

Chapter 9

Nuclear Developments in Iran

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Overview of Iran's Nuclear Progress

2007 can be regarded as somewhat of a breakthrough year for Iran's nuclear program. During the course of this year, Iran completed the installation of some 3000 gas centrifuge uranium enrichment machines and fed into them more than a ton of uranium hexafluoride – the feedstock for the enrichment process. This was achieved despite apparent specific technical difficulties and continued international diplomatic pressure. The latter included a second UN Security Council resolution on sanctions adopted in late March, as well as pressure exerted on Iran through financial sanctions led by the US, outside the framework of the UN.

A tailwind for Iran's program was supplied by the International Atomic Energy Agency (IAEA), which failed both to sound a severe warning concerning Iran's potential to produce nuclear weapons and to condemn strongly its failure to abide by the Board of Governors' and the Security Council's demands for the suspension of its uranium enrichment program. Another – in this case, totally unexpected – source of encouragement to Iran came in the form of the US National Intelligence Estimate (NIE). The report lowered the sense of urgency with regard to Iran's nuclear program and implied that there was still time for diplomatic action that could effectively halt

Iran's quest for a nuclear weapons capability. This had the immediate effect of mitigating the pressure on Iran, delaying a third resolution on sanctions, and paving the way for more economic, energy, and military-related deals with Iran on the part of different states.

In addition, Iran's nuclear power production project at Bushehr moved forward after a long period of apparent stagnation, when Russia delivered two shipments of nuclear fuel to Iran and scheduled a completion date for sometime in 2008. Iran also made significant progress in the area of weapons delivery systems, thus significantly increasing its aggressive potential once its nuclear ambitions are achieved. All in all, at least with regard to its nuclear program, 2007 was not a bad year for Iran.

However, the beginning of 2008 saw a shift in the international attitude towards Iran, following the publication of the IAEA periodic report in late February. The senior safeguards staff of the IAEA disclosed new information about Iran's weapons development program and exposed the IAEA's confrontation with Iran over past weapons development activities. Claiming that the new information was "fabricated," Iran heightened tensions with the international community. Indeed, had it been possible for Iran to come up with even a less than iron-clad cover story for these activities, the IAEA might very well have been satisfied and closed the file on Iran's past misdeeds. Iran, however, remained adamant and chose to terminate international negotiations over the possibility of full and immediate suspension of its uranium enrichment program. This defiance was enough to reverse the ongoing delay in voting on a third round of sanctions against Iran in the UN Security Council, and a third resolution on sanctions was adopted in early March.

Iran's Nuclear Weapons Capability and Delivery Systems

Iran has demonstrated its ability to construct a major uranium enrichment facility, operate it, and produce low enriched uranium (LEU). It has also demonstrated that it has no technical difficulty in

enriching its LEU to high enriched uranium (HEU), the cornerstone of a nuclear explosive device. Although IAEA reports indicate that the rate of uranium enrichment at the gas centrifuge enrichment plant at Natanz was lower than expected (indicative, perhaps of technical problems), Iran is a country capable of overcoming its technical problems. In addition, Iran can now proceed to install new centrifuge units and thus steadily increase its enriched uranium output. As a result, Iran will have a quantity of LEU that will be sufficient for further enrichment and the production of HEU for a first nuclear explosive device within a few years.

Less in the public eye, Iran is also slowly progressing on its parallel route for obtaining the necessary material for a nuclear bomb – plutonium. Iran has been constructing its heavy water reactor at Arak, and the IAEA reports that the work there is continuing.

According to the NIE, Iran had a nuclear weapons development program that was halted in 2003. From the additional information presented by the IAEA it seems that this program included the production of the enriched uranium metal core of the explosive device, the development and testing of the explosive mechanism, and the production of a missile-capable nuclear warhead. There were also indications that contrary to the NIE, Iran either did not stop its program in 2003 or subsequently renewed it.

In addition – though the NIE did not elaborate on this – there are Iran's long range delivery systems, which join the two other critical components – the nuclear core and its weaponization – to create a full nuclear weapons system. Iran has no shortage of delivery means. It has military aircraft, including American- and Soviet-built fighter-bomber aircraft, though with limited ranges; it has medium-range ballistic missiles; and if reports are accurate, it has several cruise missiles of somewhat uncertain capabilities. The medium-range ballistic missiles are perhaps the best indicators of Iran's intention to attain a non-conventional weapons delivery capability. It can be assumed that if anyone strives to overcome the technical complexity involved and undertakes the financial outlay needed for the

development of these missiles, their intended use is not the delivery of high explosives (HE). Even when the missiles are highly reliable and endowed with a high accuracy navigation system, the 1991 and 2003 wars in Iraq demonstrated the difficulty of delivering a decisive blow to an enemy with these explosives. Consequently, it must be concluded that the purpose in developing medium- (and possibly long-) range missiles in Iran is the delivery of nuclear weapons to states not neighboring Iran. Only nuclear weapons can cause wide ranging long-term destruction and large-scale casualties that could thwart the military capability of a country to retaliate and recuperate from such an attack.

According to official Iranian sources, the Iranian missile program made significant progress in 2007. The older Shahab-3 missile has an approximate range of 1500 kilometers; the newer missile, which is called either Ghadr or Ashura, was displayed in October 2007 and declared to have a range of up to 2000 kilometers.

It has been reported that Iran is occupied with the difficult task of constructing a small nuclear warhead suitable for delivery by a Shahab-3 missile, which has limited dimensions and payload capability. A single nuclear weapon would be practically useless to Iran, since the probability of the failure of a first nuclear weapon could be significant. From all of the above, it must be concluded that Iran has a project aiming to develop several nuclear warheads that are deliverable by missiles and probably also by fixed-wing military aircraft.

The International Arena

International Efforts to Stop Iran

International efforts to halt Iran's nuclear program looked somewhat promising at the start of 2007, when the UN sanctions route was on course and the US was vigorously pursuing parallel financial sanctions outside the UN framework. Over the previous year, the international community had finally begun to tire of Iran's delay tactics on the nuclear issue, and Iran's perceived role during the Second Lebanon

War gave added impetus to those who were pressing to take stronger action through sanctions. Iran was defying all calls to halt its uranium enrichment activities, President Mahmoud Ahmadinejad was making outrageous statements, and Iran was bringing to bear its dominance in the region in the war in Lebanon. Thus, toward the end of December 2006, the UN Security Council finally mustered up the necessary consensus to pass its first resolution on sanctions against Iran. In March 2007, in light of Iran's continued defiance, a second resolution on stepped-up sanctions was quickly agreed on.

By May, however, the determination of the international community eroded, and Europe once again came on the scene with offers of negotiations. The dynamic was led this time not by the EU-3, but by Javier Solana – more representative of the EU as a whole. Solana met with Iran's nuclear negotiator Ali Larijani three times – in late April, May, and June – and their initial discussions led to a renewed dialogue between Iran and the IAEA as well, with the intent to resolve the lingering “outstanding questions” regarding Iran's past activities. While some progress was made in these talks, for Solana they ended in disappointment when he met with Larijani's replacement, Saeed Jalili, in late November. Jalili's position was that discussions must begin from the start, and Solana realized that he had no partner for continued talks.

The year ended on a sour note for international efforts with the publication of the unclassified portion of the US National Intelligence Estimate. The report did not change the basic positions of any of the major players facing Iran – those that viewed Iran with concern before the NIE continued to do so, and the same is true for those states that were less concerned (Russia and China). Moreover, a close reading of the two and a half pages comprising the report's “Key Judgments” gives no reason for complacency toward the continued concern that Iran's activities and basic motivation in the nuclear realm arouse. However, the headlines that proclaimed that Iran had halted its military nuclear program in 2003 sharply reduced the sense of urgency associated with Iran's program. The attempt to secure the

third round of sanctions that the permanent members of the Security Council had not been able to agree upon for seven months was dealt a further blow.

But in early 2008, when the IAEA periodic report was sent to its member states, and when in parallel senior US intelligence officials together with some European officials began backtracking on the dominant message of the NIE, a renewed sense of urgency arose. This, together with the new IAEA safeguards information, brought the Security Council members to reconsider their previous position and adopt a third resolution on sanctions (Resolution 1803) on March 3. This resolution further tightened sanctions against Iran, although they still fell short of the kind of action that might bring Iran to reconsider its nuclear stance.

As a member of the international front facing Iran, the IAEA has played a somewhat negative role in the efforts to curb Iran's progress towards achieving a military nuclear capability. Although its technical safeguards activities in Iran have been quite intrusive, especially given the limitations imposed by Iran on these activities, its political judgments have been lacking. Over the course of 2007, the IAEA devoted its attention to "outstanding questions" regarding Iran's past nuclear activities, most of which were not at the forefront of international concern. Moreover, according to his public statements, the IAEA director general does not consider efforts to make Iran abandon its enrichment program worthwhile, and believes that Iran should be allowed to have a small enrichment development program. The problem is that such a small program would still enable Iran to acquire the potential to manufacture nuclear weapons, albeit on a small scale, while further developing its enrichment skills.

Regional Dynamics

Over the course of 2007, Middle East states in general and the Gulf states in particular began to focus more intensively on the consequences of a nuclear Iran for their own security. Thus began a new trend whereby states in the region announced their intention to

develop a nuclear program for peaceful purposes. In December 2006, the Gulf Cooperation Council (GCC) ordered a feasibility study to investigate the development of a joint atomic energy program. Jordan also announced its plans to develop a nuclear program, and Egypt decided to revive a decades' old nuclear power program – all in reaction to Iran's worrying achievements.

While at the present stage these pronouncements cannot be viewed as a clear counter threat to develop nuclear weapons, they certainly constitute a strong message from these states that they will not sit idly by and watch Iran become the dominant power in the region. On the other hand, these states also sense a lowered international commitment to take determined action against Iran (especially post-NIE), and realize that it will be quite a while before they might achieve their own nuclear weapons capabilities. As such, some have begun – in acts of apparent appeasement – to evince a willingness to move closer to Iran. Clearly, these states are watching developments closely and hedging their bets. Ultimately, they cannot ignore the fact that if Iran becomes a nuclear state they will have to fend for themselves, and if they cannot present a credible deterrent, it is not a good idea to be on Iran's list of enemies.

Outlook for the Future

If no action is taken against it, Iran could have enough indigenously enriched uranium for a first nuclear weapon around the turn of the decade; a deliverable first weapon could be ready within another year.

It has become a common refrain among commentators on Iran to note that time to stop Iran from attaining military nuclear capability is running short. In early 2008, this conclusion is more urgent than ever, as Iran continues unhindered with its uranium enrichment activities. It is underscored further by the clear message contained in the recently exposed information that Iran's halt of its military program was not definitive, and thus the program may be more advanced than previously estimated.

And yet it is questionable, even in light of the third round of sanctions, whether the international community will be able to display enough determination and pressure through sanctions to bring Iran to the point where it adheres to the demand to stop uranium enrichment as a precondition for entering negotiations with Europe and the US. Moreover, the US – a key player in the international efforts to deal with Iran – is in the swing of an election year, and it is difficult to envision more determined US action in dealing with Iran during 2008. The next US administration will undoubtedly need at least another six months to consolidate its policy on Iran. All of this means that the prospects for determined action on Iran over the next 18 months are not high. Five years into the prolonged and drawn out effort to deal with Iran's nuclear ambitions, this is the harsh reality.