

**Table 2.9 - Operational Nuclear Delivery Systems, 2014-2015**

NAME/DESIGNATION	AKA	NUMBER OF SYSTEMS Active+Spares	YEAR FIRST DEPLOYED	WARHEAD TYPE	NUMBER OF WARHEADS x YIELD (kilotons)	RANGE (km)	TOTAL NUMBER OF WARHEADS Active+Spares
<b>LAND BALLISTIC MISSILES</b>							
<b>UNITED STATES</b>							
<b>ICBM</b>							
LGM-30G	Minuteman III					13,000	
	MK-12A	200	1979	MIRV, Single	1-3 x 335		220
	MK-21 SERV	250	2006	Single	1 x 300		250
TOTAL 14(SIPRI) 14(BULL) 13(SIPRI) 13(BULL)		448/450					470
<b>SRBM</b>							
ATACMS Block I		Some	1991	Single	1 x 560kg payload	165	Some
ATACMS Block IA		Some	1998	Single	1 x 160kg payload	300	Some
ATACMS Block II		Some	2002	Single	1 x 270kg payload	140	Some
TOTAL 08(WIKI)		Some					Some
<b>RUSSIA</b>							
<b>ICBM</b>							
SS-18	Satan	46	1992	MIRV	10 x 500-800	11,000-15,000	460/460
SS-19	Stiletto	30	1980	MIRV	6 x 400	10,000	180/180
SS-25	Sickle	117	1985	Single	1 x 800	10,500	117/117
SS-27	Topol-M1 (SILO)	60	1997	Single	1 x 800	10,500	60/60
SS-27	Topol-M1 (MOBILE)	18	2006	Single	1 x (800)?	10,500	18/18
SS-27	Topol-M2 (RS-24) (MOBILE)	33	2010	MIRV	4 x (100)?	10,500	132/132
SS-27	Topol-M2 (RS-24) (SILO)	-	(2014)	MIRV	4 x (100)?	10,500	-/-
TOTAL 14(SIPRI) 14(BULL) 13(SIPRI) 13(BULL)		304					967/967
<b>SRBM</b>							
SS-1c Mod 1	Scud-B	Some	1964	Single	1 x 1,000kg payload	300	Some
SS-1c Mod 2	Scud-B	Some	1964	Single	1 x 950kg	240	Some

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					payload		
SS-21 Scarab	Tochka	140	1981	Single	(1 x 10)	120	~/(~140)
SS-26 Stone	Iskander	30	2005	Single	(1 x 10)	500	~/(~30)
TOTAL 14(SIPRI) 14(BULL) 13(SIPRI) 13(BULL) 08(WIKI)		170					170
<b>CHINA</b>							
<b>ICBM</b>							
CSS-4	DF-5A	20	1981	Single	1 x 4,000-5,000	13,000	20
CSS-10 Mod 1	DF-31	~5-10	2006			>7,200	~5-10
				Single	1 x 200-300		
				MIRV	3 x 50-100		
CSS-10 Mod 2	DF-31A	~20	2007			>11,200	~20
				Single	1 x 200-300		
				MIRV	3-5 x 20-150		
TOTAL 14(SIPRI) 14(BULL) 13(SIPRI) 13(BULL)		~45-50					~45-50
<b>IRBM</b>							
CSS-2	DF-3A	~12	1971	Single	1 x 3,300	3,100	~12
CSS-3	DF-4	~12	1980	Single	1 x 3,300	5,500	~12
CSS-5	DF-21, DF-21A	~60	1991	Single	1 x 200-300	1,800-3,000	~60
TOTAL 14(SIPRI) 14(BULL) 13(SIPRI) 13(BULL) 11(WIKI)		~84					~84
<b>SRBM</b>							
CSS-6	DF-15/M-9	~350	1989	Single	1 x 50-350	600	Some
CSS-7	DF-11/M-11	32	1999	Single	1 x 0.5	300	Some
CSS-8	DF-7	30	?	Single	1 x 500kg payload	150	?
TOTAL 14(SIPRI) 14(BULL) 13(SIPRI) 13(BULL) 04(IISS)		96					Some

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<b>INDIA</b>							
<b>IRBM</b>							
Agni II		Some	2004	Single	1 x 15-250	>2,000	Some
Agni III		Some	2010-2011	Single	1 x 15-250	>3,200	Some
Agni IV		Some	2010		1,000kg	>3,500	Some
Agni V		Some	2012	Single	1 x (1,000kg) payload	>5,000	Some
TOTAL 14(SIPRI) 14(BULL) 13(SIPRI) 13(BULL) 12(JDW) 11(WIKI)		Some					Some
<b>SRBM</b>							
Agni I		Some	2007	Single	1 x 1,000kg payload	~700	Some
Prithvi I		<50	1998	Single	1 x 1,000kg payload	150	Some
Prithvi II		Some	2004	Single	1 x 500kg payload	350	Some
Prithvi III		30	2004	Single	1 x 10-20	350-600	Some
TOTAL 14(SIPRI) 14(BULL) 13(SIPRI) 13(BULL)		Some					Some
<b>PAKISTAN</b>							
<b>IRBM</b>							
Ghauri-1	Haft 5	<50	2003	Single	1 x 700- 1,000kg payload	1,250	Some
Ghauri-2	Haft 5A	Some	2003	Single	1 x 1,200kg payload	2,500	Some
Ghauri-3		Some	(>2011)	Single		3,000-3,500	Some
Shaheen-2	Haft 6	Some	2007	Single	~1 x 1,000+kg payload	2,000	Some
Shaheen-3		Some	(>2011)	Single		4,000-4,500	Some
TOTAL 14(SIPRI) 14(BULL) 13(SIPRI) 13(BULL) 12(WIKI)		Some					Some
<b>SRBM</b>							
Abdali	Haft 2	Some	2006	Single	1 x 200-400kg	180	Some

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					payload		
Ghaznavi	Haft 3	<50	2004	Single	1 x 500kg payload	290	Some
Shaheen-1	Haft 4	<50	2008	Single	1 x 750-1,000kg payload	750	Some
Nasr	Haft 9		(2011)			~60	
TOTAL 14(SIPRI) 14(BULL) 13(SIPRI) 13(BULL)		Some					Some
<b>ISRAEL</b>							
<b>ICBM</b>							
Jericho 3		2-5	2008				Some
				Single	1 x 1,000-1,300	11,500	
				MIRV	6 x 100	11,500	
Jericho 2B		~90	1990	Single	1 x 500kg	>7,800	Some
TOTAL 14(SIPRI) 14(BULL) 13(SIPRI) 13(BULL) 12(JDW) 11(WIKI) Note [1], [2], [3], [4], [5]		Some					Some
<b>IRBM</b>							
Jericho 2		(50-100)	1990				Some
				Single	1 x 750-1,000kg payload	1,500-1,800	
TOTAL 14(SIPRI) 14(BULL) 13(SIPRI) 13(BULL) 11(WIKI)		(50-100)					Some
<b>NORTH KOREA</b>							
<b>IRBM</b>							
No-Dong-1		Some	1997	Single	1 x 750-1,000kg payload	1,250	Some
Rodong-1		Some		Single		1,300	Some
Rodong-2		Some		Single		2,000	Some
Taepodong-1		Some		Single		2,500	Some

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Musudan		Some	(>2011)	Single	1,000kg payload	3,500-4,000	Some
Hwasong-13		Some				>5,500	
Taepodong		Some				>5,500	
TOTAL 14(SIPRI) 14(BULL) 13(SIPRI) 13(BULL) 11(WIKI)		Some					Some
<b>SRBM</b>							
Scud-B		Some	1979-1980	Single	1 x 1,000kg payload	300	Some
Scud-C variant		Some	1989	Single	1 x 700kg payload	500	Some
Scud-D		Some	2006	Single	1 x 500kg payload	700	Some
TOTAL 14(SIPRI) 14(BULL) 13(SIPRI) 13(BULL)		Some					Some
<b>SLBM</b>							
<b>UNITED STATES</b>							
UGM-133	Trident II D-5	260/288					
	MK-4		1992	MIRV	4 x 100	12,000	267
	MK-4A		2008	MIRV	4 x 100	>7,400	500
	MK-5		1990	MIRV	4 x 475	12,000	384
TOTAL 14(SIPRI) 14(BULL) 13(SIPRI) 13(BULL)		260/288					1,151
<b>UNITED KINGDOM</b>							
UGM-135	Trident II D-5	48	1994	MIRV	1-3 x 100	12,000	225
TOTAL 14(SIPRI) 14(BULL) 13(SIPRI) 13(BULL)		48					225
<b>RUSSIA</b>							
SS-N-18 M1	Stingray	48	1978	MIRV	3 x 50	6,500	96/144
SS-N-23 M1	Sineva	96	1986/2007	MIRV	4 x 100	9,000	320/384
SS-N-32	Bulava	(48)	(2015)	MIRV	4 x (100)?	>8,050	-/192
TOTAL 14(SIPRI)		144					416/528

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14(BULL) 13(SIPRI) 13(BULL)							
<b>FRANCE</b>							
M-45		16	1996	MIRV	4-6 x 100	6,000	80
M-51.1		32	2010-2011	MIRV	4-6 x 100	8,000-10,000	160
M-51.2		0	(2015)	MIRV	4-6 x TNO	6,000	0
M-51.3		0					0
TOTAL 14(SIPRI) 14(BULL) 13(SIPRI) 13(BULL)		48					240
<b>CHINA</b>							
CSS-N-3		(12)	1986				(12)
	JL-1			Single	1 x 200-300	>1,770	
	JL-1			Single	1 x 25-50	2,150	
	JL-1A			Single	1 x 25-50	2,500	
CSS-NX-14	JL-2	(36)	(2014)			>8,000	(36)
				Single	1 x 200-300		
				MIRV	3-4 x 90		
TOTAL 14(SIPRI) 14(BULL) 13(SIPRI) 13(BULL)		(48)					(48)
<b>INDIA</b>							
	K-4				1 x 1,000kg payload	~3,000	0
Sagarika / Arihant	K-15	1	(2010)	Single	1 x 500-600kg payload	700	12
Dhanush		Some	2007	Single	1 x 500kg payload	400	Some
TOTAL 14(SIPRI) 14(BULL) 13(SIPRI) 13(BULL)		Some					Some
<b>AIRCRAFT</b>							
<b>UNITED STATES</b>							
<b>STRATEGIC</b>							
B-52H	Stratofortress	78/44	1961	ALCM	5-150	16,000	200
				ACM	5-150		
B-2	Spirit	11/16	1994	Bombs B61-7, -11, B83-1	ACM 5-150	11,000	100
TOTAL		89/60					300

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14(SIPRI) 14(BULL) 13(SIPRI) 13(BULL)							
<b>SUB-STRATEGIC</b>							
F-15E	Strike Eagle	Some	1988	Bomb B61-3, B61-4	1 x 0.3-170, 1 x 0.3-45	2,500	Some
F-16A/B/C/D	Fighting Falcon	Some	1976	Bomb B61-3, B61-4	1 x 0.3-170, 1 x 0.3-45	2,500	Some
F-117A	Nighthawk	Some	1983	Bomb B61-3, B61-4	1 x 0.3-170, 1 x 0.3-45	2,100	Some
TOTAL 11(SIPRI) 09(WIKI) 04(ISS) 08(BULL)		Some					200
<b>RUSSIA</b>							
<b>STRATEGIC</b>							
Tu-95 MS6	Bear H6	24/29	1981	ALCM	6 x ?	6,500-10,500	24/174
				Bombs	? x ?		
Tu-95 MS16	Bear H16	25/30	1981	ALCM	16 x ?	6,500-10,500	25/480
				Bombs	? x ?		
Tu-160	Blackjack	11/13	1987	ALCM	12 x ?	10,500-13,200	11/156
				SRAM	? x ?		
				Bombs	? x ?		
TOTAL 14(SIPRI) 14(BULL) 13(SIPRI) 13(BULL)		60/72					60/810
<b>SUB-STRATEGIC</b>							
<b>Land-based bombers</b>							
Tu-22M-3	Backfire	150	1974	ASM	3 x ?	4,800-7,000	-(~450)
				Bombs	? x ?		
Su-24M/M2	Fencer	260	1974	Bombs	2 x ?	2,100-3,000	-(~260)
Su-34	Fullback	20	2006	Bombs	2 x ?		-(~20)
TOTAL 14(SIPRI) 14(BULL) 13(SIPRI) 13(BULL)		~430					-(~730)
<b>Naval bombers, submarines, surface ships</b>							
TOTAL 14(SIPRI) 14(BULL) 13(SIPRI) 13(BULL)		Some					~700

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<b>FRANCE</b>							
<b>LAND-BASED</b>							
Mirage 2000N		~20	1988	ASMP	1 x 300	2,750	~20
Rafale F3		~20	2010-2011	ASMP	1 x 300	2,000	~20
TOTAL 14(SIPRI) 14(BULL) 13(SIPRI) 13(BULL)		~40					~40
<b>CARRIER-BASED</b>							
Rafale MK3		~10	2010-2011	ASMP	1 x 300	2,000	~10
TOTAL 14(SIPRI) 14(BULL) 13(SIPRI) 13(BULL)		~10					~10
<b>CHINA</b>							
<b>STRATEGIC</b>							
H-6	Tu-16	~20	1965	Bomb	1 x 3,000kg payload	3,100	(~20)
Attack		~20	1972-	Bomb			(~20)
TOTAL 14(SIPRI) 14(BULL) 13(SIPRI) 13(BULL)		~40					(~40)
<b>ISRAEL</b>							
<b>SUB-STRATEGIC</b>							
F-4E-2000	Kurnass	Some	1989	Bomb	1 x 8,480kg payload	2,200	Some
F-16A Fighting Falcon	Netz/Hawk	88	1980	Bomb	1 x 5,400kg payload	2,500	Some
F-16B Fighting Falcon	Netz/Hawk	16		Bomb	1 x 5,400kg payload	2,500	Some
F-16C Fighting Falcon	Barak / Lightning	75		Bomb	1 x 5,400kg payload	2,500	Some
F-16D Fighting falcon	Barak / Thunderbolt	46		Bomb	1 x 5,400kg payload	2,500	Some
F-16I Fighting Falcon	Sufa / Storm	101		Bomb	1 x 5,400kg payload	2,500	Some
F-15I Strike Eagle	Ra'am / Thunder	25	1997	Bomb	1 x 10,400kg payload	2,500	Some
TOTAL 14(SIPRI)		351					Some



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14(BULL) 13(SIPRI) 13(BULL) 12(JDW)							
<b>INDIA</b>							
SUB-STRATEGIC							
Jaguar IS/IB	Shamsher	76 12(BULL)	1979	Bomb	1 x 4,760kg payload	1,600	Some
MiG-27M	Bahadur	165 07(WIKI)	1982	Bomb	1 x 3,000kg payload	1,000	Some
Mirage 2000H	Vajra	49 12(BULL)	1998	Bomb	1 x 6,300kg payload	1,850	Some
TOTAL 14(SIPRI) 14(BULL) 13(SIPRI) 13(BULL)		290 12(BULL) / 07(WIKI)					Some
<b>PAKISTAN</b>							
SUB-STRATEGIC							
F-16A/B	Fighting Falcon	~30	1983	Bomb/Babur LACM	1 x 4,500kg payload	1,600	Some
Mirage 2000-5		Some	2002	Bomb	1 x 4,000kg payload	2,100	Some
JF-17		Some					Some
TOTAL 14(SIPRI) 14(BULL) 13(SIPRI) 13(BULL)		~30					Some
<b>NORTH KOREA</b>							
SUB-STRATEGIC							
H-5	Il-28	80	1950	Bomb	1 x 3,000kg payload	2,100	Some
TOTAL 14(SIPRI) 14(BULL) 13(SIPRI) 13(BULL)		80					Some
SLCM							
<b>UNITED STATES</b>							
Tomahawk	TLAM-N	325	1984	Single	1 x 5-150	2,500	(0)
TOTAL 12(BULL) 11(SIPRI) 10(BULL)		325					(0)

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<b>RUSSIA</b>							
SS-N-9	Siren	Some	1972	Single	1 x 200	110	Some
SS-N-12	Sandbox	Some	1959-1960	Single	1 x 350	550	Some
SS-N-19	Shipwreck	Some	1980	Single	1 x 500	550	Some
SS-N-21	Sampson	Some	1984	Single	1 x 200	2,400	Some
SS-N-22	Sunburn	Some	1980	Single	1 x 320kg payload	120	Some
TOTAL 11(SIPRI) 10(BULL)		Some					~280
<b>ISRAEL</b>							
Turbo-Popeye 3		Some	2000	Single	1 x 200kg payload	1,500	Some
TOTAL 04(IISS)		Some					Some
<b>ALCM</b>							
<b>UNITED STATES</b>							
AGM-868		1,140	1982/1991	Single	1 x 900-1,400kg payload	2,500	Some
AGM-129		460	1990	Single	1 x 5-200	3,500	Some
TOTAL 11(SIPRI) 08(BULL)		1,600					Some
<b>RUSSIA</b>							
AS-4	Kh-24 Kitchen	Some	1964	Single	1 x 1,000	310	Some
AS-15A	Kh-55 Kent	Some	1971	Single	1 x 200-250	2,500	Some
AS-15B	Kh-55SM Kent	Some	1986	Single	1 x 200-250	3,000	Some
AS-16	Kh-15 Kickback	Some	1980	Single	1 x 350	150	Some
TOTAL 11(SIPRI) 08(BULL)		Some					Some
<b>FRANCE</b>							
ASMP		Some	1985	Single	1 x 300	250	Some
TOTAL 11(SIPRI) 08(BULL)		Some					Some
<b>CHINA</b>							
	DH-10	150-350	2007	Single	1 x ?	>1,500	Some
	(CJ-20)		(2014)		1 x ?	>1,500	Some
TOTAL 14(SIPRI)		150-350					Some

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14(BULL) 13(SIPRI) 13(BULL)							
<b>PAKISTAN</b>							
Babur	Haft-7	Some	2007	Single	1 x 400-500kg payload	350	Some
Ra'ad	Haft-8	Some	(>2011)	Single	?	350	0
TOTAL 14(SIPRI) 14(BULL) 13(SIPRI) 13(BULL)		Some					Some
<b>MISSILE AND AIR DEFENSE SYSTEMS</b>							
<b>RUSSIA</b>							
<b>STRATEGIC DEFENSIVE SYSTEMS</b>							
53T6	SH-08 Gazelle	68	1986	Single	1 x 1,000 / 10	30	-/(68)
S-300 and S-400	SA-10/20 Grumble, and SA-21 Growler	1,000	1980 and 2007	Single	1 x low yield	5-150	-/(~340)
SSC-1B Sepal	Redut	34	1973	Single	1 x 500	500	-/(~17)
TOTAL 14(SIPRI) 14(BULL) 13(SIPRI) 13(BULL)		~1,100					-/(~425)
<b>UNITED STATES</b>							
<b>STRATEGIC DEFENSIVE SYSTEMS</b>							
<b>LAND-BASED</b>							
Fort Greely (Alaska)		26					0
Vandenburg (California)		4					0
TOTAL ground-based interceptors		30					0
<b>SEA-BASED</b>							
Aegis BMD cruisers		5					0
Aegis BMD destroyers		25					0
TOTAL Aegis BMD ships		30(80-97)					0
15(IISS) 14(WIKI)							

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08(SIPRI)							
SUB-STRATEGIC DEFENSIVE SYSTEMS							
PAC-3 missiles		546					0
TOTAL 08(SIPRI)		546					0

- ACM advanced cruise missile
- AKA also known as
- ALCM air-launched cruise missile
- ASM air-to-surface missile
- MIRV multiple independently targetable re-entry vehicles
- ICBM intercontinental ballistic missile
- IRBM intermediate-range ballistic missile
- SRBM short-range ballistic missile
- SLBM submarine-launched ballistic missile
- SLCM submarine-launched cruise missile
- LACM land-attack cruise missile
- GBI ground-based interceptors
- BMD ballistic missile defense
- PAC-3 Patriot advanced capability-3

SOURCES: SIPRI, BULL, WIKI, IISS, JDW

Notes.

- 1) According to an official report which was submitted to the American congress in 2004, it may be that with a payload of 1,000 kg the Jericho 3 gives Israel nuclear strike capabilities within the entire Middle East, Africa, Europe, Asia and almost all parts of North America, as well as within large parts of South America and North Oceania.
- 2) Henry A. Kissinger (16 July 1969), "Israeli Nuclear Program," Memorandum for the President (The White House), Retrieved 2009-07-26
- 3) Proliferation of Weapons of Mass Destruction: Assessing the Risks, U.S. Congress Office of Technology Assessment, August 1993, OTA-ISC-559, Retrieved 2008-12-09
- 4) Missile Survey: Ballistic and Cruise Missiles of Foreign Countries, by Andrew Feikert,

Congressional Research Service, Updated March 5, 2004

- 5) Study on a Possible Israeli Strike on Iran's Nuclear Development Facilities, by Abdullah Toukan, Center for Strategic and International Studies, March 14, 2009

Table 2.10 – Operational Nuclear Warheads, 2014-2015, Strategic

OBS	COUNTRY	ICBM	IRBM	SLBM	ALCM/BOMBS	TOTAL
1	Russia	967		528	810	~2,300
2	U.S.	470		1,151	300	~1,920
3	France			240	50	~290
4	China	45-50	~110-115	~48	~40	~250
5	U.K.			225		225
6	Israel	Some				Some
7	India					
8	Pakistan					
9	N. Korea					

ALCM air-launched cruise missile  
 ICBM intercontinental ballistic missile  
 IRBM intermediate-range ballistic missile  
 SLBM submarine-launched ballistic missile

SOURCES: SIPRI, BULL, IISS, JDW

Table 2.11 – Operational Nuclear Warheads, 2014-2015, Sub-Strategic

OBS	COUNTRY	SRBM	SLCM, NAVY WEAPONS	ABM, AIR/COAS TAL DEFENSE	AIRCAFT	TOTAL
1	Russia	~170	~700	~425	~730	~2,000
2	U.S.		Some		Some	~184
3	Israel	~50	Some		~30	~80
4	Pakistan	~50-60			~50-60	100-120
5	India	~45-55			~45-55	90-110
6	N. Korea				6-8	6-8
7	China	Some			Some	Some
8	France					0
9	U.K.					0

SLCM sea-launched cruise missile

SRBM short-range ballistic missile

SOURCES: SIPRI, BULL, IISS, JDW

Table 2.12 – Operational Nuclear Warheads, 2014-2015, Total Strategic and Sub-Strategic

OBS	COUNTRY	STOCKPILE			DELIVERABLE			
		14(BULL) 13(BULL)	14(SIPRI) 13(SIPRI)	See [1], [2], [3]	14(BULL) 13(BULL)	14(SIPRI) 13(SIPRI)	10(IISS)	10(JDW)
1	Russia	8,000	8,000		~4,300	~4,300		
2	U.S.	~7,300	~7,300		~2,100	~2,100		
3	Israel		~80	Up to 400		~80	~200	100-300
4	France		300		300	290		
5	China		~250		~250	~250		
6	U.K.	225	225		160	160		
7	Pakistan		100-120			100-120		
8	India		90-110			90-110		
9	N. Korea				6-8			

Notes:

- 1) “Background Information, 2005 Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons,” United Nations, Retrieved 2006-07-02.
- 2) Brower, Kenneth S., “A Propensity for Conflict: Potential Scenarios and Outcomes of War in the Middle East,” Jane’s Intelligence Review, Special Report no. 14 (February 1997), p. 14-15.
- 3) “Nuclear Weapons: Who Has What at a Glance,” Arms Control Association, Retrieved 2007-05-30.
- 4) The Bulletin of the Atomic Scientists puts the Israeli nuclear stockpile at 60-80 but notes that it is believed that Israel has produced nuclear material enough for 115-190 warheads.
- 5) In 1986, Mordechai Vanunu, a former technician at Dimona, revealed to the media some evidence of Israel’s nuclear program. Israeli agents abducted him from Italy and transported him to Israel. An Israeli court then tried him in secret on charges of treason and espionage, and sentences him to 18 years imprisonment. At the time of Vanunu’s arrest, *The Times* reported that Israel had material for approximately 20 hydrogen bombs and 200 fission bombs. If we take this information at face value, by now Israel should have material for considerably more nuclear bombs and that seems to corroborate the opinion of the sources from Notes [1], [2], [3] that Israel now may have up to 400 nuclear weapons.



- 6) Vanunu's information in October 1986 said that based on a reactor operating at 150 megawatts Israel produces 40 kg of plutonium per year. Israel possesses a 200 kg warhead, containing 6 kg of plutonium (Farr, Warner D. *The Third Temple's Holy of Holies: Israel's Nuclear Weapons*, USAF Counterproliferation Center, September 1999, Retrieved 2007-07-03). During 29 years after 1986 until 2015, Israel could have produced  $29 \times 40 = 1,160$  kg of plutonium; divided by 6, it gives us 193 warheads; plus 220 warheads, which, according to Vanunu, Israel already had in 1986, we receive a possible number of Israel's warheads now at 413.
- 7) The substantial discrepancy over data about Israel (between the Bulletin of the Atomic Scientists and the Stockholm International Peace Research Institute on one side and the International Institute for Strategic Studies, Jane's Defense Weekly, and sources from the notes [1], [2], [3] on the other side) may be explained by the following:
  - 7.1) "Israel's nuclear weapons are not believed to be fully operational under normal circumstances" (Bulletin of the Atomic Scientists, article "Nuclear Notebook: Worldwide deployment of nuclear weapons, 2009").
  - 7.2) As Zbigniew Brzezinski stated on Book TV in 2009, Israel had acquired a second-strike capability.
  - 7.3) The opinion of Brzezinski is supported by other less prominent sources stating that Israel's nuclear weapons can now be launched from land, sea and air (Douglas Frantz, *Israel Adds Fuel to Nuclear Dispute*, Officials confirm that the nation can now launch atomic weapons from land, sea and air, Los Angeles Times, Sunday, October 12, 2003). This gives Israel a second strike option even if much of the country is destroyed (David Eberhart, *Samson Option: Israel's Plan to Prevent Mass Destruction Attacks*, NewsMax.Com, October 16, 2001).
  - 7.4) The second strike strategy may mean that at any given time some of Israel's nuclear weapons are in storage.

**Table 2.13 – States Possessing, Pursuing Or Capable Of Acquiring Weapons Of Mass Destruction, As Well As Those Which Used To Have Or Used To Pursue Them, 2014-2015**

STATE	NUCLEAR ENERGY	URANIUM ENRICHMENT	PLUTONIUM PRODUCTION	NUCLEAR WEAPONS	CHEMICAL WEAPONS	BIOLOGICAL WEAPONS	MISSILE TECHNOLOGY
Algeria				Used to pursue			
Argentina	Possessing		Possessing	Capable			Pursuing
Armenia	Possessing		Possessing				
Australia				Capable	Capable	Capable	Capable
Belarus				Capable			
Belgium	Possessing		Possessing				
Brazil	Possessing	Pursuing	Possessing	Capable			Possessing
Bulgaria	Possessing		Possessing			Capable	
Burma					Pursuing		
Canada	Possessing		Possessing				
Chile					Capable		
China	Possessing	Possessing	Possessing	Possessing	Possessing	Possessing	Possessing
Cuba						Capable	
Czechia	Possessing		Possessing				
Ethiopia					Used to pursue		
Egypt					Possessing	Possessing	Pursuing
Finland	Possessing		Possessing				
France	Possessing	Possessing	Possessing	Possessing	Possessing	Capable	Possessing
Germany	Possessing	Possessing	Possessing	Capable	Capable	Capable	Capable
Hungary	Possessing		Possessing				
India	Possessing	Possessing	Possessing	Possessing	Possessing	Possessing	Possessing
Indonesia					Pursuing		
Iran	Possessing	Possessing	Pursuing	Used to pursue	Possessing	Possessing	Pursuing
Iraq			Used to have	Used to pursue	Used to have	Used to have	Used to pursue
Israel			Possessing	Possessing	Possessing	Possessing	Possessing
Italy			Possessing				
Japan	Possessing	Possessing	Possessing	Capable	Capable	Capable	Possessing
Kazakhstan			Possessing	Capable			
Laos					Used to pursue	Used to pursue	
Libya				Used to pursue	Used to have	Used to have	
Lithuania	Possessing		Possessing				
Mexico	Possessing		Possessing				

**Table 2.13 – States Possessing, Pursuing Or Capable Of Acquiring Weapons Of Mass Destruction, As Well As Those Which Used To Have Or Used To Pursue Them, 2014-2015**

STATE	NUCLEAR ENERGY	URANIUM ENRICHMENT	PLUTONIUM PRODUCTION	NUCLEAR WEAPONS	CHEMICAL WEAPONS	BIOLOGICAL WEAPONS	MISSILE TECHNOLOGY
Netherlands	Possessing	Possessing	Possessing				
North Korea	Possessing		Possessing	Possessing	Possessing	Possessing	Possessing
Pakistan	Possessing	Possessing	Possessing	Possessing	Possessing	Possessing	Possessing
Romania	Possessing		Possessing				
Russia	Possessing	Possessing	Possessing	Possessing	Possessing	Possessing	Possessing
Saudi Arabia				Pursuing	Pursuing	Pursuing	Pursuing
Serbia				Pursuing	Capable		
Slovakia	Possessing		Possessing				
Slovenia	Possessing		Possessing				
South Africa	Possessing		Possessing	Capable	Capable	Capable	Capable
South Korea	Possessing		Possessing		Capable	Capable	Possessing
Spain	Possessing		Possessing				
Sudan					Used to pursue		
Sweden	Possessing		Possessing				
Switzerland	Possessing		Possessing				
Syria					Pursuing	Pursuing	Pursuing
Taiwan	Possessing		Possessing		Possessing	Possessing	Possessing
Thailand					Pursuing		
Ukraine	Possessing		Possessing	Capable			
Vietnam					Pursuing	Pursuing	
United Kingdom	Possessing	Possessing	Possessing	Possessing	Capable	Capable	Possessing
United States	Possessing	Possessing	Possessing	Possessing	Possessing	Possessing	Possessing

**SOURCES: BULL, SIPRI, EST, E, CIA, WIKI**

Table 2.14 Global Stocks Of Highly Enriched Uranium (HEU), 2013	
STATE	STOCKPILE (TONNES)
Argentina	0.001-0.01
Australia	0.001-0.01
Belarus	0.1-1
Belgium	0.1-1
Canada	1-10
China	16 ± 4
France	30 ± 6
Germany	0.1-1
Ghana	~0.001
India	2.7 ± 1.1
Indonesia	~0.001
Iran	0.001-0.01
Israel	0.3
Italy	0.1-1
Jamaica	~0.001
Japan	1-10
Kazakhstan	1-10
Netherlands	0.1-1
Nigeria	~0.001
North Korea	0.01-0.1
Norway	0.001-0.01
Pakistan	3.1 ± 0.4
Poland	0.1-1
Russia	666 ± 120
South Africa	0.1-1
Switzerland	0.001-0.01
Syria	~0.001
United Kingdom	21.2
United States	532
Uzbekistan	0.01-0.1
TOTAL	~1285

Notes.

- 1) Most of highly-enriched material is 90-93% enriched uranium-235, which is typically considered as weapon-grade. Important exceptions are noted. Blending down (i.e. reducing the concentration of U-235) of excess Russian and U.S. weapon-grade HEU up to the end of 2013 has been taken into account.
- 2) France declared 4.74 tonnes of civilian HEU to the International Atomic Energy Agency

(IAEA) as of the end of 2012; it is assumed here to be weapon-grade, 93% HEU, even though some of the material is in irradiated form. The uncertainty in the estimate applies only to the military stockpile of 26 tonnes and does not apply to the declared stock of 4.74 tonnes.

- 3) It is believed that India is producing HEU (enriched to 30-45%) for use as naval reactor fuel. The estimate is for HEU enriched to 30%.
- 4) Israel may have acquired 300 kg of weapon-grade HEU from the USA in or before 1965.
- 5) The estimate given for the Russian reserve for naval reactors is based on the size of the Russian fleet. Russia is reported to have resumed intermittent small-scale production of HEU for civilian applications for export.
- 6) The United Kingdom declared a stockpile of 21.9 tonnes of HEU as of March 31, 2012, the average enrichment of which was not given. An estimated 0.7 tonnes may have been consumed since then in naval reactor fuel. The United Kingdom declared a stock of 1.4 tonnes of civilian HEU to the IAEA as of the end of 2012.
- 7) The amount of the United States HEU is given in actual tonnes, not 93% enriched equivalent. The USA has declared that as of September 30, 1996 it had an inventory of 741 tonnes of HEU containing 620 tonnes of U-235. As of the end of 2012 it had blended down 143 tonnes excess; however, little if any of this HEU was weapon-grade. In 2012 the USA withdrew 24 tonnes of HEU from its stockpile of material declared excess for military purposes and earmarked for blend-down; this material is now reserved for naval fuel, bringing the total amount of HEU in this category to 152 tonnes of (fresh) weapon-grade HEU. In addition, at least 100 tonnes is in the form of irradiated naval fuel.
- 8) The 2011 IAEA Annual Report lists 213 significant quantities of HEU under comprehensive safeguards in non-nuclear weapon states. In order to reflect the uncertainty in the enrichment levels of this material, mostly in research reactor fuel, a total of 15 tonnes of HEU is assumed. About 10 tonnes of this is in Kazakhstan and has been irradiated; it was initially slightly higher than 20%-enriched fuel.

SOURCES: SIPRI, BULL, CIA, WIKI

Table 2.15 Global Stocks Of Separated Plutonium, 2013		
STATE	MILITARY STOCKS (TONNES)	CIVILIAN STOCKS (TONNES)
Argentina (2003)	-	11
Armenia (2003)	-	1.4
Belgium (2003)	-	23.5-24.5
Brazil (2003)	-	2.1
Bulgaria (2003)	-	8.5
Canada (2003)	-	135
China	1.8 ± 0.8	0.01
Czechia (2003)	-	6.2
Finland (2003)	-	11
France	6 ± 1.0	57.5
Germany	-	3.4
Hungary (2003)	-	7.5
India	0.57 ± 0.21	5.24
Israel	0.86 ± 0.13	-
Italy (2003)	-	6.5
Japan	-	44.2
Kazakhstan (2003)	-	3.0
Lithuania (2003)	-	10
Mexico (2003)	-	2.4
Netherlands (2003)	-	2-2.5
North Korea	0.03	-
Pakistan	0.17 ± 0.02	-
Romania (2003)	-	2.4
Russia	128 ± 8	50.7
Slovakia (2003)	-	8.4
South Africa (2003)	-	5.8
South Korea (2003)	-	44
Spain (2003)	-	26.9
Sweden (2003)	-	41.8
Switzerland (2003)	-	17.5-20
Taiwan (2003)	-	22
Ukraine (2003)	-	41
United Kingdom	3.2	97.3
United States	82.9	-
TOTALS	~224	~264

Notes.

- 1) Some countries own civilian plutonium that is stored overseas, mostly in France and the United Kingdom, but do not submit IAEA declaration.
- 2) As part of the 2005 Indian-U.S. Civil Nuclear Cooperation Initiative, India has included in the military sector much of the plutonium separated from its spent power-reactor fuel. While it is labelled civilian here since it is intended for breeder reactor fuel, this plutonium was not placed under safeguards in the 'India-specific' safeguards agreement signed by the Indian government and the IAEA on February 2, 2009.
- 3) Israel is believed to still be operating the Dimona plutonium production reactor but may be using it primarily for tritium production (tritium is an important component in nuclear weapons; it is used to enhance the efficiency and yield of fission bombs and the fission stages of hydrogen bombs in a process known as "boosting" as well as in external neutron initiators for such weapons).
- 4) North Korea reportedly declared plutonium production of 31 kg in June 2008; carried out nuclear tests in 2006 and 2009; and resumed production in 2009, adding 8-10 kg. In February 2013, North Korea carried out another test and declared in April 2013 that it intended to resume plutonium production.
- 5) Pakistan is operating the Khushab-1 and -2 plutonium reactors. An additional plutonium production reactor is under construction at the same site.
- 6) Russia does not include its plutonium declared as excess in its IAEA statement. The military stockpile includes 6 tonnes of weapon-grade plutonium that is not part of the material declared excess nor declared as civilian and was produced between 1994 and 2010.
- 7) The United Kingdom declared 97.3 tonnes of civilian plutonium (not including 23.8 tonnes of foreign-owned plutonium in the United Kingdom). This includes 4.4 tonnes of military plutonium declared excess and placed under Euroatom safeguards and designated for IAEA safeguarding.
- 8) In its IAEA statement, the USA declared 49 tonnes of irradiated plutonium as excess for military purposes as of the end of 2012. An additional 4.4 tonnes have been sent for disposal at the Waste Isolation Pilot Plant, New Mexico.
- 9) Data for other states includes Italy, which has 1.1 tonnes of plutonium at La Hague, France.

SOURCES: SIPRI, BULL, CIA, WIKI