



Israel's Nuclear Program
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Background

An independent nuclear deterrent has been widely seen as a matter of national survival in Israel due to its history. For the Jewish people the state of Israel came to represent the restoration of their homeland after the 19-century-long Diaspora that followed the collapse of the Herodian kingdom in the 1st century CE.¹ The land of Israel then became a part of the Roman and Byzantine empires, and from the 7th century CE had been governed by successive Islamic dynasties. By the 1800s, fewer than 25,000 Jews remained in the area. However, in the 20th century, the Jewish presence in the region grew dramatically as a result of anti-Semitism in Europe and the subsequent Holocaust perpetrated by Nazi Germany.² To address the problem, the movement of Zionism advocated the establishment of an independent Jewish state.³

With the collapse of the Ottoman Empire at the end of World War I, the region was placed under British mandate from the League of Nations. According to the Balfour Declaration of 1917, Britain was to facilitate establishing a “national home for the Jewish people” in Palestine, while preserving the “civil and religious” rights of the non-Jewish population.⁴ The British efforts to bring the Jews and the Arabs together failed, however, and on November 29, 1947, the General Assembly of the newly founded United Nations voted to divide Palestine into two states. On May 14, 1948, the Jewish people proclaimed the State of Israel, which was immediately recognized by the United States, the Soviet Union, and many other states.

On the very next day, Egypt, Syria, Jordan, Lebanon, and Iraq invaded the newly founded state. After a year of fighting, a ceasefire was concluded and a temporary border – the Green Line – established, but the hostilities between Israel and its Arab neighbors never ceased.⁵ In its 60 years of independent existence, Israel's expanding settlements have been frequently attacked by the Arab states as well as by non-state actors, most importantly the Palestinian Liberation Organization (PLO). The disputes over territory and the status of refugees are ongoing, and the lessons learned in the Suez Crisis (1956-57), the Six Day War (1967), the War of Attrition against Egypt (1967-70), the Yom Kippur War (1973), as well as the numerous attacks by Palestinian groups against Israelis around the world, convinced the Israeli leadership that only nuclear weapons would protect the country.⁶ Aware of the existential threats Israel faced, its allies closed their eyes on Israel's nuclear exploits, and France even provided the necessary technology.⁷

In 1949, a special unit of the Israeli Defense Force Science Corps was sent out on a survey of the Negev desert to locate uranium reserves. In 1952, the Israel Atomic Energy Commission (IAEC) was created. Ernst David Bergmann, an advocate of an Israeli nuclear weapons program⁸ and the head of the Ministry of Defense's Research and Infrastructure Division, was appointed IAEC chairman.

Israel progressed quickly. By 1953, a new method of producing heavy water was developed, and in the fall of 1956, Paris agreed to provide Israel with an 18 Megawatt (MWt) research reactor. After the Suez Crisis (1956-57), however, France promised to build a 24 MWt reactor instead and, in protocols that were not committed to paper, a chemical reprocessing plant. The plant was constructed in secret, outside the IAEA inspection regime at Dimona, under the leadership of Col. Manes Pratt of the IDF Ordinance Corps.⁹ In 1959-1960, Britain sold 20 tons of heavy water as well as beryllium and lithium-6 to Israel, advancing its nuclear program even further. Feeling compunctions in May 1960, the French government pressured Israel into promising that it had no intention of producing nuclear weapons, would not reprocess plutonium, would make the existence of the reactor public, and would complete its construction without French assistance.¹⁰

The United States first detected the Dimona construction after U-2 overflights in 1958.¹¹ The complex was variously explained as an agricultural station, a textile plant, and a metallurgical research facility. Only in December 1960 did Israel announce that Dimona was a nuclear research center built for “peaceful purposes.”¹² US inspectors subsequently visited the reactor, but failed to identify its true purpose.¹³

Nevertheless, as early as December 8, 1960, the Central Intelligence Agency (CIA) issued a report outlining Dimona's implications for nuclear proliferation. By the end of 1968, the CIA publicly estimated that Israel had 10-20 nuclear weapons.¹⁴ In February 1969, Henry Owen, chairman of the State Department's Policy Planning Council, wrote to Secretary of State William Rogers, “Intelligence indicates that Israel is rapidly developing a capability to produce and deploy nuclear weapons, and to deliver them by surface-to-surface missile or a plane. Recognizing the adverse repercussions of the disclosure, the Israelis are likely to work on their nuclear program clandestinely till they are ready to decide whether to deploy the weapons.”¹⁵ Aware of the consequences and admitting the irreversibility of the development, US National Security Adviser Henry Kissinger sent a memorandum to President Richard Nixon on July 19, 1969, warning him that “the Israelis, who are one of the few peoples whose survival is genuinely threatened, are probably more likely than almost any other country to actually use their nuclear weapons.”¹⁶ By September 1969, US intelligence knew that Israel had completed “several sites providing operational launch capabilities.”¹⁷ If some uncertainty did remain, it was only as to whether Israel was days or months away from possessing an operational nuclear arsenal.¹⁸

Although the United States did not approve of the Israeli nuclear program, it barely tried to stop it. The secret Richard Nixon-Golda Meir understanding allowed the leaders of the two countries to continue on with their policies without publicly acknowledging the emergence of a new nuclear weapons state. As experts Avner Cohen and William Burr point out, even in a classified congressional hearing in 1975, the State Department did not officially agree with the CIA estimate that Israel had the bomb.¹⁹

There is no evidence that Israel has ever carried out a nuclear test. However, on November 2, 1966, a possible test – perhaps a zero yield or implosion test – occurred in the Negev desert, and in 1979 a US Vela satellite detected a double flash of light at or near the Indian Ocean surface – believed to be Israel's joint nuclear test with South Africa – but this was never confirmed.²⁰

By 1986, leaks by Mordechai Vanunu, an Israeli technician who worked at the nuclear plant in Dimona,²¹ led to the estimates of Israel assembling 100-200 fission weapons.²² In May 1989, the director of the CIA indicated that Israel may have been working on a thermonuclear weapon.²³

On October 31, 1998, the United States and Israel signed a Memorandum of Agreement, which committed the United States to enhancing Israel's "defensive and deterrent capabilities."²⁴ The United States pledged to defend Israel against "direct threats to Israel's security arising from the regional deployment of ballistic missiles of intermediate range or greater."²⁵ The agreement now acts as "a virtual US umbrella" over Israel against missile attack.²⁶ This did not stop Israel from enhancing its own nuclear capabilities, however. In June 2000, reports surfaced that Israel will arm submarines with nuclear-armed cruise or ballistic missiles.²⁷ By 2003 Israel had allegedly modified the Harpoon cruise missile to have nuclear warheads.²⁸

Today Israel's arsenal is believed to consist of 75 to 200 weapons, comprising bombs, missile warheads, and possibly non-strategic (tactical) weapons.²⁹ In January 2009, the Stockholm International Peace Institute (SIPRI) ranked Israel as the sixth world nuclear power (after the five UN Security Council permanent members) on the basis of the number of deployed nuclear warheads.³⁰ Unlike the U.S., Russia, UK, France and China, however, Israel is not a signatory to the 1968 Non-Proliferation Treaty (NPT).

Israel's arsenal has never been officially confirmed or denied. Israel continues to maintain its so-called "strategic ambiguity."³¹ This approach was meant to avoid the incentives within the Arab world to develop nuclear parity with Israel, comply with French conditions of complete secrecy resulting from French-Israeli nuclear cooperation, protect the United States-Israeli understanding, and leave the door for international aid open.³² Israel declared that it will not be the first state to introduce nuclear weapons into the Middle East and is on record as supporting a WMD-free Middle East. This way Israel benefits from being perceived as a nuclear power while at the same time not suffering the adverse consequences of being one.³³

Current Issues

The tactic of nuclear ambiguity has hardly made Israel safer. Waves of violence still shake the region. After the conflict between Hamas and Israel in December 2008,³⁴ the fragile ceasefire was reached on January 17, 2009 and remains in force today. Moreover, three other states in the region – Iran, Iraq and Syria – have been suspected of aspiring to develop nuclear programs. In the past, Israel tried dealing with such threats unilaterally. On June 7, 1981 Israel bombed the Iraqi nuclear reactor Osirak in "Operation Opera," and in September 6, 2007 it launched an air strike, "Operation Orchard," against a presumed nuclear site in Syria.³⁵ Today, it is Iran's nuclear ambitions that are a primary concern. In a parliamentary meeting on January 18, 2008, Israeli Prime Minister Ehud Olmert said, "All options that prevent Iran from gaining nuclear capabilities are legitimate within the context of how to grapple with this matter."³⁶ The potential consequences of an Israeli strike on Iran's nuclear facilities are still debated in the international community.³⁷

Bennett Ramberg, who served in the U.S. State Department's Bureau of Politico-Military Affairs during the George H.W. Bush administration, draws attention to another nuclear-related danger in the Middle East: the possibility that Iran or Hezbollah could attack Israel's plutonium-production reactor at Dimona. According to Ramberg, the effects caused by the strike would be similar to a substantial radiological weapon or dirty bomb.³⁸ An Iranian attack would become even more likely were an Israeli strike on Iran's enrichment facilities to occur.³⁹

Israel is the only country in the Middle East that is not a member of the nuclear Non-Proliferation Treaty (NPT). Other countries in the region have repeatedly pressured Israel to disarm. Since the 1980s, the United Nations General Assembly (UNGA) has passed annual

resolutions calling upon Israel to join the NPT as a non-nuclear weapons state. The International Atomic Energy Agency (IAEA) has initiated a security dialogue with the Israeli government, seeking Israeli support for a Middle East Nuclear Weapon-Free Zone. However, little progress has been made.

Timeline

May 14, 1948: The Jewish people proclaim independence, naming the country Israel. The British mandate in Palestine ends.

May 15, 1948: Egypt, Syria, Jordan, Lebanon, and Iraq invade Israel.⁴⁰

1949: Uranium exploration in the Negev desert begins.

1956: France agrees to provide Israel with an 18 MWt research reactor.

October 26, 1956 – March 1957: Following Egypt's decision of July 26, 1956 to nationalize the Suez Canal, Britain, France, and Israel attack Egypt.

October 3, 1957: France and Israel sign an agreement calling for France to build a 24 MWt reactor and, in protocols that are not committed to paper, a chemical reprocessing plant at Dimona.

1958: The United States detects the Dimona project.

1959-1960: Britain sells 20 tons of heavy water, beryllium and lithium-6 to Israel.

May 1960: France begins to pressure Israel to make the Dimona project public and to submit to international inspections of the site.

November 2, 1966: Possible Israeli nuclear test in the Negev desert occurs.

1968: The CIA publicly estimates that Israel has 10-20 nuclear weapons.

July 19, 1969: US National Security Adviser Henry Kissinger sends a memorandum to President Richard Nixon admitting that “[t]he Israelis, who are one of the few peoples whose survival is genuinely threatened, are probably more likely than almost any other country to actually use their nuclear weapons.”⁴¹

October 6, 1973: The Egyptian and Syrian armies launch a surprise attack against Israel on Yom Kippur, the holiest day in the Jewish calendar.

October 26, 1973: Israel wins the Yom Kippur War after suffering great losses.⁴²

1977: Egyptian President Anwar El Sadat visits Israel in the first act of recognition of Israel by an Arab head of state.

September 22, 1979: A double flash of light is detected by a US Vela satellite, which is suspected to be an Israeli joint nuclear test with South Africa (never confirmed).⁴³

June 7, 1981: Israel bombs Iraq's Osirak nuclear reactor in Operation Opera, disabling it.

1986: Leaks by Mordechai Vanunu, an Israeli technician who worked at a nuclear plant near the Israeli town of Dimona, lead to estimates that Israel has 100-200 fission weapons.⁴⁴

1988: Mordechai Vanunu is sentenced to eighteen years in prison for revealing Israel's nuclear secrets.⁴⁵

May 1989: The director of the Central Intelligence Agency (CIA) indicates that Israel may be seeking to construct a thermonuclear weapon.

October 31, 1998: The United States and Israel sign a Memorandum of Agreement, which commits the United States to enhancing Israel's "defensive and deterrent capabilities."⁴⁶

June 2000: Reports begin to surface that Israel will arm submarines with nuclear-armed cruise or ballistic missiles.⁴⁷

2005: Germany sells Israel advanced Dolphin-class submarines.⁴⁸

September 6, 2007: The Israeli Air Force launches Operation Orchard in Syria, bombing a suspected nuclear site.⁴⁹

Recommendations

Rule out a potential strike on Iran.

According to Joseph Cirincione, president of the Ploughshares Fund, most weapons programs in the Middle East began in direct response to Israel's decision to go nuclear in the 1950s and 1960s.⁵⁰ The danger of Iran acquiring nuclear weapons is real, and Israel shares the responsibility in bringing it closer.

However, Israel should by no means launch a military attack against Iran's nuclear facilities. Without the accord of the Security Council,⁵¹ any military action against Iran would have a major impact on the stability of the region. Although Israel was able to strike Iraqi and Syrian nuclear facilities, the risk of failure in Iran is too high,⁵² as an unsuccessful strike would give Iran more power and popularity in the region and further damage the reputation of Israel.⁵³ Iran's nuclear complex poses more challenges and is better protected from a potential attack. Moreover, according to experts, an Israeli strike would only delay, but not eliminate Iran's nuclear capabilities.⁵⁴ Increasing the political and economic pressure on the Iranian regime internationally is a much more acceptable and effective alternative.

End Israel's strategy of "nuclear ambiguity" and acknowledge Israel's responsibility in working toward a Nuclear Weapon-Free Zone in the Middle East.

The acquisition of nuclear weapons by an Arab state in the region is considered a direct threat to Israel, but it is Israel's own nuclear arsenal, secret or public, that is increasing the probability of this happening. Israel's nuclear posture is contrary to the contemporary values of openness and accountability and presents political difficulties for Israel's allies, especially the United States, because it provokes claims of double standards in the current nonproliferation regime. Israel

should make its nuclear arsenal public and announce its commitment to disarm, outlining the concrete measures it would take to achieve a Nuclear Weapon-Free Middle East – the goal it claims to embrace.

Strive for peace in the Middle East.

There is no substitute for peace and stability in the region in curbing nuclear proliferation. However, Israel's denuclearization should precede and not be contingent on achieving peace. Otherwise Israel's behavior will make peace even more precarious by leading other countries to pursue nuclear weapon programs.

¹ "Israel." *Encyclopædia Britannica*. 2009. Encyclopædia Britannica Online. 1 Sept. 2009 <<http://search.eb.com/eb/article-219425>>.

² "Population, by Religion and Population Group". Israel Central Bureau of Statistics, 2006. http://www1.cbs.gov.il/reader/shnaton/templ_shnaton_e.html?num_tab=st02_01&CYear=2006. Accessed Aug. 26, 2009.

³ "Israel." *Encyclopædia Britannica*. 2009. Encyclopædia Britannica Online. 1 Sept. 2009 <<http://search.eb.com/eb/article-219425>>.

⁴ "1948: the State of Israel is Founded," BBC News, 6 May 1948 http://news.bbc.co.uk/2/hi/middle_east/7381315.stm Accessed Aug. 28, 2009.

⁵ "Facts about Israel: History," Israeli Foreign Ministry, April 1, 2008, <http://www.mfa.gov.il/MFA/Facts+About+Israel/History/Facts+about+Israel+History.htm> Accessed Aug. 28, 2009.

⁶ "The Suez Crisis," University of San Diego, Dec. 15, 2005, <http://history.sandiego.edu/GEN/20th/suez.html>. Accessed Aug. 26, 2009.

⁷ Leonard Spector, *The Undeclared Bomb*, (Cambridge: Ballinger, 1988), p. 168.

⁸ Israeli Nuclear Weapons, Global Security.org, <http://www.globalsecurity.org/wmd/world/israel/nuke.htm> Accessed Aug. 26, 2009.

⁹ Ibid.

¹⁰ Nuclear Weapons – Israel, Federation of American Scientists, Jan. 8, 2007. <http://www.fas.org/nuke/guide/israel/nuke/>. Accessed August 26, 2009.

¹¹ David Stout, "Israel's Nuclear Arsenal Vexed Nixon," *New York Times*, Nov. 29, 2007.

¹² Uri Ben-Eliezer, Adriana Kemp, "Transnational Social Movements, Civil Society, and a Secret State: The Idea of a Nuclear-free World through Israel's Vanunu Affair," *Social Movement Studies*, Sep. 2008, Vol. 7 Issue 2, p149-166: 149.

¹³ Avner Cohen and William Burr, "Israel crosses the threshold," *Bulletin of the Atomic Scientists*, May/June 2006, 23-30: 24.

¹⁴ Ibid.

¹⁵ Henry Owen to Secretary of State William Rogers, "Impact on U.S. Policies of an Israeli Nuclear Weapons Capability," February 7, 1969, RG 59, SN 67-69, DEF 12 Isr. Cited in Cohen, et. al, 24.

¹⁶ Stout.

¹⁷ Cohen, et. al., 27.

¹⁸ Ibid., 25.

¹⁹ Memorandum from Atherton and Kratzer to Sisco, "Response to Congressional Questions on Israel's Nuclear Capabilities," October 15, 1975, RG 59, Records of Joseph Sisco, box 40, Israeli Nuclear Capability-1975. Cited in Cohen, et. al., 29.

²⁰ Thomas C. Reed and Danny B. Stillman, *The Nuclear Express: A Political History of the Bomb and its Proliferation*, (MBI Publishing Co., 2009).

²¹ Lionel Beeher, "Israel's Nuclear Program and Middle East Peace," Feb. 10, 2006, http://www.cfr.org/publication/9822/israels_nuclear_program_and_middle_east_peace.html. Accessed Aug. 27, 2009.

²² Vanunu was later sentenced to eighteen years in prison for revealing the nuclear secret and as of 2009, remains under house arrest in Israel. Ben-Eliezer, et. al, 149.

²³ Abdullah Toukan, "Study on a Possible Israeli Strike on Iran's Nuclear Development Facilities," Center for Strategic and International Studies, March 14, 2009.

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- ²⁴ Steven Erlanger, "U.S. Signs Accord to Protect Israel From Mass-Destruction Arms," *New York Times*, Nov. 2, 1998. "New US-Israel Strategic Memorandum," Jewish Institute for National Security Affairs, (<http://www.jinsa.org/infovault/issue.cfm?I=51&T=426&MID=51&L=26>), 12 November 1998.
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- ²⁷ Anthony Cordesman, "Israeli Weapons of Mass Destruction," CSIS, June 2, 2008.
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- ³² Yoel Cohen, "Nuclear Ambiguity and the Media: The Israeli Case," *Israel Affairs*, Jul2006, Vol. 12 Issue 3, p529-545: 529.
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- ³⁴ "Q&A: Gaza conflict," *BBC News*, http://news.bbc.co.uk/1/hi/world/middle_east/7818022.stm. Accessed Aug. 15, 2009.
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- ³⁹ Ibid.
- ⁴⁰ "Facts about Israel: History," Israeli Foreign Ministry.
- ⁴¹ Stout.
- ⁴² "1973: Arab states attack Israeli forces". *On This Day, BBC News*, http://news.bbc.co.uk/onthisday/hi/dates/stories/october/6/newsid_2514000/2514317.stm. Accessed Aug. 26, 2009.
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- ⁴⁴ Cordesman.
- ⁴⁵ Ben-Eliezer, et.al.
- ⁴⁶ Erlanger.
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- ⁴⁸ Toukan.
- ⁴⁹ Kessler, et. al.
- ⁵⁰ Joseph Cirincione, "Iran and Israel's nuclear weapons," *The Globalist*, March 11, 2005. <http://www.theglobalist.com/StoryId.aspx?StoryId=3217>. Accessed Aug. 26, 2009.
- ⁵¹ The Security Council, based on Chapter VII, article 42 of the UN Charter, remains the only body which could legitimate the use of force against any country.
- ⁵² Toukan.
- ⁵³ Tariq Khaitous, "International Reactions: What if Israel Attacks Iran?" Center for Nonproliferation Studies, May 22, 2008, http://cns.miis.edu/stories/080522_israel.htm. Accessed Aug. 27, 2009.
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