

Issue Brief

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ISRAEL AND NUCLEAR WEAPONS

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ISRAEL AND NUCLEAR WEAPONS

SUMMARY

For years there has been speculation that Israel can make or has made nuclear weapons. Israel has not explicitly denied this. Instead, Israel says it will not be the first nation to introduce nuclear weapons in the Middle East. Israel is known to have a powerful research type reactor able to produce enough plutonium to make several warheads a year. It has not permitted U.S. or international inspection of this reactor since 1969, operates it in secret, and has yet to take the no-nuclear weapons pledge of the Non-Proliferation Treaty. On the other hand, Israel has introduced resolutions at the U.N. proposing negotiation of a nuclear weapons free-zone for the Middle East.

Israel's ambiguous position has enabled the United States to avoid possible problems in its relations with Israel, in its peace initiatives in the Middle East, and generally, in its goal of the prevention of the proliferation of nuclear weapons. All of these would be affected if Israel were to announce a nuclear arsenal. U.S. non-proliferation policy would be weakened if the United States were seen to accept such a situation while still keeping pressure on Pakistan not to make or test atom bombs.

ISSUE DEFINITION

The further spread, or proliferation, of nuclear weapons would threaten U.S. national security and global stability. The more countries that have nuclear weapons, particularly in unstable regions, the greater the risk that some might be used in a local conflict which, in a worst case, might trigger events that would cause conflict between the United States and the Soviet Union and perhaps nuclear war. Israel is one of several countries which refuse to take a no-nuclear weapons pledge. It has certain nuclear facilities not open to international inspection to verify their peaceful use.

At issue is the further evolution of Israel's nuclear situation during the 100th Congress and the responses of the Reagan Administration.

BACKGROUND AND ANALYSIS

The following background and analysis is based on published information. The author has had no access to classified or security information.

Background

This issue brief is one of a series on the proliferation situation of several states that have not taken the no-nuclear weapons pledge of the Non-Proliferation Treaty and that are seen close to or at the threshold of nuclear weapons. Related briefs include those on India (IB 86125) and Pakistan (IB86110). Israel's interest in a large nuclear power plant is discussed in IB85166.

U.S. Policy

Ever since the United States dropped atom bombs on Hiroshima and Nagasaki in 1945 to end the war with Japan, United States policy has sought to limit the further spread, or proliferation of nuclear weapons. Congress in the Nuclear Non-Proliferation Act of 1978 implicitly extended the definition of proliferation to include the spread of ability to produce plutonium and uranium-235.

Nuclear Weapons Materials

The basic materials for nuclear weapons or explosives are plutonium and uranium-235. Plutonium is made by exposing uranium to neutrons in a nuclear reactor (irradiation), where some U-238 atoms capture neutrons and are transmuted into plutonium, then removing the irradiated uranium (spent fuel), chopping it up and dissolving it to separate the plutonium from residual uranium and intensely radioactive wastes (reprocessing). Uranium-235 exists in nature, mixed with U-238. Normal uranium is 0.7% U-235, and is not a nuclear explosive material. However, the U-235 can be extracted by various processes (enrichment) and concentrated to 90% U-235 or better for weapons use, or for fuel for certain type nuclear power plants --mainly those used for naval propulsion. An ability to produce plutonium or highly enriched uranium (90% U-235) brings a country to the

threshold of nuclear weaponry. This is recognized by Congress in the Nuclear Non-Proliferation Act of 1978.

Israel's Nuclear Industrial Base

Israel has a powerful testing reactor at Dimona in the Negev desert that was supplied by France in the late 1950s and is operated in secret. It is generally presumed Israel also has a small reprocessing plant there and that the Dimona facility is producing plutonium. However, Israel provides no information about how much plutonium is produced or what it is used for.

As for uranium-235, Israel has no known enrichment capability, but it has been working to develop laser isotope separation that if successful could provide a new source of weapons materials.

Israel's Nuclear Weapons Status

For years there has been speculation that Israel has an arsenal of nuclear weapons, either ready to use or ready for quick assembly. However, Israel is not known to have tested a nuclear weapon and has never acknowledged that it has any. Instead Israeli officials for many years have said Israel will not be the first to introduce nuclear weapons into the Middle East. Speculation about the size of Israel's alleged nuclear arsenal vary from perhaps 20-25 weapons on one hand (Spector, *The New Nuclear Nations*, p. 136) to "at least 100 nuclear weapons" (Anthony Cordesman, *NBC Nightly News*, July 30, 1985). Also in May 1985, *Aerospace Daily* cited reports that since 1981 Israel had deployed Jericho-II missiles with nuclear warheads in the Negev Desert (Spector, *The New Nuclear Nations*, p. 139). On the other hand, in 1982 a report to the Director General of the United Nations from its Centre for Disarmament was inconclusive, saying that on the basis of the available authoritative information, a Group of Experts was "unable to conclude definitely whether or not Israel is at present in possession of nuclear weapons." There were however, "significant indications" that Israel had reached the threshold of becoming a nuclear-weapon state at least a decade ago. The experts emphasized they did not doubt that Israel had the capability to manufacture nuclear weapons within a very short time.

Several incidents often cited in speculations about Israel's nuclear situation include an alleged diversion of highly enriched uranium to Israel from an American company -- NUMEC -- in the mid-1960s (Spector, *Going Nuclear*, p. 131); the diversion to Israel of some 200 tons of uranium oxide from a small freighter in 1968, the "Plumbat affair" (Davenport, et al.); and in 1979 a strange flash observed by a U.S. satellite near South Africa, which some claimed was caused by a small nuclear test with some speculation that Israel may have been involved (Adams, p. 188). Note, however, that a panel of experts convened by the Office of Science and Technology Policy determined that the event probably was not a nuclear test.

The most recent press reports on Israel's nuclear industrial base and weapons came in October 1986 in two articles in the *London Sunday Times*. Based on information from an Israeli technician, Mordechai Vanunu, who had

worked at Dimona, the Observer estimated that Israel was producing 40 kilograms of plutonium annually at Dimona, enough for about 10 bombs, and had an arsenal of 100 to 200 nuclear weapons. The Israeli government called the articles sensationalistic. On Sept. 29, 1986 Vanunu disappeared from London. After some weeks of rumors, the Israeli government announced he was in custody and in November 1986 charged him with aiding an enemy in wartime and with aggravated espionage.

Israel's Non-Proliferation Status

An ambiguous policy. As noted, Israel has often said that it will not be the first nation to introduce nuclear weapons into the Middle East. Nonetheless, in 1981, former defense minister Moshe Dayan was quoted as saying Israel had the capability to quickly make nuclear weapons. (The New York Times, June 25, 1981, p. 1).

Israel's non-proliferation commitments. Israel is an active member of the International Atomic Energy Agency. It has yet to take the no-nuclear weapons pledge of the Non-Proliferation Treaty despite U.S. pressure. It has signed but not ratified the Limited Test Ban Treaty; and signed but not ratified the Convention on Physical Security for Nuclear Materials. Israel had an agreement for nuclear cooperation with the United States in the 1950s but it expired and Israel will not agree to conditions specified by Congress in the Nuclear Non-Proliferation Act of 1978 for a new agreement.

Israel is the only country to have attacked a civil nuclear facility to prevent its operation. In June 1981, Israel bombed and damaged Iraq's powerful research reactor before it started up. Iraq was, and remains an NPT state and the reactor and its fuel were under IAEA safeguards. Nonetheless, Israel said that Iraq would have used the reactor to provide nuclear weapons materials, and that IAEA safeguards and world counteractions to a diversion of nuclear materials were not reliable enough to protect Israel's security.

Since the attack Israel has introduced resolutions in the U.N. proposing the negotiation of a nuclear weapons free zone in the Middle East. Some U.N. members supported these proposals, but there has been little support from the Middle East. Also the Middle East states did not wish to negotiate with Israel because to do so would imply recognition of Jerusalem.

Israel's position on IAEA safeguards. Israel accepts IAEA safeguards for imported nuclear items, such as the small research reactor at Nahal Soreq, furnished by the United States in the late 1950s. Israel, however, will not accept safeguards for the Dimona reactor, which was supplied by France well before the universal safeguards provision of the NPT took effect in 1970. Early in the history of Dimona, Israel permitted some U.S. visits, but these did not continue beyond 1969.

Analysis

Factors Affecting Israel's Position on Nuclear Weapons

Of all the countries of proliferation concern, Israel has the most perilous situation. Its neighbors have more troops. Israel has relied upon superior military technology to offset this manpower advantage and, since it was established, Israel several times has been in grave danger. If its enemies believe Israel has nuclear weapons and the means to deliver them, they could be deterred from engaging Israel militarily.

There are many arguments supporting Israel's disclosure of a weapons status, and also for continued ambiguity. These are debated in a set of essays published in 1986 by Professor Louis Beres of Purdue University (see Readings).

A complicating factor is that Israel has no formal treaty with the United States to assure U.S. protection in case of attack, although informal ties between the two countries are strong and the Reagan Administration has been supportive of Israel. The current controversy over Israel's role in U.S. military supplies to Iran and diversion of the profits to fund aid to the Contras could damage U.S.-Israel relations and make Israel less confident of U.S. protection.

Implications for U.S. Policies

Suspicious that Israel can produce plutonium for nuclear weapons or that it may have a nuclear arsenal present a dilemma for three international U.S. policies -- support for Israel, peace in the Middle East, and non-proliferation. If Israel should announce it has nuclear weapons or if the United States should determine that Israel has them, the United States would have to decide whether to continue military and economic aid to Israel. While U.S. law does not require stopping such aid because a country possesses nuclear weapons (except for Pakistan), to continue U.S. aid if Israel declared nuclear weapons would be seen by some countries as evidence that U.S. support for Israel outweighs U.S. non-proliferation policy, and would weaken U.S. efforts to keep Pakistan and India away from such weapons. Likewise, an acknowledged Israeli arsenal could generate new difficulties for U.S. peace efforts in the Middle East. What assurances and conditions Israel might require to dismantle a nuclear arsenal, what evidence of dismantling Middle East countries might demand, and whether the United States and other countries would be willing to pay Israel's price are questions that would arise if Israel were to abandon its ambiguous position.

On the whole, continuation of present ambiguity probably serves all interests by putting off decisions that would have to be made in Washington and in Middle Eastern and other capitals if Israel were to announce or openly acquire a nuclear arsenal.

Another policy matter raised by some is the difference in U.S. policy towards Pakistan's and Israel's nuclear activities. Both Congress and the Executive Branch continue highly visible pressure on Pakistan to keep it from testing or making atom bombs, whereas there is no comparably visible pressure upon Israel. From a U.S. point of view, such a difference may be justified by Israel's special relation with the United States. However, for some other countries this difference may be seen as an indication that in some circumstances U.S. non-proliferation policy is subordinated to other policy considerations.

CHRONOLOGY

- 11/28/86 --- Tel Aviv. Mordechai Vanunu was charged with aiding an enemy in war and could face a death sentence, according to the Justice Ministry. Vanunu, whose case is one of the most severe security breaches in Israel's history, also was charged with aggravated espionage. (The Washington Post, Nov. 29, 1986: A16)
- 11/10/86 --- Washington. Israel allegedly violated a confidential pledge to Norway under which it is illegal for Israel to make atomic bombs, and may have violated a similar pledge to the United States, according to a report released by Gary Milhollin, a University of Wisconsin law professor. At issue is Israel's presumed use of Norwegian heavy water to operate the Dimona reactor as a plutonium producer (see also the Wall Street Journal, Nov. 10, 1986: 27; and the Washington Post, Nov. 10, 1986: A26).
- 11/06/86 --- Report that Israeli Prime Minister Yitzhak Shamir rejected calls for information on the Vanunu case, saying that the government has its own considerations in avoiding public comment. U.S. ambassador Thomas Pickering said the United States would not take a position on Israel's alleged nuclear arsenal or alleged role in the Vanunu affairs. (Nucleonics Week, Nov. 6, 1986: 14)
- 10/30/86 --- Paris. France did not violate any U.S. agreement by aiding Israel's nuclear program in the 1950s, according to a senior source in the French nuclear establishment. (Nucleonics Week, Oct. 30, 1986: 8)
- 10/28/86 --- Washington. News reports Vanunu had been abducted from London to Israel. (The New York Times, Oct. 29, 1986: A5; The Washington Post, Oct. 29, 1986: A1)
- 10/21/86 --- Jerusalem. In an interview, Deputy Prime Minister and Foreign Minister Shimon Peres said Israel was not the world's sixth nuclear power, as the London Sunday Times had stated. He did not specifically rule out any of the paper's claims about Israel's nuclear capacity, but said most were fanciful. (Jerusalem Domestic Service, Oct. 22, 1986)

- 10/12/86 --- The London Sunday Times quoted Professor Francis Perrin, "father of the French bomb," as admitting that the French government had secretly supplied Israel with nuclear bomb technology, contradicting 30 years of official denials. He recalled the 1957 French agreement to build a reactor and a reprocessing plant for Israel.
- 10/06/86 --- Tel Aviv. Prime Minister Shimon Peres said today that a report describing his country as the world's sixth-ranked nuclear power was "sensationalist." He restated Israel's position that it will not be the first to introduce nuclear weapons into the Middle East. (The New York Times, Oct. 7, 1986: A6)
- 10/05/86 --- The London Sunday Times in a major feature story quoted an Israeli nuclear technician, Mordechai Vanunu, as saying the Dimona reactor and reprocessing plant could produce 40 kilograms of plutonium a year, enough for 10 bombs, and that Dimona was also producing materials for thermonuclear weapons.
- 09/29/86 --- Vanunu disappeared in London.
- 12/16/85 --- New York. The U.N. General Assembly by a vote of 86 to 23, called on all states to isolate Israel because it is not "a peaceful state." (The New York Times, Dec. 17, 1985: A28)
- 10/08/85 --- President Reagan approved the International Security and Development Cooperation Act of 1985 (P.L. 99-83). Section 402 conditioned U.S. funding for the IAEA for FY86 and FY87 upon a determination by the Secretary of State that Israel is not being denied its right to participate in Agency activities.
- 09/23/85 --- Israel informed the 18th IAEA General Conference that it holds all states must refrain from attacking or threatening to attack nuclear facilities devoted to peaceful purposes and that IAEA safeguards were evidence of peaceful operation. Within this context, Israel reconfirmed that it would not attack or threaten to attack any nuclear facility devoted to peaceful purposes either in the Middle East or anywhere else.
- 07/30/85 --- Richard Sale, a writer for Aerospace Daily, said a nuclear warhead for the Jericho-II missile was developed at the Weizman Institute and that U.S. scientists had been involved. Anthony Cordesman, an expert on Middle East military affairs, said Israel had at least 100 nuclear weapons, possibly 140. (NBC Nightly News, July 30, 1985)
- 05/--/85 --- Aerospace Daily reported that since 1981 Israel had deployed nuclear armed Jericho--II missiles in the Negev desert and that the missiles were only part of a much larger Israeli nuclear force. (Aerospace Daily, May 1 and May 17, 1985)

- 05/16/85 --- Federal prosecutors indicted an export broker for illegally exporting to Israel 810 high speed electronic switches-- krytrons -- between 1980 and 1983. (The New York Times, May 17, 1985).
- At U.S. request, Israel agreed to return the Krytrons not in use and agreed to provide assurances that the units kept would not be used for nuclear purposes. (The New York Times, May 17, 1985)
- 03/26/85 --- Ariel Sharon, Israel's Ministry of Industry and former minister of defense, said that if Iraq built a nuclear reactor that threatened Israel's security, Israel would bomb it. (Jerusalem Domestic Service, March 26, 1985)
- 12/10/84 --- Washington Times reported that Israeli Prime Minister Shimon Peres assured French President Mitterand that Israel would not attack Iraq's nuclear reactor if France rebuilt it.
- 09/28/84 --- The IAEA General Conference again passed a resolution calling for an Israeli pledge not to attack nuclear facilities. Before the conference, the U.S. said it would withdraw again if Israel was sanctioned (Energy Daily, Oct. 10, 1984)
- 05/02/84 --- Israel's Prime Minister stated Israel had no policy of attacking nuclear facilities and certainly had no intention of attacking facilities dedicated to peaceful purposes.
- 04/--/84 --- Some 47 metric tons of depleted uranium were transferred to Israel from Luxembourg without notice to the IAEA. (Spector, The New Nuclear Nations, p. 141)
- 10/20/83 --- The IAEA General Conference passed an Iraqi-sponsored resolution calling on Israel "to withdraw forthwith its threat to attack and destroy nuclear facilities in Iraq and other countries." Israeli delegates said it was not the policy of the Israeli government to attack nuclear facilities. Israel was seated at the 16th IAEA General Conference only after strong pressure from the United States including a threat to again withdraw.
- 09/24/82 --- The IAEA General Conference illegally rejected Israel's credentials. The United States delegation walked out in protest, and said the United States would reassess its policy regarding participation in the IAEA. (Israel, however, continued its normal participation in IAEA activities.)
- 06/24/81 --- Former Israeli Defense Minister Moshe Dayan said Israel has the capacity to produce nuclear weapons, and could manufacture bombs quickly should the Arabs do so.
- 06/07/81 --- Israel bombed Iraq's research reactor near Baghdad, claiming the reactor would be used to make nuclear weapons.

08/13/80 --- Report that the power of the Dimona reactor has been substantially increased -- from 25 MWt to 75 MWt. (Foreign Report, Aug. 13, 1980)

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