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Trends in the Nuclear Balance

A Comparative Summary of British, Chinese, French, Russian, and US Weapons

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CSIS

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The Nuclear Dimension – Part One

Country	Sea-Based	Land Based	Air Force
US	18 SSBM/432 SLBM +2/16 Poseidon C-3	590 Minuteman III	179 Active. 329 START accountable
(33,500 nuclear weapons)*	tubes in ex-SSBN	50 Peacekeeper MX	12-14 B-2A
	10 SSBN-747 with up to 24 Trident D-5 (240 SLBM	(+115 Minuteman II Offline which are still START accountable)	66 B-52H with up to 20 ALCM each
	8 SSBN-726 with up 24 Trident C-4 (192 SLBM)		95 B-1B
Russia	26 SSBN/412 SLBM	180 SS-18 (RS-20) Mostly Mod4/5 w/ 10 MIRV	66 Active, 5 Training, 14 Test & 44 in Ukraine
	4 Typhoon with 20 SS-N-20 each (80)		28 Tu-95H6 with AS-15 ALCM
(62,500 nuclear weapons)*		188 SS-19 (RS-18) Mostly Mod3,6 MIRV	(+5 in Ukraine)*
	7 Delta IV with 16 SS-N-23 each (112)	168 in Russia 20 in Ukraine*	32 Tu-95H16 with AS-15 (20 in Ukraine)*
	10 Delta II with 16 SS-N-18 each (160)	SS-24 (RS22) with 10 MIRV	6 Tu-160 with AS15 (19 in Ukraine)*
	5 Delta I with 12 SS-N-8 each (60)	36 Rail in Russia 46 Silo in Ukraine*	8 Tu-95 and 6 Tu-160 Test 5 Tu-95G Training
	In addition, 16 SSBN and 228 missiles remain START accountable: 2 Typhoon/40SS-N-20 1 Yankee 1/16 SS-N-16 4 Delta II/64 SS-N-8 9 Delta I/108 SS-N-8	360 SS-25 (RS12M) single warhead mobile & silo launch in Russia 36 SH-11 Galosh & 64 SH-08 Gazelle ABMs	
	11 Oscar SSGN with 24 SS-N-19		
	3 Yankee SSGN with 20+ SS-N-21 1 Yankee SSGN/12 SS-NX-24		
	10 AkulaSSN/SS-N-21 3 Sierra SSN/SS-N-21 12 Victor III/SS-N-15		

* Without nuclear warhead or weapons.

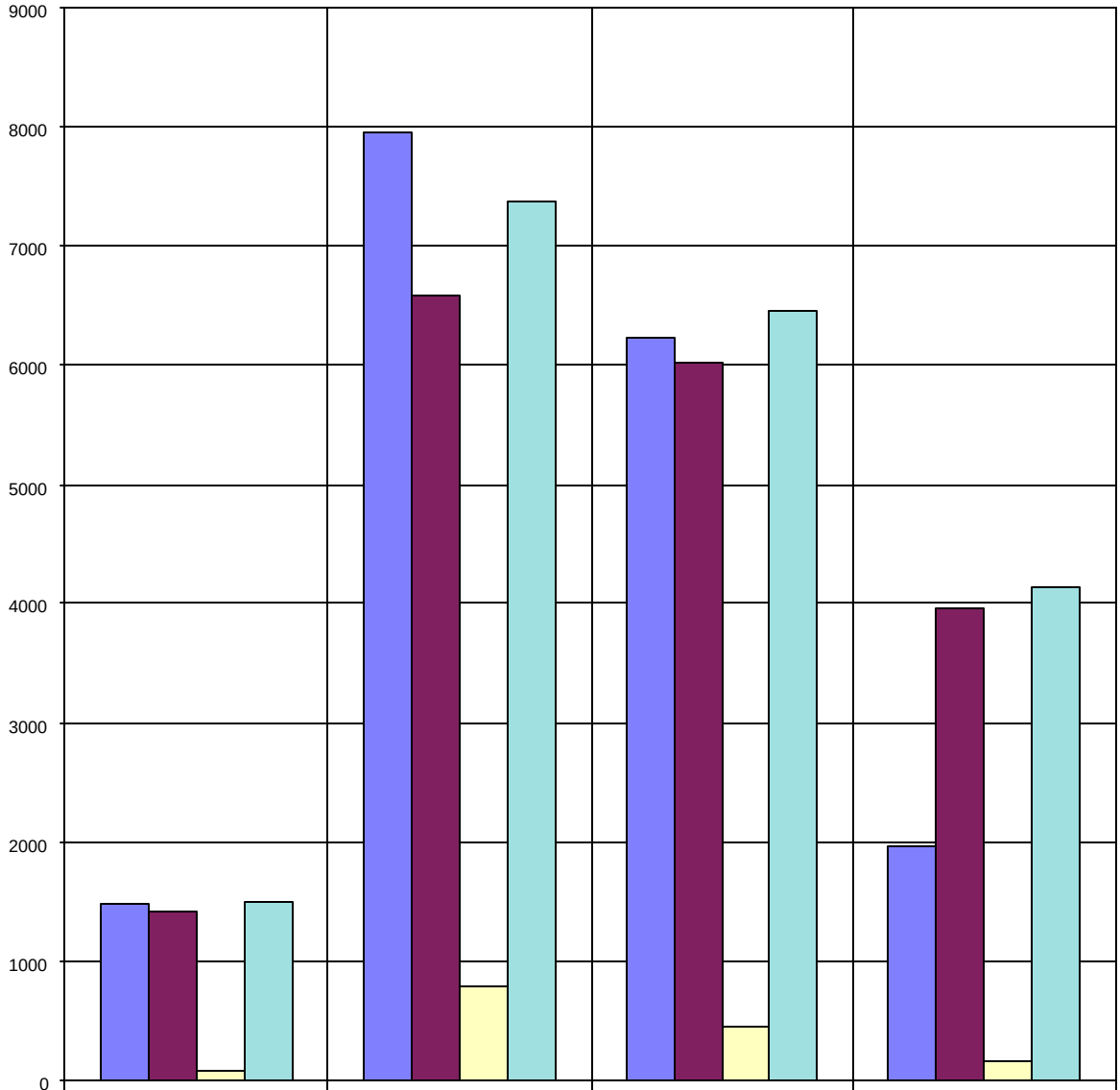
The Nuclear Dimension – Part Two

Country	Sea-Based	Land Based	Air Force
France	4 SSBN/64 SLBM		3/60 Mirage-2000N (AMSP)
	3 L'Inflexible with		36 Super Etendard AMSP
(1,400 nuclear weapons)*	16 M-4/TN-71 or 75		
	1 Le Triomphant with 16 M-45/TN-75		
United Kingdom	3 SSBN/48 SLBM		
	3 Vanguard SSBN		
(1,100 nuclear weapons)*	with up to 16 Trident D-5 each and maximum of 48 warheads per boat.		
China	1 Xia SSBN with 12 CSS-N-3 (J-1)	7 CC-4 (DF-5) MIRV ICBM	Up to 120 H-6, Some nuclear capable.
(500-1,300 nuclear weapons)*	1 Romeo SSGN?	10 CSS-3 (DF-4) ICBM	200+ H-5?
		38 CSS-2 (DF-3 IRBM 8 CSS-5 DF-21 IRBM	
		4 DF-15 CSS-6/M-9 SRBM (600 km)	
		? DF-11 CSS-7/M-11 SRBM (120-300 KM)	

* Estimate by Sergei Rogov
Source: Adapted by Anthony H. Cordesman from the IISS, Military Balance, 1998-1999

US, Russian, and Ukrainian Strategic Nuclear Forces Declared for Start I

(Declarations as of January 1, 1999)

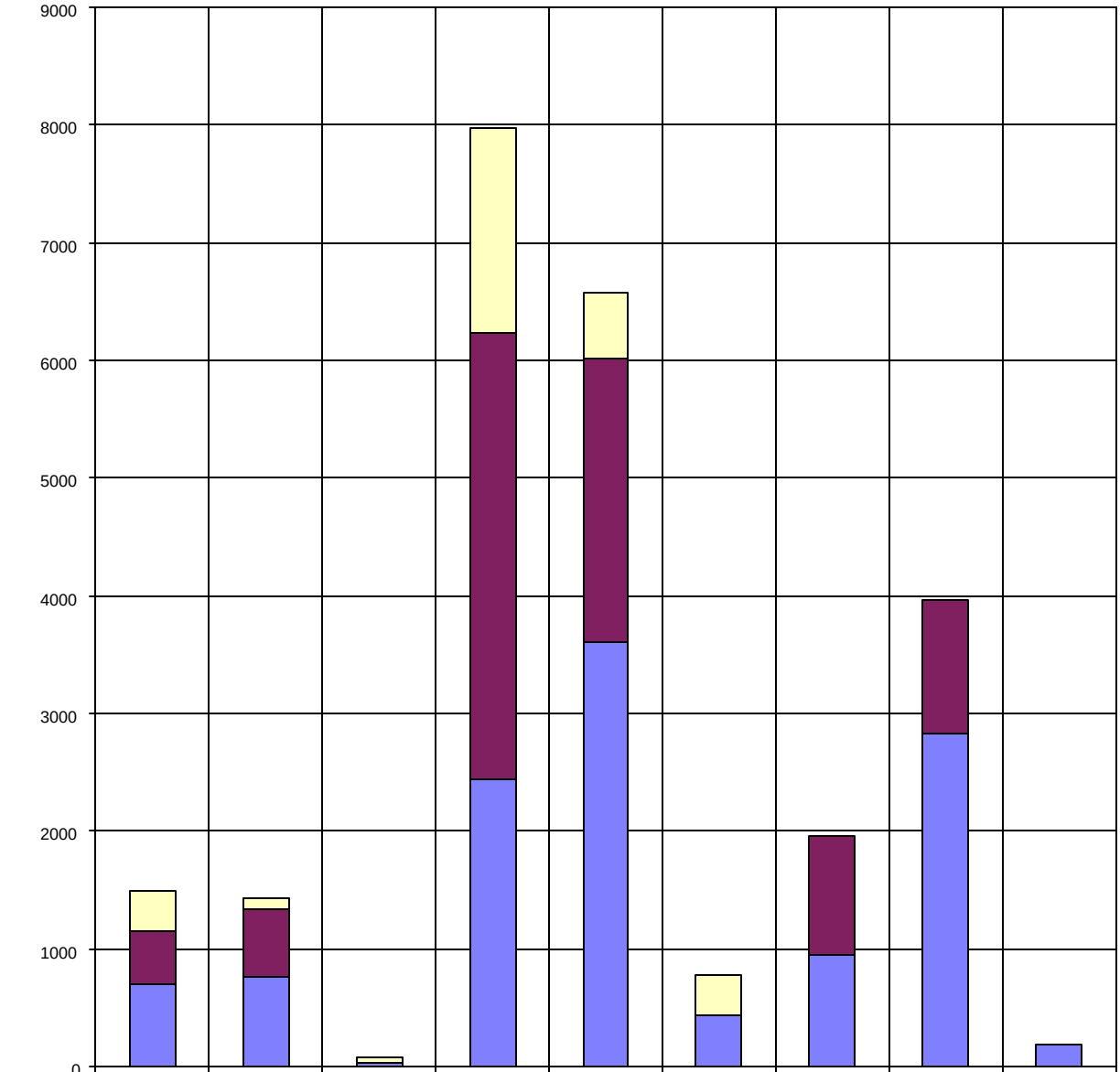


	Deployed ICBMs, SLBMs, Heav Bombers and Associated Launchers	Warheads Attributed to Deployed ICBMs, SLBMs, and Heavy Bombers	Warheads Attributed to Deployed ICBMs and SLBMs	Throw-weight of Deployed ICBMs and SLBMS (MT)
US	1480	7958	6227	1969.8
Russia	1422	6578	6014	3966.3
Ukraine	87	784	440	178.2
Total USSR	1509	7362	6454	4144.5

Source: Adapted by Anthony H. Cordesman from data provided by ACDA on April 1, 1999. Belarus and Kazakhstan report zero in every category.

The US, Russian, and Ukrainian Strategic Nuclear Triad Declared for Start I

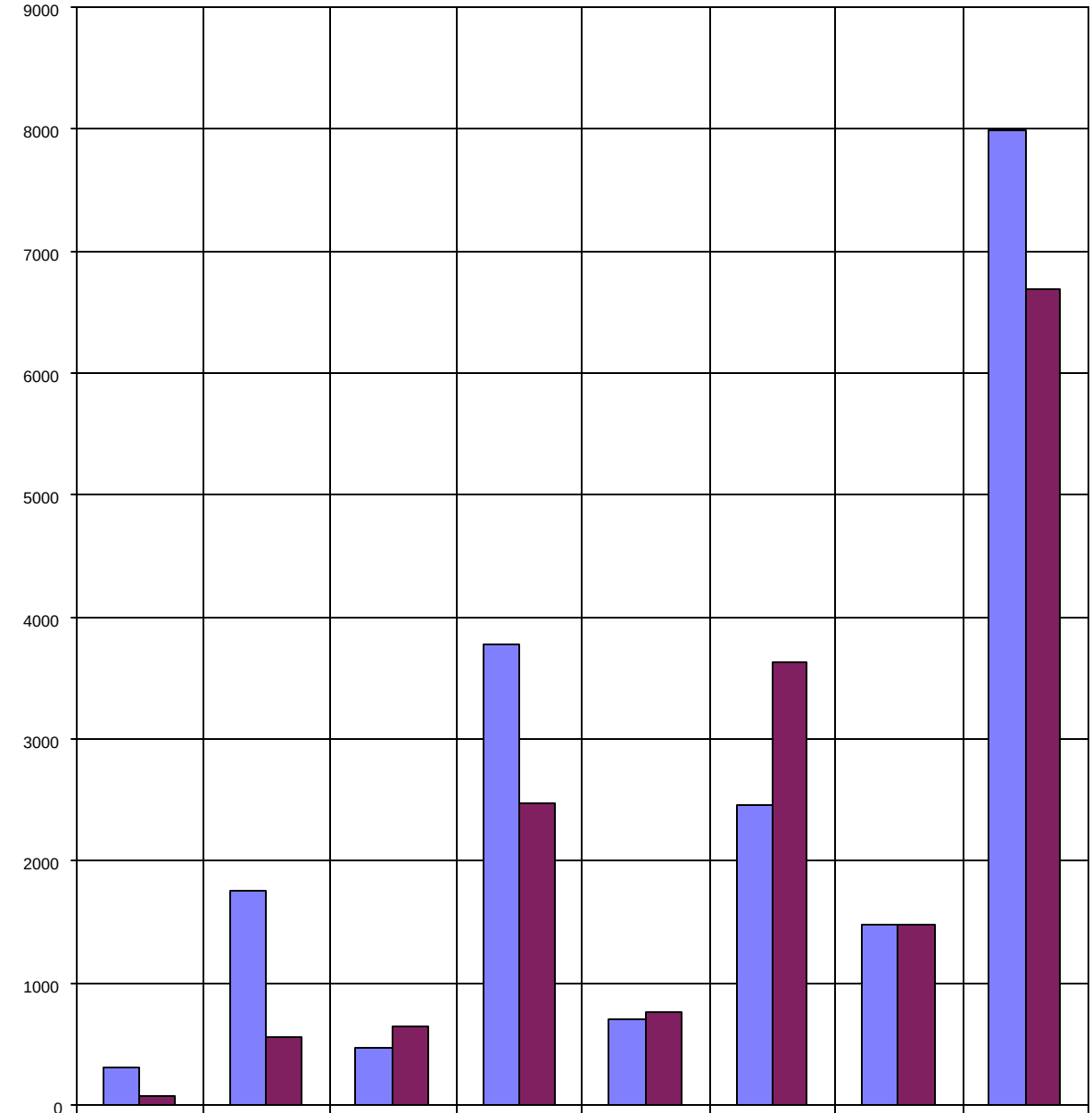
(Declarations as of January 1, 1999)



	US Launchers & Bombers	Russian Launchers and Bombers	Ukrainian Launchers and Bombers	US Warheads	Russian Warheads	Ukrainian Warheads	US Throw Weight	Russian Throw weight	Ukrainian Throw Weight
Bombers	315	74	43	1731	564	344			
SLBMs	464	592		3776	2424		1024	1130	
ICBMs	701	756	44	2451	3590	440	945.8	2836.3	178.2

Source: Adapted by Anthony H. Cordesman from data provided by ACDA on April 1, 1999. Belarus and Kazakhstan report zero in every category.

US and Russian Deployed Strategic Nuclear Forces

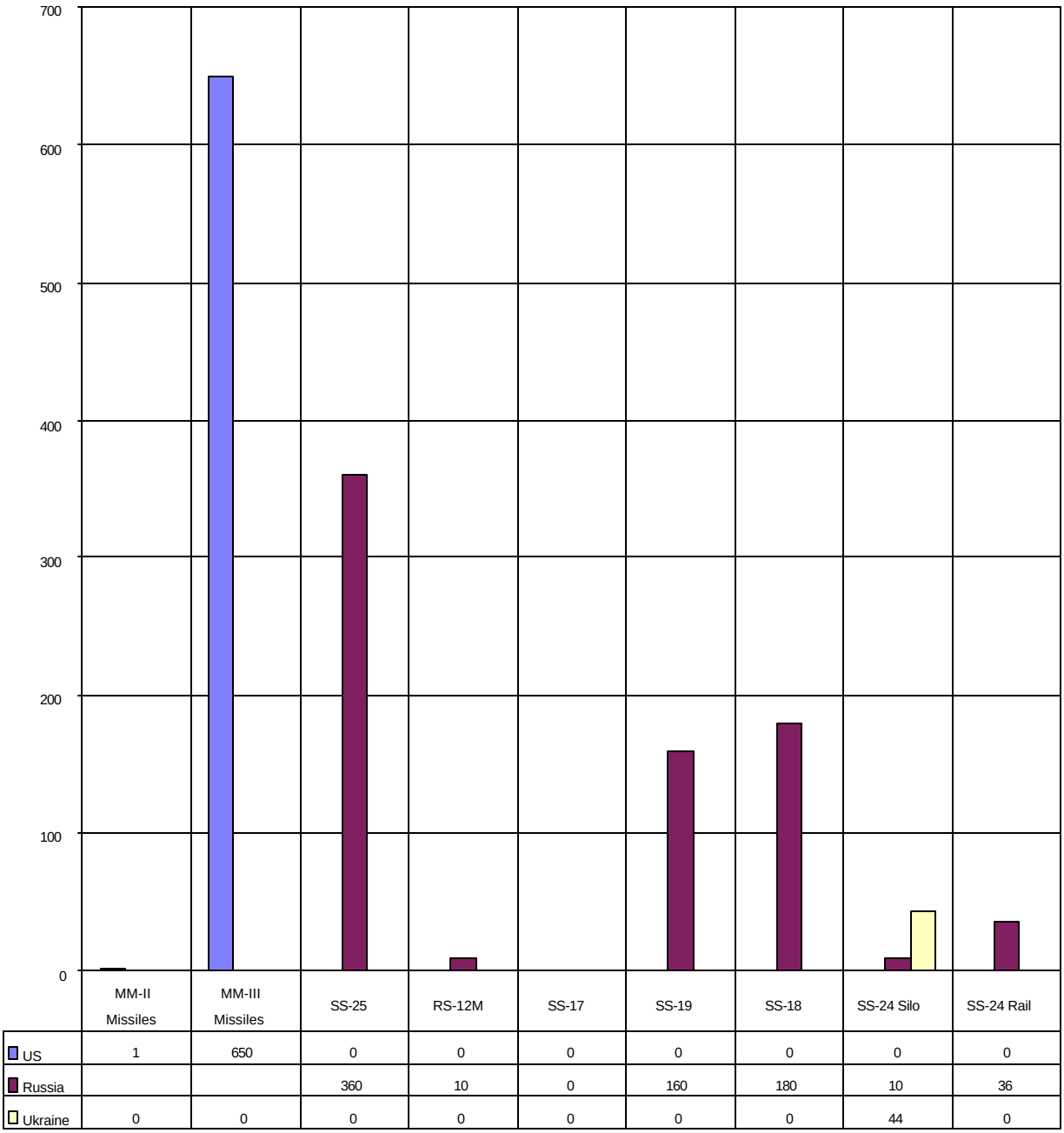


	Bombers	Bomber Warheads	SLBMs	SLBM Warheads	ICBMs	ICBM Warheads	Total Delivery	Total Warheads
US	317	1755	464	3776	701	2451	1482	7982
Russia	74	564	648	2480	756	3630	1478	6674

Source: Adapted by Anthony H. Cordesman from Jane's Defense Weekly, February 10, 19998, pp. 23-26.

US, Russian, and Ukrainian ICBMs Declared for Start I

(Declarations as of January 1, 1999)



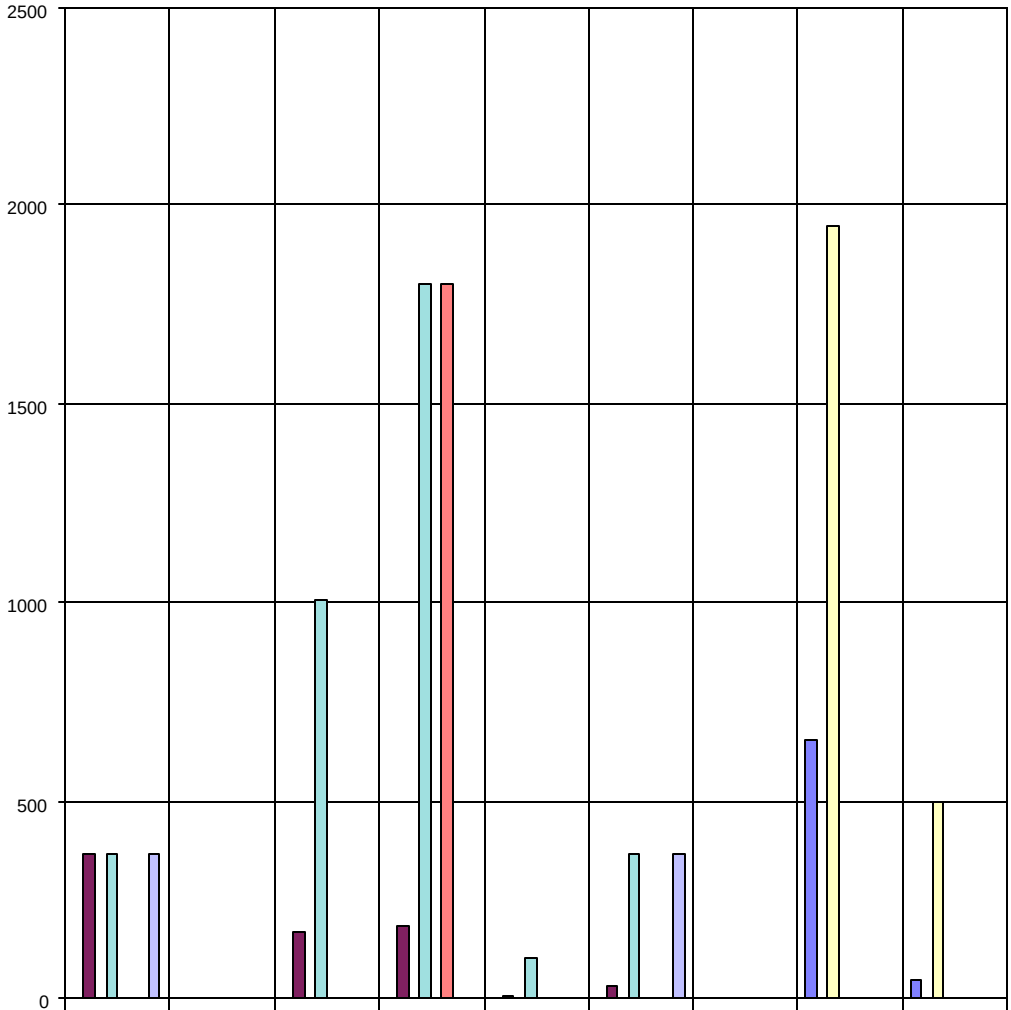
	MM-II Missiles	MM-III Missiles	SS-25	RS-12M	SS-17	SS-19	SS-18	SS-24 Silo	SS-24 Rail
US	1	650	0	0	0	0	0	0	0
Russia			360	10	0	160	180	10	36
Ukraine	0	0	0	0	0	0	0	44	0

Throw weight (MT)

US	0.80	747.50	-	-	-	-	-	-	-
Russia	-	-	360.00	10.00	0	696.00	1584.80	40.50	145.80
Ukraine	-	-	-	-	-	-	-	178.20	-

Source: Adapted by Anthony H. Cordesman from data provided by ACDA on April 1, 1999. Belarus and Kazakhstan report zero in every category.

US and Russian Deployed ICBM Missiles

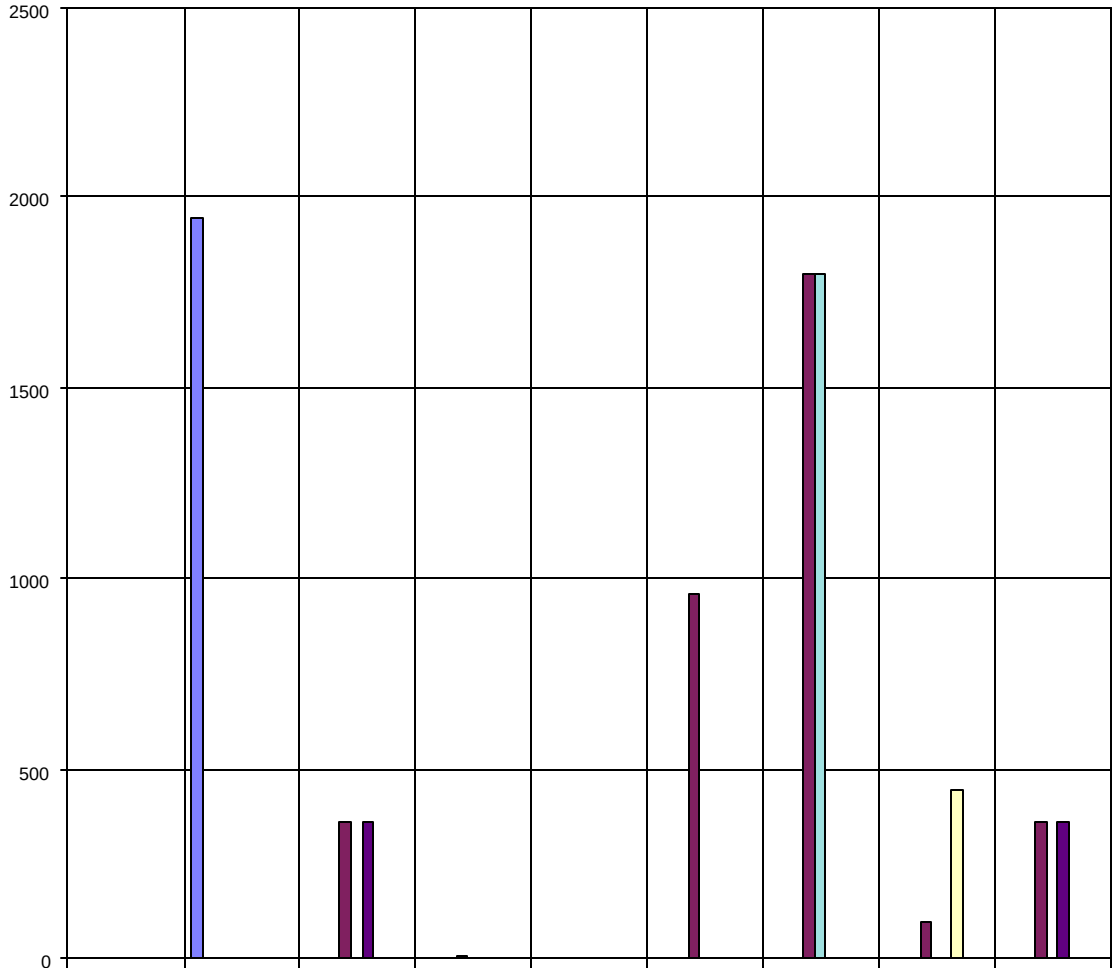


	SS-25	RS-12M Silo	SS-19	SS-18	SS-24 Silo	SS-24 Mobile	MM-II	MM-III	PK Silo
US Missiles							1	650	50
Russia Missiles	360	2	168	180	10	36			
US Warheads							1	1950	500
Russia Warheads	360	2	1008	1800	100	360			
US Heavy ICBM Warheads							-	-	-
Russia Heavy ICBM Warhead	-	-	-	1800	-	-			
US Mobile ICBM Warheads							-	-	-
Russia Mobile ICBM Warheads	360	-	-	-	-	360			

Source: Adapted by Anthony H. Cordesman from Jane's Defense Weekly, February 10, 19998, pp. 23-26.

US, Russian, and Ukrainian ICBM Warheads Declared for Start I

(Declarations as of January 1, 1999)

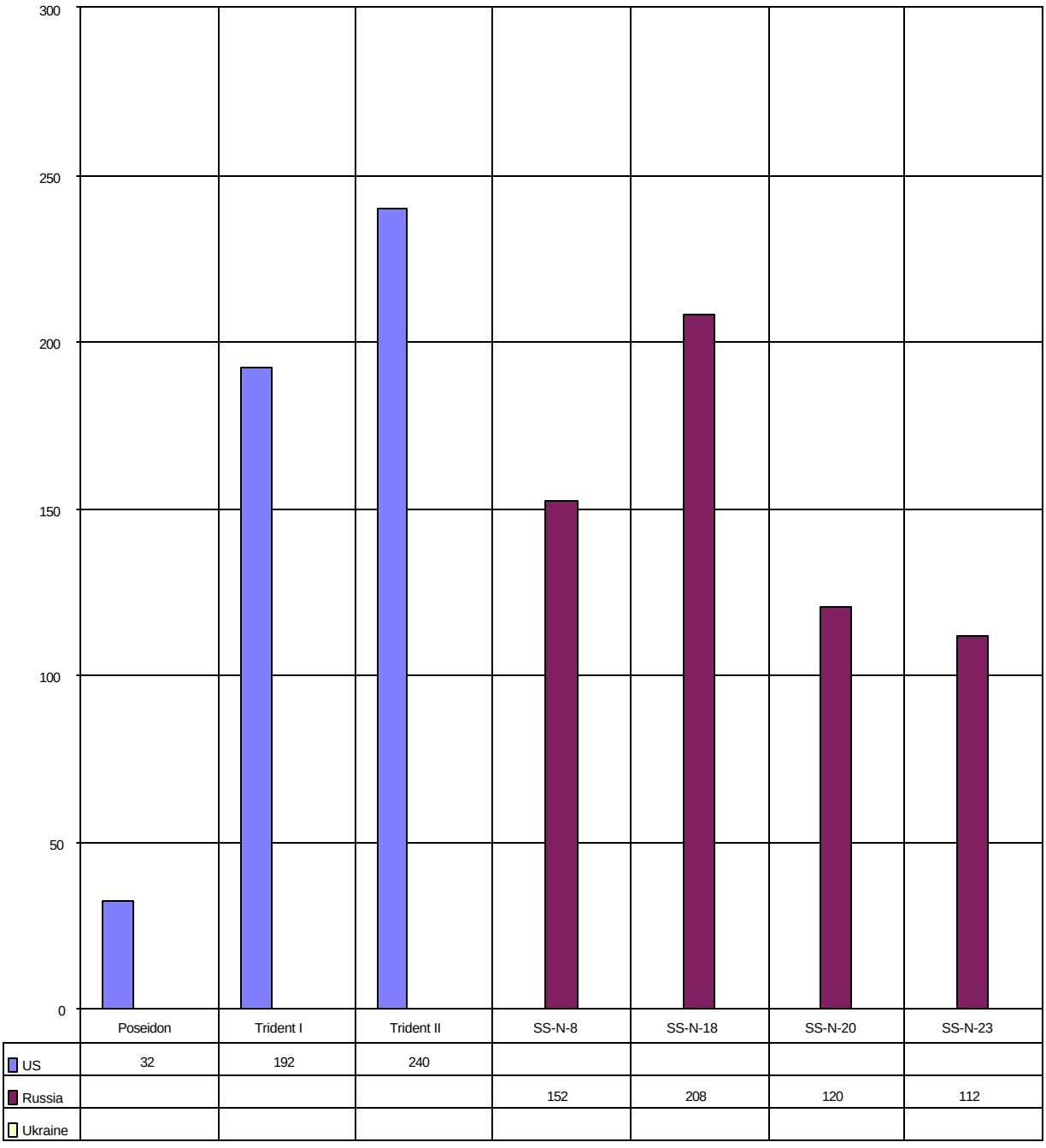


	MM-II Missiles	MM-III Missiles	SS-25	RS-12M	SS-17	SS-19	SS-18	SS-24 Silo	SS-24 Rail
US	1	1950	0	0	0	0	0	0	0
(of which Heavy)	0	0	0	0	0	0	0	0	0
(of which mobile)	0	0	0	0	0	0	0	0	0
Russia	0	0	360	10	0	960	1800	100	360
(of which Heavy)	0	0	0	0	0	0	1800	0	0
(of which mobile)	0	0	360	0	0	0	0	0	360
Ukraine	0	0	0	0	0	0	0	440	0
(of which Heavy)	0	0	0	0	0	0	0	0	0
(of which mobile)	0	0	0	0	0	0	0	0	0

Source: Adapted by Anthony H. Cordesman from data provided by ACDA on April 1, 1999. Belarus and Kazakhstan report zero in every category.

US, Russian, and Ukrainian SLBMs Declared for Start I

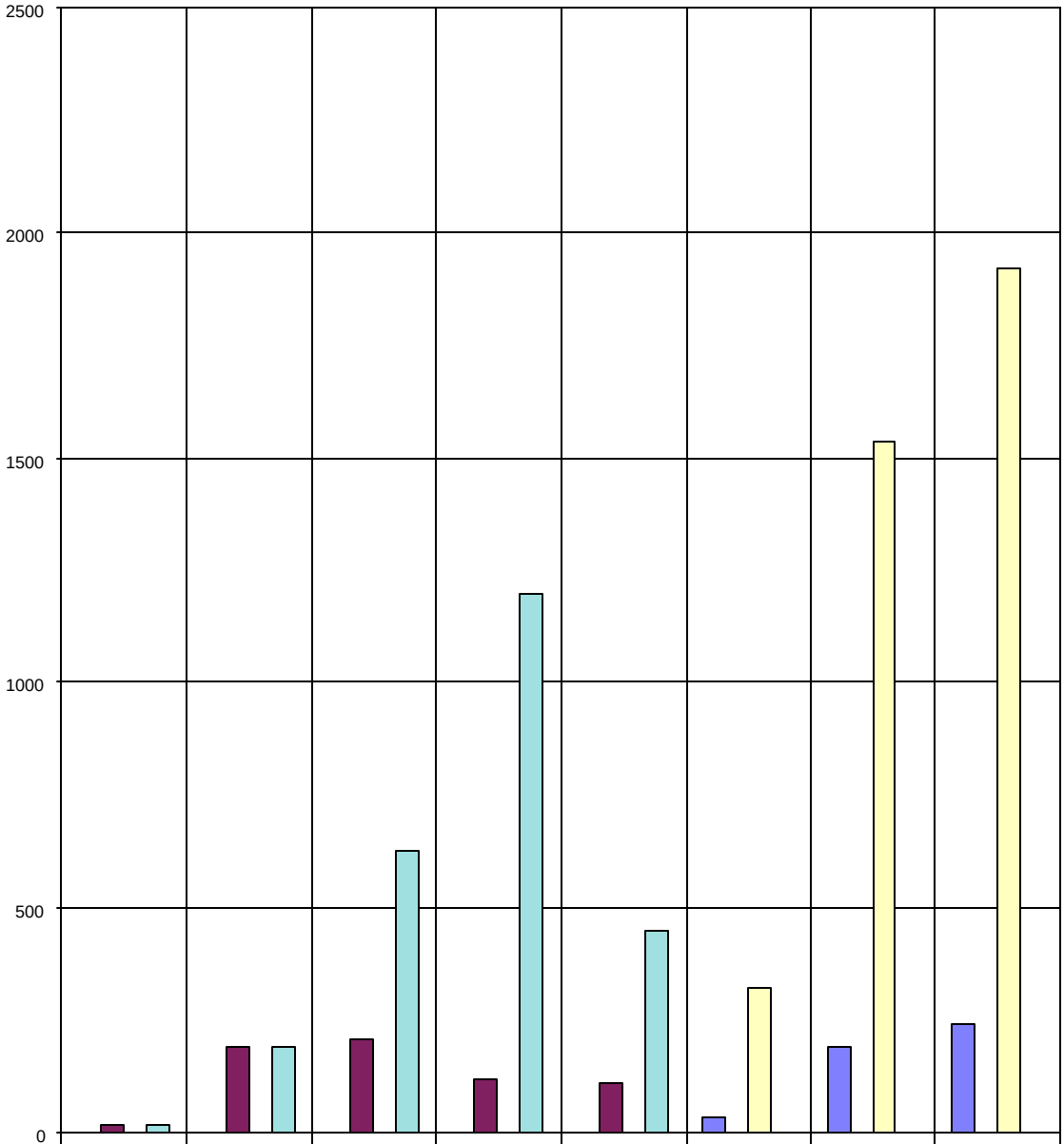
(Declarations as of January 1, 1999)



Throw weight (MT)							
US	64.00	288.0	672.00	-	-	-	-
Russia	-	-	-	167.20	343.20	306.00	313.60
Ukraine	-	-	-	-	-	-	-

Source: Adapted by Anthony H. Cordesman from data provided by ACDA on April 1, 1999. Belarus and Kazakhstan report zero in every category.

US and Russian Deployed SLBM Missiles

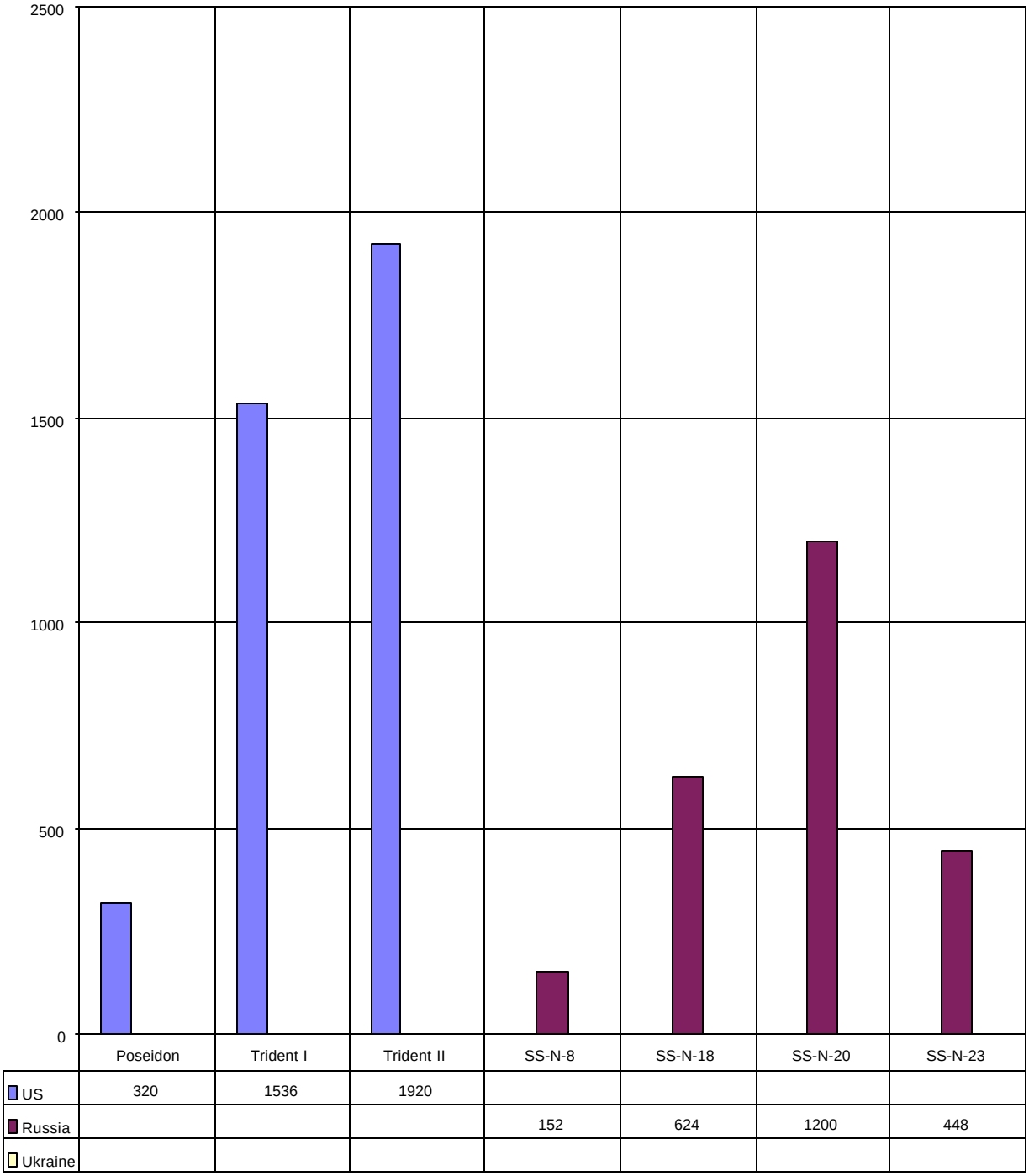


	SS-N-6	SS-N-8	SS-N-18	SS-N-20	SS-N-23	Poseidon	Trident I	Trident II
US Missiles						32	192	240
Russia Missiles	16	192	208	120	112			
US Warheads						320	1536	1920
Russia Warheads	16	192	624	1200	448			

Source: Adapted by Anthony H. Cordesman from Jane's Defense Weekly, February 10, 19998, pp. 23-26.

US, Russian, and Ukrainian SLBM Warheads Declared for Start I

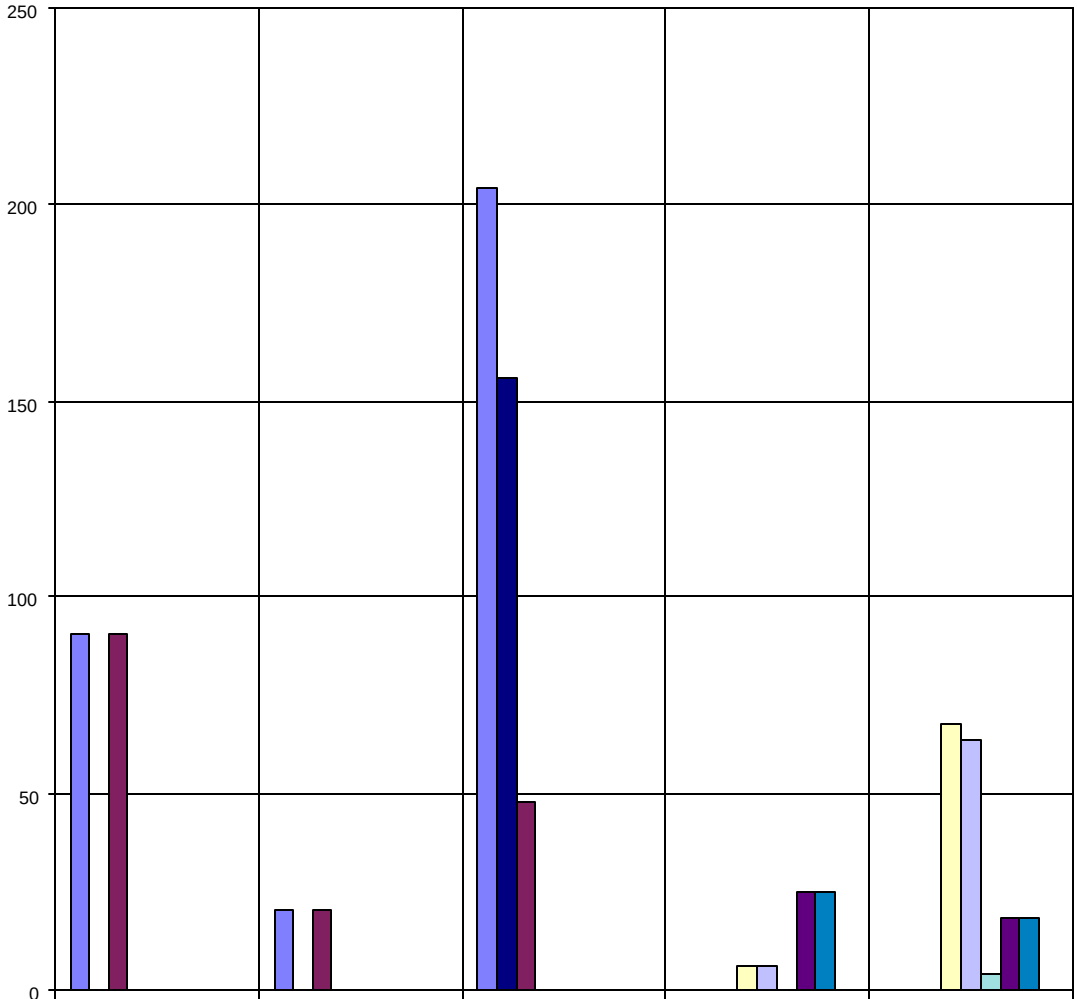
(Declarations as of January 1, 1999)



Source: Adapted by Anthony H. Cordesman from data provided by ACDA on April 1, 1999. Belarus and Kazakhstan report zero in every category.

US, Russian, and Ukrainian Bombers Declared for Start I

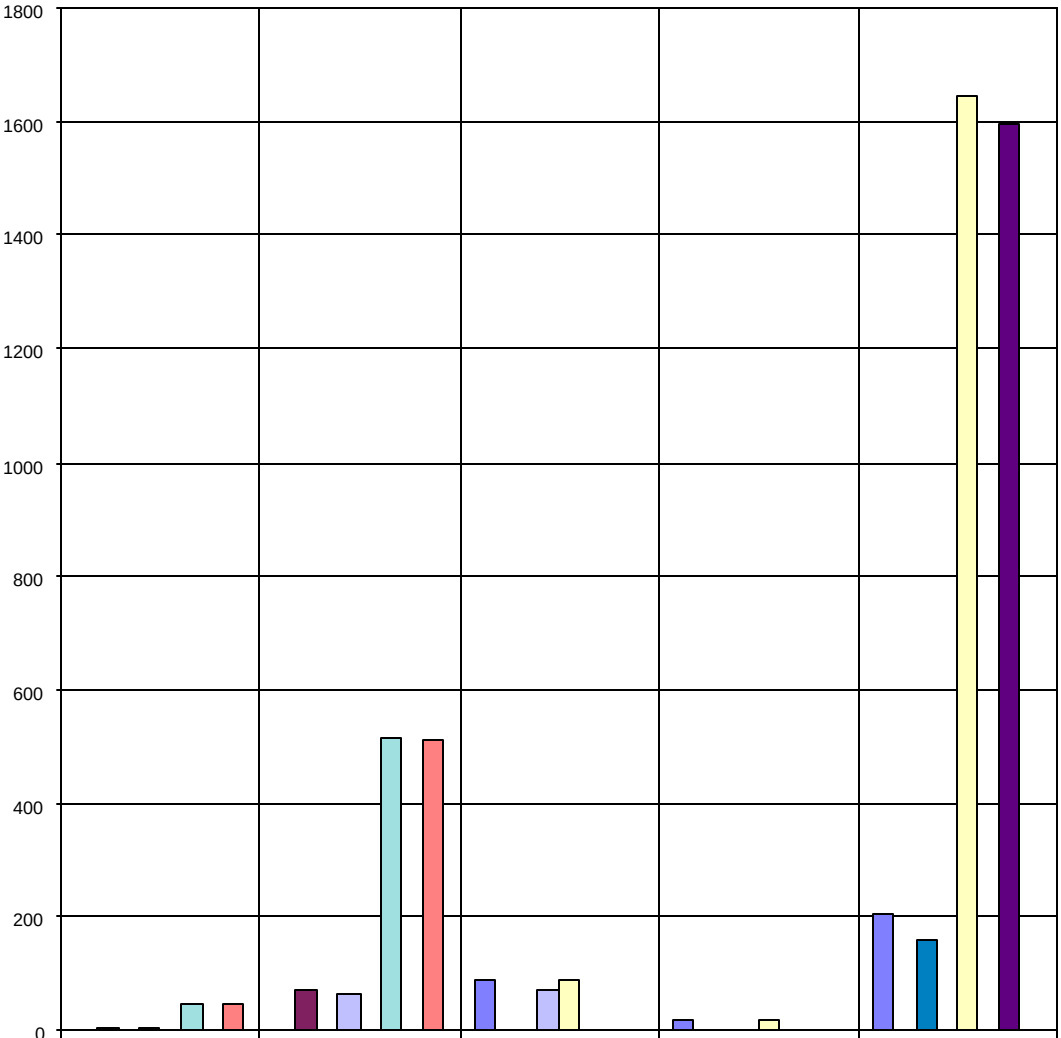
(Declarations as of January 1, 1999)



	B-1	B-2	B-52	Blackjack	Bear
US	91	20	204	0	0
(Nuclear ALCM)	0	0	156	0	0
(Non-ALCM Nuclear)	91	20	48	0	0
Russia	0	0	0	6	68
(Nuclear ALCM)	0	0	0	6	64
(Non-ALCM Nuclear)	0	0	0	0	4
Ukraine	0	0	0	25	18
(Nuclear ALCM)	0	0	0	25	18
(Non-ALCM Nuclear)	0	0	0	0	0

Source: Adapted by Anthony H. Cordesman from data provided by ACDA on April 1, 1999. Belarus and Kazakhstan report zero in every category.

US and Russian Deployed Heavy Bombers

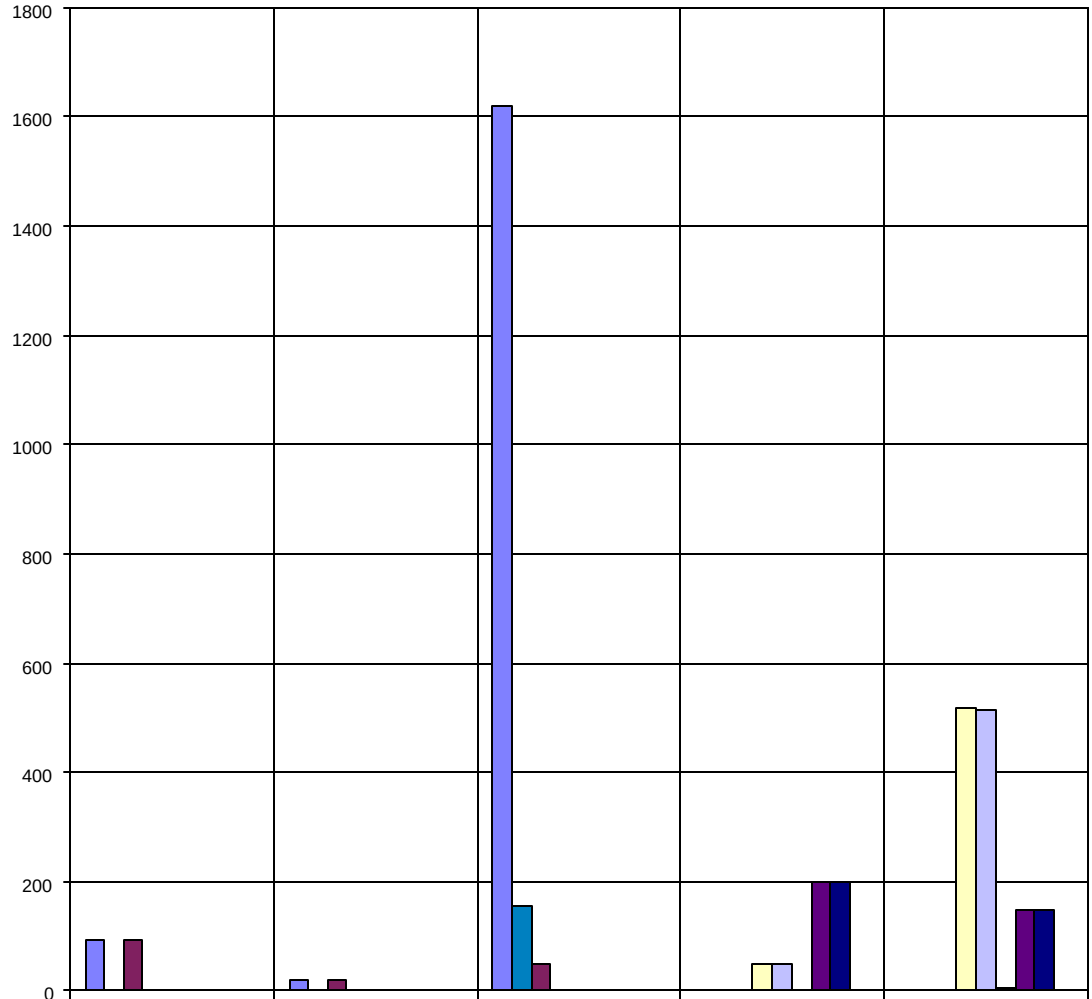


	Blackjack	Bear	B-1	B-2	B-52
US Bombers			91	20	206
Russia Bombers	6	68			
US ALCM Bombers			0	0	158
Russia ALCM Bombers	6	64	70		
US Warheads			91	20	1644
Russia Warheads	48	516			
US ALCM Warheads			0	0	1596
Russia ALCM Warheads	48	512			

Source: Adapted by Anthony H. Cordesman from Jane's Defense Weekly, February 10, 19998, pp. 23-26..

US, Russian, and Ukrainian Bomber Warheads Declared for Start I

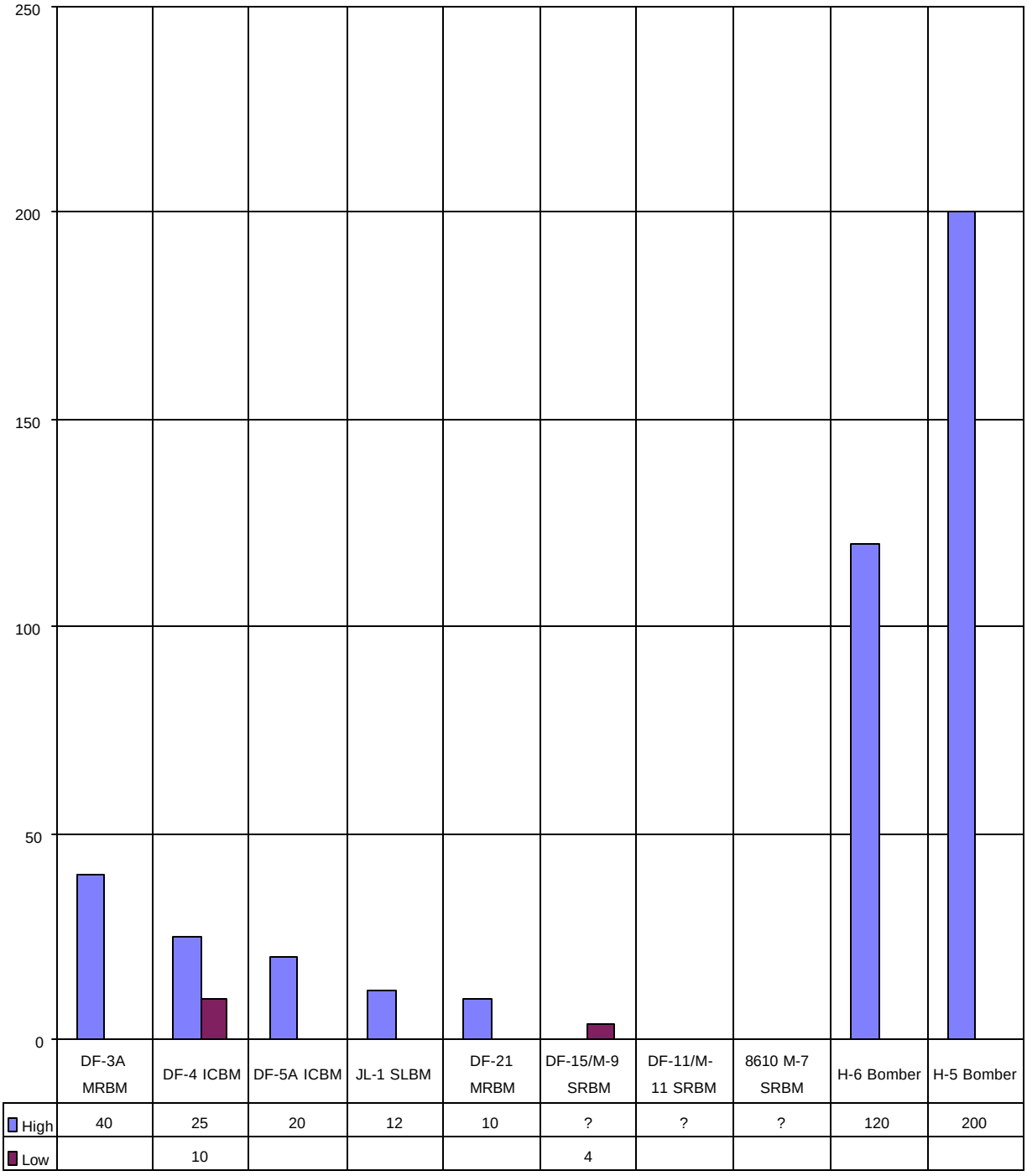
(Declarations as of January 1, 1999)



	B-1	B-2	B-52	Blackjack	Bear
US	91	20	1620	0	0
(ALCM-Equipped)	0	0	156	0	0
(Non-ALCM Nuclear)	91	20	48	0	0
Russia	0	0	0	48	516
(ALCM-Equipped)	0	0	0	48	512
(Non-ALCM Nuclear)	0	0	0		4
Ukraine	0	0	0	200	144
(ALCM-Equipped)	0	0	0	200	144
(Non-ALCM Nuclear)	0	0	0	0	0

Source: Adapted by Anthony H. Cordesman from data provided by ACDA on April 1, 1999. Belarus and Kazakhstan report zero in every category.

Chinese Deployed Nuclear-Capable Delivery Systems



	DF-3A MRBM	DF-4 ICBM	DF-5A ICBM	JL-1 SLBM	DF-21 MRBM	DF-15/M-9 SRBM	DF-11/M-11 SRBM	8610 M-7 SRBM	H-6 Bomber	H-5 Bomber
High	40	25	20	12	10	?	?	?	120	200
Low		10				4				

Source: Adapted by Anthony H. Cordesman from IISS, Military Balance, 1998-1999, and Shirley A. Kan, China: Ballistic and Cruise Missiles, Congressional Research Service, CRS 97-391 F, September 28, 1998

Chinese Missile Programs and Developments[i]

Type	Chinese Name	US Name	No. Deployed	Range (Km)	Warhead (Kg)	CEP (M)	Launch Platform	Fuel	Status
ICBM	DF-4[ii]	CCS-3	10-25	5500+	2200	1370	land-mobile	liquid	in service
ICBM	DF-%A[iii]	CSS-4	20	13,000	3,200	500 hardened silos		liquid	in service
ICBM	DF-31[iv]	-	-	8000	700	?	land-mobile	solid	after 2000
ICBM	DF-41[v]	-	-	12,000	800	?	land-mobile	solid	after 2010
MRBM	DF-3A[vi]	CSS-2	40+	2800	2150	1000	land-mobile	liquid	in service
MRBM	DF-21[vii]	CSS-5	10	1800	600	?	Mobile-TEL	solid	in service
MRBM	DF-25[viii]		-	-	1700	2000	? land-mobile	solid	after 2000
SLBM	JL-1[ix]	CSS-N-3	12	1700	600	?	Xia SSBN	solid	in service
SLBM	JL-2[x]	-	-	8000	700	?	094 SSBN	solid	after 2005
SRBM	DF-15[xi] M-9	CSS-6	4+	600	500	300	Mobile TEL	solid	in service
SRBM	DF-11[xii] M-11	CSS-7	?	300	500	?	Mobile TEL	solid	in service
SRBM	8610[xiii] M-71	CSS-8 (mod HQ-2 SAM)	?	150	190	?	Mobile launcher	solid	in service

[i] Adapted from work by Shirley A. Kan in China: Ballistic and Cruise Missiles, Congressional Research Service, CRS 97-391 F, September 28, 199

[ii] Deployed since 1980. Response time of 2.5 hours, strap-down inertial guidance. Stored in caves and mountainside tunnels.

[iii] Deployed since 1981, most targeted on the US. Gyroplatform inertial guidance with on-board computer and storable liquid fuel. Deployed in hardened underground silos. Normally kept unfueled and without warheads

[iv] Possible MIRVing capability. Booster tested in 1998.

[v] Supposedly road, rail, river mobile.

[vi] Deployed since 1971, strap-down inertial guidance. Reaction time 110 minutes. China sold 36 to Saudi Arabia.

[vii] Same fuel and guidance as JL-1. Automatic command-control-firing system from TEL. Reports of terminal guidance, possible radar. May be a DF-21A.First regiment deployed in 1985.

[viii] Land mobile for truck transfer from semi-hardened sites to launch sites. No reports of test firings. One report that development has been abandoned

[ix] All on one Jia submarine. Deployed since 1983, successful underwater launch tests in 1988. Operational status uncertain. Gyroplatform inertial guidance with on-board computer.

[x] To be deployed on new 094 SSBN with 16 tubes each. First SSBN that could target US from waters near China.

[xi] Launch from mobile TEL with preparation time of 30 minutes. Strap-down inertial guidance with on-board computer with terminal velocity correction. May be seeking GPS guidance. Four fired in Taiwan crisis in 1995. Three landed in general target area, one crashed prematurely. Four more fired in Taiwan crisis in 1996. Four landed in general target area. Some reported indicate that 20-30 more had been prepared for firing.

[xii] US imposed sanctions on China and Pakistan because this system was sold to China.

[xiii] Unconfirmed reports that Iran has acquired this missile technology.

North Korean Missile Programs and Developments

Type	Names	Range (KM)	Warhead (Kg)	Stages	Service Status
SRBM	Hawsong 5, Scud B Storable liquid fuel; TEL launch Sold to Iran and a number of other states.	302-340	1000	1	Since 1985
SRBM	Hwasong 6, Scud C Storable liquid fuel; TEL launch. Sold to Iran and Syria. Deployed in hardened, underground shelters in North Korea.	500	770	1	Since 1989
MRBM	No Dong 1, Rodong 1, Scud D Storable liquid fuel; Uses missile-erector-launcher (MEL). Seems similar to Shihab 3 in Iran and Ghauri program In Pakistan. First test over East China Sea in May 1993, but did not go over 500 kilometers. Iranian and Pakistani observers present at test. Estimate 50-100 missiles no produced.	1,350	1200	1	Since 1997
IRBM	Taep'o-Dong 1, No-Dong 2. Rodong 2, Scud X Some reports is similar to the Chinese DF-3.	1,500-2,200	700-1,000	2	1998?
SLV	Taep'o-Dong 1 Space Launch-Vehicle Partially successful test launch on August 23, 1998. Claim launched small satellite.	4,000	50-100	3	1998
ICBM	Taep'o-Dong 2, No Dong 3	4,000-6,000	700-1,000	2	2000+
ICBM	?	6,000+	100-500	3	?

Source: Adapted from Joseph S. Bermudez, Jr., "The Rise and Rise of North Korea's ICBMs, International Defense Review, 7/1999, pp. 57-61.