VIII. Israeli nuclear forces

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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] In recent years Israel has come under mounting international diplomatic pressure to renounce its widely suspected nuclear weapon arsenal, accede to the NPT as a non-nuclear weapon state and place all of its nuclear facilities under International Atomic Energy Agency (IAEA) comprehensive safeguards.[3]

It is estimated here that Israel has approximately 80 nuclear weapons. Of these, approximately 30 are gravity bombs for delivery by aircraft (see table 16.9). The remaining 50 weapons are for delivery by Jericho II medium-range ballistic missiles, which are believed to be based with their mobile launchers in caves at a military base east of Jerusalem. The status of a new Jericho III intermediate-range ballistic missile under development is unknown.

Israel is widely believed to have begun building its stockpile of nuclear weapons in the 1960s, using plutonium produced at the Negev Nuclear Research Centre (NNRC) near Dimona.[4] There is little publicly available information about the operating history and power capacity of the unsafeguarded IRR-2 heavy-water reactor at Dimona. The 50-year old reactor may be operated now primarily for tritium production. Israel has reportedly carried out reprocessing of the reactor's spent fuel in an underground facility at the NNRC.[5] It is estimated that Israel possessed a stockpile of approximately 860 kilogrammes of weapon-grade plutonium at the end of 2014.[6]

There are unconfirmed reports that Israel may be equipping its fleet of German-built Dolphin class diesel-electric submarines with nuclear-armed

[1] On the role of this policy in Israel's national security decision making see Cohen, A., 'Israel', eds H. Born, B. Gill and H. Hänggi, SIPRI, *Governing the Bomb: Civilian Control and Democratic Accountability of Nuclear Weapons* (Oxford University Press: Oxford, 2010).

[2] For details of the NPT see Treaty on the Non-Proliferation of Nuclear Weapons (Non-Proliferation Treaty, NPT), opened for signature 1 July 1968, entered into force 5 Mar. 1970, INFCIRC/140, 22 Apr. 1970.

[3] UN General Assembly, Resolution A/RES/69/78, 2 Dec. 2014. See also chapter 17, section II in this volume.

[4] Cohen, A., *The Worst-kept Secret: Israel's Bargain with the Bomb* (Columbia University Press: New York, 2010); and Borger, J., 'The truth about Israel's secret nuclear arsenal', *The Guardian*, 15 Jan. 2014.

[5] Albright, D., Berkhout, F. and Walker, W., SIPRI, *Plutonium and Highly Enriched Uranium 1996: World Inventories, Capabilities and Policies* (Oxford University Press: Oxford, 1997).

[6] International Panel on Fissile Materials (IPFM), 'Countries: Israel', updated 15 Jan. 2016.

Table 16.9. Israeli nuclear forces, January 2016

Type	Range (km)[a]	Payload (kg)	Status
Aircraft[b]			
F-16A/B/C/D/I Falcon	1 600	5 400	205 aircraft in the inventory; some are believed to be equipped for nuclear weapon delivery
Land-based missiles[c]			
Jericho II	1 500–1 800	750–1 000	*c.* 50 missiles; first deployed in 1990; test-launched on 27 June 2001
Jericho III	>4 000	1 000–1 300	Possibly under development; based on Shavit space launch vehicle; test-launched on 12 July 2013; status unknown
Sea-based missiles			
. .	. .	. .	Dolphin class diesel-electric submarines are rumoured to have been equipped with nuclear-armed sea-launched cruise missiles; denied by Israeli officials

. . = not available or not applicable.

[a] Aircraft range is for illustrative purposes only; actual mission range will vary. Missile payloads may have to be reduced in order to achieve maximum range.

[b] Some of Israel's 25 F-15I aircraft may also have a long-range nuclear delivery role.

[c] The Shavit space launch vehicle, if converted to a ballistic missile, could deliver a 775-kg payload to a distance of 4000 km.

Sources: Cohen, A., *The Worst-Kept Secret: Israel's Bargain with the Bomb* (Columbia University Press: New York, 2010); Cohen, A. and Burr, W., 'Israel crosses the threshold', Bulletin of the Atomic Scientists, vol. 62, no. 3 (May/June 2006); Cohen, A., *Israel and the Bomb* (Columbia University Press: New York, 1998); Albright, D., Berkhout, F. and Walker, W., SIPRI, Plutonium and Highly Enriched Uranium 1996: World Inventories, Capabilities and Policies (Oxford University Press: Oxford, 1997); *Jane's Strategic Weapon Systems*, various issues; Fetter, S., 'Israeli ballistic missile capabilities', *Physics and Society*, vol. 19, no. 3 (July 1990); 'Nuclear notebook', *Bulletin of the Atomic Scientists*, various issues; and authors' estimates.

sea-launched cruise missiles (SLCMs). Israel has consistently denied these reports and the reliability of many of them is uncertain. A fleet of six Dolphin class submarines is planned. Five of the submarines had been delivered to Israel by the end of 2015.[7]

[7] Gross, J. A., 'Israel's newest submarine leaves Germany, bound for Haifa', *Times of Israel*, 17 Dec. 2015.