VIII. Israeli nuclear forces

SHANNON N. KILE AND HANS M. KRISTENSEN

Israel continues to maintain its long-standing policy of nuclear opacity: it neither officially confirms nor denies that it possesses nuclear weapons.¹ Like India and Pakistan, Israel has never been a party to the 1968 Treaty on the Non-Proliferation of Nuclear Weapons (Non-Proliferation Treaty, NPT).²

Declassified government documents (from Israel and the United States) indicate that Israel began building a stockpile of nuclear weapons in the early 1960s, using plutonium produced by the Israel Research Reactor 2 (IRR-2) at the Negev Nuclear Research Center near Dimona.³ There is little publicly available information about the operating history and power capacity of the unsafeguarded IRR-2, which was commissioned in 1963.⁴ It may now be operated primarily to produce tritium.⁵ The ageing heavy water reactor, which was originally scheduled to be shut down in 2003, remains in operation despite the existence of a number of identified structural problems in its core.⁶ The reactor is due to be shut down in 2023, but the Israeli Atomic Energy Commission is reportedly examining ways to extend its service life until the 2040s.⁷

It is estimated that Israel has approximately 90 operational nuclear weapons (see table 10.9). The locations of the storage sites for the warheads, which are thought to be stored partially unassembled, are unknown. Approximately 30 of the weapons are believed to be gravity bombs for delivery by F-16I aircraft. It is possible that some of Israel’s F-15 aircraft may also serve a nuclear strike role, but this is unconfirmed.

Up to 50 warheads are thought to be for delivery by land-based Jericho ballistic missiles. However, the Israeli Government has never publicly confirmed that it possesses the Jericho missiles.

Israel's arsenal probably still includes solid-fuelled, two-stage Jericho II medium-range ballistic missiles, which are believed to be based, along with

---

² For a summary and other details of the NPT see annex A, section I, in this volume.
their mobile transporter-erector-launchers (TELs), in caves at a base near Zekharia, about 25 kilometres west of Jerusalem.\textsuperscript{8} Israel’s Shavit space-launch vehicle, which carried a military satellite into orbit on its maiden flight in 1988, is based on the Jericho II.\textsuperscript{9}

---


A three-stage Jericho III intermediate-range ballistic missile, with a range exceeding 4000 km, was declared operational in 2011 and might be replacing (or might possibly have already replaced) the Jericho II.\footnote{O’Halloran, ed. (note 8).} In 2013 Israel tested a Jericho III missile, possibly designated the Jericho IIIA, with a new motor that some sources believe may give the missile an intercontinental range—that is, a range exceeding 5500 km.\footnote{Ben David, A., ‘Israel tests Jericho III missile’, \textit{Aviation Week & Space Technology}, 22 July 2013.} On 6 December 2019 the Israeli Ministry of Defense announced that it had conducted a test launch of an unspecified rocket propulsion system from a military base in central Israel, but it did not identify the missile that was used.\footnote{Gross, J. A., ‘Defense ministry conducts missile test over central Israel’, \textit{Times of Israel}, 6 Dec. 2019; and Melman, Y., ‘Why would Israel reportedly have missiles that reach beyond Iran’, \textit{Haaretz}, 11 Dec. 2019.} According to unconfirmed reports, the base was the Palmachim Air Base, which is located on Israel’s Mediterranean coast and used as a test launch site for Jericho missiles.\footnote{Trevithick, J., ‘Did Israel just conduct a ballistic missile test from a base on its Mediterranean coast?’, \textit{The Drive}, 6 Dec. 2019.} The launch led to renewed speculation that Israel might be developing a new Jericho IV missile.\footnote{Ahronheim, A., ‘IDF tests rocket propulsion system’, \textit{Jerusalem Post}, 7 Dec. 2019.}

Israel currently operates five German-built Dolphin and Dolphin-2 class diesel-electric submarines.\footnote{Naval Today, ‘Israel changes name of sixth Dolphin submarine’, 11 Jan. 2019. A 6th submarine is scheduled to be delivered to Israel in 2020.} There have been numerous unconfirmed reports that Israel has modified some or all of the submarines to carry indigenously produced nuclear-armed sea-launched cruise missiles (SLCMs), giving it a sea-based second-strike capability.\footnote{See e.g. Cohen (note 3), p. 83; Bergman, R. et al., ‘Israel’s deployment of nuclear missiles on subs from Germany’, \textit{Der Spiegel}, 4 June 2012; and Frantz, D., ‘Israel’s arsenal is point of contention’, \textit{Los Angeles Times}, 12 Oct. 2003.} Israeli officials have consistently declined to comment publicly on the reports. If they are true, the naval arsenal might include about 10 warheads, assuming a couple of warheads per submarine.