyber attack on the gas centrifuge uranium enrichment operations. Apparently this did succeed in slowing down the operation by limiting the increase in

enrichment potential, but did not stop the operation for any significant length of time.

Overall, however, most see regime change in Iran as the most promising way to proceed in stopping the Iranian nuclear project, or at least making it more palatable. Although there is the South African precedent of dismantling a nuclear weapons arsenal, it is uncertain whether any new regime in Iran would accept this, in particular since some of the regime's opposition strongly supports the nuclear project.[12] Once a country acquires a military nuclear capability, it most likely wants to keep it. The hope in this case would be to witness a change in Iran's foreign policy to a non-belligerent posture, which would reduce the threat to Iran's neighbors in particular and to the world in general. Here the relevant precedent is Japan. Yet while at present the regime is encountering significant internal unrest, the hope for a radical regime change in Iran is currently little more than wishful thinking. The Iranian regime still enjoys strong backing, reinforced by military and para-military forces. Although the Iranian people are affected by the sanctions, these measures are not aimed directly at them and hence do not force widespread anti-government protests. There is no overt support for a regime change by outside governments, and thus prospects for imminent regime change are minimal.

The one remaining option for stopping or at least delaying the Iranian nuclear project is the use of physical force. This has proved successful in the cases of Iraq and Syria (and Libya, in a way), but would be much more difficult in the case of Iran. In the first two cases, single targets were involved. In the case of Iran, several targets would need to be destroyed, and it is not certain that all targets are known to the potential attackers. Some of these targets are placed deep underground and are well protected. Thus it would seem that only a superpower such as the US or an alliance of states such as NATO would be able to achieve a strategic result in military attacks. At present, the consensus opposes military strikes against Iran's nuclear installations, including its military potential.

The remaining option, then, is to learn to live with the Iranian threat.

Dealing with a Nuclear Iran: Deterrence

If prevention fails or does not cause a substantial delay to Iran's nuclear ambitions, the world will have to cope with the new situation in ways

that would hopefully deter Iran from furthering its plans and moving towards a full-fledged nuclear capability or achieving a regional military superiority dependent on military nuclear power.

One indication of things to come occurred when a senior member of the Saudi establishment indicated that Saudi Arabia would develop its own nuclear weapons to counter the Iranian threat, should it materialize.[13] This is not an empty threat. It is generally assumed that Saudi Arabia assisted Pakistan financially in the construction of its military nuclear capability, with returns perhaps in the form of a nuclear umbrella or even a shared nuclear arsenal. Other regional states that might consider establishing their own nuclear weapons project in response to the Iranian threat include Egypt, Turkey, and perhaps Iraq.

Another way to counter an Iranian threat is to deter it through strong defenses that would destroy missiles with non-conventional warheads before they reach their destinations. If a high degree of success is assured, Iran stands to lose much more than it can gain by launching an attack. A failed attack would put Iran in a very vulnerable position and make it ripe for retaliation and preemptive attacks from its neighbors, mainly in but also outside the Gulf region.

The future is here. Despite the many estimates regarding the time frame, a nuclear Iran is still a matter of Iranian decision making processes more than anything else.

An indirect yet potentially effective way of deterring Iran is to reduce its capability of operating from foreign bases or operating through proxies. The three main potential proxies are Syria, Hizbollah, and Hamas. Weakening these alliances is almost imperative if Iran's potential for striking Israel is to be significantly reduced. Indeed, as long as Syria's Asad remains in power and Syria serves as the bridge between Iran and Lebanon, this front remains potentially dangerous. Although this may appear to be a regional/local issue, it has the potential to ignite a more general conflict. The world would do well to defuse this potential.

The Import for Israel

Certain basic assumptions underpin planning for a nuclear Iran. One, the future is here. Despite the many estimates of the Iranian time frame, it is still a matter of Iranian decision making processes more than anything else. Thus, one cannot further delay the preparations for this eventuality

in the hope that something will delay, suspend, or even completely arrest Iran's nuclear project. Two, all Iranian options are possible. Therefore, profound thought and well-considered preparations are in order, and Israel's past experience suggests that contingency plans, at least for the obvious scenarios, are not necessarily prepared adequately in advance. The complex situation at hand demands much thought and preparation, at least in defining the more general responses to the Iranian developments.

Finally, Israel should not rely on international responses to a de facto nuclear Iran. The world has reacted to but not countered Iran's developing nuclear project. The world should have forecast the developments and prepared for them. The response time has been so prolonged that it has become almost irrelevant, leaving the world in a defensive mode and with little to show in the way of results. Given the past international reaction to Iranian developments, it is difficult to view any political activities (e.g., "engagement") as anything but helpful to Iran. The US economic crisis and the weakness of the administration in its response to other Middle East developments is evidence of this. Past regional experience has proven that guarantees are temporary at best and are easily abandoned with changes in governments. The concept of extended deterrence is inviting, but there is no assurance that it would withstand the test in real time.

A nuclear Iran will bring about a major change in Middle East regional politics and alliances. It is possible that Israel will take part in forming new political and military alliances. Regional developments in the nuclear field will also have to be considered. Israel's policy of ambiguity will also probably come under discussion as a part of the overall Middle East nuclear scenario.

A completely different aspect of coping with a nuclear Iran is civil defense – preparation of the population for the possibility of an Iranian attack. Although the common wisdom is that Iran would never attack Israel directly, with or without nuclear weapons, no Israeli government can afford to assume this. There are two main aspects of preparations: the technical aspects and the psychological preparation of the population for the possibility of having to respond to a nuclear weapons emergency situation. Although of a much lesser scale, the public has been made aware of the possibility of having to respond to a military attack on a nuclear reactor.[14] In addition, Israel is preparing to deal with two potentially

large scale emergency situations: a major earthquake and an attack with chemical warfare agents. In preparing for these, the authorities are planning, training, and drilling the public as to the proper response and behavior for these events. Thus, the ground is being prepared for dealing with emergency situations, including a possible nuclear attack.

The public must be made aware that a nuclear attack is not an existential threat. No doubt the effects of a nuclear attack are very serious and the number of casualties could be high, but the radius of damage would still be limited, and the nation would certainly survive such an attack.[15] Preparing the population for such a possibility would also become part of Israel's deterrence, since good preparations minimize the effects, and effects are the ultimate purpose of such an attack.

Conclusion

Since the world is divided on the ways of preventing Iran from becoming a full-fledged nuclear state, and since the current Unites States administration is reluctant to take any overt action other than sanctions, prevention of this situation hinges on the political decisions of the Iranian regime.[16] Most likely in the short range, the Iranian regime will assume a posture of ambiguity, while slowly increasing the visibility of its potential for acquiring a military nuclear capability. Without Iran taking overt military action against other states, it is difficult to foresee that the US or any other state or group of states will take military action against Iran. Thus, it is imperative that Israel's government prepare for the new developing situation.

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Today's reality indicates that regime change is the only way to materially change the situation in Iran, with persuasion of the new regime to become a rational member of the international community much in the way that Japan, for example, is accepted. Although a legitimate wish, it is too much to hope for a complete dismantlement of the military nuclear project, following the pattern of South Africa in the 1990s. Israel must assume that this will not happen, and must prepare

itself to cope with all possible scenarios emanating from the eventuality of a nuclear-capable Iran. The better it is prepared, the better it will be able to cope with the situation.

Notes

1 The reasons most often given for Iran wanting a military nuclear capability are Iran's threat perception; its regional hegemonic ambitions; and regime survival.

2 See IAEA report GOV/2011/54, 2 September, 2011. All amounts relating to the enrichment processes are given as uranium hexafluoride (UF6). When referring to cores of explosive devices, the amounts are given in kilograms of uranium metal.

3 This quantity is probably needed only for the production of the first core of a nuclear explosive device. For the production of any subsequent core less than 25 kilograms is necessary. See, e.g., Thomas B. Cochrane and Christopher E. Paine, "The Amount of Plutonium and Highly Enriched Uranium Needed for Pure Fission Nuclear Weapons," Washington, DC, Natural Resources Defense Council, Inc. 1995. All calculations in the present article were made with the "uranium enrichment calculator," http://www.wise-uranium.org/nfcue.html.

4 For an up-to-date detailed discussion of this period see David Albright, Paul Brannan, and Christina Walrond, "Critique of a Recent Breakout Estimates at the Natanz Fuel Enrichment Plant (FEP)," ISIS, September 20, 2011, http://isis-online.org/isis-reports/detail/critique-of-gregory-joness-breakout-estimates-at-the-natanz-fuel-enrichment/8.

5 Ephraim Kam, *A Nuclear Iran: What Does it Mean, and What Can be Done?* Memorandum No. 88 (Tel Aviv: Institute for National Security Studies, 2007).

6 There is no unequivocal definition for nuclear ambiguity. Intended here is that there are two or more possibilities of action, with the choice between them and the intentions on how to proceed shrouded in secrecy.

7 This is permissible under Article X of the NPT.

8 Defining Western rationality is itself a challenge, given the history of the past 100 years. Many rationality-based assumptions in decision making processes did not withstand the test of reality.

9 The "swap" deal that crops up from time to time, whereby Iran would trade some of its enriched uranium for nuclear fuel for its small Tehran research reactor, would cause only a minor setback in its timetable and not accomplish the aims of the removal of the Iranian threat. See, e.g., "Iran Ready to Halt 20% Nuclear Enrichment: Ahmadinejad," October 4, 2011, http://www.spacewar.com/reports/Iran_ready_to_halt_20_percent_nuclear_enrichment_Ahmadinejad_999.html.

10 Ephraim Asculai, "Can the Iran Sanctions Succeed?" in "*Iran's Ambitions for Regional Hegemony*," S. Daniel Abraham Center for Strategic Dialogue, November 2010, pp. 53-68.

11 In early September 2011 it was reported that under pressure from the US, China withheld investments in Iran's oil industry, much needed given Iran's aging equipment and underdeveloped oil fields. Still, Iran is China's largest trading partner, and the supply of Iranian oil to China has not suffered because of the sanctions. See "China Curbs Oil Investments in Iran to Avoid US Sanctions" at http://www.cnbc.com/id/44368708/China_Curbs_Oil_Investments_in_Iran_to_Avoid_US_Sanctions.

12 Ayatollah Ali Akbar Hashemi Rafsanjani, a leader of the opposition in Iran, is one of the strongest proponents of the nuclear project in Iran and used his term as president to advance it.

13 See the report that quoted Prince Turki al-Faisal, a former Saudi intelligence chief and ambassador to Washington and Britain, and other officials that indicated that Saudi Arabia would develop its own nuclear weapons if the situation demands it, in "Saudi Will Seek Nuclear Arms if Iran Gets Them – Report," http://uk.reuters.com/article/2011/06/29/uk-saudi-iran-nuclear-idUKTRE75S83X20110629.

14 Yaakov Katz, "IDF to Simulate Missile Attack on Dimona Nuclear Reactor," *Jerusalem Post*, May 9. 2011, http://www.jpost.com/Defense/Article.aspx?id=236779.

15 See also "why a nuclear Iran is not an existential threat" where the author postulates that Israel's missile defense guarantees a second strike capability, in Jonathan Paris, "Prospects for Iran," London, Legatum Institute, January 2011.

16 It is not even certain that all states, and this includes Russia and China, are emphatically opposed to a nuclear Iran, since this could serve hegemonic interests in the Middle East and their interest in the global energy marketplace.