Assessing the Iranian Nuclear Threat with Reference to Pakistan's Experience

by Simon Henderson **(/experts/simon-henderson)**

May 8, 2006

ABOUT THE AUTHORS

Simon Henderson (/experts/simon-henderson)

Simon Henderson is the Baker fellow and director of the Bernstein Program on Gulf and Energy Policy at The Washington Institute, specializing in energy matters and the conservative Arab states of the Persian Gulf.

Brief Analysis

On April 30, the Sunday Times of London reported that Israeli Mossad chief Meir Dagan had warned U.S. officials during a secret visit to Washington of covert Iranian plans for enriching uranium, which may mean Tehran was "nearer to acquiring nuclear weapons than widely believed." The same report quoted Knesset Foreign and Defense Committee chairman Yuval Steinitz as saying that Iran might be only a year from developing a bomb. Meanwhile, International Atomic Energy Agency (IAEA) director-general and Nobel Peace Prize winner Mohammed ElBaradei is on the record as saying that, once Iran can enrich uranium in quantity, making an actual bomb would only take "a few months." And, in August 2005, the Washington Post reported that the new U.S. National Intelligence Estimate "projected that Iran is about a decade away from manufacturing [sufficient highly enriched uranium] for a nuclear weapon, roughly doubling the previous estimate of five years."

In such circumstances it is small wonder if the public is confused, wondering whether some officials are exaggerating the potential danger of a nuclear-armed Iran while others seem to be almost irresponsibly unconcerned. In fact, the statements above are not mutually inconsistent, reflecting instead the discrepancy between hard fact and plausible interpretation. Since Iran's controversial uranium enrichment technology was initially acquired from Pakistan, an examination of that country's progress toward a nuclear bomb is both worthwhile and illuminating.

Pakistan's Program

Pakistan's centrifuge enrichment project dates to 1976, when the now discredited Abdul Qadir Khan brought plans to Pakistan that he had stolen while working as a technical translator at a joint Dutch-British-German civilian enrichment facility in the Netherlands. His project was boosted in 1978 when U.S. pressure stopped Pakistan's plans to produce plutonium, an alternative nuclear explosive. The beauty of centrifuge enrichment technology is that it can avoid international safeguards and is energy efficient as well as comparatively small-scale -- the U.S. diffusion-type enrichment plant that produced the explosive for the Hiroshima bomb used a tenth of nation's electricity supply and operated in what was then one of the world's largest buildings.

The proliferation danger of centrifuge technology is that the same plant can make the 3-5 percent enriched uranium

needed in a civil power reactor (natural uranium contains just 0.7 percent of the crucial U235 isotope), or it can make the 90 percent enriched material needed for an atomic bomb. The difference between 3 percent and 90 percent sounds huge, but the actual work involved is similar: 0.7 percent doubled is 1.4 percent, doubled again is 2.8 percent, then next to 5.6 percent -- just three generations. Just four more generations reaches an enrichment of nearly 90 percent. (In May, Tehran announced that it has enriched uranium to 4.8 percent.)

Commercial satellite photographs show a great similarity between Pakistan's **Kahuta (http://www.globalsecurity.org/wmd/world/pakistan/kahuta.htm)** enrichment plant (the North Production Area) and the equivalent Iranian facility at **Natanz (http://www.globalsecurity.org/wmd/world/iran/natanz-imagery3.htm)** , though the centrifuge halls at the latter are buried under earth and concrete. Before Kahuta began operating around 1980, Pakistan had worked on centrifuges at a site alongside Islamabad airport and built a pilot plant at Sihala, on the road to Kahuta. By 1978, at those facilities, Khan had enriched some uranium to 3 percent. He has also claimed that by 1982, he could produce enough highly enriched uranium at Kahuta for a bomb and that, by August 1984, a nuclear device could be exploded on three days' notice. Yet Pakistan refrained from taking such a step, in part because of concern about the impact on its relation with the United States. Indeed, during the 1980s, only presidential waivers motivated by the need for Islamabad's cooperation against Soviet forces in Afghanistan let Pakistan avoid congressionally mandated U.S. sanctions which would otherwise have been triggered by Islamabad's nuclear program. Only in 1990, after the Soviet Union's defeat, did some sanctions take effect; others were imposed after Pakistan eventually tested its device in 1998. (Until then Pakistan claimed its nuclear program was entirely for peaceful and civilian purposes.)

The Iranian Comparison

Construction work on Natanz started in 2000. IAEA inspectors have also reported suspicions that centrifuge work was carried out at a location in Tehran and have identified a pilot plant at Natanz, though the main centrifuge halls are empty. The Israeli claim that Iran has additional covert plans to enrich uranium is possible, if the program is following the Pakistani model. In 1987, U.S. spy satellites spotted a thick floor of concrete being poured at Golra, near Islamabad, which analysts concluded was meant for an additional centrifuge hall. If Iran fears air attack, it makes sense to build a separate, undisclosed centrifuge plant.

One mystery is why Iran has taken so long to advance this far. Pakistan's first centrifuge contacts with Tehran took place in 1987, according to an Iranian document seen by the IAEA. Shipments to Iran of components for Pakistan's Pakistan-1 (P-1) and Pakistan-2 (P-2) centrifuges are reported to have taken place from 1989 to 1995. (The Iranians refer to their own centrifuges by the P-1/P-2 designation, but quaintly say the "P" stands for "Persian.") After the mid-1990s, Iran turned to Russian and Chinese suppliers, inhibiting surveillance by U.S. and other intelligence services that had Khan's network well covered and knew by the late 1980s that Iran was interested in enrichment.

Predictions on Iran could be considerably upset if Tehran benefits from foreign generosity along the lines of what China did for Pakistan in early 1984. Then, China handed Khan the design of one of its missile-capable atomic bombs as well as enough highly enriched uranium for two bombs. Why China jumpstarted Pakistan's nuclear arsenal in this way can only be guessed at, but the incident was arguably an even more egregious case of proliferation than Khan's later activities with Libya (where Khan handed over the same bomb design) and perhaps North Korea -- and possibly with Iran, though Tehran denies any weapons connection.

A considerable concern would be that Iran's ambitions for its nuclear program are as vast as those of Pakistan. Eight years after testing two bombs in 1998, Pakistan now has an arsenal estimated at between 65 and 110 bombs and has deployed them in a range of missiles build from Chinese and North Korean designs and with squadrons of its American and French fighter/bombers. As a neighbor, it is likely that Iran aspires to a similar arsenal. Pakistan's weapons, matched by India's, have brought only a tenuous balance of power in South Asia. In 2002, only intense

diplomatic activity by London and Washington (though unaided by other major powers) averted a direct nuclear clash between the two countries. Fortunately, both New Delhi and Islamabad were susceptible to such pressures. Tehran looks like a totally different challenge.

Simon Henderson, the Baker senior fellow for Gulf and energy studies at The Washington Institute, has written about clandestine nuclear weapon programs since working for the BBC and the Financial Times in Pakistan in the late 1970s.

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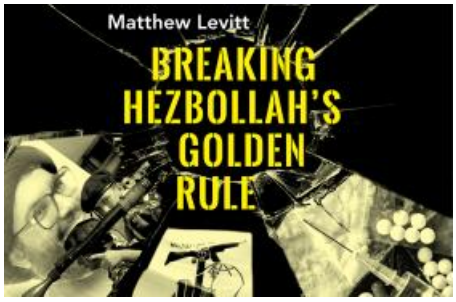

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