

ISRAEL'S NC3 PROFILE: OPAQUE NUCLEAR GOVERNANCE



Recommended Citation

Avner Cohen, "ISRAEL'S NC3 PROFILE: OPAQUE NUCLEAR GOVERNANCE", NAPSNet Special Reports, October 11, 2019, <https://nautilus.org/napsnet/napsnet-special-reports/israels-nc3-profile-opaque-nuclear-governance/>

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OCTOBER 11 2019

I. INTRODUCTION

In this essay, Avner Cohen traces and exposes Israel's two most fundamental principles of the Israeli NC3 thinking: first, insisting on strict physical and organizational separation between nuclear (e.g., pits) and non-nuclear assets (e.g., military delivery platform); second, creating a two-tier governance architecture at various levels.

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A podcast with Avner Cohen, Peter Hayes, and Philip Reiner on Israel's NC3 is found [here](#).

Acknowledgments: The workshop was funded by the John D. and Catherine T. MacArthur Foundation.

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II. NAPSNET SPECIAL REPORT BY AVNER COHEN

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Summary

Israel is a unique case among all nine nuclear weapons states: It is the sixth to acquire nuclear weapons, about half a century ago, but it is the only nuclear weapons state has never openly acknowledged its weapons status. Furthermore, under Israel's long-held policy of nuclear opacity there is no public authorized knowledge whatsoever on its nuclear posture, let alone about its related highly classified NC3 architecture. Hence, to address this fundamental difficulty, the approach of this paper is historical: constructing Israel's nuclear DNA through major (and partially known) milestones in its nuclear history. The paper examines the following kinds of historical landmarks: early political/strategic decisions, fundamental and unchanging public policy statements, nuclear alerts/crises in wars (1967, 1973), secret bargain with the United States (1969 Meir-Nixon), acquisition of delivery platforms.

Out of this historical survey the paper traces and exposes Israel's two most fundamental principles of the Israeli NC3 thinking: first, insisting on strict physical and organizational separation between nuclear (e.g., pits) and non-nuclear assets (e.g., military delivery platform); second, creating a two-tier governance architecture at various levels. The paper ends by questioning whether present-day

Israel remains faithful to these historical principles.

Introduction

Israel is a unique case among the current nine nuclear weapons states. It is the sixth state—and the first and only one in the Middle East—to develop, acquire, and possess nuclear weapons. And yet, to this day, it has never openly acknowledged its nuclear weapons-state status. Nor has the outside world, friends or foes alike, pressed Israel to come clean publicly about its nuclear status.

As a long-held policy, Israel neither confirms nor denies possession of nuclear weapons. Instead, ever since the mid-1960s—a time in which Israel did not yet possess nuclear weapons capability—Israel has declared, first privately and then publicly, that “it will not be the first to introduce nuclear weapons to the Middle East.”^[1] This formula became the essence of Israel’s policy of nuclear opacity.

Israel initiated its nuclear weapons program in earnest in the late 1950s, and about a decade later, on the eve of the 1967 Six Day War, it secretly assembled its first rudimentary nuclear devices. By 1970 it became openly accepted that Israel had weapons capability, although Israel had not conducted a full-yield test and its deployment mode remained invisible. Two decades later, in the wake of the 1986 Vanunu disclosure (Israel’s infamous nuclear whistleblower), a consensus emerged worldwide that Israel possessed a small but advanced nuclear weapons program. The estimate of the arsenal size varied significantly, ranging from less than 100 to up to 300 warheads, with an unknown quantity of weapons-grade fissile material stockpiled as strategic reserves.^[2]

Under Israel’s policy of nuclear opacity there is virtually no open and authorized information on the country’s nuclear governance and its related NC3 architecture. Any effort to sketch Israel’s NC3 profile is indispensably uncertain and difficult. Inevitably, this briefing paper is limited, at times tentative and somewhat speculative, and historical in its basic approach.

Historical Origins: Israel’s Nuclear DNA

From its very inception in the early-to-mid 1950s, the Israeli nuclear project was set up under strict *civilian* control. A civilian coalition of two, a civil servant scientist (Professor E. D. Bergmann) and the nation’s top political leader (David Ben Gurion, with a dual portfolio of prime minister and minister of defense), created the early institutional setting of the Israeli nuclear program. In 1952, Prime Minister Ben Gurion secretly founded the Israeli Atomic Energy Commission (IAEC) as the government agency in charge of all national nuclear activities and appointed Bergmann as its head.^[3] In the mid-1950s, when the young Shimon Peres became the top administrator at the Ministry of Defense (MOD), he effectively became the administrator in charge of the Israeli nuclear program.^[4]

The IAEC always operated under an aura of extreme secrecy, even before there were any real secrets to keep beyond an audacious vision of the future. It was run as a small, highly compartmentalized security organization within the walls of the MOD. Though the IAEC was taken always as a security R&D organization, Ben Gurion and Peres were determined to keep it apart and outside the military loop.^[5] In doing so, Ben Gurion signaled two things: first, the nuclear organization is very different from the military; second, the nuclear business was *his*, the direct domain of the national leader. This early legacy was well embedded into Israel’s nuclear DNA, a pillar in the Israeli profile.

When Ben Gurion and Peres set up the nuclear program in the late 1950s in a highly secretive and non-democratic fashion. The Israeli nuclear project was founded as a nondemocratic state within a

democratic state. Ben Gurion deliberately bypassed all but a select few who were indispensable for the task. IDF generals, almost all cabinet ministers, the Knesset oversight system, and ordinary budget accounting procedures were ignored or circumvented. This was essential not only to maintain secrecy and expediency, but also to maintain political deniability because Gurion created the Dimona project on his own, without revealing the full extent of the project or exposing the project to cabinet-level discussion and debate. Most of the funding in the early stages of the project were raised by way of external fund-raising efforts outside the state budget. Decades later Peres publicly acknowledged how he ran the project in the late nineteen-fifties and early sixties was outside the proper way of doing things, possibly even illegal, and would have been impossible to do in later years due to increased oversight and accountability.^[6]

In that initial period, Ben Gurion shielded the nuclear project from any political or strategic discussion with other national leaders, presenting its long-term objectives in vague and open-ended terms, focusing on the short-term objectives of completing the nuclear infrastructure. Decades later Peres acknowledged that Ben Gurion was deliberately reluctant to “nail down” the specifics of his nuclear vision, “for nailing down would have meant to identify specific objectives too early, and too fast and that would have been too complicated.”^[7] Long-term strategic objectives were left opaque, often unwritten or unspoken.

But by the early 1960s, for a mix of external and domestic reasons, Ben Gurion realized that he could no longer hold off discussing the long-term controversial issues involving the nuclear project. Should Israel move to change the IDF conventional fundamentals towards a nuclear-armed army (which would mean a dramatic change in its military posture)? Or, alternatively, should Israel treat its nuclear program as an extra-existential hedge for the future, but without changing the conventional fundamentals of the IDF?

In the summer of 1962, Ben Gurion held a small closed-doors leadership conference on the future of the nuclear project. For the first time the nuclear project’s strategic fundamentals were debated outside the walls of the project itself by a small group of national political leaders with security credentials. That conference was the platform where the “pro-nuclear” and the “conventional” schools debated their views on Israel’s security with Prime Minister Ben Gurion presiding.^[8]

In the end, Ben Gurion struck a political compromise of sorts between the two camps, although the conventional school viewed Ben Gurion’s decisions as if their side won. Ben Gurion rejected a proposal to dedicate more funds to the nuclear project. Instead, he authorized the creation of a new regular armor brigade in the IDF. All doctrinal and organizational ideas about changing the conventional nature of the IDF were postponed indefinitely. The infrastructure of the nuclear project was to be completed, but the IDF was to remain a conventional force.

The conventional camp leaders—Yigal Allon and Israel Galili—believed they were successful in blocking Peres’s efforts to move the IDF towards a nuclear deterrence posture. While Ben Gurion did approve the initiation of a relatively costly missile project (under contract with the French firm Marcel Dassault), a project that was directly tied to Israel’s nuclear commitment, this new project was not a mandate to change the IDF’s organizational/doctrinal nature as a conventional army. But a small missile-planning unit was set up within the Israeli Air Force (IAF) that, within a decade or so, would evolve into a full wing base, the home of Israel’s missile squadrons.

Ben Gurion’s compromise was probably more pragmatic than doctrinal, a solution to a debate he may have seen as more political than operational. The compromise was most likely Ben Gurion’s way of releasing political steam about a highly divisive issue that had never been debated by politicians before, while assuring his coalitions partners—Allon and Galili—that he was not pushing the IDF into a nuclear posture, as Peres was understood to advocate in those days.

However, from a long-term historical perspective, the 1962 nuclear conference created far-reaching legacies, including:

- The IDF remains a conventional army in its basic orientation (both force structure and doctrine) as long as Israel faces conventional threats.
- The nuclear program should be viewed as a national security insurance policy under the control of the prime minister, not as another military system under the custodianship of the IDF.
- Israel remains politically committed to not introducing nuclear weapons to the Middle East.
- The utility of the nuclear program is mostly political, not military.
- The nuclear issue should be handled with extreme caution and care by its political and professional custodians, and all civilians, and it must not be a vehicle to change IDF.
- Because the nuclear issue requires extraordinary secrecy, and because democratic procedures may be bypassed, national consensus is essential.[\[9\]](#)

It would take another decade—including two major wars and, between those wars, a secret nuclear bargain with the United States—until these legacies would be discerned, codified, and ultimately embedded in Israel's unique national nuclear profile, the nation's unique style and outlook on nuclear matters. Israel's NC3 architecture, to be developed slowly over the coming years and decades, would embed these legacies.

The Fundamental Governance Setting: From 1966 to the Present

The next major historical milestone was the reorganization and governance reform of the nuclear project in 1966. This reform was a response to the growing need to establish a centralized management system, i.e., creating headquarters to run, coordinate, and control *all* the entities and activities involved in the nuclear weapons project, in particular the project's two large and separate (both geographically and organizationally) hubs of activities: the Negev Nuclear Research Center at Dimona (KAMAG, dedicated to fissile material production) and the relevant units at the Weapons Development Authority (RAFAEL, which led the weaponization effort).

Specifically, in the spring of 1966, Prime Minister and Minister of Defense Levi Eshkol announced the reestablishment of the dormant IAEC as the old-new executive agency in charge of all national nuclear activity.[\[10\]](#) In parallel, however, he created a new and highly classified organizational entity called the *Minhal Madaii* (in Hebrew, Scientific Authority) tasked to become the unified executive headquarters of two separate hubs of the weapons-project activities—KAMAG, certain units from RAFAEL, and possibly some other smaller R&D units—all under one roof. Professor Israel Dostrovsky of the Weizmann Institute, publicly named as the new director-general of the IAEC and secretly named as the head of the new *Minhal Madaii*, served as the chief of all aspects of the nation's nuclear project.

This reorganization of the nuclear project meant effectively creating a new governance architecture. The new system was based on a two-tier or two-hats structure, with a thin public layer (functioning effectively as a veneer to conceal the real mission) and a substantial classified executive layer (where the real mission is done). The two-tier system was under one head, who had two hats, public and classified. All the public knew was that the IAEC was reorganized and was placed under the prime minister, who, *ex-officio*, appoints the IAEC's director general and served as its chair.[\[11\]](#) The public knew nothing about the second hat, the *Minhal*, the new entity that was in charge of the nation's weapons program.

The new governance structure was spelled out in a series of top-secret founding documents that were approved in 1966 by Prime Minister Eshkol.[12] Those documents are still highly classified, but it is generally understood that the new system was a two-tier structure where both the prime minister and the minister of defense had a significant role in controlling the new classified agency. In those documents the prime minister was named as the supreme head of the entire nuclear domain, the final authority on all policy decisions, hence he or she was formally named as the chair of the IAEC. However, the *Minhal* as a classified executive agency was placed within the bureaucracy of the defense ministry. Specifically, in terms of budget, security, logistics, etc., the *Minhal* functioned as a unit that receives its administrative support from the resources of the MOD. So here is the two-tier structure: while the nuclear domain was declared the formal jurisdiction of the prime minister, in practice the *Minhal* was under the day-to-day oversight of Eshkol's deputy at the MOD, Zvi Dinstein, who practically served as the real boss (*memuneh*) of Dostrovsky over his two hats, the IAEC and the *Minhal*. [13]

Inevitably, key governance questions seemed outstanding. Who was truly in control over the weapons project? How exactly, and under what bureaucratic setting, should this new two-tier system operate? Those questions seemed theoretical in 1966 as Eshkol was *both* prime minister and minister of defense, hence the overall chief, while Dinstein's role as Dostrovsky's direct superior reflected the fact that he was Eshkol's deputy at the MOD. But this two-tier governance structure could become problematic once the portfolios of prime minister and minister of defense were separated between two individuals.

Indeed, such split did occur abruptly only a year later, on June 2, 1967. Prime Minister Eshkol was forced (virtually overnight) to relinquish the MOD and appoint Moshe Dayan as the minister of defense. Then, within hours, Dayan dismissed Dinstein of all his responsibilities and authorities at the MOD and transferred them to his new senior aide, former chief of staff Tzvi Zur (Chera). [14] Not only did this happen during Israel's worst national crisis, but it was during this very crisis that Israel became—virtually overnight—a nuclear weapons state. [15] A one-page document was drafted as a quick fix to delineate the assertive authorities and responsibilities of the prime minister and the minister of defense. [16] It was evident that this was not a long-term solution. If anything, that incident highlighted the problematic nature of this two-tier governance system.

In historical perspective, however, the essence of this two-tier system has governed Israel's nuclear affairs for many decades. As the situation on the ground evolved—i.e., new military platforms, new technologies (PAL), new NC3 issues, new reorganizations, etc.—it was also necessary to amend the basic arrangement. It is believed that those highly classified documents were amended at least three or four times since 1966.

The last time that governance reform took place was during the period when Read Admiral (ret) Shaul Horev was the IAEC director-general (2007-15). Israel's Attorney General was said to be involved in drafting the newly classified nuclear governance system. As part of that governance reform the *Minhal* was abolished and the IAEC remained as the only entity that oversees all Israel's nuclear affairs under the jurisdiction of the prime minister. [17] Yet, abolishing the double-hat arrangement was not necessarily the end of the two-tier system. It is presumed that the "Special Means" joint unit represented the MOD under a new double-tier mandate. It is not known, however, what impact this governance change had on the Israeli NC3 architecture.

One thing is clear: the task of creating a nuclear governance system under the requirements of opacity and total secrecy proved to be a thorny and lasting bureaucratic undertaking.

The 1967 Crisis: Israel's First Nuclear Alert

During the 1967 May-June crisis Israel did something it had never done before: under the pressure of that crisis, Israel assembled its first explosive nuclear devices. It is still unclear how fully operational these devices were—after all, they were improvised and kept untested—but in the annals of Israel’s nuclear history this event marked the moment that Israel crossed the nuclear threshold.[18] It was then that Israel had its first confrontation with NC3 issues.

To this day Israel has not acknowledged publicly this historical moment. The first hint of this event emerged fifteen years later from Munya Mardor, the founding director of RAFAEL. In his 1981 semi-autobiographical *RAFAEL*, he cites his diary entry from May 28, 1967, describing a visit he made to the “assembly hall,” watching teams of scientists and technicians “assembling and testing the weapon system, whose development and production was completed prior to the war... a weapons system they brought to operational alert.” Mardor never explained in his book what this “weapon system” was, or why he described it as having “enormous, perhaps fateful, value.”[19]

In 1992, *Ha’aretz* journalist Aluf Benn was first to suggest that Mardor’s text could be interpreted as if on the eve of the 1967 war Israel reached nuclear weapons capability. A few years later, in *Israel and the Bomb* (1998), this author—based on additional firsthand testimony from an authoritative but anonymous Israeli source—confirmed that “on the eve of the war Israel ‘improvised’ two (possibly three) nuclear explosive devices.”[20] I also cited Professor Yuval Ne’eman, who told me about the newly appointed Minister of Defense Moshe Dayan’s reaction to his briefing on the improvised nuclear capability, sometimes between around June 2-4: “this [capability] is not for now, maybe for the next round.”[21]

At that time (1998), I knew almost nothing about the ‘who,’ ‘when,’ and ‘why’ involved in that crash effort, let alone its military dimension. A year later, however, I obtained an extraordinary firsthand oral testimony that addressed those issues. In 1999 I met retired Brig. Gen. Yitzhak Ya’akov (nicknamed Ya’tza) who during the crisis of 1967—serving then as colonel, the IDF senior staff officer in charge of weapons development—was the chief liaison between the IDF and the civilian defense industries, including the nuclear project.

According to Ya’akov, in late May 1967 he took upon himself—with his commanders’ approval—to add a military dimension to the new situation that was created by the improvised assembly of the first nuclear device. He drew up a contingency plan, codenamed “Shimshon,” that proposed how and under what circumstances Israel could demonstrate its nuclear capability.[22] The Shimshon plan’s purpose was to conduct a demonstration nuclear explosion in a desolate area of the eastern Sinai Peninsula. Two IAF *Super Frelon* helicopters—then the largest helicopters in the IAF fleet—were allocated to the operation. One helicopter had the task of carrying the civilians involved in the operation—*Minhal* personnel—as well as the device itself and other equipment. The second helicopter was to carry the IDF military interdisciplinary team, i.e., security (*Sayeret Matkal*), communication, medics, and Ya’akov himself.

By Ya’akov’s testimony, the idea of planning a military operation came to him after he visited that “assembly hall” and saw the work on the “spider-like” nuclear device. He drafted it as an operational contingency order and presented it to his superior, Maj. Gen. Rechavam Ze’evi (Gandhi), who approved it. Then they jointly went to Chief of Staff Rabin for a final approval, which they received. With Rabin’s approval Ya’akov was authorized to form a small interdisciplinary IDF team for the operation.[23]

The underlying idea behind the Shimshon plan, according to Ya’akov, was to provide the prime minister with a ‘doomsday’ option for the most extreme scenario. If everything else failed and Israel’s existence was in peril, the prime minister would still have one card to play. He knew it was very unlikely that the plan would be executed, and yet, on June 5, the first day of the war, he and his

small team were ready, just in case.[\[24\]](#)

Ya'akov acknowledged that NC3 issues were essential for the plan, but he did not recall most of the details. He repeatedly noted that almost everything had to be improvised because there were no standing procedures or well-defined lines of command for such an operation. Yet he thought that some "conceptual" discussions of NC3 had taken place prior to the 1967 crisis. It was evident to him that both the prime minister and the chief of staff must be in the line of command of the operation and, therefore, must be in communication with the team. Hence, it was a priority for the military team upon landing in the eastern Sinai site to set up a two-tier communication system with both the prime minister and the chief of staff.[\[25\]](#)

Ya'akov did recall that the Shimshon plan required establishing a two-tier command structure that imitates the two-tier overall system. He was named as the military commander of the Shimshon operation, while Israel Dostrovsky, the *Minhal* chief, was named as the individual in overall charge. The prime minister was to have direct control over Dostrovsky, while the chief of staff was to command the military team via Colonel Ya'akov.[\[26\]](#)

Another aspect of NC3 was the issue of custodianship. When the *Minhal* was created in 1966, it was presumed that the new organization, and not the IDF, would be the sole custodian of the nation's nuclear assets. I repeatedly asked Ya'akov about the custodianship issue, probing whether Rabin had authority to sign the Shimshon plan and whether any nuclear assets were authorized to be transferred to IDF custodianship. Ya'akov seemed not to know or recall the answer to the first question, while he was somewhat obscure on the second, leaving me with the impression that the IDF never actually had custodianship on the nuclear assets.

Ya'akov noted that the Shimshon operation was conceived as a joint *Minhal*/IDF operation—he oversaw the military side while Dostrovsky was responsible for the nuclear part—but he was vague on who was in charge. He kept stressing that the Shimshon operation was a highly improvised plan that pushed the IDF into uncharted territory. He acknowledged that there were no procedures and organizational confusion led to all sorts of practical problems. While he vaguely recalled that there might have been a major low-level misunderstanding over the issue of custodianship, he did not remember major disputes between the IDF and Dostrovsky's people.

From today's perspective, over half a century later, how should we assess his testimony? How close really did it get? Firm answers remain elusive. Even Ya'akov sounded unclear about how "real" his plan was. At some points, he spoke about Shimshon as a genuine military plan that could have been executed under certain circumstances, but on other occasions he referred to it as an amateurish improvisation.

In the view of this author, Shimshon appears to have been more an improvised conceptual exercise in planning for an unlikely scenario than a full-fledged, truly executable plan. On balance, I think that on the eve of the 1967 war, Israel's leadership was not *seriously* considering conducting—or well-prepared to conduct—a nuclear test. Yet Ya'akov's testimony does reveal that some in Israel entertained it might have had the capability to explode a nuclear device in case of last resort.

Israel's Nuclear Deployment Mode

Around 1968-69, Israel started moving, slowly but steadily, towards early nuclear deployment. As Prime Minister Eshkol's health deteriorated throughout 1968, his control over the nuclear project decreased. While Eshkol avoided bringing the nuclear issue into a formal cabinet-level discussion and decision, the technological-bureaucratic momentum within the defense establishment continued. Effectively by default, as no decision was made to stop it, Israel was slowly drifting by 1968-69

towards weapons capacity and deployment. It appears that by mid-1968 Eshkol may have realized that a new nuclear reality was emerging without a political decision, fueled by the MOD, but he probably found himself not in a position to stop it.

Political decisions about the NPT were kept pending in the summer and fall of 1968 as the Johnson administration intensified its pressure for Israel to join the NPT.^[27] This came to a full confrontation in November during the F-4 negotiations between Ambassador Yitzhak Rabin and Assistant Secretary of Defense Paul Warnke. Two things became strikingly evident in those negotiations. First, the centrality for both sides of the Israeli pledge “not to be the first to introduce nuclear weapons to the Middle East,” second, both sides had radically different interpretations about the meaning and purpose of the pledge.^[28]

On February 26, 1969, Eshkol died in office. Two weeks later Golda Meir was named Israel’s new prime minister. By that time the new Nixon administration had more evidence that nuclear Israel was an evolving reality though details remained still unclear. In the coming months, senior officials in the Nixon administration would secretly debate what nuclear Israel could mean for the United States and what the United States should or could do about it, if anything. At the end, those issues were left outstanding for the leaders’ meeting which took place on September 26, 1969. In that meeting a secret deal was born. Its essence was that Israel would continue to publicly pledge “not to be the first to introduce nuclear weapons to the region,” while the U.S. looks the other way as long as Israel’s capability remains invisible. Plainly put, the United States tolerates Israeli nuclear possession as long as it is being kept invisible, i.e., undeclared and untested.^[29]

The Israeli challenge was how to translate the vague political terms of the Nixon-Meir bargain into operational and concrete parameters to guide Israel’s new deployment mode. In response to this challenge, Prime Minister Meir jointly with Minister of Defense Dayan formed a senior professional steering committee/council, chaired by former chief of staff Tzvi Zur (Chera)—then the senior aide to Minister of Defense Dayan and the day-to-day *Minhal’s* external boss —with Dostrovsky, the *Minhal* head, and others on board to study and ultimately determine what Israel’s deployment mode (and its related NC3 architecture) should look like.^[30] The prevailing principle was that the “non-introduction” pledge should be interpreted, practically speaking, as a commitment to keep the nation’s nuclear capability *unassembled*. This means that Israel’s deployment principle should be based on a *two-tier* organizational and physical separation between the nation’s nuclear assets, especially cores (‘pits’) and their military launching platforms (e.g., aircrafts, missiles, submarines).

Under the watch of the nuclear steering committee, Israel developed operational and organizational features of its nuclear deployment mode. That mode, consistent with its political “non-introduction” pledge, kept Israel’s nuclear assets in a certain distance—in both time and space—from “ready to go” nuclear weapons. In a strict literal sense, Israel possessed no nuclear weapons per se, only weapons capability. Furthermore, under this deployment mode, custodianship of nuclear assets, i.e., service and security, was allocated solely to the nuclear organization employees, keeping military personnel, the IDF, off nuclear custodianship. This physical and organizational separation was also a fundamental feature of the NC3 architecture.

Notwithstanding the strict separation between nuclear and military assets, by the early 1970s Israel was moving methodically towards nuclear deployment. The steering committee supervised and guided an array of big and small development projects. Here are some of them: making operational a top secret, highly guarded, storage and assembly facility of the *Minhal* (whose construction had initiated by RAFAEL) to store, service, and assemble nuclear assets; the completion of Israel’s new missile base, a deployment home of two or three Jericho I missile squadrons; re-configuring a few Mirage aircraft as Israel’s first nuclear capable jet fighters, along with training of a few IAF pilots; establishing a new joint new *Minhal*/IDF unit as the liaison between the *Minhal* and the IDF/IAF; and

designing a robust NC3 procedures and physical infrastructure.[31]

As to move, arm, and use authority, Seymour Hersh suggested in 1991 that “[a]t one stage it was agreed that no nuclear weapon could be armed or fired without authorization from the prime minister, minister of defense, and army chief of staff. The rules of engagement were subsequently modified to include the head of the Israeli air force.”[32] This claim was never corroborated or confirmed by others.

The 1973 Yom Kippur War: Israel’s Second Nuclear Alert

October 1973 was the second time that Israel placed its nuclear weapons infrastructure under alert. By that time, only elements of the nuclear deployment systems and its related NC3 mentioned earlier were in place and fully operational. Others were introduced, not yet complete and certainly not operational. It took another decade so to complete the first phase of its nuclear deployment under the two-tier organizational structure.

On the afternoon of October 6, 1973, on Yom Kippur, the holiest day in the Jewish calendar, the armies of Egypt and Syria launched a coordinated assault against Israeli positions along the Suez Canal and in the Golan Heights. Within a day, those armies had seized the east bank of the Canal and substantial territory in the Golan Heights. On October 7, the mood in the Israeli high command was of doom and gloom, near apocalyptic. Moshe Dayan, Israel’s defense minister and national hero, went on that day to suggest that the very existence of Israel—“the third Temple”—could be in peril.[33]

It has long been rumored that in those hours Israel placed its nuclear weapons systems under alert. Some even suggested that Israel manipulated its nuclear deployment to “blackmail” the United States into providing greater support, as journalist Seymour Hersh alleged.[34] In a recent IDA study of which this author was one of its authors, it was suggested that Israel likely did take some preliminary steps associated with the readying of its nuclear weapons and/or its military delivery platforms forces in the very early stages of the Yom Kippur War, in particular on October 7, but that steps were defensive or precautionary in nature and were not designed to send a political signal to the United States, the Arabs, or anyone else.[35]

The study also assesses that there was pressure from within the Israeli defense establishment to consider taking preparatory measures towards nuclear demonstration, particularly by Defense Minister Moshe Dayan. One credible testimony suggests that on the early afternoon of October 7, Minister of Defense Dayan asked—at the very end of the Israeli supreme war cabinet consultation led by Prime Minister Golda Meir—to consider and approve the more substantial readying of Israel’s nuclear forces for a possible “demonstration” usage, “just to shorten the timetable if it would become necessary,” but that Prime Minister Meir, urged by other ministers participants in the meeting, rebuffed Dayan’s proposal. No collective decision for action, even just “readying,” was taken in that cabinet meeting. That said, other evidence—that nuclear assets were transferred to air bases—suggests that Dayan (probably via his senior aide Tzur who was the day to day “boss” of the *Minhal* chief, Shalheveth Freier) might have taken earlier on that day some preliminary actions, possibly even with the knowledge of the prime minister, with respect to Israel’s nuclear forces on his own initiative, but there is no solid evidence to make a firm assessment on this point.

While a great deal remains unknown, it appears that Israel took steps to modify the alert status of its nuclear forces on the initiative of senior officials (most likely Tzur and Dayan), but it is not clear what role, if any, the prime minister played in those preliminary steps.[36] It is also unclear whether the prime minister (via her military secretary) or the minister of defense (via his senior aide, Tzur), were the superiors who directed the *Minahl* chief, Shalheveth Freier.

It appears the Israeli' two-tier CN3 system played both positive and negative roles during the 1973 crisis. On the positive side, the two-tier principle of assets separation—nuclear and military—generates a good “time gap” (probably measured in hours) between sequence of decision and sequence of activities (e.g., assembly, transfer, military, etc.), which extends the time of deliberation. There is no space for a quick, fast, decision, and this is good. On the negative side, the crisis seems to highlight the limitations and ambiguities of the two-tier governance system in 1973. Did Dayan and Tzur moved on beyond their authorities? Were their authorities well defined in the NC3 protocol?

We do not know the answers to these and related questions.

Later Developments

By the early-mid 1980s much of the basic governance/deployment/NC3 infrastructure of the Israeli nuclear program was already in place. By that time the Israel nuclear program had generated its unique DNA, which was embedded in its practices, procedures, and modes of governance. The fundamental two-tier governance structure, embedded also in its NC3 system, seems to satisfy the political requirements of Israel's commitment to the opacity code of conduct. After the 1979 Peace Treaty with Egypt, and later after Israel's extraordinary success in destroying the Iraqi Osiraq reactor, it looked as if Israel could enjoy the benefits of its benign regional monopoly for some time. Even the disclosures of Mordechai Vanunu in 1986, as sensational as they were, did not change politically much. Israel appeared to be content with its opaque nuclear predicament.

Within a few years, however, it became evident that Israel's nuclear monopoly was under challenge. First, it was Iraq again that pushed aggressively its own nuclear weapons program, ambitions that were believed to persist even after Iraq was defeated in the 1991 first Gulf War. Then, in the coming decades it was Iran's nuclear ambitions that were viewed by the Israeli defense establishment as potentially posing existential threat to Israel. Meantime, in 2007, it was Syria with its clandestine nuclear program that Israel discovered and destroyed.[\[37\]](#)

The result was also organizational and technological changes in Israel's own nuclear infrastructure in response to external threats and new technological changes. I should highlight four recent developments that presumably have impact on Israel's NC3 systems.

- **The introduction of PAL.** It is believed that in the 1980s and the 1990s Israel developed and installed Permissive Action Links (PAL) on its nuclear warheads to address the possibility of unauthorized use or theft.[\[38\]](#)
- **Reorganization at the MOD.** In the early 1990s, in the wake of the 1991 Gulf War (that allegedly placed the Israeli nuclear infrastructure on alert for the third time), the Minister of Defense, Moshe Arens, ordered to set up a joint new MOD/IDF secretive directorate under the euphemistic title Directorate for Special Means.[\[39\]](#) A senior civilian was appointed at the top (at first it was a former commander of the IAF, Maj. Gen (ret) Lapidot, and his successors were always retired generals, one or two stars general) with an active duty one-star general as his deputy. This two-tier system highlights that both the IDF and the MOD have a role in this entity. The presumed purpose of the new directorate was to create a joint IDF/MOD office that represents the interests of the MOD (and the Defense Ministry) on all matters of “Special Means” (euphemism to nuclear weapons).
- **National Management Center (NMC).** Over the last decade, in the context of possible war with Iran, the Israeli government completed the building of a huge underground facility, known as the “National Management Centre,” to be used during national emergencies. The underground facility (whose exact location is classified) was carved out somewhere beneath the large government

complex in Jerusalem and includes living quarters as well as highly sophisticated command and communication facilities. In May 2018, Israel's Security Cabinet, a forum of senior ministers headed by Prime Minister Benjamin Netanyahu, met for the first time, for its weekly meeting, in that brand-new underground facility.^[40] It is safely presumed that this NMC is one of the central hubs of the Israeli CN3 architecture.

- **Submarines as Nuclear Delivery Platforms.** The failure to detect Iraq's nuclear weapons program as well as Iran's renewed interest in nuclear power played a significant role in Israel's decision in the early 1990s to develop a new sea-based second-strike capability. (The submarine issue was discussed for years at the IDF and faced strong opposition, but it passed after Germany offered to share much of the cost of the first three submarines).^[41] Over the last two decades Israel formed a fleet of five Dolphin submarines, three class 1 and two class 2, with a sixth one to be added in 2020. Prime Minister Netanyahu advocates the acquisition of three more submarines within the next decade. This fleet of is widely presumed to be Israel's sea-based nuclear deterrent.
- **Cyber.** At the national level, the Israeli security establishment identified cyber issues early on as a key component of the nation's military strength. In 2003 the IDF established a dedicated Cyber headquarters, commonly known as the C4i directorate, as its elite technological cyber hub. Its prime activity is to provide field commanders the cyber technology they need to manage in combat. It also provides the cyber defense framework to the IDF. The head of the C4i Directorate is Major General. The responsibility over offensive cyber warfare remain in Israel under the Intelligence Branch, primarily the large 8200 unit (Israel's equivalent to the NSA). In the last few years the IDF at its highest level debated and prepared the creation of a Cyber command that would incorporate all aspects of cyber activities, defensive and offensive. As of this point, the Cyber command was not yet formally created.

It is generally presumed that the Israeli NC3 has been expanded and incorporated into a larger NC4 system, which includes Cyber activities. It is also generally presumed that a mature Israeli NC3 system must share resources with the C4i architecture of the National Management System that was created in the last few years. Those are presumptions.

All these recent developments—in addition to the abolition of the *Minhal* as an administrative unit that was reported earlier—must have direct impact on Israel NC3 architecture.

Epilogue or Some Outstanding Issues

So far, this briefing paper was historical-oriented in its approach. I sketched the evolution of various aspects and tenets of Israel's nuclear infrastructure: institutional setting, organizational culture, governance, and deployment mode. All these relate, directly and indirectly, to the evolution of Israel's NC3 architecture, yet I have avoided discussing present day Israel's NC3 system. The reason is obvious: nothing is firmly known about Israel's *present day* NC3 architecture.

Present Israel has in effect a full nuclear triad. That triad has consisted primarily of sea-based second-strike platforms (six Dolphin submarines in 2020) as well as land-based Jericho II-III ballistic missiles (presumably three squadrons but exact number is unknown) and air-based modified nuclear capable fighter jets (F-16, F-15). It is safely presumed that, given recent developments, (mostly the creation of a submarine fleet and the building of the modern NMC) Israel redesigned and modernized its NC3 systems. Nevertheless, nothing is firmly known what kind, if any, fundamental changes Israel made in its NC3 system.

Hence, it would be appropriate to end this briefing paper with one presumption/observation, one question, and one wonder:

Presumption/Observation: It is generally assumed that in recent years, especially considering its determination to confront Iran, Israel has invested a great deal of funds, resources, and thought to modernize and expand its NC3 architecture. Israel is likely to develop a robust and redundant NC3 system (including a cyber component) that covers all arms of its triad. One should assume that the Israeli NC3 system is designed to keep all nuclear weapons safe and secure at peacetime, as well as tightly controlled during existential crisis.

Question: What has Israel changed? As noted earlier, Israel's early nuclear deployment was based on a two-tier deployment/custodianship civilian/military separation principle under which Israel did not have "ready to go" nuclear weapons. Instead, it kept its system unassembled, characterized by organizational and physical separation between the nuclear assets and military launch platforms. Custodianship of the nuclear components was under the command and control of civilians subordinated to the nuclear weapons agency, not to the military, and that agency was set up in a manner that ensures full civilian control. This fundamental separation principle was adopted decades ago due to political, strategic, and NC3 reasons.

Is this fundamental two-tier principle still valid? Obviously technology, platforms, organizations, communication modes, and the like have dramatically changed over recent decades, but have they changed the two-tier separation principle that was so fundamental to the NC3 system that Israel developed along its early stage of nuclear deployment? Given the unique features of a submarine (especially communication), has Israel moved away from the old principle of physical and organizational separation between nuclear assets and their launching platforms, civilian and military personnel? More specifically: do Israeli submarines carry nuclear weapons on board? Are they assembled or unassembled? Are they serviced and maintained by sailors or civilians?

Finally, a personal wonder. In a paper this author wrote in 2010 about a similar subject I tentatively suggested that "[w]e must presume that the Israeli command-and-control system has remained faithful to the principle that no single individual, or even organization, would have the final power to activate the system . . ." I also noted that not only the NC3 system, but also the organizational chart for Israel's nuclear bureaucracy, is likely shaped by the idea that multiple actors must be involved in decision-making." I suggested then that, "the nuclear agency is shared in some fashion by the prime minister, who functions as the ultimate authority, and the minister of defense, who has certain responsibilities for some of the system's operational aspects and functions."[\[42\]](#)

Is this still the case today? Apparently so. In a recent podcast interview with Ha'aretz, former prime minister and minister of defense, Ehud Barak confirmed that all fundamental decision about the "strategic means" in Israel—a euphemism to the nation's nuclear weapons system—all key decisions must be made by two people, usually the prime minister and the minister of defense (and if the prime minister is the minister of defense there must be named another minister who is familiar with the "strategic procedures)."⁴³

III. ENDNOTES

[\[1\]](#) Avner Cohen, *Israel and the Bomb* (New York: Columbia University Press, 1998), 12, 91-92, 118-119.

[\[2\]](#) See, for example: Avner Cohen, *The Worst-Case Secret: Israel's Bargain with the Bomb* (New York: Columbia University Press, 2010), pp. Xxviii (table 1); Joseph Cirincione, Jon B. Wolfsthal, and Miriam Rajkumar, *Deadly Arsenals: Nuclear, Biological, and Chemical Threats* (Washington, DC: Carnegie Endowment for Peace, 2005), 262; Hans M. Kristensen and Robert S. Norris, "Worldwide deployments of nuclear weapons," *Bulletin of the Atomic Scientists* vol. 73, no. 5 (2017): 289-97,

published online: 31 Aug 2017

<https://www.tandfonline.com/doi/full/10.1080/00963402.2017.1363995>; Hans M. Kristensen and Robert S. Norris, "Israeli nuclear weapons," *Bulletin of the Atomic Scientists* vol. 70, no. 6 (2014): 97-115.

[3] Cohen, *Israel and the Bomb*, 31-34; Cohen, *The Worst-Kept Secret*, 90-91.

[4] Cohen, *Israel and the Bomb*, 17.

[5] Avner Cohen, "Israel," in *Governing the Bomb: Civilian Control and Democratic Accountability of Nuclear Weapons*, eds. Born Hans, Bates Gill, and Heiner Hånggi (Solna: SIPRI, 2010), 154-155.

[6] Shimon Peres, *Battling for Peace: A Memoir* (New York: Random House, 1995), 119.

[7] Shimon Peres, "About Shalheveth," ed. R. Marom, *Shalheveth Freier 1920-1994* (Tel Aviv: Israel Atomic Energy Commission, 1995), 9.

[8] Cohen, *Israel and the Bomb*, 148-151; Cohen, *The Worst-Kept Secret*, 62-67.

[9] Cohen, *The Worst Kept Secret*, 62-67.

[10] Cohen, *Israel and the Bomb*, 23-31; Cohen, *The Worst Kept Secret*, 67, 93-95..

[11] *Ibid.*

[12] Cohen, *The Worst-Kept Secret*, 95.

[13] Cohen, *The Worst-Kept Secret*, 95-97/

[14] Cohen, *The Worst Kept Secret*, 174-175.

[15] Cohen, *The Worst Kept Secret*, 78; Cohen, *Israel and the Bomb*, 273-274.

[16] Cohen, *The Worst Kept Secret*, 95-96, 175.

[17] Personal knowledge.

[18] Avner Cohen, "Crossing the threshold: the untold nuclear dimension of the 1967 Arab-Israeli War and its contemporary lessons," *Arms Control Today* vol. 37, no. 5 (June 2007), 12-16.

[19] Cohen, *Israel and the Bomb*, 273-274; Cohen, *The Worst-Kept Secret*, 72-73; Munya M. Mardor, RAFAEL (in Hebrew) (Tel Aviv: Misrad Habitachon, 1981), 499.

[20] Cohen, *Israel and the Bomb*, 274.

[21] Yuval Ne'eman, interview with this author, April 2006 (two weeks prior to his death).

[22] For the Shimshon operation and the nuclear dimensions of the Six Day War, see Avner Cohen, "The 1967 Six-Day War: New Israeli Perspective, 50 Years Later," The Wilson Center, June 3, 2017, <https://www.wilsoncenter.org/publication/the-1967-six-day-war>. For an annotated transcript of the interview of General Ya'akov with this author see <https://digitalarchive.wilsoncenter.org/document/145093>

[23] *Ibid.*

[24] Ibid.

[25] Ibid.

[26] Ibid.

[27] Cohen, *Israel and the Bomb*, 308-310.

[28] Cohen, *Israel and the Bomb*, 311-315.

[29] Cohen, *The Worst Kept Secret*, Chapter 1; Avner Cohen and William Burr, "Israel crosses the Threshold,"

Bulletin of Atomic Scientists, Vol. 62 (2006), No. 3, Pages 23-30, Published online: 15 Sep 2015, <https://www.tandfonline.com/doi/abs/10.1080/00963402.2006.11460984>; Avner Cohen and William Burr, "Israel Crosses the Threshold I," National Security Archive, Electronic Briefing Book 189, posted April 28, 2006 <https://nsarchive2.gwu.edu/NSAEBB/NSAEBB189/>; Avner Cohen and William Burr, "Israel Crosses the Threshold II: The Nixon Administration Debates the Emergence of the Israeli Nuclear Program," National Security Archive, Electronic Briefing Book 485, posted September 12, 2014, <https://nsarchive2.gwu.edu/nukevault/ebb485/>

[30] Personal knowledge. See also the testimony of Tzvi Tzur (Chera) to the Rabin Memorial Center, <https://digitalarchive.wilsoncenter.org/document/134926>

[31] Personal knowledge.

[32] Seymour Hersh, *The Samson Option: Israel's Nuclear Arsenal and American Foreign Policy* (New York: Random House, 1991), 217.

[33] Avner Cohen, "Interview with Arnan "Sini" Azaryahu," The Avner Cohen Collection, The Wilson Center, <https://www.wilsoncenter.org/arnan-sini-azaryahu>.

[34] Hersh, *The Samson Option*, 225-40.

[35] Elbridge Colby, Avner Cohen, et al, "The Israeli "Nuclear Alert" of 1973: Deterrence and Signaling in Crisis," Center of Naval Analysis (CNA) publication, DRM-2013-U-004480-Final April 2013. <https://apps.dtic.mil/dtic/tr/fulltext/u2/a579830.pdf>

[36] Avner Cohen, "Nuclear Arms in Crisis Under Secrecy: Israel and the Lessons of the 1967 and 1973 Wars," in *Planning the Unthinkable: How New Powers Will Use Nuclear, Biological, and Chemical Weapons*, eds. Peter Lavoy, Scott Sagan, and James Wirtz (Ithaca: Cornell University, 2000), 118-119.

[37] Leonard S. Spector and Avner Cohen, "Israel's Airstrike on Syria's Reactor: Implications for the Nonproliferation Regime," *Arms Control Today*, August 7, 2008, https://www.armscontrol.org/act/2008_07-08/SpectorCohen.

[38] Cohen, "Israel," 158.

[39] Cohen, "Israel," 158.

[40] "Israeli Security Cabinet convening in underground bunker," Reuters, May 22, 2018, <https://www.reuters.com/article/us-israel-cabinet-bunker/israeli-security-cabinet-conveing-in-underground-bunker-media-idUSKCN1IN2Q9>

[41] Cirincione, Wolfsthal, and Rajkumar, *Deadly Arsenals*, 222; Cohen, *The Worst Kept Secret*, 83-84.

[42] Cohen, *Worst Kept Secret*, 97.

⁴³ Podcast interview with Ehud Barak, *Ha'aretz*. March 26, 2019. <https://www.haaretz.co.il/digital/podcast/.premium-1.7059848>

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