NUCLEAR REACTION: President Mahmoud Ahmadinejad has a tough sell convincing the world Iran is not building a nuclear weapon.

The intelligence community believes Iran is not making an atomic bomb ... at least not yet

How the spies see Iran's nukes

BY TABASSUM ZAKARIA AND MARK HOSENBALL

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The United States, European allies and even Israel generally agree on three things about Iran's nuclear program: Tehran does not have a bomb, has not decided to build one and is probably years away from having a deliverable nuclear warhead.

Those conclusions, drawn from extensive interviews with current and former U.S. and European officials with access to intelligence on Iran, contrast starkly with the heated debate surrounding a possible Israeli strike on Tehran's nuclear facilities.

"They're keeping the soup warm but they are not cooking it," a U.S. administration official said.

Reuters has learned that in late 2006 or early 2007, U.S. intelligence intercepted telephone and email communications in which Mohsen Fakhrizadeh, a leading figure in Iran's nuclear program, and other scientists complained that the weaponization program had been stopped.

That led to a bombshell conclusion in a controversial 2007 National Intelligence Estimate: American spy agencies had "high confidence" that Iran halted its nuclear weapons program in the fall of 2003.

Current and former U.S. officials say they are confident that Iran has no secret uranium-enrichment site outside the purview of U.N. nuclear inspections.

They also have confidence that any Iranian move toward building a functional nuclear weapon would be detected long before a bomb was made.

These intelligence findings are what underpin President Barack Obama's argument that there is still time to see whether economic sanctions will compel Iran's leaders to halt any program.

The Obama administration, relying on a top-priority intelligence collection program and after countless hours of debate, has concluded that Iranian leaders have not decided whether to actively construct a nuclear weapon, current and former officials said.

BROTHERS-IN-ARMS: Israeli Prime Minister Netanyahu and U.S. President Obama agree on the need to contain Iran's nuclear ambitions but not on the timing of a pre-emptive strike. **REUTERS/KEVIN LAMARQUE**

> "Iran has been a high-priority intelligence target for years. Sometimes you get lucky, and sometimes we really are good
>
> **Thomas Fingar**
> Former chairman of the National Intelligence Council

There is little argument, however, that Iran's leaders have taken steps that would give them the option of becoming a nuclear-armed power.

Iran has enriched uranium, although not yet of sufficient quantity or purity to fuel a bomb, and has built secret enrichment sites, which were acknowledged only when unmasked.

Iran has, in years past, worked on designing a nuclear warhead, the complicated package of electronics and explosives that would transform highly enriched uranium into a fission bomb.

And it is developing missiles that could in theory launch such a weapon at a target in enemy territory.

There are also blind spots in U.S. and allied agencies' knowledge. A crucial unknown is the intentions of Iran's Supreme Leader, Ayatollah Ali Khamenei. Another question is exactly how much progress Iran made in designing a warhead before mothballing its program. The allies disagree on how fast Iran is progressing toward bomb-building ability: the U.S. thinks progress is relatively slow; the Europeans and Israelis believe it's faster.

U.S. officials assert that intelligence reporting on Iran's nuclear program is better than it was on Iraq's weapons of mass destruction, which proved to be non-existent but which President George W. Bush and his aides used to make the case for the 2003 invasion.

That case and others, such as the U.S. failure to predict India's 1998 underground nuclear test, illustrate the perils of divining secrets about others' weapons programs.

"The quality of intelligence varies from case to case," a U.S. administration official said. Intelligence on North Korea and Iraq

was more limited, but there was "extraordinarily good intelligence" on Iran, the official said.

Israel, which regards a nuclear Iran as an existential threat, has a different calculation. It studies the same intelligence and timetable but sees a closing window of opportunity to take unilateral military action and set back Iran's ambitions.

Israel worries that Iran will soon have moved enough of its nuclear program underground -- or spread it far enough around the country -- as to make it virtually impervious to a unilateral Israeli attack, creating what Defense Minister Ehud Barak recently referred to as a "zone of immunity."

While Israel would not be able to launch an effective offensive in this analysis, the U.S., with its deeper-penetrating bombs and in-air refueling capability, believes it could still get results from a military strike.

Israel has not publicly defined how or when Iran would enter this phase of a nuclear weapons program. Barak said last month that relying on an ability to detect an order by Khamenei to build a bomb "oversimplifies the issue dramatically."

U.S. confidence that Iran stopped its nuclear weaponization program in 2003 traces back to a stream of intelligence obtained

EXPLOSIVE SITUATION: Fear that Iran could produce a nuclear weapon has become a political flashpoint in the West. **REUTERS/INA FASSBENDER**

in 2006 or early 2007, which dramatically shifted the view of spy agencies.

Sources familiar with the intelligence confirmed the intercept of Fakhrizadeh's communications. The United States had both telephone and email intercepts in which Iranian scientists complained about how the leadership ordered them to shut down the program in 2003, a senior European official said.

U.S. officials said they are very confident that the intercepts were authentic - and not disinformation planted by Iran.

"Iran has been a high-priority intelligence target for years. Sometimes you get lucky, and sometimes we really are good," said Thomas Fingar, who was chairman of the National Intelligence Council when it compiled the 2007 intelligence estimate.

While declining to provide specific details, Fingar, now at Stanford University, said: "We got information that we had never been able to obtain before. We knew the provenance of the information, and we knew that we had been able to obtain it from multiple sources. Years of hard work had finally paid off."

The judgment that Iran had stopped work on the weapons program stunned the Bush White House and U.S. allies. Critics accused U.S. spy agencies of over-compensating for their flawed 2002 analysis that Iraq's Saddam Hussein had active nuclear, biological and chemical weapons programs.

The 2007 report gummed up efforts by the Bush administration to persuade the U.N. Security Council and others to add pressure on Iran with more sanctions. It was greeted with disbelief by Israel and some European allies.

"It really pulled the rug out of our sanctions effort until we got it back on track in 2008," recalled Stephen Hadley, former national security adviser to Bush.

Checklist for a nuclear bomb

What it would take to build a nuclear warhead–and where Iran may be in that process:

	FUEL	DEVICE	TEST	WARHEAD	MISSILES
NEEDS	About 25 kilograms of weapons-grade (90% enriched) uranium to make a single nuclear weapon.	A design that incorporates special metal, high explosives, precise triggers and initiators to set off a nuclear explosion.	A crude nuclear device to test, probably covertly.	To miniaturize this device so it would fit in the tip of a missile, the likely delivery vehicle.	Missiles to carry a nuclear device.
STATUS	Has about 110 kilograms of 20% enriched uranium. (It would take roughly 250 kilograms to be purified further into enough weapons-grade fuel for one nuclear weapon.)	Is not believed to have a nuclear device, but it is unclear how far along it is on designing a weapon.	No nuclear testing has been done, according to U.S. officials who are confident that one would be detected.	Intelligence agencies believe it would take at least one or two years to develop a deliverable warhead on a missile.	U.S. intelligence says Iran has the largest ballistic missile arsenal in the Middle East, but no numbers have been released publicly.

Overlooked by many was that the report said Iran had been pursuing a nuclear weapon and was keeping its options open for developing one, he said. "The problem was that it was misinterpreted as an all-clear when it wasn't that at all," Hadley said.

A November 2011 report by the U.N.'s International Atomic Energy Agency said suspected nuclear weaponization efforts led by Fakhrizadeh were "stopped rather abruptly pursuant to a 'halt order' instruction issued in late 2003 by senior Iranian officials."

The reasons for this are not clear. Western experts say it was probably related to a fear of being next on the hit list after the United States toppled Saddam next door.

Iran emphasizes its nuclear program is for civilian purposes. Ayatollah Khamenei this week said Iran does not have nuclear weapons and will not build them.

DISMEMBERED AND BURIED?

Some key U.S. allies were never entirely comfortable with the 2007 U.S. intelligence estimate. The Europeans conceded that a centrally directed weaponization program probably stopped but believed pieces of the program were being pursued separately.

Many European experts believed the Iranians had dismembered their bomb program and scattered and buried its parts, some of them in military or scientific installations, some in obscure academic institutions.

Under pressure from both European allies and Israel's supporters, U.S. intelligence agencies late in the Bush administration and early in Obama's tenure began to take a second look at the 2007 estimate. Some consideration was given to bringing it more into line with European views.

Intelligence received after publication of the 2007 estimate suggested that in 2006 Iran believed the United States was going to have to abandon its troubled venture in Iraq. Wisps of information were gathered that Iranian officials were talking about restarting elements of the bomb program, a U.S. intelligence official said on condition of anonymity.

SUPREME POWER: Ayatollah Khamenei calls the shots on whether to restart nuclear weapons development in Iran. **REUTERS/CAREN FIROUZ**

But analysts were divided about the significance of the new information. The revised estimate was delayed for months. Eventually, at the very end of 2010, an updated version was circulated within the government. Unlike the 2007 estimate, the White House made public no extracts of this document.

A consensus emerged among U.S. experts that the new intelligence information wasn't as alarming as originally thought, according to officials familiar with the result. The 2010 update largely stuck to the same assessments as the 2007 report, these officials said.

U.S. intelligence chiefs issued a vague public acknowledgement of the ambiguities of their latest assessment.

Director of National Intelligence James Clapper told Congress in February 2011 that "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."

The United States and Israel are on the same page in judging how long it would take Iran to have a nuclear weapon that could strike a target: about a year to produce a bomb and then another one to two years to put it on a missile.

Both countries believe Iran has not made a decision to build a bomb, so even if Tehran decided to move forward, it would be unlikely to have a working nuclear device this year, let alone a missile to deliver it.

"I think they are years away from having a nuclear weapon," a U.S. administration official said.

Three main pieces are needed for a nuclear arsenal: highly enriched uranium to fuel a bomb, a nuclear warhead to detonate it, and a missile or other platform to deliver it. For Iran's program, the West has the most information about the first.

Iran has a declared nuclear program for medical research and producing energy, is a member of the nuclear Non-Proliferation Treaty and allows U.N. nuclear inspectors into its facilities.

The inspections are conducted by the International Atomic Energy Agency, and its reports provide some of the best snapshots of where Iran's program stands.

Iran conducts uranium enrichment at the Natanz plant in central Iran and at a site at Fordow buried deep in a mountainous region near the holy city of Qom. Both sites were built secretly and made public by others.

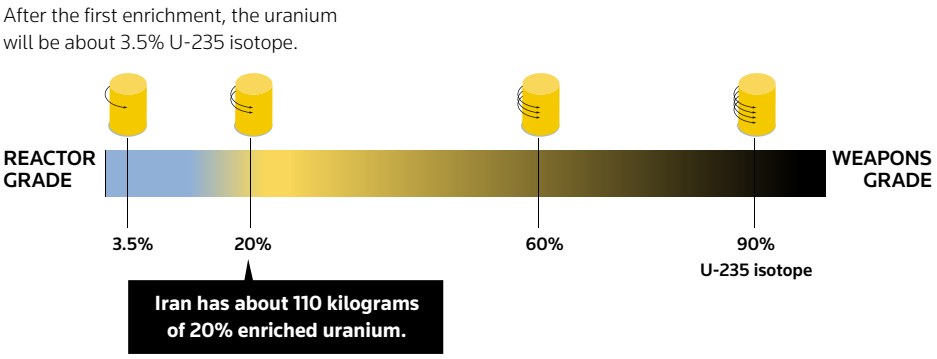
Natanz was unveiled in 2002 by an Iranian opposition group, the Mujahedin-e Khalq. Obama and other world leaders announced the existence of the Fordow site in 2009.

Natanz houses about 8,800 centrifuge machines spinning to increase the concentration of U-235, the type of uranium that yields fissile material. Fordow is built to contain about 3,000 centrifuge machines, but the most recent IAEA report says about 700 are operational.

Most of Iran's stockpile is 3.5 percent

Spin cycles

Natural uranium consists of less than 1% of the U-235 isotope needed for fission chain reaction. For a nuclear power plant, uranium must be enriched in a centrifuge to relatively low levels of purity. If it is further enriched, it can be used in a nuclear weapon.



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low enriched uranium. When Tehran declared in February 2010 that it would begin enriching uranium up to 20 percent purity, that sharply increased the anxiety of Israel and others.

Nuclear experts say that enriching uranium from the naturally occurring 0.7 percent concentration of U-235 to the low-level 3.5 percent accomplishes about 70 percent of the enrichment work toward weapons-grade uranium. At 20 percent concentration, about nine-tenths of the work has been completed. For Iran, getting to 90 percent would require changing some of the plumbing in the centrifuges, experts said.

"From 20 to 90 is exponentially easier," a U.S. intelligence official said.

An IAEA report last month said that Iran has produced nearly 110 kilograms (240 pounds) of uranium enriched to 20 percent. That is less than the roughly 250 kilograms (550 pounds) that nuclear experts say would be required, when purified further, for one nuclear weapon.

Iran's enrichment program was set back by the Stuxnet computer virus, which many security experts suspect was created by Israeli intelligence, possibly with U.S. assistance. It wormed its way into Iranian centrifuge machinery as early as 2009. The Institute for Science and International Security estimated that Stuxnet damaged about 1,000 centrifuges at Natanz and stalled its enrichment capability from growing for about a year.

But it isn't clear how lasting an impact Stuxnet has had. Reuters reported last month that U.S. and European officials and private experts believe Iranian engineers have neutralized and purged the virus.

EYES IN THE SKY

U.S. officials and experts are confident that Iran would be detected if it jumped to a higher level of enrichment.

The IAEA monitors Iran's enrichment facilities closely, watching with cameras and taking measurements during inspections. Seals would have to be broken if containers that collect the enriched material were moved or tampered with.

U.S. and European intelligence agencies are also keeping tabs through satellites, sensors and other methods. They watched for years as a hole was dug into a mountainside near Qom and determined - it is unclear precisely how - late in the Bush administration that Fordow was likely a secret uranium enrichment site.

Obama was briefed on Qom when he was president-elect and was the one to publicly announce it to the world in September 2009.

"They had a deep understanding of the facility, which allowed them to blow the whistle on Tehran with confidence," a U.S. official said.

Rumors periodically pop up of other secret enrichment sites, but so far they have not been substantiated. "Most of the people who make the argument that they might have a covert facility or a series of covert facilities are doing that to justify bombing them sooner rather than later," said Colin Kahl, a former defense official focused on the Middle East.

"We are very confident that there is no secret site now," a U.S. administration official said. But given Iran's history of secretly building facilities, the official predicted Tehran would eventually construct another covert plant.

One of the biggest question marks is how far Iran advanced in designing a nuclear device - a task considered to be less complicated than producing highly enriched uranium.

The more primitive the device, the more enriched uranium is required. Making it small enough to fit on the tip of a missile would be another challenge.

The IAEA has information that Iran built a large containment chamber to conduct high-explosives tests at the Parchin military complex southeast of Tehran. Conventional weapons are tested at that base, and the U.S. government appears convinced that any nuclear-related tests occurred prior to the 2003 halt.

But Iran denied the IAEA access to the Parchin site in February, raising more sus-

CENTRIFUGE CENTER: The Natanz facility is one of two enriching uranium in Iran. **REUTERS/RAHEB HOMAVANDI**

picion, and the nuclear agency seems less confident that weapons work has halted altogether.

IAEA chief Yukiya Amano said recently, "We have information that some activity is ongoing there."

In its November 2011 report, the IAEA said it had "serious concerns regarding possible military dimensions to Iran's nuclear programme."

It cited Iran's efforts to procure nuclear-related and dual-use equipment, acquisition of nuclear-weapons development information and work on developing a nuclear weapon design in the program that was stopped in late 2003.

"There are also indications that some activities relevant to the development of a nuclear explosive device continued after 2003, and that some may still be ongoing," the IAEA said.

While Iran does not yet have a nuclear warhead that can fit on a missile, it does have the missiles.

Iran has the largest inventory of ballistic missiles in the Middle East, and many of those projectiles could be repurposed to deliver a nuclear device, intelligence director Clapper said in congressional testimony.

Western experts also point to Iran's test firing of a rocket that can launch satellites into space as an example of a growing capability that could potentially be used for nuclear weapons.

"The nuclear threat is growing. They are getting relatively close to the place where they can make the decision to assemble all three parts of their program - enrichment, missile, weaponization," House Intelligence Committee Chairman Mike Rogers said in an interview.

Khamenei "hasn't said 'put it together' yet," said Rogers, a Republican. "Have they decided to sprint to making the device that blows up? Probably not. But are they walking to a device that blows up? Yes."

The debate over air strikes, supercharged by Israel's anxiety and U.S. election-year politics, has raised the specter of the Iraq war. The White House justified that conflict on the grounds of weapons of mass destruction, as well as significant ties between Iraq and al Qaeda. Both proved to be mirages.

"There are lots of disturbing similarities. One has to note the differences, too," said Paul Pillar, a former top CIA analyst.

"The huge difference being we don't have an administration in office that is the one hankering for the war. This administration is not hankering for a war, said Pillar."

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