

Key Official US and IAEA Statements About Iran's Nuclear Programs

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There is a great deal of speculation about Iran's nuclear programs that do not list sources or reflect the views of the US intelligence community. It is worth examining what top US intelligence officials have said during the last few years, and the details of the IAEA report published in November 2011 – one that clearly reflected official inputs from the US and a number of European intelligence services.

U.S. Official Statements on the Iranian Nuclear and Missile Threat

The annual unclassified reports to Congress by the Office of the Director of National Intelligence are a key source of US official view. Although the 2010 report by James R. Clapper has already been partly overtaken by the pace of Iran's rapidly developing program, it still represents the most detailed unclassified estimate of Iran's capabilities by a senior US official:¹

Nuclear

We continue to assess Iran is keeping open the option to develop nuclear weapons though we do not know whether Tehran eventually will decide to produce nuclear weapons. Iran continues to develop a range of capabilities that could be applied to producing nuclear weapons, if a decision is made to do so.

During the reporting period, Iran continued to expand its nuclear infrastructure and continued uranium enrichment and activities related to its heavy water research reactor, despite multiple United Nations Security Council Resolutions since late 2006 calling for the suspension of those activities. Although Iran made progress in expanding its nuclear infrastructure during 2001, some obstacles slowed progress during this period.

- In 2009, Iran continued to make progress enriching uranium at the underground cascade halls at Natanz with first-generation centrifuges, and in testing and operating advanced centrifuges at the pilot plant there.

As of mid-November, Iran had produced about 1,800 kilograms of low-enriched uranium hexafluoride (LEUF6) gas product at Natanz, compared to 555 kilograms of LEUF6 in November 2008. Between January and November 2009, Iran increased the number of installed centrifuges from about 5,000 to about 8,700, but the number reported to be operating remains at about 3,000~100.

- In September, Iran disclosed that it was constructing a second gas-centrifuge uranium enrichment plant near the city of Qom that is designed to house approximately 3,000 centrifuges.

- Iran in 2009 continued construction of the IR-40 Heavy Water Research Reactor. Iran during National Nuclear Day inaugurated its fuel manufacturing plant and claimed to have manufactured a fuel assembly for the IR-40.

Iran in 2009 continued to make progress on completing its Bushehr Nuclear Power Plant but did not load fuel in the reactor. Iran currently plans to load fuel in the reactor in 2010. Iran's Uranium Conversion Facility (UCF) at Esfahan shut down for maintenance in August and had not resumed UF₆ production as of late October. International Atomic Energy Agency reports indicate Iran has almost exhausted its imported stockpile of yellowcake that may have contributed to its decision to extend the shutdown of the UCF.

Missiles

Iran has continued to develop its ballistic missile program that it views as its primary deterrent. Iran is fielding increased numbers of short- and medium-range ballistic missiles (SRBMs, MRBMs) and we judge that producing more capable MRBMs remains one of its highest priorities. Iran's ballistic missile inventory is one of the largest in the Middle East.

In late November 2007, Iran's defense minister claimed Iran had developed a new 2,000 km-range missile called the Ashura. Iranian officials on 12 November 2008 claimed to have launched a two stage, solid propellant missile called the Sejl with a range of 2,000 km. In 2009, Iran conducted three flight tests of this missile.

As early as 2005, Iran stated its intentions to send its own satellites into orbit. As of January 2008, Tehran reportedly had allocated \$250 million to build and purchase satellites. Iran announced it would launch four more satellites by 2010 to improve land and mobile telephone communications.

Iran's President Ahmadi Nejad [sic] also announced Tehran would launch a "home-produced" satellite into orbit in 2008, and several Iranian news websites released photos of a new rocket called "Safir."

In mid-August 2008, Iran first launched its Safir space launch vehicle, carrying the Omid satellite. Iran claimed the launch a success; however US officials believed the vehicle did not successfully complete its mission. Iran successfully launched the Omid satellite aboard the Safir 2 SLV in early February 2009 according to press reports.

Russian entities at least in the past, have helped Iran move toward self-sufficiency in the production of ballistic missiles. Iran still remains dependent on foreign suppliers for some key missile components, however. Iran also has marketed for export at trade shows guidance components suitable for ballistic missiles.

Chemical and Biological

We assess that Iran maintains the capability to produce chemical warfare (CW) agents and conducts research that may have offensive applications. Tehran continues to seek dual-use technologies that could advance its capability to produce CW agents. We judge that Iran is capable of weaponizing CW agents in a variety of delivery systems.

Iran probably has the capability to produce some biological warfare (BW) agents for offensive purposes, if it made the decision to do so. We assess that Iran has previously

conducted offensive BW agent research and development. Iran continues to seek dual- use technologies that could be used for BW.

Clapper gave a less detailed statement to Congress on March 3, 2011, but noted that the U.S. estimate of operating centrifuges had now risen to 4,100 in late 2010, and Iran had used them to produce over 3,000 kilograms of low enriched uranium. He also stated that the U.S. intelligence community assessed that,²

Iran is keeping open the option to develop nuclear weapons in part by developing various nuclear capabilities that better position it to produce such weapons, should it choose to do so. We do not know, however, if Iran will eventually decide to build nuclear weapons...Iran is technically capable of producing enough highly enriched uranium for a weapon in the next few years, if it chooses to do so.

...We judge Iran would likely choose missile delivery as its preferred method of delivering a nuclear weapon. Iran already has the largest inventory of ballistic missiles in the Middle East. It continues to expand the scale, research, and sophistication of its ballistic missile forces, many of which are inherently capable of carrying a nuclear payload...Iran's growing inventory of ballistic missiles and its acquisition and indigenous production of anti-ship cruise missiles provide capabilities to enhance its power projection. Tehran views its conventionally armed missiles as an integral part of its strategy to deter – and if necessary retaliate against—forces in the region, including those of the US. Its ballistic missiles are inherently capable of delivering WMD, and if so armed, would fit into this same strategy.

Clapper's testimony to the Congress on January 31, helped bring public statements of the US official position up to date, and for the first time suggested that Iran might strike at targets in the US:³

We assess **Iran** is keeping open the option to develop nuclear weapons, in part by developing various nuclear capabilities that better position it to produce such weapons, should it choose to do so. We do not know, however, if Iran will eventually decide to build nuclear weapons.

Iran nevertheless is expanding its uranium enrichment capabilities, which can be used for either civil or weapons purposes. As reported by the International Atomic Energy Agency, to date, Iran in late October 2011 had about 4,150 kg of 3.5 percent LEUF6 and about 80 kg of 20-percent enriched UF6 produced at Natanz. Iran confirmed on 9 January that it has started enriching uranium for the first time at its second enrichment plant, near Qom.

Iran's technical advancement, particularly in uranium enrichment, strengthens our assessment that Iran has the scientific, technical, and industrial capacity to eventually produce nuclear weapons, making the central issue its political will to do so. These advancements contribute to our judgment that Iran is technically capable of producing enough highly enriched uranium for a weapon, if it so chooses.

We judge Iran would likely choose missile delivery as its preferred method of delivering a nuclear weapon. Iran already has the largest inventory of ballistic missiles in the Middle East, and it is expanding the scale, reach, and sophistication of its ballistic missile forces, many of which are inherently capable of carrying a nuclear payload.

We judge Iran's nuclear decision making is guided by a cost-benefit approach, which offers the international community opportunities to influence Tehran. Iranian leaders undoubtedly

consider Iran's security, prestige, and influence, as well as the international political and security environment, when making decisions about its nuclear program.

Iran's growing inventory of ballistic missiles and its acquisition and indigenous production of anti-ship cruise missiles (ASCM) provide capabilities to enhance its power projection. Tehran views its conventionally armed missiles as an integral part of its strategy to deter—and if necessary retaliate against—forces in the region, including US forces. Its ballistic missiles are inherently capable of delivering WMD, and, if so armed, would fit into this strategy.

... The 2011 plot to assassinate the Saudi Ambassador to the United States shows that some Iranian officials—probably including Supreme Leader Ali Khamenei—have changed their calculus and are now more willing to conduct an attack in the United States in response to real or perceived US actions that threaten the regime. We are also concerned about Iranian plotting against US or allied interests overseas.

Iran's willingness to sponsor future attacks in the United States or against our interests abroad probably will be shaped by Tehran's evaluation of the costs it bears for the plot against the Ambassador as well as Iranian leaders' perceptions of US threats against the regime.

It is important to note that these statements by senior US intelligence officials show that US perceptions also include the threat of Iranian chemical and biological weapons, and close attention needs to be paid to the previous comments by the Deputy Director of National Intelligence's (DDNI) on Iranian Chemical and Biological Weapons (CBW) efforts.

As for official statements on the current estimate of the timing of Iran's programs, US Secretary of Defense Panetta said in January that US analysts believed that Iran could develop a nuclear weapon within about one year if Tehran decided to do so. Panetta was speaking on the CBS television program, "60 Minutes," in broadcast on January 29, 2012. He was careful, to note, however, that it would probably take Iran another two to three years to produce a missile or other vehicle that could deliver the weapon to a target.¹ There are some levels of uncertainty that can only be fully resolved if Iran actually tests a nuclear weapon and begins to deploy nuclear-armed forces.

IAEA Reporting a Key Source of US and Western Perceptions of Iran's Nuclear Threat

There is no way to know what given countries provide to the International Atomic Energy Agency (IAEA) by way of data on Iran's nuclear program and its related

¹ Radio Free Europe/Radio Liberty, "Panetta Says Iran Could Develop Nuclear Weapon Within A Year," 30.01.2012 09:19, http://www.rferl.org/content/panetta_iran_nuclear_weapon_year_aware/24467286.html.

missile and other delivery capabilities. US and European governments have provided substantial data to the IAEA, however, and the IAEA has recently expanded its reporting in ways which help shape at least a limited consensus on some aspects of the threat.

The IAEA's November 2011 report on Iran reflected a broad consensus among US, European, and other experts, and went into far more detail about Iran's efforts than previous reports. A new annex on "Possible Military Dimensions to Iran's Nuclear Program" took a step by step approach to reporting on Iran's efforts that both provided new details drawn from international experts and indications that Iran was making faster progress than had previously become public.⁴

It provided new historical details on Iran's efforts since 2002, described the possible organization of a program that could be weapons related, and went on to describe "nuclear explosive development indicators" that covered "procurement activities, nuclear material acquisition, nuclear components for an explosive device, detonator development, initiation of high explosives and associated experiments, modeling and calculations, neutron initiator, conducting a test, Integration into a missile delivery vehicle, and fusing, and arming and firing system."⁵

The IAEA was careful to state the limits to its information, but made it clear that a wide variety of countries had provided information showing that Iran might well have taken every step necessary to reach a capability to make and test a nuclear explosive device except for the acquisition of weapons grade Uranium.⁶

- ...information contained in the alleged studies documentation suggests that Iran was working on a project to secure a source of uranium suitable for use in an undisclosed enrichment program, the product of which would be converted into metal for use in the new warhead which was the subject of the missile re-entry vehicle studies. Additional information provided by Member States indicates that, although uranium was not used, kilogram quantities of natural uranium metal were available to the AMAD Plan.
- In addition, although now declared and currently under safeguards, a number of facilities dedicated to uranium enrichment (the Fuel Enrichment Plant and Pilot Fuel Enrichment Plant at Natanz and the Fordow Fuel Enrichment Plant near Qom) were covertly built by Iran and only declared once the Agency was made aware of their existence by sources other than Iran. This, taken together with the past efforts by Iran to conceal activities involving nuclear material, create more concern about the possible existence of undeclared nuclear facilities and material in Iran.
- ...Iran has acknowledged that, along with the handwritten one page document offering assistance with the development of uranium centrifuge enrichment technology, in which reference is also made to a reconversion unit with casting equipment, Iran also received the uranium metal document which describes, inter alia, processes for the conversion of uranium compounds into uranium metal and

the production of hemispherical enriched uranium metallic components. The uranium metal document is known to have been available to the clandestine nuclear supply network that provided Iran with assistance in developing its centrifuge enrichment capability, and is also known to be part of a larger package of information which includes elements of a nuclear explosive design. A similar package of information, which surfaced in 2003, was provided by the same network to Libya.³⁵ The information in the Libyan package, which was first reviewed by Agency experts in January 2004, included details on the design and construction of, and the manufacture of components for, a nuclear explosive device...

- ... The development of safe, fast-acting detonators, and equipment suitable for firing the detonators, is an integral part of a program to develop an implosion type nuclear device. Included among the alleged studies documentation are a number of documents relating to the development by Iran, during the period 2002–2003, of fast functioning detonators, known as “exploding bridgewire detonators” or “EBWs” as safe alternatives to the type of detonator described for use in the nuclear device design ...In 2008, Iran told the Agency that it had developed EBWs for civil and conventional military applications and had achieved a simultaneity of about one microsecond when firing two to three detonators together,³⁷ and provided the Agency with a copy of a paper relating to EBW development work presented by two Iranian researchers at a conference held in Iran in 2005.
- Detonators provide point source initiation of explosives, generating a naturally diverging detonation wave. In an implosion type nuclear explosive device, an additional component, known as a multipoint initiation system, can be used to reshape the detonation wave into a converging smooth implosion to ensure uniform compression of the core fissile material to supercritical density...The Agency has shared with Iran information provided by a Member State which indicates that Iran has had access to information on the design concept of a multipoint initiation system that can be used to initiate effectively and simultaneously a high explosive charge over its surface.⁴⁰ The Agency has been able to confirm independently that such a design concept exists and the country of origin of that design concept. Furthermore, the Agency has been informed by nuclear-weapon States that the specific multipoint initiation concept is used in some known nuclear explosive devices.
- One necessary step in a nuclear weapon development program is determining whether a theoretical design of an implosion device, the behavior of which can be studied through computer simulations, will work in practice. To that end, high explosive tests referred to as “hydrodynamic experiments” are conducted in which fissile and nuclear components may be replaced with surrogate materials...Information which the Agency has been provided by Member States, some of which the Agency has been able to examine directly, indicates that Iran has manufactured simulated nuclear explosive components using high density materials such as tungsten. These components were said to have incorporated small central cavities suitable for the insertion of capsules... Hydrodynamic experiments such as those described above, which involve high explosives in conjunction with nuclear material or nuclear material surrogates, are strong indicators of possible weapon

development. In addition, the use of surrogate material, and/or confinement provided by a chamber of the type indicated above, could be used to prevent contamination of the site with nuclear material. It remains for Iran to explain the rationale behind these activities.

- ...modeling studies alleged to have been conducted in 2008 and 2009 by Iran is of particular concern to the Agency. According to that information, the studies involved the modeling of spherical geometries, consisting of components of the core of an HEU nuclear device subjected to shock compression, for their neutronic behavior at high density, and a determination of the subsequent nuclear explosive yield. The information also identifies models said to have been used in those studies and the results of these calculations, which the Agency has seen. The application of such studies to anything other than a nuclear explosive is unclear to the Agency.
- The Agency obtained information in 2005 from a Member State indicating that, in 1997, representatives from Iran had met with officials from an institute in a nuclear-weapon State to request training courses in the fields of neutron cross section calculations using computer codes employing Monte
- Carlo methodology, and shock wave interactions with metals. In a letter dated 14 May 2008, Iran advised the Agency that there was nothing to support this information. The Agency has also been provided with information by a Member State indicating that, in 2005, arrangements were made in Iran for setting up projects within SADAT centers (see Section C.1 and Attachment 1), inter alia, to establish a databank for "equation of state" information⁴² and a hydrodynamics calculation center. The Agency has also been provided with information from a different Member State that, in 2005, a senior official in SADAT solicited assistance from Shahid Behesti University in connection with complex calculations relating to the state of criticality of a solid sphere of uranium being compressed by high explosives.
- Research by the Agency into scientific literature published over the past decade has revealed that Iranian workers, in particular groups of researchers at Shahid Behesti University and Amir Kabir University, have published papers relating to the generation, measurement and modeling of neutron transport....The Agency has also found, through open source research, other Iranian publications which relate to the application of detonation shock dynamics to the modeling of detonation in high explosives, and the use of hydrodynamic codes in the modeling of jet formation with shaped (hollow) charges. Such studies are commonly used in reactor physics or conventional ordnance research⁴⁴, but also have applications in the development of nuclear explosives
- Iran has undertaken work to manufacture small capsules suitable for use as containers of a component containing nuclear material. The Agency was also informed by a different Member State that Iran may also have experimented with such components in

order to assess their performance in generating neutrons. Such components, if placed in the center of a nuclear core of an implosion type nuclear device and compressed, could produce a burst of neutrons suitable for initiating a fission chain

reaction. The location where the experiments were conducted was said to have been cleaned of contamination after the experiments had taken place. The design of the capsule, and the material associated with it, are consistent with the device design information which the clandestine nuclear supply network allegedly provided to Iran...The Agency also has information from a Member State that work in this technical area may have

continued in Iran after 2004, and that Iran embarked on a four year program, from around 2006 onwards, on the further validation of the design of this neutron source, including through the use of a nonnuclear material to avoid contamination....Given the importance of neutron generation and transport, and their effect on geometries containing fissile materials in the context of an implosion device, Iran needs to explain to the Agency its objectives and capabilities in this field.

- ... Iran may have planned and undertaken preparatory experimentation which would be useful were Iran to carry out a test of a nuclear explosive device. In particular, the Agency has information that Iran has conducted a number of practical tests to see whether its EBW firing equipment would function satisfactorily over long distances between a firing point and a test device located down a deep shaft.
- The alleged studies documentation contains extensive information regarding work which is alleged to have been conducted by Iran during the period 2002 to 2003 under what was known as Project 111. From that information, the project appears to have consisted of a structured and comprehensive program of engineering studies to examine how to integrate a new spherical payload into the existing payload chamber which would be mounted in the re-entry vehicle of the Shahab 3 missile.
- ...The alleged studies documentation indicates that, as part of the studies carried out by the engineering groups under Project 111 to integrate the new payload into the re-entry vehicle of the Shahab 3 missile, additional work was conducted on the development of a prototype firing system that would enable the payload to explode both in the air above a target, or upon impact of the re-entry vehicle with the ground. Iran was shown this information, which, Iran was shown this information, which...it dismissed as being "an animation game"... Iran conducted computer modeling studies of at least 14 progressive design iterations of the payload chamber and its contents to examine how they would stand up to the various stresses that would be encountered on being launched and travelling on a ballistic trajectory to a target.
- ...During these studies, prototype components were allegedly manufactured at workshops known to exist in Iran but which Iran refused the Agency permission to visit...The Agency, in conjunction with experts from Member States other than those which had provided the information in question, carried out an assessment of the possible nature of the new payload. As a result of that assessment, it was concluded that any payload option other than nuclear which could also be expected to have an airburst option (such as chemical weapons) could be ruled out. Iran was asked to comment on this assessment and agreed in the course of a meeting with the Agency which took place in Tehran in May 2008 that, if the information upon which it was based were true, it would constitute a program for the development of a nuclear weapon.

¹ ODDNI, Report to Congress on Acquisition of Technology Relating to Weapons of Mass Destruction and Advanced Conventional Munitions, March 2010

http://www.dni.gov/reports/20110208_report_wmd.pdf [please find link and full citation]

² James R. Clapper, "Statement for the Record on the Worldwide Threat Assessment of the US Intelligence Community for the Senate Committee on Armed Services," March 10, 2011.

³ James R. Clapper, Director of National Intelligence, "Unclassified Statement for the Record on the Worldwide Threat Assessment of the US Intelligence Community for the Senate Select Committee on Intelligence," ODDNI, Washington, January 31, 2012

⁴ Report by the Director General, *Implementation of the NPT Safeguards Agreement and relevant provisions of Security Council resolutions in the Islamic Republic of Iran*, IAEA, **GOV/2011/65**
Date: 8 November 2011.

⁵ Report by the Director General, *Implementation of the NPT Safeguards Agreement and relevant provisions of Security Council resolutions in the Islamic Republic of Iran*, IAEA, **GOV/2011/65**
Date: 8 November 2011, , Annex, pp. 1-12.

⁶ Report by the Director General, *Implementation of the NPT Safeguards Agreement and relevant provisions of Security Council resolutions in the Islamic Republic of Iran*, IAEA, **GOV/2011/65**
Date: 8 November 2011, Annex, pp. 1-12.