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The Israeli Nuclear Weapons Program

John Steinbach

Our aim should be to create a security environment, and you can't do that if you don't recognize publicly that Israel has nuclear weapons ...

*George Perkovich*¹

Should war break out in the Middle East again, or should any Arab nation fire missiles against Israel, as the Iraqis did, a nuclear escalation, once unthinkable except as a last resort, would now be a strong probability.

*Seymour Hersh*²

With several hundred weapons and a robust delivery system, Israel has quietly supplanted Britain as the world's fifth largest nuclear power, and now rivals France and China in terms of the size of its nuclear arsenal. Although it maintains an official policy of nuclear ambiguity – neither acknowledging nor denying possession of nuclear weapons – Israel is universally recognized as a major nuclear power. As former UN Chief Weapons Inspector Hans Blix has noted, “The whole world is fairly sure that they have about 200 weapons, and beating around the bush I think doesn't change very much—they are part of the nuclear landscape”³; and according to the authoritative Center for Defense Information, “the Israeli nuclear weapon infrastructure is probably quite large, including the full range of strategic and tactical battlefield weapons.”⁴

While much attention has recently been lavished on the potential threat posed by Iranian weapons of mass destruction, the major nuclear power in the region, Israel, has been largely ignored. Possessing a

sophisticated nuclear arsenal with an integrated strategy for its use in combat, Israel's nuclear monopoly provides the major regional impetus for the proliferation of weapons of mass destruction. With India and Pakistan, the other nuclear-armed non-signatories to the Nuclear Nonproliferation Treaty (NPT), the Israeli nuclear program imperils future nuclear nonproliferation efforts. Israel's nuclear arsenal reinforces the prospect that future conflicts in the region could rapidly escalate into a regional or global nuclear cataclysm.

In 1963, Shimon Peres enunciated Israel's policy of nuclear ambiguity or opacity, neither confirming nor denying its nuclear program; "Israel will not be the first country to introduce nuclear weapons in [the Middle East]."⁵ In 2001, Aluf Benn writing in the *Bulletin of the Atomic Scientists* discussed the policy of Israel's Nuclear opacity; "although everyone knows what capabilities Israel has, it remains silent about them."⁶ Because of its draconian military censorship, the world has derived most of its knowledge about the Israeli nuclear program from whistle-blowers, unguarded comments by Israeli political leaders, and analysis of evidence by scientists and arms control experts. Information contained in this paper was collected from the historical record and from contemporary authoritative sources and press accounts. Where possible, direct quotes from Israeli officials, commentators and nuclear experts are used to illustrate points, and primary sources are referenced. Careful analysis and cautious skepticism are prerequisites for presenting an accurate overview of Israel's nuclear program.

Israel's Civilian Nuclear Energy Program

The official position of Israel is that it is committed to the development of a civilian nuclear power program. "Since the 70's the Government of Israel decided that an option to produce electricity using nuclear reactors should be prepared and maintained. This option requires promoting nuclear knowledge and research, preparing sites suitable for building nuclear power plants and continuously examining the economical benefit

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of operating such plants.”⁷ A description of the mission of the Department for Nuclear Engineering includes the following statement:

The Department for Nuclear Engineering operates in a range of areas, mainly: promoting the topic of reactor power in Israel and the development of the necessary infrastructure (nuclear fuel and clearing nuclear waste); long-term planning, including testing advanced reactor technologies and following-up with their future implementation; researching desalinization of sea-water combined with nuclear energy.⁸

Despite this claim, an exhaustive search of publicly available sources indicates the existence of no meaningful Israeli civilian nuclear energy program, past or present.

The reason for this apparent discrepancy is inherent in the Israeli policy of nuclear opacity.

In its public identity, the IAEC was presented as a coordinating and advisory scientific agency in the prime minister’s office, composed of some of the nation’s nuclear scientists, with a mission to guide and to coordinate Israel’s commitment to be part of the global nuclear age. But this civil-scientific identity was largely a façade to shield the IAEC’s true identity: a defense-related research unit.⁹

From its inception, the Israeli nuclear program has centered on developing a nuclear weapons program, with any other nuclear development being incidental.

Since the 1950s, Israel has repeatedly advanced the idea of developing a civilian nuclear power program. After first embracing the idea in the 1950s, in the 1960s Israel entered negotiations with the United States to develop a 300 MW desalination/electrical generation nuclear facility. “This cooperative project proceeded well and a demonstration desalination unit powered by a conventional energy source was built at the Ashdod power station. But in the meantime the retreat from nuclear energy had begun, and so in the early 1970’s the project was scrapped.”¹⁰ Israel’s commitment to a nuclear weapons program had effectively negated any realistic possibility of developing civilian nuclear energy.

Israeli public statements about plans to build a nuclear power generating station have continued up to the present. However, this is unlikely to happen unless and until Israel abandons its policy of nuclear ambiguity and begins to negotiate in good faith a Middle East Nuclear Weapons Free Zone.¹¹ To develop a nuclear power program without international cooperation from the International Atomic Energy Agency (IAEA) and the Nuclear Suppliers Group (NSG) would be enormously complex and expensive—far beyond the capability of a relatively small nation like Israel. Apparently the latest proposal for a nuclear power station was predicated upon Israel receiving a special dispensation to maintain its nuclear weapons program while enjoying access to civilian nuclear technology, similar in nature to the recent agreement between India and the United States. According to the Director of the Galili Center for Strategy and National Security, Dr. Reuven Pedatzur:

It won't be open nuclear development even if Israel will decide to go in the direction of a reactor for electricity. If there will be a real and practical plan for building a reactor, Israel will make a condition that if there will be international supervision it will only be of the civilian reactors and not of Dimona ...

The United States agreed that India will separate its nuclear program into two different [programs], one civilian the other military. And regarding the military part there will be no international supervision and no UN supervision. I believe that Israel will try the same idea.

The United States quickly discouraged such speculation, maintaining that no similar deals would be forthcoming for the other two non-signatories to the Nuclear Non-Proliferation Treaty (NPT), Israel and Pakistan. Under Secretary of State Nicholas Burns stated emphatically, “We’ve always felt of India as an exception [sic] ... But we’re not anticipating, in any way, shape or form, a similar deal for any other country.”¹²

According to the Swiss International Relations and Security’s (ISN) Security Watch, Israel has again “shelved” plans for the most recent proposed nuclear power station.¹³

Background Analysis

Meaningful discussion of Israel's nuclear policy requires critical examination of the roots of the Israeli attitudes that led to the development of its nuclear weapons program. First and foremost, the shadow of the Holocaust weighed heavily on the minds of David Ben-Gurion and Ernst David Bergman as they became preoccupied with the idea of an Israeli bomb. Avner Cohen writes in *Israel and the Bomb*, "Israel's project was conceived in the shadow of the Holocaust, and the lessons of the Holocaust provided justification and motivation for the project."¹⁴ According to Shimon Peres, Bergman stated, "I am convinced ... that the State of Israel needs a defense research program of its own, so that we shall never again be as lambs led to the slaughter."¹⁵ In 1966, Bergman wrote to Meir Ya'ari, the leader of the leftist political party MAPAM; "I cannot forget that the Holocaust came upon the Jewish people as a surprise. The Jewish people cannot allow themselves such an illusion for a second time."¹⁶ David Ben-Gurion in his farewell address to the Israeli Armaments Development Authority (RAFAEL), defended the nuclear project saying, "I am confident, based not only on what I heard today, that our science can provide us with the weapons that are needed to deter our enemies from waging war against us."¹⁷ Speculating about a meeting between Israeli Prime Minister Golda Meir and US President Richard Nixon that laid the basis for Israel's policy of nuclear opacity, Cohen wrote, "Meir may have assured Nixon that Israel thought of nuclear weapons as a last-resort option, a way to provide her Holocaust-haunted nation with a psychological sense of existential deterrence."¹⁸

A second major factor influencing Israel's strategic policies is its close identification with Europe and the West. Historically, Israel's leadership has identified with Europe rather than the Middle East, exacerbating already great regional tensions.¹⁹ Ashkenazim (Jews of European ancestry), although a minority of the Israeli Jewish population,

disproportionately occupy positions of leadership, and heavily influence opinion and policy.²⁰ (Mizrahim and Sephardim, Asian and Mediterranean Jews, comprise 39 percent of Israel's population, compared to 37 percent Ashkenazim.²¹) Writing for Gush Shalom, Uri Avnery, a leader of Israel's Peace Bloc, wrote, "In his book *The Jewish State*, the founding document of the Zionist movement, Theodor Herzl famously wrote: 'For Europe we shall be (in Palestine) a part of the wall against Asia ... the vanguard of culture against barbarism...'. This attitude is typical for the whole history of Zionism and the State of Israel up to the present day."²² In 2007 Naftali Tamir, Israeli ambassador to Australia, is quoted in *Haaretz* as saying, "Israel and Australia are like sisters in Asia. We are in Asia without the characteristics of Asians. We don't have yellow skin and slanted eyes. Asia is basically the yellow race. Australia and Israel are not – we are basically the white race."²³ While the Israeli Foreign Office quickly repudiated Tamir, the fact that a high-ranking Israeli diplomat would assume license to make such transparently racist comments underscores Avnery's argument.

This century-long history of Israeli–Western chauvinism and anti-Arab racism in turn generates Arab anti-Semitism, thus creating a vicious cycle of mutual suspicion and mistrust. A related complicating factor in negotiating a just and lasting Arab/Israeli peace is the emergence of radical religious movements in Israel, and the Arab world, injecting religion into a conflict historically based on a colonial/anti-colonial struggle.^{24, 25}

Despite these stumbling blocks, majority Arab public support for "a just and lasting peace with Israel" has increased significantly since 2006,²⁶ while a 2007 survey indicated a substantial majority of Israelis support a comprehensive peace agreement with the Arabs.²⁷ It should be noted, however, that while majority public opinion in Israel, Palestine and the Arab nations supports a comprehensive peace agreement, there remains deep skepticism within both communities about prospects for peace.

The History of the Israeli Bomb

The Israeli nuclear program began in the late 1940s under the direction of Ernst David Bergmann, who established the Israeli Atomic Energy Commission in 1952. Convinced that nuclear weapons would solve Israel's security problems, Israel's first Prime Minister, David Ben-Gurion, and a young Shimon Peres became the principal architects and the driving force behind the nascent Israeli program.²⁸

For a variety of reasons including revulsion over the Holocaust, guilt about manipulating Israel into attacking Egypt to justify the 1956 Suez War, and mutual interest in developing a nuclear weapons program, France provided the bulk of early nuclear cooperation with Israel, culminating in construction of a heavy water-moderated, natural uranium reactor and plutonium-reprocessing facility situated near Beersheba in the Negev Desert.^{29, 30} Originally designed as a 24 Megawatt (MW) facility, the Dimona reactor was built with a cooling system three times larger than needed and numerous sources suggest that in fact Israel did enlarge its capacity significantly.³¹ Because of the lack of any electrical generation capacity and the inclusion of a plutonium-reprocessing facility, it is clear that from the beginning that the French understood that they were providing Israel with a nuclear weapons option.³²

The aftermath of the 1956 Suez Crisis precipitated top-secret talks that cemented and accelerated the Israeli-French nuclear collaboration. From its inception in the early 1950s, Israeli scientists were active partners in the French nuclear weapons program, providing critical nuclear expertise and actively participating in French bomb tests in Algeria in the early 1960s. According to Seymour Hersh, "The French would become dependent for the next decade – the first French nuclear test took place in 1960 – on Israeli computer skills."³³ The current Israeli nuclear program should be understood largely as an extension of this earlier collaboration.

The United States became aware of the Dimona reactor construction in late 1960 and the outgoing Eisenhower administration demanded an

explanation. The official Israeli response was that Dimona was for “peaceful purposes,” including scientific, industrial and medical applications.³⁴ In reality, the sole purpose of the Dimona plant was to produce nuclear bombs.³⁵ After several years of delay – caused by Charles de Gaulle’s decision in 1960 to end official French involvement in Dimona’s construction – the reactor finally went on line in 1964 and plutonium reprocessing began shortly thereafter.³⁶ Despite various Israeli claims that Dimona was a manganese plant or a textile factory, the extreme security measures employed told a very different story. In 1967, Israel shot down one of their own Mirage fighters that strayed too close to Dimona, and in 1973 the Israelis destroyed a Libyan civilian airliner which strayed off course, killing 104.³⁷

According to Michael Karpin, author of *The Bomb in the Basement*, on November 16, 1966, Israel, which had by then separated enough plutonium for a primitive nuclear weapon, successfully carried out a sophisticated laboratory test that established the viability of its nuclear bomb.³⁸ There is substantial reporting from several credible sources that Israel participated as a full partner in the Algerian–French nuclear tests, and thus had no need to actually test a nuclear weapon.³⁹ Some historians suggest that Israel’s fear that Egypt would preemptively attack Dimona was a factor in Israel’s decision to attack Syria leading to the 1967 war.⁴⁰ According to Avner Cohen, during the 1967 war Israel assembled “two deliverable nuclear explosive devices.”⁴¹ By the time of the 1973 war, Israel possessed an arsenal of perhaps several dozen deliverable atomic bombs, and reportedly went on full nuclear alert.⁴²

Possessing advanced nuclear technology and ‘world class’ nuclear scientists, Israel was confronted early with a major problem—how to obtain the necessary uranium and heavy water to operate the Dimona reactor. Israel’s own uranium source – phosphate deposits in the Negev – was inadequate to meet the needs of its rapidly expanding program. During the early 1960s, France had supplied Israel with relatively small quantities of uranium but as Israeli/French relations cooled, a larger

source was needed. The short-term answer in 1968 was to collaborate with West Germany in the 'Plumbat affair,' successfully diverting 200 tons of yellowcake (uranium oxide).⁴³ The West German authorities subsequently covered up their role in this clandestine operation.⁴⁴ Seymour Hersh disputes US Central Intelligence Agency (CIA) allegations that a US corporation called the Nuclear Materials and Equipment Corporation (NUMEC) diverted hundreds of pounds of enriched uranium to Israel from the mid-50s to the mid-60s.⁴⁵ In the late 1960s, Israel solved the uranium problem by developing close ties with South Africa leading to a quid pro quo arrangement whereby Israel supplied the technology and tritium for the 'apartheid bomb,' while South Africa provided as much as 600 tons of uranium.⁴⁶

Heavy water was required as a moderator for the natural uranium reactor at Dimona and Israel solved this problem by purchasing 20 tons from Norway. With the assurance that it would be used strictly for peaceful purposes, the agreement gave Norway the right to inspect the heavy water for thirty-two years but Israel refused to permit meaningful inspections. Israel agreed in 1990 to return half of the heavy water to Norway.⁴⁷ As of 1990 Israel had reportedly used two tons of heavy water and retained approximately eight tons more for future use.⁴⁸

In 1977, the Soviet Union warned the United States that satellite photos indicated South Africa was planning a nuclear test in the Kalahari Desert; in response, the Apartheid regime appeared to back down under pressure. But on September 22, 1979, a US satellite detected an atmospheric test of a small nuclear device in the Indian Ocean off South Africa. Apparently because of Israel's possible involvement, a carefully selected scientific panel – kept in the dark about important details – issued a report questioning the accuracy of the Vela satellite. Later it was learned through Israeli sources that the detonation detected in the Indian Ocean was actually the last of three carefully guarded tests of miniaturized Israeli 155mm nuclear artillery shells.^{49, 50}

The Israeli/South African collaboration continued until the fall of Apartheid in 1990, and was especially active in developing and testing of ballistic missiles during the 1970s and 1980s.⁵¹ The RSA series of South African ballistic missiles appear to be virtually identical to Israel's Jericho series.⁵² Israel and South Africa conducted numerous joint missile tests at the Overberg Test Range. In addition to uranium and test facilities, South Africa provided Israel with large amounts of investment capital, while Israel enabled the Apartheid state to avoid international economic sanctions.⁵³ The Israeli-South African nuclear collaboration officially ended in 1989.

Although the French and South Africans were principal collaborators with the Israeli leadership in developing the Israeli nuclear program, the United States also shares some responsibility. Investigative journalist Mark Gaffney wrote, "[the Israeli nuclear program] was possible only because of calculated deception on the part of Israel, and willing complicity on the part of the US."⁵⁴ Israel was the second nation to sign up to Eisenhower's 'Atoms for Peace' program, and became the recipient of a 5 MW highly enriched uranium research reactor at Nahal Soreq which went online in 1960. This reactor later became the centerpiece of much of Israel's basic nuclear research, including the training of nuclear scientists and technicians.

President Kennedy, concerned about the Israeli nuclear program, insisted that US scientists be allowed to inspect the Dimona reactor (at the time under construction) to ensure that it was, as Israel claimed, strictly for peaceful purposes.⁵⁵ The Israelis went to extremes to prevent the inspectors from discovering the existence of a nuclear weapons program. Kennedy's successor, Lyndon Johnson, had a more ambivalent attitude toward nuclear proliferation and a more pro-Israeli viewpoint. Shortly after his election, President Richard Nixon and Israeli President Golda Meir met in 1969. Nixon agreed to end the Dimona inspections and remove US pressure on Israel to join the Nuclear Nonproliferation Treaty (NPT).⁵⁶ In retrospect, the Meir-Nixon understanding set the stage for Israel's ongoing policy of nuclear ambiguity. Nixon formally ended the Dimona inspections in 1970.⁵⁷

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From its inception, the United States was heavily involved in the Israeli nuclear program. Israeli scientists were largely trained at US universities and were generally welcomed at nuclear weapons labs.⁵⁸ In the early 1960s, the controls for the Dimona reactor were obtained clandestinely from a company called Tracer Lab – the main supplier of US military reactor control panels – purchased through a Belgian subsidiary, apparently with the acquiescence of the US National Security Agency (NSA) and the CIA.⁵⁹ In 1971, the Nixon administration approved the sale to Israel of hundreds of krytons, a type of high-speed switch vital to the development of sophisticated nuclear bombs.⁶⁰ In 1979, President Carter provided ultra high-resolution photos from a KH-11 spy satellite that were used two years later to bomb the Iraqi Osirak Reactor.⁶¹

Throughout the Nixon and Carter administrations and accelerating dramatically under Ronald Reagan, US advanced technology transfers to Israel have continued unabated to the present day, most recently including ‘supercomputers’ capable of being used to design advanced nuclear weapons and missiles.⁶² It has been widely argued that illegal acquisition of US technology essential to nuclear weapons production facilitated the Israeli nuclear program.⁶³

Following the 1973 war, Israel intensified its nuclear efforts while continuing its policy of deliberate nuclear ambiguity. By 1976, the CIA estimated that Israel possessed an arsenal of 10–20 plutonium bombs.⁶⁴ According to Seymour Hersh, in 1981, five years prior to the Vanunu revelations, an Israeli scientific defector provided Washington with photographic evidence that Israel possessed an arsenal of more than one hundred thermonuclear weapons. A senior intelligence official said, “Why do they need a thermonuclear device? Israel was more advanced and better than any of our people had presumed it to be—clean bombs, better warheads.”⁶⁵ Despite this information, until the mid-1980s most US intelligence estimates of the Israeli nuclear arsenal remained of the order of two-dozen weapons. In 1986, the explosive revelations of Mordechai Vanunu, a nuclear technician in the Dimona plutonium reprocessing plant, changed everything overnight.

The Vanunu Revelations

A leftist supporter of Palestine, Mordechai Vanunu believed that it was his moral obligation to expose Israel's nuclear program. He managed to smuggle dozens of photos and valuable scientific data concerning the operation out of Israel and in 1986 his story was published in the London *Sunday Times*.⁶⁶ Rigorous scientific scrutiny of the Vanunu revelations by nuclear scientists including bomb designers Theodore Taylor and Frank Barnaby, led to the disclosure that Israel possessed as many as 200 highly sophisticated nuclear bombs. The revelations indicated that the Dimona reactor's capacity had been expanded several fold and that Israel was producing enough plutonium to make ten to twelve bombs per year. Vanunu proved unequivocally that Israel operated a large nuclear bomb production project that included plutonium reprocessing, uranium enrichment, fuel rod fabrication, depleted uranium munitions fabrication and lithium 6, tritium and deuterium production (used in advanced nuclear weapon design).⁶⁷ After interrogating Vanunu for several days, Barnaby concluded, "The acquisition by Israel of lithium deuteride implies that it has become a thermonuclear-weapon power – a manufacturer of hydrogen bombs ... Israel has the ability to turn out the weapons with a yield of 200–250 kilotons."⁶⁸ Upon examining the Vanunu evidence, a 'senior U.S. intelligence analyst' said of the Vanunu data, "The scope of this is much more extensive than we thought. This is an enormous operation."⁶⁹

Just prior to publication of his information Vanunu, lured to Rome by a female American Mossad agent with CIA connections, was beaten, drugged, kidnapped and transported to Israel.⁷⁰ Following a campaign of disinformation and vilification in the Israeli press, Vanunu was convicted of treason by a secret security court and sentenced to 18 years in prison. He served over 11 years in solitary confinement in a six-by-nine-foot cell. Vanunu was released from prison in 2004, but has since been held under virtual house arrest under draconian 1945 British Mandate Emergency Regulations.⁷¹ The world press, especially in the United States, has largely ignored the Vanunu revelations and Israel continues to affect an ambiguous nuclear posture.⁷²

Israel's Nuclear Arsenal

Today, estimates of the Israeli nuclear arsenal range from 100 to over 400 bombs. Given the magnitude of destruction caused by even the smallest nuclear weapon, the size of Israel's nuclear arsenal – whether 100 or 500 bombs – is irrelevant. The Hiroshima and Nagasaki bombs, primitive and small by modern standards, utterly destroyed two major cities. Within a two kilometer radius of the Hiroshima epicenter there was total destruction of all buildings and massive mortality.^{73, 74} There is little doubt that Israeli nuclear weapons are among the world's most sophisticated, and largely designed for war fighting. According to various sources, the Israeli arsenal includes boosted fission weapons and small neutron bombs, designed to maximize deadly gamma radiation while minimizing blast effects and long-term radiation—in essence designed to kill people while leaving property intact.⁷⁵ Other weapons include ballistic missiles capable of reaching Moscow, nuclear-capable fighter aircraft, cruise missiles, land mines,⁷⁶ and artillery shells with a range of 45 miles.⁷⁷ In June 2000 an Israeli submarine launched a cruise missile that hit a target 950 miles away, making Israel only the third nation after the US and Russia with that capability. Israel currently deploys three of these virtually impregnable submarines, each carrying at least four cruise missiles.⁷⁸ The Israeli nuclear arsenal clearly dwarfs the actual or potential arsenal of all other Middle Eastern states combined and is much greater than any conceivable need for defensive deterrence.

Like the major nuclear powers, Israel bases its strategic nuclear threat on a 'triad' of delivery systems – aircraft, land-based ballistic missiles and submarine-based cruise missiles – with which it can threaten the entire Middle East and beyond. While numerous Israeli aircraft have nuclear capability,⁷⁹ three primary strategic aircraft are designed specifically to deliver nuclear weapons. Additionally, Israel's tactical arsenal is widely understood to include nuclear artillery shells, nuclear-capable short-range and cruise missiles, and nuclear land mines.⁸⁰ Israel's arsenal includes the following devices:

Jericho-1

The Jericho-1 short-range ballistic missile (SRBM) was developed during the 1960s with assistance from France. Deployed in 1973, the Jericho 1-is designed to carry nuclear, chemical and conventional warheads, and reportedly has a 500 kg payload with a range of 480–750 km. Approximately 100 Jericho missiles are deployed roughly 20 km east of Jerusalem at the Sedot Mikha launch site near the Tel Nof airbase. The Jericho-1 can reach Cairo and Damascus. There are also reports that the Jericho-1 can be deployed using mobile launchers.⁸¹ Some reports claim that the Jericho-1 is no longer operational.⁸²

Jericho-2

The Jericho-2 is a two-stage nuclear-capable intermediate range ballistic missile (IRBM) with a generally reported range of 1,500-3,500 km.⁸³ According to the respected *Jane's Intelligence Review*, the extended range of the Jericho 2 is 5,000 km, with a payload of 2,500 kg.⁸⁴ Developed and flight-tested in collaboration with South Africa, the Jericho-2 – apparently identical to the South African RSA-2 – was deployed sometime in the late 1980s or early 1990s.⁸⁵ With its extended range and sophisticated inertial and terminal guidance system, the Jericho-2 can target virtually the entire Middle East. Approximately fifty Jericho-2 missiles are reportedly deployed at a facility named Zachariah (Hebrew for God remembers with a vengeance.)⁸⁶

Jericho-3 “Shavit”

On January 17, 2008, Israel launched a long-range ballistic missile (LRBM) from the Palmahim Air Base, Israel's satellite launch site.⁸⁷ There is speculation that this was a test launch of the Jericho-3 missile. The Jericho-3, which reportedly closely resembles the South African RSA-3 ballistic missile, is designed with a range of up to 4,000 km, carrying a payload of 1,000 kg.⁸⁸ According to the Israeli Defense

Ministry, the missile is capable of carrying “an unconventional” payload.⁸⁹ Although apparently not yet currently deployed, cities like Moscow, Islamabad and far beyond will be within range of the Jericho-3.

Other Potential Nuclear-Capable Missiles

Other potential nuclear-capable missiles include: Lance MGM-52 short-range missiles (130 km range); Gabriel-4 cruise missiles (200 km range); Harpoon Cruise Missiles (120 km range); Popeye Turbo air/sea launched cruise missiles (300 km range); and Popeye-1 and -3 cruise missiles (100 and 300 km ranges).⁹⁰

F-4E 2000 Phantom (Kurnas-2000 Sledge-Hammer)

In 1968 the United States agreed to sell Israel the F-4E, at that time considered to be “the most advanced airplane in service, anywhere.”⁹¹ Approximately fifty planes were upgraded and deployed beginning in 1989. Modifications include reinforced skin and fuel cells, rewiring, advanced APG-76 radar, new J-79-GE-17 turbojet engines, air-to-air Sparrow, Sidewinder or Python missiles, and guided bombs.^{92, 93, 94} With a carrying capacity of 7,200 kg and a relatively long range of 1,600 km, the F-4E was reportedly placed on nuclear alert during the 1973 war and may still be allocated to a nuclear role.⁹⁵

F-15I Raam (Thunder)

The F-15I, the largest plane in the Israeli Air force, has a range of 4,450 km (enough to reach Tehran and return without refueling). Detachable conformal fuel tanks such as those found jettisoned in Turkey following the 2007 raid on Syria permit the F-15I a greatly expanded range.⁹⁶ In 2003, Israel demonstrated its range by flying three F-15s one-way from Israel to Poland without refueling, a distance of 1,600 km, approximately the same as Tehran.⁹⁷ According to John Pike, “The 25 F-15Is operational since 1999 [and the 100 F-16Is] were procured first and foremost to deal with the Iranian threat”⁹⁸

F-16I Sufa (Storm)

The F-16I is the most recent and advanced addition to the Israeli nuclear arsenal. A total of 102 aircraft have been purchased. The F-16I has a comparable range and capability to the F-15E. Both planes took part in the massive military exercise that took place in June 2008 over the Mediterranean and Greece, widely seen as a direct threat to Iran. Over 100 F-15s and F-16s participated.⁹⁹ Both the F-15I and F-16I are nuclear-capable.

Submarines

Three Dolphin class submarines, with “the most advanced sailing and combat systems in the world,” complete the third and potentially most important leg of Israel’s nuclear ‘triad.’¹⁰⁰ The first three Dolphin class submarines were delivered and deployed in the late 1990s, and have since undergone retrofitting. The Dolphin has six 533 mm and four 650 mm torpedo tubes. Built by the German shipyard HDW, it has been widely reported that the submarines have been modified to carry nuclear-tipped cruise missiles.¹⁰¹

According to press reports, in 2000 Israel conducted a successful test of a submarine-launched cruise missile that hit a target 900 miles away.¹⁰² Among the cruise missiles suspected of being modified to carry a nuclear warhead are the Harpoon, with a range of 130 km, a modified Popeye Turbo with a range of 320 km, a modified Gabriel-4LR with a range of 200 km, as well as a new indigenously designed missile with a longer range.

Dolphin class submarines are designed to patrol the Mediterranean Sea, the Red Sea and the Persian Gulf. The Dolphin has a range of 4,500 miles and can remain on patrol for more than a month at a time.^{103, 104} In addition to the current submarine fleet, in 2005 Israel purchased two more advanced Dolphin class submarines from Germany. The new submarines feature a larger fuel capacity, extending the range to over 10,000 km and

operational endurance to approximately fifty days, thus permitting deployment to the Persian Gulf without refueling.¹⁰⁵ The new submarines, scheduled for delivery in 2010, will be equipped with a super quiet new air-independent, fuel-cell-based propulsion system (AIP) which will enable them to stay submerged for extended periods.¹⁰⁶ Israel is also in the process of retrofitting two of its older Gall Class submarines to accommodate new weapons. With a fleet of seven near invulnerable nuclear-capable submarines, Israel will soon have the capability to target the whole of Europe, the Middle East, and most of Africa and Asia.

Chemical and Biological Weapons

Israel reportedly also possesses and can readily deploy a comprehensive arsenal of chemical and biological weapons.¹⁰⁷ Like its nuclear program, much of what is known is based on conjecture and analysis.¹⁰⁸ According to the London *Sunday Times*, Israel has produced both chemical and biological weapons with a sophisticated delivery system. The *Sunday Times* quoted a senior Israeli intelligence official as saying: “There is hardly a single known or unknown form of chemical or biological weapon ... which is not manufactured at the Nes Tziyona Biological Institute.”¹⁰⁹ The same report described F-16 fighter jets specially designed for chemical and biological payloads, with crews trained to load the weapons at a moment’s notice. In an effort to recruit East European Jewish Scientists, David Ben-Gurion was quoted as saying in 1948: “... either increase the capacity to kill the masses or to cure the masses; both are important.”¹¹⁰

Israel signed the Chemical Weapons Convention (CWC) in 1993, but has since refused to ratify it. While chemical weapons research probably continues, “It is unlikely that this offensive CW program exists today.”¹¹¹ Israel has never signed the 1972 Biological Weapons Convention (BWC). The current status of Israel’s biological weapons status is unclear, however, “For all practical purposes, Israel acts as if it maintains a policy of biological ambiguity.”¹¹²

*Nuclear Weapons Facilities*¹¹³

Israel's major nuclear weapons facilities are the Nahal Soreq Nuclear Research Center and the Negev Nuclear Research Center (Dimona), both of which are discussed below. Other facilities include:

- Eliabun storage facility for tactical nuclear artillery shells, nuclear landmines and other tactical nuclear weapons;
- Haifa Rafael-Israel Armament Development Authority, “Reportedly the location of a nuclear weapons design laboratory (Division 20), a missile design development laboratory (Division 48) and a weapons assembly plant;”¹¹⁴
- Haifa Port, the main Israeli Navy base and homeport of Israel's submarines;
- Mishor Rotern: Negar Phosphates Chemical Company (uranium mining);^{115, 116}
- Yodefot nuclear weapons assembly facility. According to Vanunu, plutonium is transported from Dimona to Yodefot;¹¹⁷
- Triosh strategic weapons storage facility;
- Beit Zachariah Jericho IRBM base missile launch facility;
- Palmachim Airbase missile test range and space launch facility;
- Be'er Yaakov research and missile assembly facility;
- Rehovot Heavy Water Production Plant;
- Tel Nof air base and reportedly location of a strategic nuclear weapons storage bunker;
- Nevatim Air Base and site of an underground strategic air command center.¹¹⁸

Nahal Soreq Nuclear Research Center

The heart of the Nahal Soreq Research Center is a five-megawatt, highly-enriched uranium research reactor provided by the United States as part of the Atoms for Peace program. Despite IAEA oversight of the research reactor to ensure that it operates only for peaceful purposes, Nahal Soreq is widely reported to be a major nuclear weapons research and production facility involved in plutonium reprocessing and nuclear weapons research and design, and should be considered analogous to Lawrence Livermore and Los Alamos Labs in the United States.^{119, 120} According to John Pike, the Soreq facility is “the functional equivalent of the US Livermore or Los Alamos national weapons laboratories. It is responsible for nuclear weapons research, design and fabrication.”¹²¹ Nahal Soreq is also involved in commercial nuclear research.¹²² The reactor, scheduled to be decommissioned in eight years, will be replaced with a super-fast particle accelerator purchased from Germany.¹²³

Negev Nuclear Research Center (Dimona)

Located in the Negev Desert, the Dimona complex is the largest nuclear site in Israel comprising a wide array of nuclear facilities. Mordechai Vanunu, the Dimona whistle-blower provided much of the information available about Dimona. The Dimona complex is an enormous enterprise buried six stories deep below the Negev Desert. According to Vanunu, when US scientists inspected Dimona in the 1960s, the elevator shaft was bricked over so the inspectors were completely unaware of the underground operation.¹²⁴ Dimona’s centerpiece, the heavy water moderated natural uranium / plutonium production reactor was originally rated at 24 MW, but is understood to have been expanded to between 70 and 150 MW.¹²⁵ In the mid-1960s, a plutonium reprocessing plant was completed. Reportedly, Dimona can produce 40–60 kg of plutonium each year, enough for approximately 5–10 nuclear bombs.¹²⁶ The reactor has been operated nearly continually for almost 45 years and is at the end of

its operational life. According to *Jane's Intelligence Review*, "However, after about 35 years in operation, there is growing concern even within the Israeli Government that Dimona is no longer able to meet the needs of an expanding nuclear arsenal. According to internal Dimona reports, the nuclear reactor there is suffering severe damage from 35 years of operation."¹²⁷

The operations of Dimona are broken down into individual facilities called Machons. Machon-1 is the plutonium production reactor and also produces tritium for 'boosted' fission bombs. Machon-2 is the top-secret lab, six floors deep, where plutonium is reprocessed and where lithium-6 deuteride, used to boost fission bombs, is separated. Machon-3 processes natural uranium for reactor use and converts lithium deuteride into solids. Machon-4 treats high- and low-level wastes. High-level waste is stored and low-level waste is mixed with tar and buried. Machon-5 is a fuel rod assembly plant. Machon-6 is an operations service center for the other facilities. Machon-8 is a uranium enrichment facility and experimental laboratory. Machon-9 is a laser uranium separation and plutonium enrichment facility. Machon-10 manufactures depleted uranium munitions. In addition to the nine Machons, satellite photos show dozens of buildings and suggest a radioactive waste burial site nearby.¹²⁸

Radiological, Environmental and Health Concerns

The plutonium isotope 239 used in a nuclear bomb is produced when neutrons in the core of a nuclear reactor bombard Uranium-238. Weapons grade plutonium generally consists of approximately 93 percent Plutonium-239 and 7 percent Plutonium-240. Dedicated plutonium reactors, such as Dimona, require the irradiated uranium to be removed every few weeks to prevent the buildup of undesirable isotopes.¹²⁹ The process of producing, separating, processing and weaponizing plutonium is extremely complex, generating large amounts of extremely high-level radioactive waste and even more low-level radioactive waste. Given the

well-documented history of the failure of the world's other nuclear nations to manage their own nuclear waste issues, despite its secrecy blanket, it is unlikely that Israel has fared any better.¹³⁰ Writing in the *Washington Post*, Jonathon Broder pointed out, "It took the end of the Cold War for the United States to begin addressing environmental disasters like the Hanford nuclear waste site in Washington state. In their tiny, crowded country, Israelis don't have the luxury of waiting until peace permits such environmental issues to be discussed."¹³¹

The Dimona reactor has been operating nearly continually for 45 years, making it one of the oldest reactors in the world.¹³² Reports in the Israeli and international media suggest that the Dimona reactor, which is nearing or at the end of its operational life, has suffered significant deterioration and represents a serious radiological threat.¹³³ Employees at Dimona have complained about workplace radiation exposure and ensuing cancer and other health effects, and several have filed and won lawsuits against the Israeli government.^{134, 135} In 2002, Israel Television broadcast a special report detailing first hand the dangers Dimona poses to plant workers and the surrounding environment.¹³⁶

The Palestinian Authority has expressed concerns about radiation exposure from Dimona, and documents increased cancer rates among nearby populations.¹³⁷ Jordan also has expressed concern about radiation dangers posed by the Dimona facility. Sufian al-Tell, a Jordanian environmental specialist, calculates that the Dimona reactor may have produced as much as 4,000 tons of nuclear waste.¹³⁸ Others claim that low-level waste is buried in the nearby Negev. Israel, to the extent that it addresses these concerns at all, claims that Dimona poses no threat to workers or the environment. According to Elhanan Abramov, Deputy CEO of the Negev Nuclear Research Center, "We stop the reactor, check the systems and renovate them ... Israeli citizens, apart from being assured that the reactor is safe, can sleep more soundly because this reactor is working."¹³⁹ In 2004, the Israeli military distributed potassium

iodide pills to some Dimona residents, apparently to protect them in case of radiation leakage.¹⁴⁰

After 45 years of operation, it becomes questionable whether even the most comprehensive overhaul of a nuclear reactor can address inherent safety issues, particularly brittleness in the reactor vessel itself caused by intense neutron bombardment. Jane's reported, "According to internal Dimona reports, the nuclear reactor there is suffering severe damage from 35 years of operation. This damage has come from the neutron radiation from the reactor core, and this bombardment has changed the reactor structure at the atomic level. Metal supports have become brittle and warped as the neutrons have created gas bubbles in the metal itself."¹⁴¹ Israeli nuclear scientists have called on Israel to shut down Dimona, citing environmental concerns and pointing out that Israel has no need of further plutonium production. The London *Sunday Times* reported that Professor Uzi Eben, a former senior official in Israel's nuclear program, called for Dimona's shutdown to "avert a catastrophe."¹⁴²

Radiological Concerns and Censorship

Like every other aspect of Israel's nuclear policy, the issue of health and environmental concerns posed by Dimona and the research reactor at Nahal Soreq is tightly censored and seldom mentioned by either the government or by the Israeli press. Owing to censorship concerns, much about what is known about Israel's nuclear program has been gleaned indirectly. Avner Cohen published his groundbreaking work, *Israel and the Bomb*, in the United States to evade censorship, but was prevented for several years from returning to Israel because of arrest threats.¹⁴³

An example dealing specifically with censorship about Dimona's radiological hazards concerned Israeli retaliation against the British Broadcasting Corporation (BBC) for broadcasting a documentary in March 2003.¹⁴⁴ In the program, the BBC featured five Dimona workers who appeared on Israeli Television Channel 2, discussing the health and

environmental consequences of their work. The BBC attempted to get them to testify again on camera but was told about threats to punish them like Vanunu if they cooperated. Ariel Speiler, one of the Dimona workers interviewed on Israeli TV, refused to talk about his experience working at Dimona saying, “The Secret Service silenced me. They’ve silenced me completely. They told me not to say one word. What can I do? What can I do? They told me; ‘You’ll end up like Vanunu.’ How long has he been in prison? 15 years? Do you want me to go to jail? I really wanted to talk. I asked the others but they refused. Nobody wants to talk.”¹⁴⁵

The BBC went on to interview Israeli investigative journalist Ronen Bergman about Yehil Horev, the Israeli Ministry of Defense chief censor. Bergman recounted the story of how he interviewed Brigadier-General Yitzhak Yaakov, former chief weapons scientist of the IDF, about his fictional memoir. When Bergman submitted his story to Horev’s censors, Yaakov, was publicly vilified as a traitor and forced to spend two years in prison. On camera Bergman stated, “Horev was afraid that veterans of the Israeli army, the Israeli intelligence, the Israeli nuclear effort, would try to maintain their footprint in the history of Israel and tell their story. And he wanted to frighten them. In this sense he was successful.” After the documentary was aired, Israel announced that it was cutting off all ties and ending cooperation with the BBC.¹⁴⁶

Israeli Nuclear Strategy

The question of the ‘existential threat’ posed by Israel’s small size and lack of territorial depth, in juxtaposition with the size, resources and population of its Arab neighbors has been posited as a primary justification for Israel’s nuclear program.¹⁴⁷ This theme of defensive nuclear deterrence still resonates within Israel, but the size and sophistication of its nuclear arsenal and statements by public officials

strongly suggest that deterrence is only one aspect of a much broader and far-reaching nuclear strategy. In the popular imagination, the Israeli bomb is a “weapon of last resort,” to be used only at the last minute to avoid annihilation. At least in its early years, this formulation was motivated by fresh memories of the Holocaust.¹⁴⁸ Whatever truth this idea may have had in the minds of the early Israeli nuclear strategists, today the Israeli nuclear arsenal is inextricably linked to and integrated with overall Israeli military and political policy.

Israeli nuclear expert Oded Brosh said in 1992, “... we need not be ashamed that the nuclear option is a major instrumentality of our defense as a deterrent against those who attack us.”¹⁴⁹ Seymour Hersh points out in *The Sampson Option*; “The Samson Option is no longer the only nuclear option available to Israel.”¹⁵⁰ Over the decades, Israel has made numerous veiled nuclear threats against the Arab nations and against the Soviet Union (by extension Russia since the end of the Cold War). For example Ariel Sharon, former Israeli Prime Minister is quoted as saying, “Arabs may have the oil, but we have the matches.”¹⁵¹ In 1983 and again in 2003, Sharon suggested that India consider joining with Israel to attack Pakistani nuclear facilities.¹⁵²

Possessing an overwhelming nuclear superiority allows Israel to act with impunity even in the face of worldwide opposition. For example, during the 1982 invasion of Lebanon Israel destroyed Beirut, resulting in 20,000 deaths, mostly civilian.¹⁵³ Despite the near destruction of a neighboring state, not to mention the utter destruction of the Syrian Air Force, Israel was able to carry out the war for months and an occupation for many years, at least in part owing to its nuclear threat.

In late 2008, despite worldwide condemnation, Israel implemented a blockade of Gaza characterized by Richard Falk, United Nations Special Rapporteur for Palestinian human rights, as “a crime against humanity, a flagrant and massive violation of international humanitarian law as laid down in Article 33 of the Fourth Geneva Convention.”¹⁵⁴

The implicit US nuclear umbrella enjoyed by Israel may also be a factor in encouraging Israeli adventurism. Writing in the fall of 2004, James Russell pointed out:

It might be equally argued that the strategic umbrella provided by US forces could in fact encourage Israel to act more aggressively than it otherwise would, since its actions would be backed not just by its own nuclear force but also by the thousands of warheads in the US arsenal and the array of standoff conventional munitions used to great effect in Afghanistan and Iraq. The NPR [US Nuclear Posture Review] implies that the defense of Israel represents a core mission for the strategic deterrent by identifying several near-term contingencies involving an attack on Israel that could lead to the use of nuclear weapons by the United States.¹⁵⁵

Israel uses its nuclear arsenal not just in the context of deterrence or direct war fighting, but in other subtler but no less important ways. For example, the possession of weapons of mass destruction can be a powerful lever to maintain the status quo, or to influence events to Israel's perceived advantage, such as to protect so-called moderate Arab states from internal insurrection, or to intervene in inter-Arab warfare.¹⁵⁶ In Israeli strategic jargon this concept is called 'non-conventional compellence,' as illustrated by the following quote from Shimon Peres, "acquiring a superior weapons system [nuclear] would mean the possibility of using it for compelling purposes—that is forcing the other side to accept Israeli political demands, which presumably include a demand that the traditional status quo be accepted and a peace treaty signed."¹⁵⁷ Cohen quotes Peres as saying, "Israeli nuclear weapons were important in encouraging Arab realism ... [They were] instrumental in bringing Egyptian President Anwar Sadat to Jerusalem in 1977 and may have been even more important in convincing other Arabs, particularly the Palestinians, to recognize that the Arab-Israeli conflict could not be resolved by the sword."¹⁵⁸ Neo-conservative writer Robert Tucker raised the question; "What would prevent Israel ... from pursuing a hawkish policy employing a nuclear deterrent to freeze the status quo?"¹⁵⁹

Discussing Israeli nuclear compellence, dissident historian Israel Shahak further observes, “Israel is preparing for a war, nuclear if need be, and for the sake of averting domestic change not to its liking, if it occurs in some or any Middle Eastern states.”¹⁶⁰

Another major use of the Israeli bomb is to compel the US to act in Israel’s favor, even when it runs counter to its own strategic interests. As early as 1956 Francis Perrin, head of the French A-bomb project wrote: “We thought the Israeli Bomb was aimed at the Americans, not to launch it at the Americans, but to say, ‘If you don’t want to help us in a critical situation we will [compel] you to help us; otherwise we will use our nuclear bombs’.”¹⁶¹ During the 1973 war, Israel used the nuclear threat to pressure Kissinger and Nixon to airlift massive amounts of military hardware to Israel. The Israeli Ambassador, Simha Dinitz, is quoted as saying at the time, “If a massive airlift to Israel does not start immediately, then I will know that the US is reneging on its promises and we will have to draw very serious conclusions ...”¹⁶² Another example was spelled out explicitly by Amos Rubin, economic adviser to then Prime Minister Yitzhak Shamir; “If left to its own Israel will have no choice but to fall back on a riskier defense which will endanger itself and the world at large ... To enable Israel to abstain from dependence on nuclear arms calls for \$2 to 3 billion per year in US aid.”¹⁶³ Since then Israel’s nuclear arsenal has expanded exponentially, both quantitatively and qualitatively, while the US currently provides Israel with approximately \$3 billion in annual military aid.¹⁶⁴

Regional and International Implications

In the event of a future Middle Eastern war, the possible Israeli use of nuclear weapons should not be discounted. According to Shahak, “In Israeli terminology, the launching of missiles on to Israeli territory is regarded as ‘nonconventional’ regardless of whether they are equipped

with explosives or poison gas.”¹⁶⁵ Israeli nuclear doctrine dictates that an unconventional attack requires a nonconventional (nuclear) response; a perhaps unique exception being the Iraqi SCUD attacks during the Gulf War.¹⁶⁶ Seymour Hersh warns, “Should war break out in the Middle East again, or should any Arab nation fire missiles against Israel, as the Iraqis did, a nuclear escalation, once unthinkable except as a last resort, would now be a strong probability.”¹⁶⁷ Ezer Weizman, former Israeli President, said, “The nuclear issue is gaining momentum [and the] next war will not be conventional.”¹⁶⁸ Jonathan Schell and Martin Sherwin appeal, “Israel and the entire Middle East are approaching a stark existential choice: a nuclear holocaust or a nuclear-free Middle East ... In a desperate effort to assure its local nuclear monopoly, Israel is in danger of courting national suicide.”¹⁶⁹

The Israeli nuclear arsenal has profound implications for the Middle East, and the global community. Israel Shahak has argued, “Israel’s insistence on the independent use of its nuclear weapons can be seen as the foundation on which Israeli grand strategy rests.”¹⁷⁰ According to Seymour Hersh, “the size and sophistication of Israel’s nuclear arsenal allows men such as Ariel Sharon (and Benjamin Netanyahu)¹⁷¹ to dream of redrawing the map of the Middle East aided by the implicit threat of nuclear force.”¹⁷² General Amnon Shahak-Lipkin, former Israeli Chief of Staff is quoted in the Hebrew language newspaper *Maariv*; “It is never possible to talk to Iraq about no matter what; it is never possible to talk to Iran about no matter what. Certainly about nuclearization. With Syria we cannot really talk either.” Munya Mardoch, Director of the Israeli Institute for the Development of Weaponry, said in 1994, “The moral and political meaning of nuclear weapons is that states which renounce their use are acquiescing to the status of vassal states. All those states which feel satisfied with possessing conventional weapons alone are fated to become vassal states.”¹⁷³

Russia – and before it the Soviet Union – has long been an implied target of Israeli nuclear weapons. It is widely reported that the principal

purpose of Jonathan Pollard's spying for Israel was to furnish satellite images of Soviet targets and other super sensitive data relating to US nuclear targeting strategy.¹⁷⁴ According to the widely respected security analyst John Pike, "The USSR (by extension Russia) has always been one of the primary targets of Israel's nuclear force, as Israeli assumptions hold that no Arab nation would attack Israel without Soviet support."¹⁷⁵ Since it began launching its own spy satellites in 1988, Israel no longer requires US spy secrets. Israeli nuclear weapons aimed at the Russian heartland seriously complicate disarmament and arms control negotiations and lower the threshold for their actual use. Investigative journalist Mark Gaffney cautions, "... if the familiar pattern [Israel refining its weapons of mass destruction with US complicity] is not reversed soon – for whatever reason – the deepening Middle East conflict could trigger a world conflagration."¹⁷⁶

Prospects for a Nuclear Free Middle East

Despite the fact that all states in the region, including Israel, are on record as supporting in principle a Middle East Nuclear Weapons-Free Zone (MENWFZ), prospects for an agreement are discouraging. For its part, Israel conditions any discussions about eliminating its nuclear program upon the prior implementation of a comprehensive and lasting Israeli/Arab peace; "Israel insists that even *discussions* regarding the possibilities of limiting sensitive arms – primarily in the nuclear realm – should begin only after comprehensive peace has been achieved and minimal degrees of confidence and mutual trust have been established."¹⁷⁷

Proposals for a MENWFZ began in earnest in 1974 when Iran, under the Shah, introduced a resolution in the UN General Assembly. This proposal and others that followed require all states in the region to forswear nuclear weapons, accept IAEA safeguards and inspections, and agree not to accept or transfer nuclear technology to other states or parties. Israel, which steadfastly refuses to sign the Nuclear Non-Proliferation

Treaty or a Fissile Material Cutoff Treaty (FMCT), has offered conditional support for a MENWFZ, and participates actively in the Nonproliferation Treaty Organization. However, as Avner Cohen and Marvin Miller caution:

Israel's attitude towards an FMCT has now evolved into strong opposition. At the same time, Israel is attempting to "balance" this opposition and its purely rhetorical support for the establishment of a Middle East Nuclear Weapons Free Zone (NWFZ) by emphasizing various actions it has taken in recent years in support of the global nonproliferation regime, such as its active participation in the Comprehensive Test Ban Organization and its adherence to international norms with regard to the export of nuclear and other military technology. In this manner, it seeks to make the case that Israel is a "responsible" albeit opaque nuclear state in contrast to "rogue" states such as Iran.¹⁷⁸

David Albright, the director of the Institute for Science and International Security urged President-Elect Barack Obama to, "make a key priority of persuading Israel to join the negotiations for a universal, verified treaty that bans the production of plutonium and highly enriched uranium for nuclear explosives, commonly called the Fissile Material Cutoff Treaty (FMCT),"¹⁷⁹

Israel, along with India and Pakistan, is not a signatory to the NPT. Ze'ev Shiff, dean of Israeli military commentators declared, "Whoever believes that Israel will ever sign the UN Convention prohibiting the proliferation of nuclear weapons ... is day dreaming,"¹⁸⁰ Other statements by Israeli leaders suggest that this position may ultimately change, albeit only in the context of a long-term peace agreement.¹⁸¹ The position of the Arab states is that Israel's nuclear capabilities are destabilizing and must be "addressed as a precondition to peace and security in the region."¹⁸² (It should be pointed out, however, that the Saudi/Arab League Peace Proposal of 2002 contains no such ultimatum.) These polarized viewpoints give rise to an intractable problem, providing little room for negotiations. To resolve this conundrum, a small minority of Israelis recognize that Israel must be prepared to renounce nuclear weapons in

return for a regional peace agreement. Zeev Maoz suggests, “Should Israel renounce nuclear weapons? The answer I suggest is yes, but for a price. In return for greater regional security, Israel must give up its nuclear weapons.”¹⁸³

Israel has clearly indicated that it will not permit any other state in the Middle East to acquire nuclear weapons.¹⁸⁴ General Shahak-Lipkin declared “I believe that the state of Israel should from now on use all its power and direct all its effort to preventing nuclear developments in any Arab state whatsoever. In my opinion, all or most [available] means serving that purpose are legitimate.”¹⁸⁵ After the 1981 raid on the Osirak reactor, the UN Security Council passed UN resolution 487 condemning Israel’s attack on a International Atomic Energy Agency (IAEA) safeguarded facility and calling on Israel, “urgently to place its nuclear facilities under IAEA safeguards.”¹⁸⁶ For the past 27 years, Israel, with the complicity of the West, has ignored the resolution. This insistence on retaining a nuclear monopoly in the region provides motivation for the Arab states to develop their own deterrence, destabilizing non-proliferation efforts in the region.

While publicly saying it has no objections to other Middle Eastern state’s plans to develop civilian nuclear energy under IAEA safeguards, there is little question that Israel has serious concerns. Richard Beeston, *The Times* Diplomatic Correspondent reported, “The sudden rush [by Arab States] to nuclear power has raised suspicions that the real intention is to acquire nuclear technology which could be used for the first Arab atomic bomb.”¹⁸⁷ The attack on the IAEA-safeguarded Osirak reactor and the ongoing threats against Iran’s nuclear program suggest that Israel may be reluctant to allow development of civilian nuclear programs by neighboring states. [The head of Haifa University’s National Security Studies Center, Professor Gabriel Ben-Dor said, “The fear is that various other countries in the region will follow in Israel’s footsteps and also develop nuclear energy programs of their own. And we all know that once a nuclear energy program gets underway it is difficult to make the

distinction between the peaceful uses of nuclear energy and military developments and ramifications.”¹⁸⁸] If it desires, there is little doubt about Israel’s military capability to prevent the other Middle Eastern states from going nuclear.

The Arab states, long aware of Israel’s nuclear program, bitterly resent its coercive implications, perceiving it as the paramount threat to peace in the region. In May 2008, the Arab League declared that if Israel were to announce that it has nuclear weapons, the Arab states would withdraw from the NPT.¹⁸⁹ Mohamed Elbaradei, Secretary General of the International Atomic Energy Agency vehemently repudiated the Arab League statement:

Arab countries’ walkout is not the solution. A walkout by Arab countries will create a great deal of tension in the region that may lead to more pressures and even the use of military force against some Arab countries ... We should understand that the use of nuclear weapons will be the beginning of the end of humanity. The use of nuclear weapons by any region like the Middle East—this means the destruction of the entire Middle East. The solution is that we build a strategy as to how we can reach a region free from weapons, including the weapon of the Israeli nuclear programme.

The International Pugwash organization concludes, “Even after a comprehensive peace is reached, Israel will probably decide to retain a strategic deterrent capability for some period as an insurance policy against bellicose regimes coming to power in the neighboring states. Until this perception is reversed, it is difficult to foresee dramatic steps in the direction of a WMDFZ.”¹⁹⁰

Unless Israel decides to negotiate openly over its covert nuclear program, it is doubtful that a near-term resolution of the Israeli/Arab conflict can be achieved. Joseph Cirincione, former director for nonproliferation at the Carnegie Endowment for International Peace points out:

The world does well to remember that most Middle East weapons programs began as a response to Israel’s nuclear weapons. Everyone

already knows about Israel's bombs in the closet, bringing them out into the open and putting them on the table as part of a regional deal may be the only way to prevent others from building their own bombs in their basements. It should be obvious that Israelis are better off in a region where no one has nuclear weapons than in one where many nations have them.¹⁹¹

Israel's nuclear monopoly in such a historically politically unstable region as the Middle East jeopardizes future arms control and disarmament agreements such as a MENWFZ, and could threaten nuclear escalation.

Changes in the Middle East Political Environment

The political environment in the Middle East has changed dramatically since the 1973 war. Ironically, Israel attributes the Arab states' newfound willingness to negotiate to the existence of its nuclear weapons program.¹⁹² However, Zeev Maoz disagrees with this analysis; "I argue that the balance sheet of Israel's nuclear policy is decidedly negative: not only did the policy fail to deter Arab attacks in 1973 and 1991, but it has been unrelated or only marginally related to Arab decisions to make peace with the Jewish state"¹⁹³ The Palestine Liberation Organization (PLO) represented the Palestinian people in direct negotiations with Israel, leading to formal recognition of Israel. The Arab states have expressed the desire to normalize their relationship with Israel based on Israel's return to 1967 borders with Jerusalem becoming the capital of both Israel and Palestine, a position most recently articulated (and recently renewed) in the 2002 Saudi/Arab League proposal. Egypt and Jordan have signed separate peace agreements with Israel. In 2003, with the support of President Mohammad Khatami and supreme religious leader Ali Khamenei, Iran proposed opening a broad dialogue with the United States, "including full cooperation on nuclear programs, acceptance of Israel and the termination of Iranian support for Palestinian militant groups."¹⁹⁴ The

proposal, which would have aligned Iranian policies with those of Egypt, Saudi Arabia and others in the region, was summarily rejected by the Bush administration.¹⁹⁵

The Palestinian Authority and Hamas have accepted in principle a two-state solution. In April, 2008, Khaled Meshaal, the head of Hamas' Political Bureau was quoted in the Fatah-controlled Palestinian newspaper *Al-Ayyam*, "In my heart, of course I believe all of Palestine belongs to the Palestinians. But practically speaking, our political position is a de facto two-state solution."¹⁹⁶ A February 2008 *Haaretz* poll showed that 64 percent of the Israeli public supports direct talks with Hamas.¹⁹⁷ Following the 2007 Annapolis Conference, where the Palestinian Authority, Israel and the United States agreed in principle to a Two-State solution, Ehud Barak, Israel's Prime Minister, was quoted in *Haaretz*, "I believe that there is no path other than the path of peace. I believe that there is no just solution other than the solution of two national states for two peoples."¹⁹⁸

International pressure has been mounting on Israel to acknowledge its nuclear arsenal in the context of broader non-proliferation negotiations. Mohammed Elbaredi declared, "This is not really sustainable that you have Israel sitting with nuclear weapons capability there while everyone else is part of the non-proliferation regime."¹⁹⁹ Peter Kuznick, Director of the Nuclear Studies Institute at the American University asks:

Countries like Iran look at what's happened to India and Pakistan – countries that have tested nuclear weapons recently – and they see that there's really very little sanctions against them, and [countries like Iran ask], 'Why is Israel allowed to have nuclear weapons without even any serious discussion about eliminating their nuclear weapons, and why can't Iran [have the same weapons]?' So it seems to them that there's a lot of double standards being imposed at this point.²⁰⁰

Although prospects for a negotiated peace in the Middle East show some promise, especially widespread hope that the election of Barack Obama will herald a more even-handed treatment, the window may

swiftly close.²⁰¹ Benjamin Netanyahu, the hard-line Likud leader who opposes the current peace process and supports turning the occupied territories into economic Bantustans, is poised to form a hard-right government, with extremist Avigdor Lieberman becoming Israeli Foreign Minister.²⁰² In addition, the current global economic crisis and plummeting oil prices may destabilize Middle East governments, making negotiations more problematic.²⁰³ After the debacle of the 2005 Nuclear Non-Proliferation Treaty Review Conference, progress toward resolving the current standoff over Israel's nuclear arsenal may prove critical to the success of the upcoming 2010 Conference. Referring to former nuclear proponents turned disarmament advocates such as former US Secretary of State Henry Kissinger, Rebecca Johnson warns, "The terrifying prospects of an eroded NPT and potential nuclear free-for-all, starting in the Middle East, have undoubtedly contributed to the new found enthusiasm of many born-again nuclear abolitionists."²⁰⁴

Conclusion

Placing the issue of Israeli nuclear weapons directly and honestly on the table would achieve several salutary effects. First, it would highlight a primary destabilizing dynamic compelling the region's states to each seek a deterrent of their own. Second, it would expose a perceived double standard, which sees the US and Europe on the one hand condemning Iran and Syria for developing weapons of mass destruction, while simultaneously protecting and enabling Israel. Third, acknowledging Israel's nuclear program would focus international public attention on the necessity of a MENWFZ agreement. Finally, a Nuclear Free Middle East would make a comprehensive regional peace agreement much more likely. George Perkovich, writing for the Carnegie Endowment for International Peace, stated: "Our aim should be to create a security environment, and you can't do that if you don't recognize publicly that Israel has nuclear weapons."²⁰⁵

THE ISRAELI NUCLEAR WEAPONS PROGRAM

Israel's nuclear arsenal is symptomatic of another, larger problem – the global proliferation of nuclear weapons – universally acknowledged as a paramount threat to human survival. Speaking before the UN Disarmament Conference in New York, UAE Ambassador to the UN, Abdulaziz Nasser Al-Shamsi, called for the abolition of nuclear weapons, declaring nuclear weapons could lead to, “the destruction of people and the threatening of the natural, environment and civil legacy of our world, which is the major source of our strength and resources, as well as being the major factor of our survival and stability.”²⁰⁶

According to Hans Blix, “Israel is not likely to give up its nuclear weapons until you have a peaceful settlement in the Middle East, and let's hope that that comes sooner rather than later.”²⁰⁷ For more than 30 years the UN General assembly has passed annual resolutions by overwhelming majorities calling for the establishment of a Middle East Nuclear Weapons-Free Zone. Can the world afford the luxury of waiting another 30 years?