

VIII. Israeli nuclear forces

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Israel continues to maintain its long-standing policy of nuclear opacity, neither officially confirming nor denying that it possesses nuclear weapons.¹ However, Israel is widely believed to have used the heavy-water research reactor at the Negev Nuclear Research Center, near Dimona, to produce plutonium for a nuclear weapon arsenal. There is little publicly available information about the Dimona reactor's operating history. According to one estimate, it could have produced 690–950 kilograms of weapon-grade plutonium as of 2011 (see section X below). Only part of this plutonium may have been used to produce weapons.

It is estimated here that Israel has approximately 80 intact nuclear weapons, of which 50 are warheads for delivery by ballistic missiles and the remainder are bombs for delivery by aircraft (see table 7.9). Israel may have produced non-strategic nuclear weapons, including artillery shells and atomic demolition munitions, but this has never been confirmed.

Israel continues to develop advanced long-range ballistic missiles capable of delivering nuclear warheads. On 2 November 2011 it conducted a test launch of a multi-stage ballistic missile from Palmachim Airbase.² While not providing details about the missile, the Israeli Ministry of Defence stated that the purpose of the launch had been to test the missile's propulsion system.³ Foreign analysts identified the missile as most likely being an improved version of the Jericho III intermediate-range ballistic missile, which was first flight-tested in January 2008.⁴

There has been considerable speculation that Israel may have developed a nuclear-capable sea-launched cruise missile for its current fleet of three Type 800 Dolphin class diesel-electric submarines that were purchased from Germany.⁵ Israel has steadfastly denied these reports. Israel has since purchased from Germany two additional boats of the same class, which were under construction during 2011 at the Howaldtswerke-Deutsche Werft AG shipyard, near Kiel.⁶

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 Williams, D., 'Israel test-fires missile as Iran debate rages', Reuters, 2 Nov. 2011, <<http://www.reuters.com/article/2011/11/02/us-israel-missile-idUSTRE7A11BR20111102>>.

³ Pfeffer, A. and Reuters, 'IDF test-fires ballistic missile in central Israel', *Haaretz*, 2 Nov. 2011.

⁴ Richardson, D., 'Israel tests ballistic missile', *Jane's Missiles and Rockets*, vol. 16, no. 1 (Jan. 2012).

⁵ 'Germany sells Israel more Dolphin subs', *Defense Industry Daily*, 6 Feb. 2012, <<http://www.defenseindustrydaily.com/germany-may-sell-2-more-dolphin-subs-to-israel-for-117b-01528/>>; and Williams, D., 'Admiral stirs question on Israel's "nuclear" subs', Reuters, 22 Sep. 2010, <<http://www.reuters.com/article/2010/09/22/nuclear-israel-submarines-idUSLDE68L12T20100922>>.

⁶ On Israel's purchase of Dolphin submarines see also chapter 6, section I, in this volume.

Table 7.9. Israeli nuclear forces, January 2012

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^c</i>			
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	Test-launched on 17 Jan. 2008 and 2 Nov 2011; status unknown

^a Aircraft range is for illustrative purposes only; actual mission range will vary. Missile payloads may need 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)—for an updated analysis see unpublished 'A ballistic missile primer', <<http://www.publicpolicy.umd.edu/Fetter/Publications/>>; 'Nuclear notebook', *Bulletin of the Atomic Scientists*, various issues; and authors' estimates.