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**Two Nuclear Programs :  
The Iranian Civil Nuclear Program and  
Israel's Nuclear Weapons Program**

**The Iranian Civil Nuclear Program**

***A brief historical overview***

The nuclear program of Iran was launched in the 1950's with the help of the United States as part of the "Atoms for Peace" program. The support, encouragement and participation of the United States and Western European governments in Iran's nuclear program continued until the 1979 Iranian Revolution that toppled the Shah. After the 1979 revolution, the Iranian government temporarily disbanded elements of the program.

The foundations for Iran's nuclear program were laid after the CIA and MI6 organised 1953 coup which deposed the nationalist Iranian Prime Minister Mohammed Mossadegh who had nationalised the Iranian oil industry.

A civil nuclear co-operation program was established under the U.S. "Atoms for Peace" program.

In 1967, the Tehran Nuclear Research Center (TNRC) was established.

Iran signed the Nuclear Non-Proliferation Treaty (NPT) in 1968 and ratified it in 1970.

In 1975, the German firm Kraftwerk Union AG, a joint venture of Siemens AG and AEG, signed a contract worth \$4 to \$6 billion to build a pressurised water reactor nuclear power plant at Bushehr.

The French government subsidiary company Cogéma and the Iranian Government established the Sofidif (Société Franco–Iranienne pour

l'enrichissement de l'uranium par diffusion gazeuse) enterprise with 60% and 40% shares, respectively.

The 1979 Islamic Revolution saw the overthrow of the Shah.

The United States stopped fulfilling the contracts it had with Iran, while France, Germany, and other countries also reduced their cooperation with Iran due to pressure from the United States. Iran argues these experiences showed the unreliability of working with the West on nuclear issues

France after 1979 refused to give any enriched uranium to Iran and did not return Iran's investments.

In January 1979, Kraftwerk Union AG stopped working at the Bushehr nuclear project. The company had then already received already \$2.5 billion of the total contract.

The International Atomic Energy Agency (IAEA) also dropped plans to help Iran on fuel production and uranium conversion due to U.S. pressure.

In 1990, Iran began to look towards new partners for its nuclear program and signed in 1995 a contract with Russia to resume work on the partially complete Bushehr plant.

On October 21, 2003, in Tehran, the Iranian government and EU-3 (France, Germany and the United Kingdom) Foreign Ministers issued a statement known as the Tehran Declaration in which Iran agreed to co-operate with the IAEA to sign and implement an Additional Protocol as a voluntary, confidence- building measure, and to suspend its enrichment and reprocessing activities during the course of the negotiations. The EU-3 in return explicitly agreed to recognise Iran's nuclear rights. Iran signed the Additional Protocol on December 18, 2003, and agreed to act as if the protocol were in force, making the required reports over to the IAEA and allowing the required access by IAEA inspectors, pending Iran's ratification of the Additional Protocol.

On November 14, 2004, Iran's chief nuclear negotiator announced a voluntary and temporary suspension of its uranium enrichment program (enrichment is not a violation of the NPT) and the voluntary implementation of the Additional Protocol as a confidence- building measure.

In February 2005, Iran pressed the EU-3 to speed up the negotiations, which the

EU-3 refused to do so.

In August 2005, after the June election of Mahmoud Ahmadinejad as Iran's President, Iran removed the seals on its uranium enrichment equipment in Isfahan.

On February 4, 2006, the 35 member Board of Governors of the IAEA voted 27-3 (with five abstentions : Algeria, Belarus, Indonesia, Libya and South Africa) to report Iran to the UN Security Council.

In response, on February 6, 2006, Iran suspended its voluntary implementation of the Additional Protocol and all other voluntary and non-legally binding cooperation with the IAEA beyond what is required by its safeguards agreement.

Iran had agreed to implement the Additional Protocol under the terms of the October 2003 Tehran agreement and its successor, the November 2004 Paris agreement, and did so for two years before withdrawing from the Paris agreement in early 2006 following the breakdown of negotiations with the EU-3. Iran had not only offered to ratify the Additional Protocol, but also to implement transparency measures on its nuclear program that exceed the Additional Protocol, as long as its right to operate an enrichment program is recognised. The UN Security Council, however, insists that Iran must suspend all enrichment-related and reprocessing activities and the United States explicitly ruled out the possibility that it would allow Iran to produce its own nuclear fuel.

On April 11, 2006, Iranian President Mahmoud Ahmadinejad announced that Iran had successfully enriched uranium to 3.5% using over a hundred centrifuges.

In Resolution 1696 of July 31, 2006, the United Nations Security Council demanded that Iran suspend all enrichment and reprocessing related activities.

IAEA officials complained in 2007 that most U.S. intelligence shared with it about Iran's nuclear program proved to be inaccurate.

An IAEA report to the Board of Governors on August 30, 2007, stated that the IAEA had been able to verify the non-diversion of the declared nuclear materials at the enrichment facilities in Iran and that longstanding issues regarding plutonium experiments and HEU (High Enriched Uranium)

contamination on spent fuel containers were considered resolved.

The report also outlined a work plan agreed by Iran and the IAEA to resolve the remaining safeguards implementation issues. The then head of the IAEA Department of Safeguards, Olli Heinonen, observed that measures in the work plan went beyond the requirements of the Additional Protocol.

In late October 2007, the then head of the IAEA, Mohamed El Baradei, stated that he had seen no evidence of Iran developing nuclear weapons.

A senior IAEA official denied reports of internal disagreements and accused some Western powers of using the same tactics employed against Iraq before the 2003 U.S.-led invasion to justify imposing further sanctions on Iran over its nuclear program.

The IAEA issued its report on the implementation of safeguards in Iran on February 22, 2008. IAEA Director Mohammad El Baradei stated that all the remaining outstanding issues had been cleared, including the most important issue, which is the scope and nature of Iran's enrichment programme.

On May 26, 2008, the IAEA issued another regular report on the implementation of safeguards in Iran. According to the report, the IAEA had been able to continue to verify the non-diversion of declared nuclear material in Iran and Iran had provided the Agency with access to declared nuclear material reports as required by its safeguards agreement.

According to a September 15, 2008, IAEA report on the implementation of safeguards in Iran, Iran continued to provide the IAEA with access to declared nuclear material and activities which continued to be operated under safeguards and with no evidence of any diversion of nuclear material for non-peaceful uses.

The IAEA emphasised that the report of missing nuclear material in Iran as being "fictitious" and that IAEA inspectors had found no evidence on the actual design or manufacture by Iran of nuclear material components of a nuclear weapon.

In a February 2009 IAEA report, the Agency was able to confirm there was no ongoing reprocessing related activities at Iran's Tehran Research Reactor. Iran said that for the six years the Agency has been considering its case, the IAEA has not found any evidence to prove that Tehran is seeking a nuclear weapon. IAEA spokesman Melissa Fleming asserted that no nuclear material could be removed from the facility for further enrichment to make nuclear weapons

without the agency's knowledge since the facility is subject to video surveillance and the nuclear material is kept under seal.

In March 2009, the then U.S. National Intelligence Director Dennis C. Blair, told a United States Senate Committee that Iran has only low-enriched uranium of which there were no indications it was refining it.

In July 2009, Yukiya Amano, the in-coming head of the IAEA, also declared that he hadn't seen any evidence in IAEA official documents that Iran is trying to gain the ability to develop nuclear arms.

On 9 February 2010, Iran announced that it would produce uranium enriched to up to 20%, by processing its existing stocks of 3.5% enriched uranium, to produce fuel for its research reactor used to produce medical radio-isotopes.

On May 17, 2010, Iran, Brazil, and Turkey issued a joint declaration in which Iran agreed to send 1.200 kg low-enriched uranium to Turkey in return for enriched fuel for a the Tehran based research reactor. Iran reported the joint declaration to the IAEA on May 24, 2010, asking it to inform the "Vienna Group" (the United States, Russia, France, and the IAEA) in order to conclude a written agreement and make contingent arrangements between Iran and the Vienna Group. Turkish Foreign Minister, Ahmet Davutoğlu, said that the swap agreement showed Iran's clear political will toward engagement on the nuclear issue.

### ***Laptop and Alleged Studies***

The continuing controversy over Iran's nuclear program revolves in part around allegations of nuclear studies by Iran with possible military applications until 2003, when, according to the 2007 National Intelligence Estimate, the program was ended. The allegations, which include claims that Iran had engaged in high-explosives testing, sought to manufacture "green salt" and to design a nuclear-capable missile warhead, were based on information obtained from a laptop computer which was allegedly retrieved from Iran in 2004. The US presented some of the alleged contents of the laptop in 2005 to an audience of international diplomats, though the laptop and the full documents contained in it have yet to be given to the IAEA for independent verification.

On August 21, 2007, Iran and the IAEA finalised an agreement titled "Understandings of The Islamic Republic of Iran and the IAEA on the Modalities of Resolution of the Outstanding Issues", that listed outstanding

issues regarding Iran's nuclear program and set out a timetable to resolve each issue.

Specifically regarding the "Alleged Studies", the Modalities Agreement asserted that while Iran considers the so called laptop documents to be fabricated, Iran would nevertheless address the allegations upon receiving all related documents as a goodwill gesture. The Modalities Agreement specifically said that aside from the issues identified in the document, there were no other remaining issues and ambiguities left regarding Iran's past nuclear program and activities.

Following the implementation of the Modalities Agreement, the IAEA issued another report on the status of Iran's nuclear program on Feb 22, 2008. According to this report, the IAEA had no evidence of a current, undeclared nuclear program in Iran and all of the remaining issues listed in the Modalities Agreement regarding past undeclared nuclear activities had been resolved

In April 2008, Iran reportedly agreed to address the sole outstanding issue of the "Alleged Studies". However, according to the subsequent May 2008 IAEA report, the IAEA was not able to actually provide these same "Alleged Studies" documents to Iran because the IAEA did not have the documents itself or was not allowed to share them with Iran.

Nevertheless, according to the report, the IAEA itself had not detected any evidence of actual design or manufacture by Iran of nuclear weapons or components.

According to Iran's envoy to the IAEA, Ali Asghar Soltanieh, the government of the United States has not handed over original documents to the IAEA since it does not in fact have any authenticated document and all it has are forged documents.

Questions about the authenticity of the documents persist, with claims that the documents were obtained either from Israel or the Mujahedin-e-Khalq (MEK), an Iranian dissident group officially considered to be a terrorist organisation.

### ***Political Issues relating to Nuclear Power***

Iran says that its nuclear program is solely for peaceful purposes and consistent with the Non Proliferation Treaty (NPT).

The core of the NPT is that if non-nuclear-weapon states renounce the pursuit of

nuclear weapons, and comply fully with this commitment, they may gain assistance under Article IV of the Treaty to develop peaceful nuclear programs. As a consequence, demands to cease enrichment run counter to the fundamental principle of the NPT as known since the 1960's.

In February 2006, the former Iranian Foreign Minister, Manouchehr Mottaki, insisted that Iran rejects all forms of scientific and nuclear apartheid and that Iran has the undeniable right to a peaceful use of nuclear energy.

The Iranian authorities deny seeking a nuclear weapons capacity for deterrence or retaliation because the acquisition of nuclear weapons would only spark an arms race in the Middle East.

Iran has consistently supported the creation of a nuclear-weapons free zone in the Middle East.

### ***Views on Iran's nuclear power program***

#### ***(a) The Iranian viewpoint***

The Iranian stance is that its natural energy resources, oil and gas, should be used for high-value products, not simple electricity generation.

Independent studies conducted by the Foreign Affairs Select Committee of the British Parliament and the U.S. National Academy of Sciences confirmed that Iran has a valid economic basis for its nuclear energy program.

After the 1979 Iranian Revolution, Iran informed the IAEA of its plans to restart its nuclear program using indigenously made nuclear fuel and in 1983 the IAEA planned to provide assistance in uranium conversion to Iran under its Technical Assistance Program, until the program was terminated under U.S. pressure.

Iran says it has suggested to the EU3 (France, Germany and the United Kingdom) to ask the IAEA to develop monitoring modalities for Iran's enrichment program as objective guarantees to ensure that Iran's nuclear program will remain exclusively for peaceful purposes and has also provided its own set of Western suggested modalities to the Agency.

However, Iran says it will not suspend its enrichment because in this case it would be deprived from its inalienable right to work on the nuclear fuel cycle with the aim of producing required fuels for its research reactors and nuclear

power plants. Iran has a legal right to enrich uranium for peaceful purposes under the Nuclear Non-Proliferation Treaty.

Iranian politicians compare its treatment as a signatory to the NPT with three nuclear-armed nations that have not signed the NPT : Israel, India, and Pakistan. Each of these nations developed an indigenous nuclear weapons capability. Israel by 1966, India by 1974, and Pakistan by 1990.

The Iranian authorities assert that they cannot simply trust the United States or Europe to provide Iran with nuclear energy fuel, and point to a long series of agreements, contracts and treaty obligations which were never fulfilled.

### ***(b) Middle Eastern views***

The majority of Middle Eastern countries see nuclear energy as a means to conserve hydrocarbon resources, reduce carbon emissions, and provide electricity and safe drinking water for their rapidly growing populations.

On May 17, 2009, Arab League Chief Amr Moussa said that Israel's nuclear program was more worrying than Iran's.

### ***(c) US and European viewpoint***

In March 2009, the U.S. Director of National Intelligence (Dennis Blair) and the Defence Intelligence Agency Director (Lt.-Gen. Michael Maples) both testified before Congress that Iran did not have highly enriched uranium for bomb-making and had not made the decision to produce any and also that Iran's missile program was not related to its nuclear program.

Iran says its voluntary confidence building measures were only reciprocated by broken promises and expanded requests and that the EU3 simply wanted prolonged and fruitless negotiations to inhibit Iran from exercising its inalienable right to peaceful nuclear technology.

Independent analyses, including a study by the UK Parliamentary Office of Science and Technology, support the economic basis for an Iranian nuclear power program.

Christoph Bertram, a former director of the London based International Institute for Security Studies (IISS), has stated that a nuclear weaponed Iran would not be in Iran's strategic interest and rather that a nuclear Iran would jeopardise the

strenuously gained political capital that it has earned since the end of the Iran-Iraq war.

Iran criticises the West's double standards and says its nuclear program is a step to remove the scientific monopoly certain world countries are trying to impose on the world.

***(d) 2007 the Iran National Intelligence Estimate***

In December 2007, the United States National Intelligence Estimate (NIE), representing the consensus view of all American spy agencies, judged with high confidence that Iran had halted its nuclear weapons program in 2003. The conclusion that Iran had a nuclear weapons program in 2003 was reportedly mainly based on the contents of the laptop computer that was allegedly stolen from Iran and provided to US intelligence agencies by dissidents.

Russia dismissed this conclusion, stating that they had not seen evidence that Iran had ever pursued a nuclear weapons program.

Mohammed El Baradei, the former Director of the IAEA, noted in particular that the NIE's conclusions corresponded with the IAEA's consistent statements that it had no concrete evidence of an ongoing nuclear weapons program in Iran.

In a February 2009 testimony before the U.S. Senate, former Director of National Intelligence, Dennis Blair, reaffirmed the conclusions of the 2007 National Intelligence Estimate.

***(e) Developing countries and the Non-Aligned Movement***

On September 16, 2006, at the summit level of the Non-Aligned Movement (NAM) in Havana, Cuba, all of the 118 member countries declared their support for Iran's civilian nuclear program in their final written statement. The Non-Aligned Movement (NMA) represents a majority of the 192 countries comprising the entire United Nations.

On July 30, 2008, the Non-Aligned Movement welcomed the continuing cooperation of Iran with the IAEA and reaffirmed Iran's right to the peaceful use of nuclear technology. The movement further called for the establishment of a nuclear weapons free zone in the Middle East and called for a comprehensive multilaterally negotiated instrument which prohibits threats of attacks on nuclear facilities devoted to peaceful use of nuclear energy.

In February 2007, lawmakers from 57 member states of the Organisation of the Islamic Conference (OIC), addressing Iran's nuclear program at a meeting in Kuala Lumpur, Malaysia, urged full respect for equal and inalienable rights for all nations to explore modern technologies including nuclear energy for peaceful purposes.

According to a 2008 global poll of Arab public opinion, the Arab public does not appear to see Iran as a major threat and does not support international pressure to force Iran to curtail the program.

This and other polls show that Israel, not Iran, is seen as posing a nuclear threat to the Middle East.

### **Israel's Nuclear Weapons Program**

Israel is widely believed to be the sixth country in the world to have developed nuclear weapons and to be one of four nuclear-armed countries not recognised as a Nuclear Weapons State by the Nuclear Non-Proliferation Treaty (NPT), the others being India, Pakistan and North Korea, as it has refused to sign the NPT.

Israel started investigating the nuclear field soon after its founding in 1948 and, with French support, secretly began building a nuclear reactor and reprocessing plant in the late 1950's. Although Israel first built a nuclear weapon in the late 1960's, it was not publicly confirmed from the inside until Mordechai Vanunu, a former Israeli nuclear technician, revealed details of the program to the British press in 1986. Israel is currently believed to possess between 200 and 400 nuclear warheads with the ability to deliver them by intermediate-range ballistic missiles, aircraft, and submarine.

France and Israel maintained close relations in developing Israel's nuclear weapons program from the early start. France was a principal arms supplier for the young Zionist state and, as instability spread through French colonies in

North Africa, Israel provided France with valuable intelligence obtained from contacts with Sephardi Jews in those countries.

When Egyptian President Gamal Abdel Nasser nationalised the Suez Canal on 26 July 1956, France proposed Israel attack Egypt and invade the Sinai as a pretext for France and Britain to invade Egypt, posing as "peacekeepers", with the true intent of seizing the Suez Canal. In exchange, France would provide the nuclear reactor serving as the basis for the Israeli nuclear weapons program.

Building began in late 1957, bringing hundreds of French engineers and technicians to the Beersheba and Dimona area.

Top secret British documents obtained by "BBC Newsnight" show that also Britain made hundreds of secret shipments of restricted materials to Israel in the 1950's and 1960's.

The investigation also showed that Britain shipped 20 tons of heavy water, through a Norwegian front company, to Israel in 1959 and 1960 to start up the Dimona reactor.

Israel admits running the Dimona reactor with Norway's heavy water since 1963.

In 1961, then Israeli Prime Minister David Ben-Gurion informed the Canadian Prime Minister John Diefenbaker that a pilot plutonium-separation plant would be built at Dimona. British intelligence concluded that this could only mean that Israel intended to produce nuclear weapons.

The nuclear reactor at Dimona went critical in 1962. By 1965 the Israeli reprocessing plant was completed and ready to convert the reactor's fuel rods into weapons grade plutonium.

Israel is believed to have begun full scale production of nuclear weapons following the 1967 Six-Day War, although it may have had bomb parts earlier. A CIA report from early 1967 stated that Israel had the materials to construct a bomb in six to eight weeks and some authors suggest that Israel had two crude bombs ready for use during the war.

In September 1992, German intelligence was quoted in the press as estimating that 40 top Jewish Soviet nuclear scientists had emigrated to Israel since 1989 with, in 1991 alone, when the Soviet Union dissolved, 20 of them.

The first extensive details of Israel's nuclear weapons program came up in the London based "Sunday Times" on 5 October 1986, which printed information provided by Mordechai Vanunu, a technician formerly employed at the Negev Nuclear Research Centre near Dimona.

Vanunu's information indicated that Israel had also built thermonuclear weapons.

Israel's nuclear weapons capacity is commonly estimated between 200 to 400 warheads which is equivalent to almost four thousand Hiroshima-type bombs.

Its military forces possess land-, air-, and sea-based methods for deploying their nuclear weapons.

Israel's "Jericho III" Intercontinental Ballistic Missile (ICBM) became operational in January 2008 and some reports speculate that the missile may be able to carry MIRV (multiple independently targetable reentry vehicle) warheads, a collection of nuclear weapons carried on a single intercontinental- or a submarine-launched ballistic missile. The maximum range estimation of the "Jericho III" is 11,500 km with a payload of 1,000–1,300 kg (up to six small nuclear warheads of 100 kiloton (Kt.) each or one 1 megaton nuclear warhead).

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