

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 In December 2014 the United Nations General Assembly overwhelmingly approved a resolution on nuclear proliferation risks in the Middle East that urged Israel to renounce the possession of nuclear weapons, accede to the 1968 Treaty on the Non-Proliferation of Nuclear Weapons (Non-Proliferation Treaty, NPT) ‘without further delay’ and place all of its nuclear facilities under International Atomic Energy Agency (IAEA) comprehensive safeguards.²

It is estimated that Israel has approximately 80 nuclear weapons. Of these, approximately 30 are gravity bombs for delivery by aircraft (see table 11.9). 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 operational status of a new Jericho III intermediate-range ballistic missile is unknown. In 2013 Israel conducted a launching test of a ‘rocket propulsion system’, which appeared to be for a Jericho III missile.³

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. Israel reportedly carries out reprocessing of the reactor’s spent fuel in an underground facility at the NNRC.⁵ It is estimated that Israel possessed 730–990 kilograms of weapon-grade plutonium at the end of 2014 (see section X below).

There are unconfirmed reports that Israel may be equipping its fleet of German-built Type 800 Dolphin class diesel-electric submarines with nuclear-armed sea-launched cruise missiles (SLCMs). The new SLCM is believed to be

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 a summary and other details of the NPT see annex A, section I, in this volume. UN General Assembly, Resolution A/RES/69/78, 2 Dec. 2014.

³ Agence France-Presse, ‘Ministry: Israel tests rocket system’, *Defense News*, 12 July 2013; and Ben-David, A., ‘Israel tests enhanced ballistic missile’, *Aviation Week & Space Technology*, 29 July 2013.

⁴ Cohen, A., *The Worst-kept Secret: Israel’s Bargain with the Bomb* (Columbia University Press: NY, 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).

Table 11.9. Israeli nuclear forces, January 2015

Type	Range (km) ^a	Payload (kg)	Status
<i>Aircraft^b</i>			
F-16A/B/C/D/I Falcon	1 600	5 400	205 aircraft in the inventory; some are believed to be certified for nuclear weapon delivery
<i>Ballistic missiles</i>			
Jericho II	1 500–1 800	750–1 000	c. 50 missiles; first deployed in 1990
Jericho III	>4 000	1 000–1 300	Possibly under development, based on Shavit space launch vehicle; test-launched on 12 Jul. 2013; status unknown
<i>Cruise missiles</i>			
(Popeye Turbo/Harpoon)	(110)	..	Rumoured nuclear version for Dolphin class diesel submarines; 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.

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); Fetter, S., 'A ballistic missile primer', (unpublished) <<http://faculty.publicpolicy.umd.edu/fetter/publications>>; 'Nuclear notebook', *Bulletin of the Atomic Scientists*, various issues; and authors' estimates.

an extended naval version of the Israeli-made Popeye Turbo air-launched missile, or possibly a modified US-made Harpoon anti-ship missile.⁶ Israel has consistently denied these reports and there is considerable uncertainty about the reliability of many of them. ThyssenKrupp, the German company responsible for building the submarines, has stated that, after delivery, it would be technically impossible for Israel to retrofit the submarines with nuclear-armed SLCMs.⁷ A fleet of six Dolphin class submarines is planned. Four of the submarines had been delivered to Israel by the end of 2014.⁸

⁶ Von Bergman, R. et al., 'Operation Samson: Israel's deployment of nuclear missiles on subs from Germany', *Der Spiegel Online*, 4 June 2012, <<http://www.spiegel.de/international/world/israel-deploys-nuclear-weapons-on-german-built-submarines-a-836784.html>>; and Frantz, D., 'Israel adds fuel to nuclear dispute', *Los Angeles Times*, 11 Oct. 2003; and Ben-David, A., 'Israel orders two more Dolphin subs', *Jane's Defense Weekly*, 30 Aug. 2006, p. 5.

⁷ 'ThyssenKrupp', *Devianzen*, 21 Jan. 2013, <<http://www.devianzen.de/2012/01/21/thyssen-krupp/>>.

⁸ Jalil, J., 'Israel Navy welcomes new submarine in Haifa', *Times of Israel*, 23 Sep. 2014.