

CSIS

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Military Balance in the Middle East - IX

The Northern Gulf: Iran

**Military Expenditures and Arms Transfers,
Major Arms by Country and Zone,
Conventional Military Forces, and Qualitative Trends**

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Table of Contents

OVERVIEW.....	3
IRAN - OVERVIEW	4
IRANIAN MILITARY EXPENDITURES AND ECONOMIC BURDEN	5
IRANIAN GNP AND MILITARY SPENDING IN CURRENT DOLLARS: 1967-1995.....	6
IRANIAN ANNUAL MILITARY EXPENDITURES AND ARMS IMPORTS.....	8
IRANIAN MILITARY EXPENDITURES AND ARMS TRANSFERS.....	9
IMF ESTIMATE OF IRANIAN MILITARY EXPENDITURES BY TYPE.....	10
IRANIAN MILITARY BURDEN: 1967-1996.....	11
IMF ESTIMATE OF IRANIAN CENTRAL GOVERNMENT EXPENDITURES AND MILITARY EXPENDITURES.....	12
IRANIAN ARMS IMPORTS, OBSOLESCENCE AND MILITARY PRODUCTION	13
IRANIAN IMPORTS AND EXPORTS RELATIVE TO ARMS DELIVERIES: 1986-1996.....	14
IRANIAN ARMS TRANSFERS BY MAJOR SUPPLIER: 1983-1997.....	15
IRANIAN NEW ARMS AGREEMENTS AND DELIVERIES BY MAJOR SUPPLIER.....	16
TREND IN IRANIAN NEW ARMS AGREEMENTS AND BY MAJOR SUPPLIER: 1987-1997	17
KEY IRANIAN EQUIPMENT DEVELOPMENTS - PART ONE.....	18
IRANIAN DEPENDENCE ON DECAYING WESTERN SUPPLIED MAJOR WEAPONS - PART ONE	20
<i>Land Forces</i>	20
<i>Air Force</i>	20
<i>Navy</i>	21
CAN IRAN MASS PRODUCE MAJOR NEW WEAPONS SYSTEMS - PART ONE.....	22
IRANIAN FORCE TRENDS.....	24
FORCE TRENDS IN IRAN - PART ONE	25
FORCE TRENDS IN IRAN - PART TWO.....	26
IRANIAN MILITARY MANPOWER AND MAJOR COMBAT EQUIPMENT	27
IRAN - MILITARY MANPOWER: 1967-1999.....	28
TRENDS IN TOTAL IRANIAN MILITARY MANPOWER: 1978-1999	29
TRENDS IN IRANIAN MILITARY MANPOWER BY SERVICE: 1978-1999.....	30
IRANIAN MAJOR MILITARY EQUIPMENT IN 1999	31
<i>Land Forces</i>	31
IRANIAN LAND FORCES	32
TRENDS IN TOTAL IRANIAN ARMORED WEAPONS: 1979-1999	33
TRENDS IN IRANIAN ARMORED WEAPONS BY TYPE: 1979-1999	34
TRENDS IN TOTAL IRANIAN ARTILLERY STRENGTH: 1979-1998	35
TRENDS IN IRANIAN ARTILLERY WEAPONS BY TYPE: 1979-1999	36
IRANIAN AIR AND LAND-BASED AIR DEFENSE FORCES	37
TRENDS IN IRANIAN OPERATIONAL FIXED WING MAJOR COMBAT AIRCRAFT: 1979-1999	38
IRANIAN HIGH QUALITY GULF FIXED WING FIGHTER COMBAT AIRCRAFT BY TYPE - 1999	39
IRANIAN LAND-BASED AIR DEFENSE SYSTEMS	40
IRANIAN NAVAL FORCES.....	41
IRANIAN NAVAL SHIPS BY CATEGORY IN 1999	42

Part One

Overview

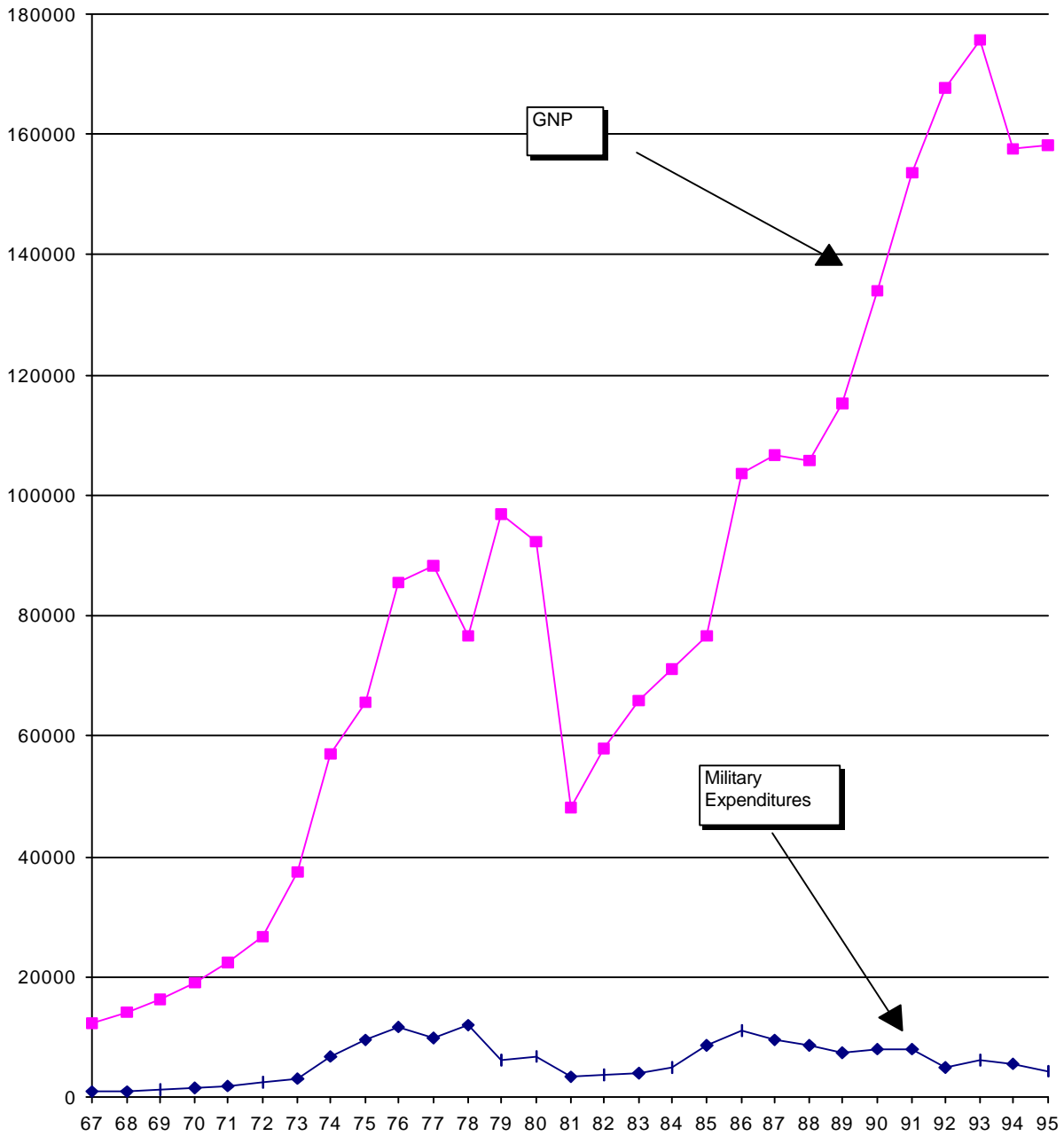
Iran - Overview

- Iran is still a much poorer nation in terms of export earnings than it was at the time of the Shah, with only about two-thirds of the real export earning it had in the early 1980s. This limits its ability to import arms.
- Iran's military effort is only a small fraction of the share of GNP that Iran spent during the Iran-Iraq War, and Iran's increasing GDP is steadily reducing the impact of its military effort on its economy.
- Iraq's military effort placed a massive burden on its economy throughout the Iran-Iraq War and during August 1988 through July 1988. Its efforts to rebuild its forces since the Gulf War have involved such high military expenditures relative to Iraq's GDP that they have reached the crisis level and have been a critical factor in the decline in living standards in Iraq.
- Although Iran is often said to be involved in a major military build-up, comparisons of the trends in total central government expenditures, military expenditures, arms imports, and export earnings show that Iran has devoted a steadily dropping percentage of its available resources to military spending and arms imports.
- At the same time, such comparisons reveal that Iran's domestic government expenditures have been allowed to rise sharply and that imports have been allowed to exceed exports. Iran is suffering significantly from excess domestic public spending rather than excess military spending.
- Iran's economy is under acute pressure in terms of per capita income and relative wealth. Real per capita income is now about half what it was at the time of the Iranian revolution -- a key indicator of the pressures Iran faces to limit military spending.
 - Iranian deliveries in current US dollars dropped from \$7.3 billion during 1982-1986, and \$7.8 billion during 1987-1990, to \$3.9 billion in 1991-1994, and \$2.6 billion in 1992-1995. They dropped from \$6.3 billion during 1989-1992 to \$2.3 billion during 1993-1996.
 - The drop in new agreements was far greater. Iranian new agreements in current US dollars dropped from \$8.9 billion during 1982-1986, and \$10.2 billion during 1987-1990, to \$2.7 billion in 1991-1994, and only \$1.2 billion in 1992-1995. Iranian new arms agreements dropped from \$6.7 billion during 1989-1992 to \$1.3 billion during 1993-1996.
 - Annual estimates for deliveries to Iran average only about \$600 million a year during 1992-1996 -- less than 25% of the funding needed to modernize and recapitalize the force levels Iran had *after* the Iran-Iraq War.
- Recent Iranian arms sales agreements reflect Iran's new dependence on Russia, although it is interesting to note that Iran's arms imports from Russia during 1991-1994 were only about half of what they were during 1987-1990. Total Iranian arms agreements with Russia were only about 25% in 1991-1994 of what they were during 1987-1990. They dropped to only \$200 million during 1992-1995 versus \$2.5 billion during 1987-1990.
- Massive drops have taken place since 1990 in Iranian new agreements and deliveries from China, East Europe, and other states.
- Iran has made important and potentially destabilizing purchases of arms whose content seems targeted at strengthening its air defenses along its Gulf coast, and improving its anti-ship and unconventional warfare capabilities to threaten Gulf shipping and attack targets in the Southern Gulf.
- At the same time, Iran has a massive inventory of worn and decaying obsolete or obsolescent Western-supplied equipment and low performance Chinese and North Korean-supplied systems.

Part Two

Iranian Military Expenditures and Economic Burden

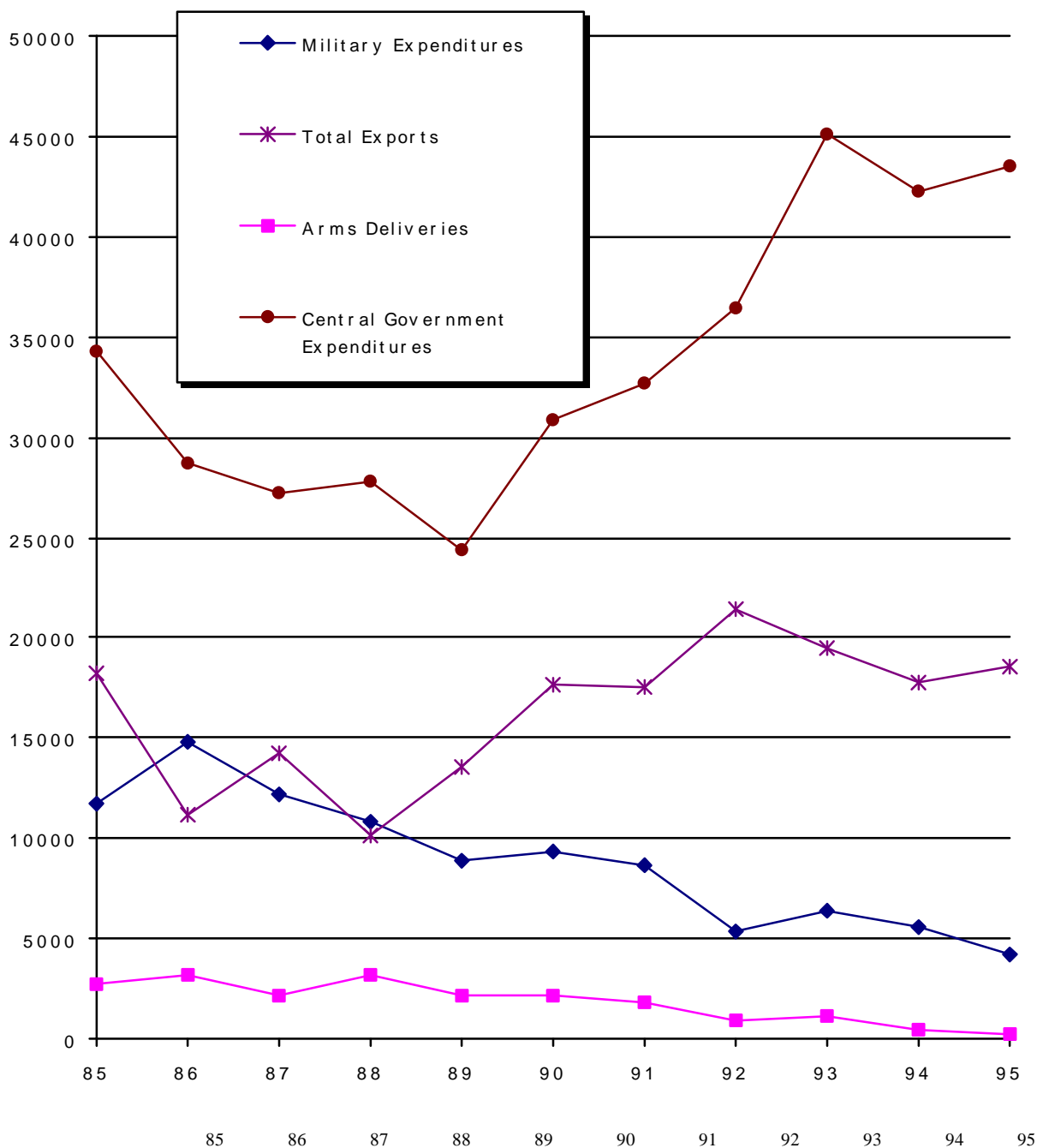
Iranian GNP and Military Spending in Current Dollars: 1967-1995 (\$US Current Millions)



Source: Adapted by Anthony H. Cordesman from ACDA. World Military Expenditures and Arms Transfers, Table 1, various editions. Iraqi data after 1991 are author's estimate.

Iranian Central Government Expenditures, Military Expenditures, Total Exports, and Arms Import Deliveries: 1983-1995

(Constant \$95 millions)



Year	85	86	87	88	89	90	91	92	93	94	95
Central Government Expenditures	34260	28680	27210	27810	24410	30860	32660	36420	45060	42210	43560
Military Expenditures	11680	14840	12190	10860	8893	9307	8654	5410	6333	5586	4191
Total Exports	18270	11110	14280	10180	13610	17600	17590	21370	19470	17730	18600
Arms Deliveries	2741	3203	2200	3246	2157	2184	1768	914	1153	400	270

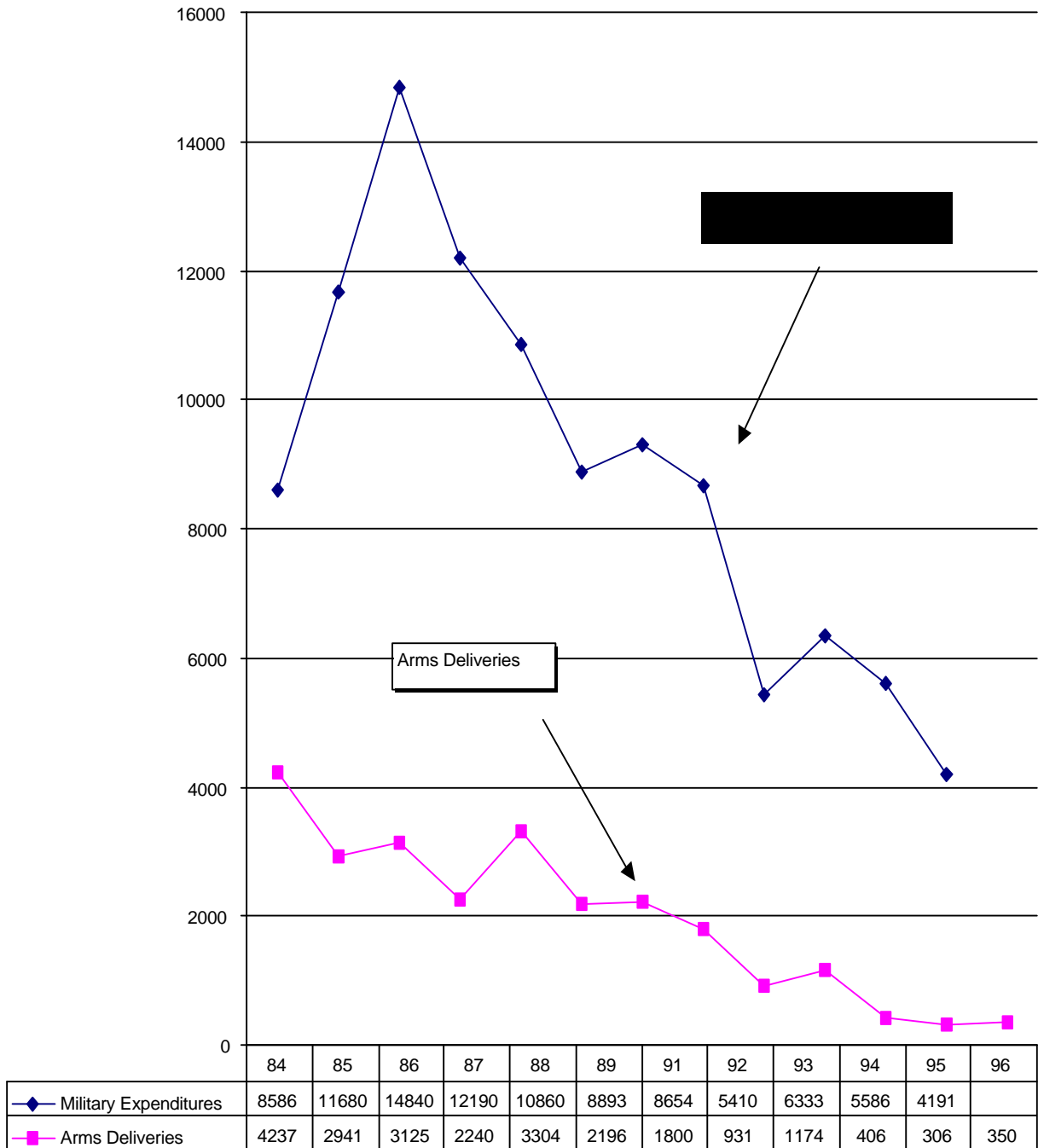
Source: Adapted by Anthony H. Cordesman from ACDA, World Military Expenditures and Arms Transfers, ACDA/GPO, Washington, various editions and CIA data

Iranian Annual Military Expenditures and Arms Imports

	<u>Military Expenditures (\$ Millions)</u>		<u>Arms Imports (\$ Millions)</u>	
	<u>\$Current</u>	<u>\$94 Constant</u>	<u>\$Current</u>	<u>\$96 Constant</u>
1983	4864	6990	875	1235
1984	6059	8386	2700	2878
1985	6772	9044	1900	2037
1986	8836	11490	2300	3125
1987	7487	9436	1700	2240
1988	6926	8406	2600	3304
1989	5929	6886	1800	2196
1990	6394	7117	1900	2222
1991	6154	6597	1600	1800
1992	3964	4133	850	931
1993	4705	4802	1100	1174
1994	3042	3042	390	406
<i>1995</i>	<i>2940</i>	<i>2870</i>	<i>300</i>	<i>306</i>
<i>1996</i>	<i>3400</i>	<i>3225</i>	<i>350</i>	<i>350</i>
<i>1997</i>	<i>4,700</i>	<i>3,890</i>	<i>800</i>	<i>-</i>
<i>1998</i>	<i>4,800</i>	<i>-</i>	<i>780</i>	<i>-</i>

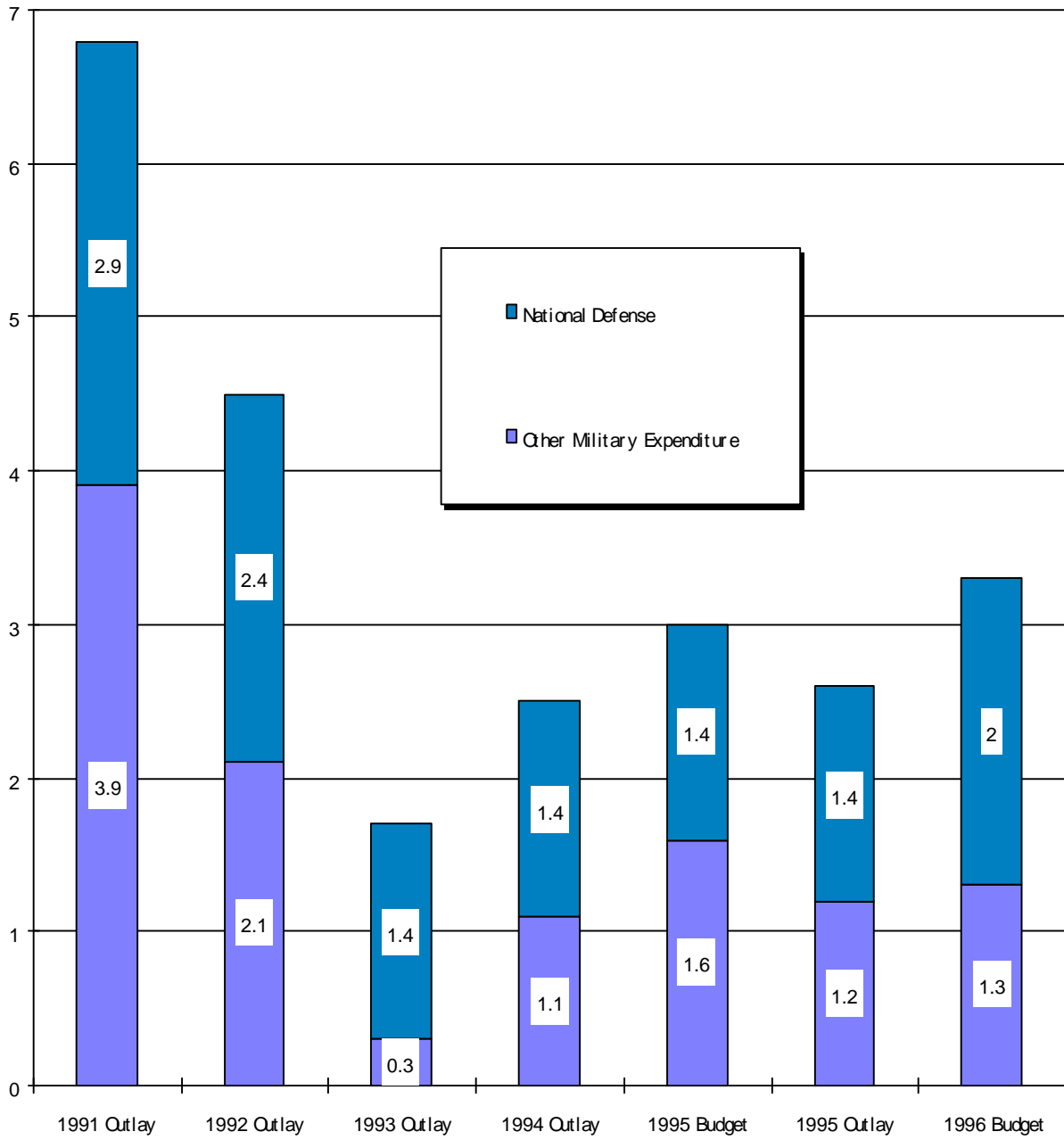
Source: Adapted by Anthony H. Cordesman from ACDA, World Military Expenditures and Arms Transfers, Washington, , Tables I & II, various editions and Richard F. Grimmett, Conventional Arms Transfers to the Third World, Washington, Congressional Research Service, various editions. All data in italics, estimated by Anthony H. Cordesman.

Iranian Military Expenditures and Arms Transfers (Constant \$96 millions)



Adapted by Anthony H. Cordesman from ACDA, World Military Expenditures and Arms Transfers, various editions.

IMF Estimate of Iranian Military Expenditures by Type (Current US \$ Billions)



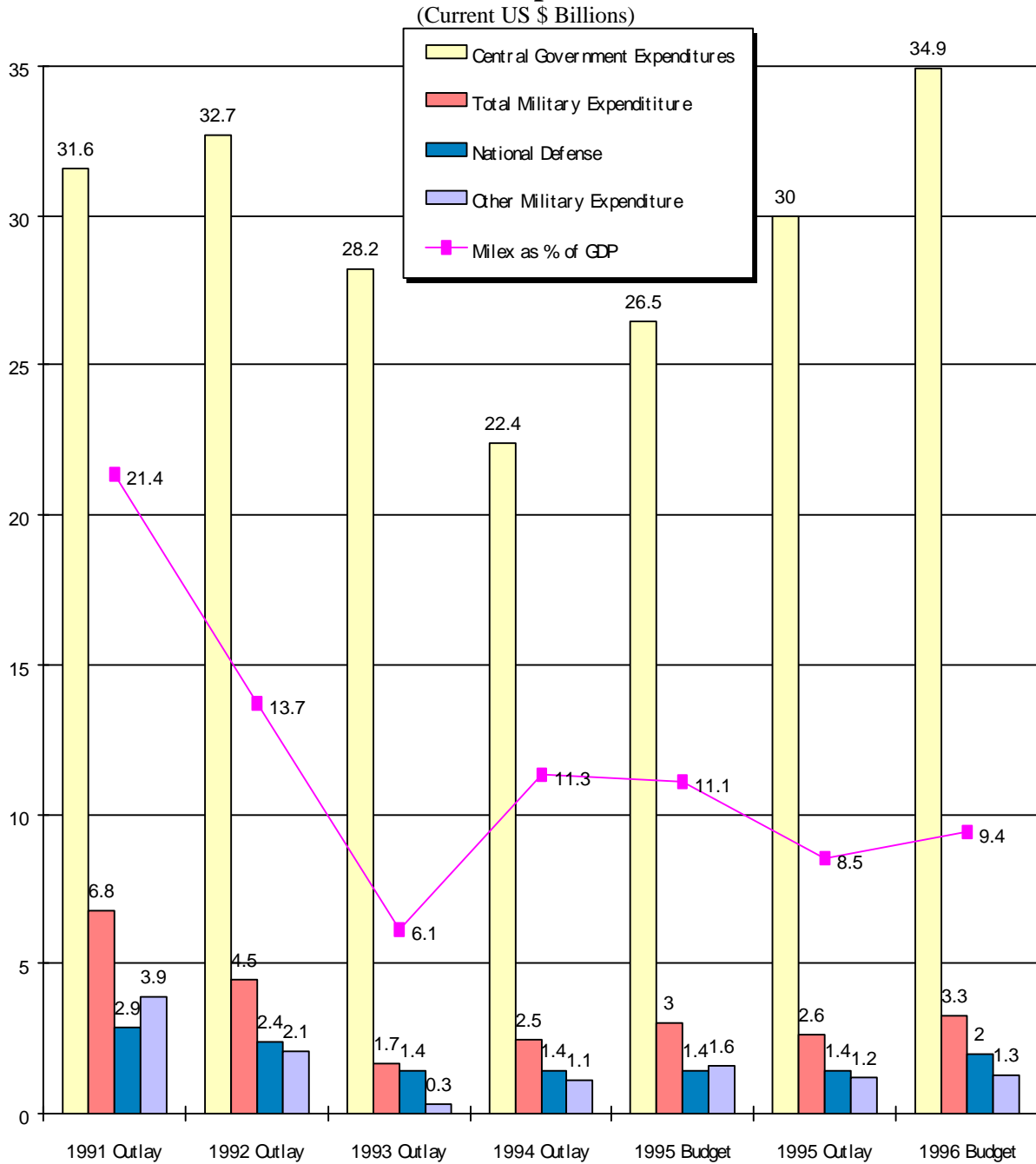
Source: Adapted by Anthony H. Cordesman from IISS, Military Balance, 1997/1998, p. 116.

Iranian Military Burden: 1967-1996 (In Percent)



Source: Adapted by Anthony H. Cordesman from ACDA. World Military Expenditures and Arms Transfers, Table 1, various editions. Iraqi data after 1991 are author's estimate.

IMF Estimate of Iranian Central Government Expenditures and Military Expenditures

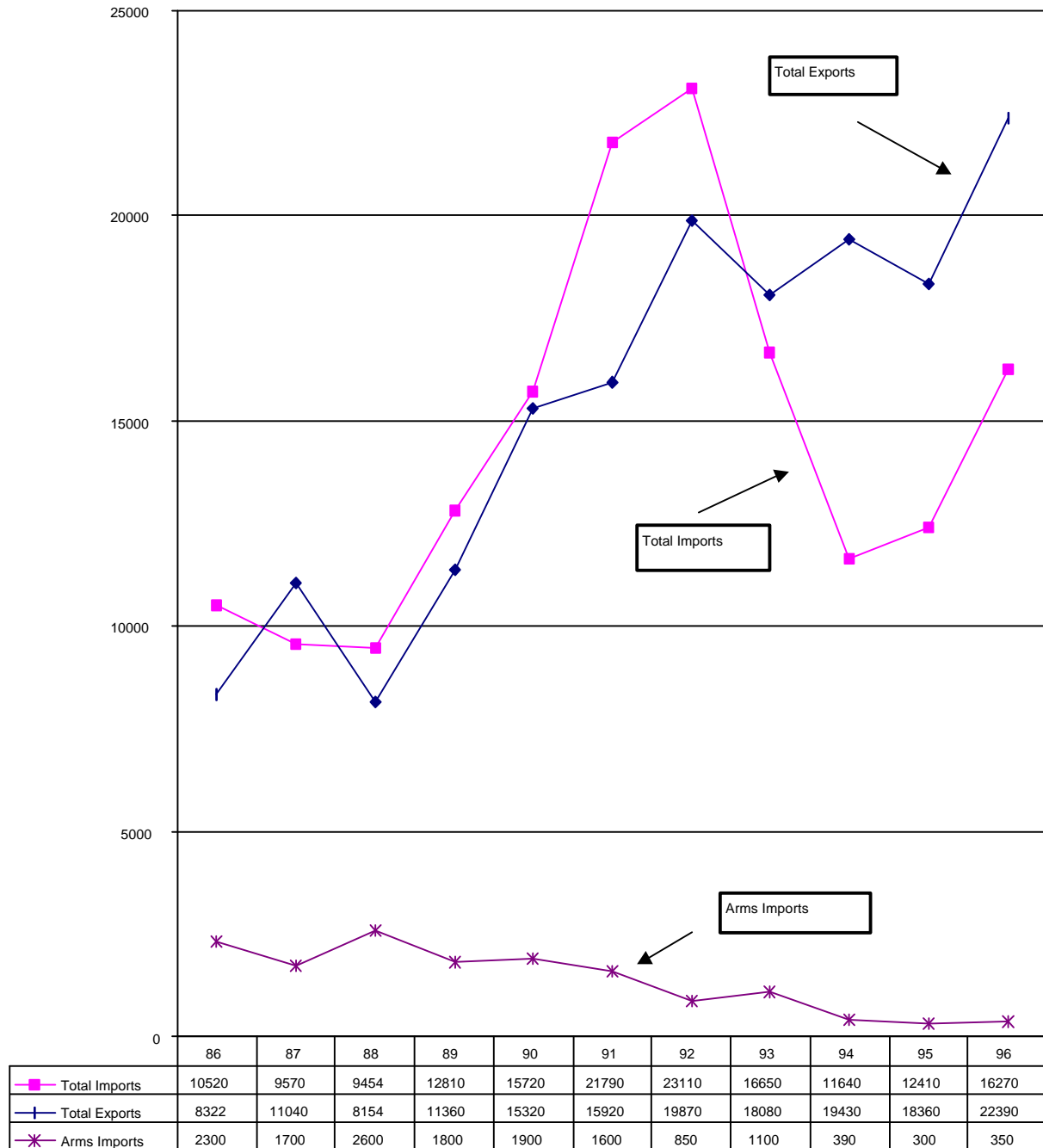


Source: Adapted by Anthony H. Cordesman from IISS, Military Balance, 1997/1998, p. 116.

Part Three

Iranian Arms Imports, Obsolescence and Military Production

Iranian Imports and Exports Relative to Arms Deliveries: 1986-1996 (\$US Current Millions)



Source: Adapted by Anthony H. Cordesman from ACDA. World Military Expenditures and Arms Transfers, Table II, various editions.

Iranian Arms Transfers by Major Supplier: 1983-1997

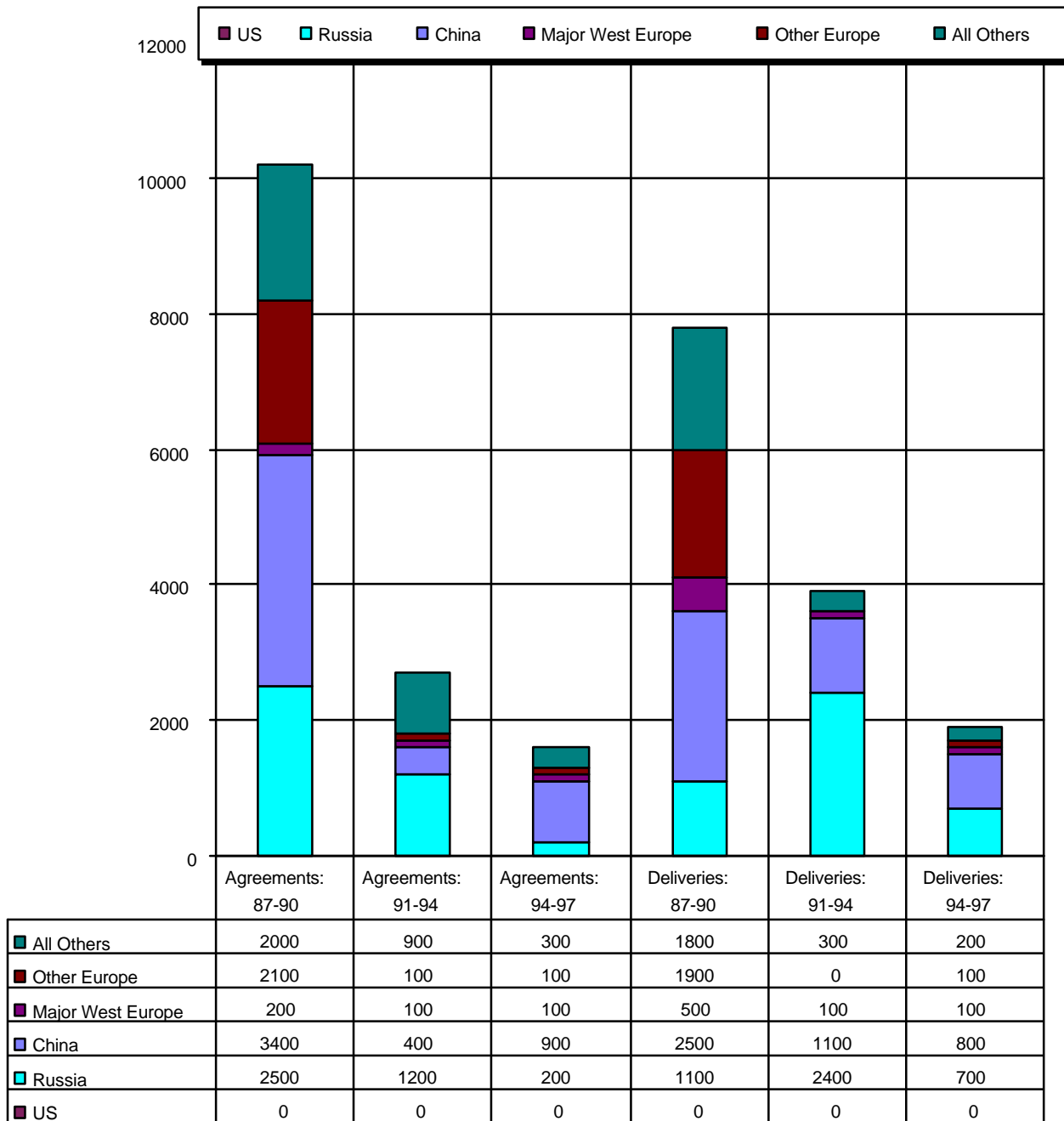
(in millions of current US dollars)

<u>Agreements</u>	<u>1983-1986</u>	<u>1987-1990</u>	<u>1991-1994</u>	<u>1994-1997</u>
Soviet Union/ Russia	10	2,500	1,200	200
China	1,845	3,400	400	900
United States	0	0	0	0
Major West European	865	200	100	100
All Other European	3,835	2,100	100	100
All Others	2,385	2,000	900	300
TOTAL	8,940	10,200	2,700	1,600
<u>Deliveries</u>	<u>1983-1986</u>	<u>1987-1990</u>	<u>1991-1994</u>	<u>1994-1997</u>
Soviet Union/ Russia	100	1,100	2,400	700
China	1,165	2,500	1,100	800
United States	0	0	0	0
Major West European	460	500	100	100
All Other European	3,285	1,900	0	100
All Others	2,250	1,800	300	200
TOTAL	7,260	7,800	3,900	1,900

a. Values of covert US sales to Iran in 1985-1986 are not included.

Source: Adapted by Anthony H. Cordesman from material provided by the US Government and Richard F. Grimmett, Conventional Arms Transfers to the Third World, Washington, Congressional Research Service, various editions. 0 = data less than \$50 million or nil. All data are rounded to the nearest \$100 million. Major West European includes Britain, France, Germany, and Italy.

Iranian New Arms Agreements and Deliveries by Major Supplier (Current \$US millions)

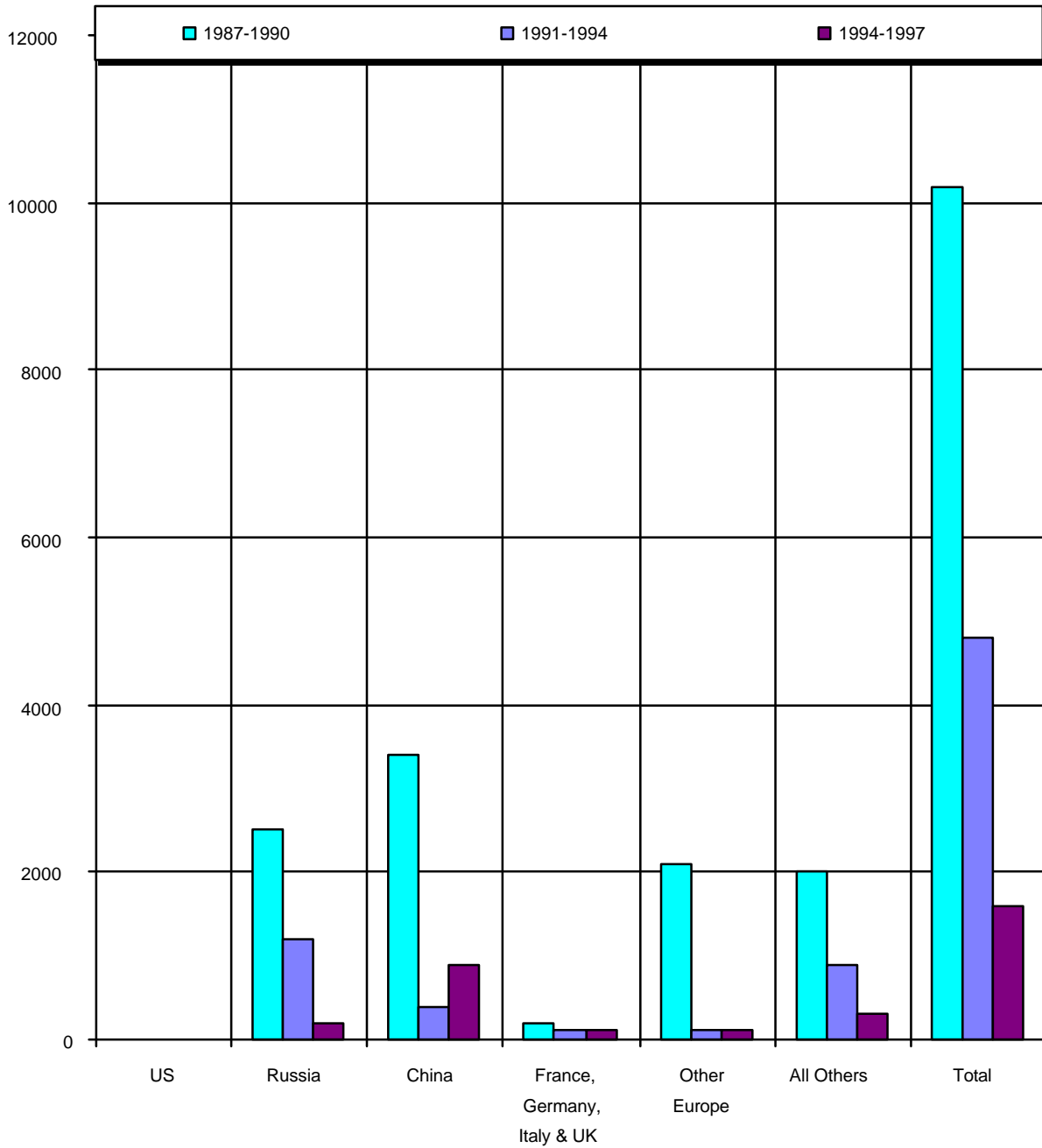


Total \$10,200 \$4,800 \$1,600 \$7,800 \$3,900 \$1,900

0 = less than \$50 million or nil, and all data rounded to the nearest \$100 million.

Source: Richard F. Grimmett, Conventional Arms Transfers to the Developing Nations, Congressional Research Service, various editions.

Trend in Iranian New Arms Agreements and By Major Supplier: 1987-1997 (Current \$US millions)



0 = less than \$50 million or nil, and all data rounded to the nearest \$100 million.

Source: Richard F. Grimmett, Conventional Arms Transfers to the Developing Nations, Congressional Research Service, various editions.

Key Iranian Equipment Developments - Part One

LAND

- Belarus is reported have signed an agreement with Iran to upgrade Soviet-built aircraft and tanks at plants in Belarus and to provide training for Iranian military personnel. (JDW 18 March 1998: 19)
- Belarus also plans to sell Russian-made arms and equipment, including spare parts for MBTs (JDW 18 March 1998: 19)
- Has developed low-drag 155mm high explosive base-bleed projectile. The 155BB HE-TNT incorporates a 16kg TNT and has a range of 35km when fired with an M11 top charge from a 45-caliber gun. Range is 17km without base bleed. A new low-drag HE projectile for 120mm smoothbore mortars with a range of 13.2 km. (JIDR 6/1998: 22)
- Russian, and Polish T-72 Exports. Reports indicate Iran has procured about 120 T-72Ss from Russia, and 100 T-72M1s from Poland since 1990. Inventory of about 220 T-72s of various types in late-1998.
- Claims to be producing the Iranian-made Zolfaqar MBT, an M-48/M-60-like tank.
- Has upgraded to T-54/T-54 called “Safir-74. Claims to have upgraded Iraqi T-54s captured in Iran-Iraq War.
- Purchased Russian BMPs. Inventory of 300 BMP-1s and 100 BMP-2s in late-1998.
- Russia may be licensing Iranian production of T-72 and BMP-2.
- Domestic production of a Chinese version of the BMP called the Boragh.
- Domestic production of an APC called the BMT-2 or Cobra.
- Possible purchase of 100 M-46 and 300 D-30 artillery weapons from Russia.
- Testing prototype of 122 mm self-propelled gun called Thunder in 1996 and a 155 mm self-propelled gun called Thunder 2 in 1997.
- Has shown a modified heavy equipment transporter called the “Babr 400.”
- Russian and Asian AT-2s, AT-3s, and AT-4s. Do not seem to include 100 Chinese Red Arrows.
- Chinese and 15+ North Korean 146 mm self-propelled weapons
- Has 60 Russian 2S1 122 mm self-propelled howitzers in inventory.
- Growing numbers of BM-24 240 mm, BM-21 122 mm and Chinese Type 63 107 mm MRLs
- Iranian Hadid 122 mm - 40 round MRL
- Manufacturing Iranian Arash and Noor rockets (variants of Chinese and Russian 122 mm rockets)
- Manufacturing Iranian Haseb rockets (variants of Chinese 107 mm rocket)
- Manufacturing Iranian Fajr-4 ballistic missiles, new version of the Fajr-3 that has a range of 28 miles (45 kilometers) (Reuters 10 December 1998)
- Manufacturing Iranian Shahin 1 and 2, Oghab, Nazeat 5 and 10 (may be additional versions), and Fajr battlefield rockets

AIR/AIR DEFENSE

- Keeping up to 115 combat aircraft that Iraq sent to Iran during Gulf War. Seem to include 24 Su-4s and four MiG-29s.
- Has 30 MiG-29s with refueling in inventory, may be receiving 15-20 more from Russia
- Has 30 Su-24s in inventory (probably Su-24D version), may be receiving 6 to 9 more from Russia
- May be negotiating purchase of AS-10, AS-11, AS-12, AS-14/16s from Russia
- Has Su-25s (formerly Iraqi), although has not deployed.
- May be trying to purchase more Su-25s, as well as MiG-31s, Su-27s and Tu-22Ms
- Considering imports of Chinese F-8 fighter and Jian Hong bomber
- Has 25 Chinese F-7M fighters with PL-2, PL2A, and PL-7 AAMs.
- Has purchased 25 Brazilian Tucano trainers and 25 Pakistani MiG-17 trainers. Uncertain report has bought 12 MiG-29UB trainers from Russia.
- Has bought 12 Italian AB-212, 20 German BK-117A-3, and 12 Russian Mi-17 support and utility helicopters.
- Iran claims to have fitted F-14s with I-Hawk missiles adapted to the air-to-air role
- Iran claims to have deployed an air-to-air adapted variant of the SM1 Standard missile for its fleet of F-4D/E Phantom II fighter bombers. (JDW 29 April 1998: 17)
- Claims to produce advanced electronic warfare systems.
- IRGC claims to be ready to mass produce gliders.

Table Three

Key Iranian Equipment Developments - Part Two

LAND-BASED AIR DEFENSE

- May be negotiating purchase of SA-10, SA-12, SA-14/16s from Russia
- Reports has acquired four HQ-23/2B (CSA-1) launchers and 45-48 missiles, plus 25 SA-6, and 10-15 SA-5 launchers.
- Has acquired Chinese FM-80 launchers and a few RBS-70s
- More SA-7s and HN-5s man-portable missiles; may have acquired 100-200 Strelas.
- Reports is seeking to modernize Rapier and 10-15 Tigercat fire units
- May be modifying and/or producing ZSU-23-4 radar-guided anti-aircraft guns.
- Claims to produce advanced electronic warfare systems.

SEA

- Claims will soon start producing 6 multi-purpose destroyers.
- Has taken delivery on three Russian Type 877EKM Kilo-class submarines, possibly with 1,000 modern magnetic, acoustic, and pressure sensitive mines.
- Reports has North Korean midget submarines have never been confirmed
- Has obtained 10 Hudong-class Chinese missile patrol boats.
- US Mark 65 and Russian AND 500, AMAG-1, KRAB anti-ship mines
- Reports that Iran is negotiating to buy Chinese EM-52 rocket-propelled mine
- Iran claims to be developing non-magnetic, acoustic, free-floating and remote controlled mines. It may have also acquired non-magnetic mines, influence mines and mines with sophisticated timing devices.
- Wake-homing and wire-guided Russian torpedoes
- Seersucker (HY-2) sites with 50-60 missiles - Iran working to extend range to 400 km.
- Has 60-100 Chinese CS-801(Ying Jai-1 SY-2) and CS-802 (YF-6) SSMs.
- Iran is developing FL-10 anti-ship cruise missile which is copy of Chinese FL-2 or FL-7.
- Boghammer fast interceptor craft

MISSILES

- Obtained up to 250-300 Scud Bs with 8-15 launchers
- Up to 150 Chinese CSS-8 surface-to-surface missiles with 25-30 launchers.
- Reports that China is giving Iran technology to produce long-range solid fuel missile
- Iran-130 missile (?)
- Has bought North Korean Scud Cs with 5-14 launchers
- South Korea reports Iran has bought total of 100 Scud Bs and 100 Scud Cs from North Korea.
- May be developing the Zelzal-3 missile with a range of 900 kilometers with Chinese and North Korean support.
- Iran may be planning to purchase North Korean No Dong 1/2s
- Iran also interested in North Korea's developmental Tapeo Dong 1 or Tapeo Dong 2.
- Claims will launch its first experimental satellite by 2000 with Russian aid.
- Reports of tunnels for hardened deployment of Scuds and SAMs.

CBW

- Chemical weapons (sulfur mustard gas, hydrogen cyanide, phosgene and/or chlorine; possibly Sarin and Tabun)
- Biological weapons (possibly Anthrax, hoof and mouth disease, and other biotoxins)
- Nuclear weapons development (Russian and Chinese technology)

Source: Based on interviews, reporting in various defense journals, and the IISS, Military Balance, various editions.

Iranian Dependence on Decaying Western Supplied Major Weapons - Part One

<u>Military Service</u>	<u>Weapon</u>		<u>Comments</u>
	<u>Type</u>	<u>Number</u>	
Land Forces			
	Chieftain tank	240-260	Worn, under-armored, underarmed, and underpowered. Fire control and sighting system now obsolete. Cooling problems.
	M-47/M-48	150-260	Worn, under-armored, underarmed, and underpowered. Fire control and sighting system now obsolete.
	M-60A1	150-160	Worn, under-armored, underarmed, and underpowered. Fire control and sighting system now obsolete.
	Scorpion AFV	70-80	Worn, light armor, underarmed, and underpowered.
	M-114s	70-80	Worn, light armor, and underarmed, and underpowered
	M-109 155 mm SP	150-160	Worn, Fire control system now obsolete. Growing reliability problems due to lack of updates and parts.
	M-107 175 mm SP	20-30	Worn, Fire control system now obsolete. Growing reliability problems due to lack of parts.
	M-110 203 mm SP	25-35	Worn, Fire control system now obsolete. Growing reliability problems due to lack of parts.
	AH-1J Attack heli.	100	Worn, avionics and weapons suite now obsolete. Growing reliability problems due to lack of updates and parts.
	CH-47 Trans. heli.	35-45	Worn, avionics now obsolete. Growing reliability problems due to lack of updates and parts.
	Bell, Hughes, Boeing, Agusta, Sikorsky helicopters	350-445	Worn, Growing reliability problems due to lack of updates and parts.
Air Force			
	F-4D/E FGA	55-60	Worn, avionics now obsolete. Critical problems due to lack of updates and parts.
	60 F-5E/FII FGA	60	Worn, avionics now obsolete. Serious problems due to lack of updates and parts.
	F-5A/B	10	Worn, avionics now obsolete. Serious problems due to lack of updates and parts.
	RF-4E	8	Worn, avionics now obsolete. Serious problems due to lack of updates and parts.
	RF-5E	5-10	Worn, avionics now obsolete. Serious problems due to lack of updates and parts. (May be in storage)
	F-14 AWX	60	Worn, avionics now obsolete. Critical problems due to lack of updates and parts. Cannot operate some radars at long ranges. Phoenix missile capability cannot be used.

Iranian Dependence on Decaying Western Supplied Major Weapons - Part Two

<u>Military Service</u>	<u>Weapon</u>		<u>Comments</u>
	<u>Type</u>	<u>Number</u>	
<u>Air Force - Continued</u>			
	P-3F MPA	5	Worn, avionics and sensors now obsolete. Many sensors and weapons cannot be used. Critical problems due to lack of updates and parts.
	Key PGMs	-	Remaining Mavericks, Aim-7s, Aim-9s, Aim-54s are all long past rated shelf life. Many or most are unreliable or inoperable.
	I-Hawk SAM	150-175	Worn, electronics, software, and some aspects of sensors now obsolete. Critical problems due to lack of updates and parts.
	Rapier SAM	30	Worn, electronics, software, and some aspects of sensors now obsolete. Critical problems due to lack of updates and parts.
Navy			
	Babar DE	1	Worn, weapons and electronics suite obsolete, many systems inoperable or partly dysfunctional due to Critical problems due to lack of updates and parts.
	Samavand DDG	5	Worn, weapons and electronics suite obsolete, many systems inoperable or partly dysfunctional due to Critical problems due to lack of updates and parts.
	Alvand FFG	3	Worn, weapons and electronics suite obsolete, many systems inoperable or partly dysfunctional due to Critical problems due to lack of updates and parts.
	Bytander FF	2	Obsolete. Critical problems due to lack of updates and parts.
	Hengeman LST	4	Worn. needs full scale refit.

Source: Estimate made by Anthony H. Cordesman based on the equipment counts in IISS, Military Balance, 1995-1996, "Iran," and discussions with US experts. Note that different equipment estimates are used later in the text. The IISS figures are used throughout this chart to preserve statistical consistency.

Can Iran Mass Produce Major New Weapons Systems - Part One

LAND

- Can produce nearly 50 types of munitions, including tank rounds, artillery shells, and rockets. Probably meets between 50% and 75% of Iran's needs in a major regional contingency and their output is steadily building up Iran's reserves.
- Manufacturers most of Iran's assault rifles, mortars up though 120 mm in caliber, and anti-tank rocket launchers
- Showed prototype of a main battle tank called the Zulfiqar (Zolfaqar) in 1994. Tank has undergone field trials ever since the Velayat military exercises of May 1996. Its drive train and suspension seems to be modeled on the US-designed M-48A5 and M-60A1 series of tanks and to have either a 105 mm or 125mm rifled gun. Reports differ as to the Zulfiqar's production status. One report indicates that Iran announced on July 8, 1997, that President Rafsanjani opened the "first phase" of a plant to produce the tank in Dorud, some 300 kilometers southwest of Tehran. Another report indicates that it will be produced at the Shahdid Industrial Complex.
- T-72S (Shilden) tanks being assembled under license.
- Upgrading T-54s, T-55s, T-59s with 105 mm gun made in Iran and new fire control system.
- Claims ready to produce light tank for "unconventional warfare" called the Towan (Wild Horse) with 90 mm gun.
- Developed Iranian-made modification of the Chinese Type WZ 501/503 armored infantry fighting vehicle which Iran calls the Boragh. The WZ 501/503 is itself a Chinese copy of the Russian BMP, and is 30 year old technology.
- Displayed APC called the Cobra or BMT--2, which seems to be an indigenous design armed with a 30 mm gun or the ZU-23-2 anti-aircraft gun -- a light automatic weapons system that Iran has been manufacturing for some years. Like the Zulfiqar, the Cobra has been undergoing field trials in Iranian military exercises since May, 1996.
- Iran now makes a number of anti-tank weapons. These include an improved version of the manportable RPG-7 anti-tank rocket with an 80 mm tandem HEAT warhead instead of the standard 30 mm design, the NAFEZ anti-tank rocket, and a copy of the Soviet SPG-9 73 mm recoilless anti-tank gun. Iran also makes a copy of the Russian AT-3 9M14M (Sagger or Ra'ad) anti-tank guided missile.
- Claimed in May 1996, to have produced a self-propelled version of a Russian 122 mm gun that it called the Thunder-1, with a firing range of 15,200 meters and a road speed of 65 kilometers per hour.¹ It may use the Boragh chassis for this weapon. It also claimed to have tested a "rapid fire" 155 mm self-propelled weapon in September, 1997, called the Thunder 2
- Makes military radios and low-technology RPVs like the 22006, Baz, and Shahin.
- Has developed tactical radios ART 2000, VHF frequency-hopping radio with a range of 30-88 MHz, and the PRC-110 HF fixed-frequency manpack radio, which covers the 1.6-29.999 H MHz band in 100Hz steps. (JIDR 6/1998: 22)
- Has developed low-drag 155mm high explosive base-bleed projectile. The 155BB HE-TNT incorporates a 16kg TNT and has a range of 35km when fired with an M11 top charge from a 45-caliber gun. Range is 17km without base bleed. A new low-drag HE projectile for 120mm smoothbore mortars with a range of 13.2 km. (JIDR 6/1998: 22)

AIR/AIR DEFENSE

- Necessary technical sophistication to rebuild the jet engines for many of its American fighters and helicopters.
- Produce parts and modifications for some of its radars, missile systems, avionics, ships, and armored personnel carriers
- Claims to have built its first Iranian-designed helicopter, and to have tested a locally-built fighter plane. Brigadier General Arasteh, a deputy head of the General Staff of the Armed Forces (serving under Major General Ali Shahbazi, the joint chief of staff) stated in April, 1997 that the "production line of this aircraft will begin work in the near future."
- Chinese F-7 assembled in Iran
- Defense Industries Organization claimed that Iran was soon going to start producing two trainers, a jet-powered Dorna (Lark) and propeller-driven Partsu (Swallow).
- There had been reports in 1996 that Iran had obtained Ukrainian aid in producing the Antonov An-140 at a factory in Isfahan. In September, 1997, Iran indicated that it had signed a contract to buy 10 Antonov An-74 transport jets, and reports surfaced that it might coproduce the An-T74T-200. In November, 1998, it was reported that the first of the 52-seat An-140 will roll off the assembly line next year. (JDW 4 November 1998: 20)
- Iran has upgraded some of its F-4s, F-14s, and C-130s
- Iranian military claimed that Iran has begun mass production of a jet strike aircraft, the Azarakhsh (Lightning), which reportedly resembles the F-4 Phantom (JDW 4 November 1998: 20)
- Armed Forces Air Industries Organization was discussing in November 1998, a deal with Ukraine's Aviant Aviatsiny Zavod, co-producer of the new Tupolev-334, to build the planes in Iran. The deal would be for the production of 100 of the 100-seat aircraft over 15 years. (JDW 4 November 1998: 20; Reuters 12 October 1998)
- Iran has reportedly developed a TV-guided missile for carriage on F-4 Phantoms
- Iran claims to have deployed an air-to-air adapted variant of the SM1 Standard missile for its fleet of F-4D/E Phantom II fighter bombers. (JDW 29 April 1998: 17)

Can Iran Mass Produce Major New Weapons Systems? - Part Two

LAND-BASED AIR DEFENSE

- President Rafsanjani announced on October 11, 1997, that Iran had test-launched a major new surface-to-air missile system with a range of 250 kilometers, although he gave no further details. The description of the missile sounded vaguely like the Russian SA-5, which is deployed in Iran. Reports has acquired four HQ-23/2B (CSA-1) launchers and 45-48 missiles, plus 25 SA-6, and 10-15 SA-5 launchers.
- May be modifying and/or producing ZSU-23-4 radar-guided anti-aircraft guns.
- Claims to produce advanced electronic warfare systems.

SEA

- Claims will soon start producing 6 multi-purpose destroyers, with initial production run of three.
- Constructing small submarine?
- Iran claims to be developing non-magnetic, acoustic, free-floating and remote controlled mines. It may have also acquired non-magnetic mines, influence mines and mines with sophisticated timing devices.
- Wake-homing and wire-guided Russian torpedoes
- Iran is developing FL-10 anti-ship cruise missile which is copy of Chinese FL-2 or FL-7.
- Reportedly assembled domestic variants the YJ-1 (C-801) solid-propellant anti-ship missile under the local name of Karus, and the YJ-2 (C-802) turbojet-powered anti-ship missile under the local name of Tondar (JDW 9 December 1998)
- Boghammer fast interceptor craft

MISSILES

- Iranian made IRAN 130 rocket with 150+ kilometers range.
- Iranian Oghab (Eagle) rocket with 40+ kilometers range.
- New SSM with 125 mile range may be in production, but could be modified FROG.
- May be developing the Zelzal-3 missile with a range of 900 kilometers with Chinese and North Korean support.
- Claims that Russia is helping Iran develop four missiles. These missiles include:
 - Shihab 3 -- a liquid fueled missile with a range of 810 miles (1,200-1,500 kilometers) and a payload of 1550 pounds, based on North Korean Nodong missile. Israel claims the Shihab might be ready for deployment as early as 1999.
 - Shihab 4, with a range of 1,250 miles (1,995 kilometers) and a payload in excess of one ton, based on the Russian R-12, may be in service in 2001.
 - Other two missiles are longer-range systems with a maximum ranges of 4,500 and 10,000 kilometers.
- Iran is reportedly receiving or trying to receive steel from China and Russia for the production of missiles.
- Iranian made Fajr-4 ballistic missiles were tested on the last day of the Vahdat-77 (Unity-77) exercises in December. New version of Fajr-3 missile which has a range of 28 miles (45 kilometers) (Reuters 10 December 1998)
- Already has developed solid-propellant surface-to-surface missiles: the Zelzal 2, Nazeat and Shahin
- Claims will launch its first experimental satellite by 2000 with Russian aid.
- Reports of tunnels for hardened deployment of Scuds and SAMs.
- Experimenting with cruise missile development, although no links as yet to the employment of such missiles with warheads using weapons of mass destruction.

CBW

- Chemical weapons (sulfur mustard gas, hydrogen cyanide, phosgene and/or chlorine; possibly Sarin and Tabun)
- Biological weapons (possibly Anthrax, hoof and mouth disease, and other biotoxins)
- Nuclear weapons development (Russian and Chinese reactors)

Source: Based on interviews, reporting in various defense journals, and the IISS, Military Balance, various editions.

Part Four

Iranian Force Trends

Force Trends in Iran - Part One

<u>Category/Weapon</u>	<u>1975</u>	<u>1980</u>	<u>1985</u>	<u>1990</u>	<u>1995</u>	<u>1999</u>
Manpower						
Total Active	250,000	240,000	555,000	504,000	513,000	545,000
Regular	250,000	240,000	305,000	305,000	393,000	420,600
Revolutionary Guard	0	0	250,000	150,000	120,000	125,000
Reserve	300,000	400,000	350,000*	350,000*	350,000*	350,000*
Paramilitary	70,000	75,000	70,000+	57,000+	200,000	40,000
Army and Revolutionary Guard						
Manpower	175,000	150,000	500,000	443,000	446,000	450,000**
Regular Army Manpower	175,000	150,000	250,000	138,000	345,000	350,000
Reserve	300,000	400,000	350,000	350,000	350,000	350,000
Active Main Battle Tanks	1,160	1,735	1,750	500+	1,250	1,390
Total Main Battle Tanks	1,160	1,735	1,750	500+	1,250	1,410
AIFV/Recce, Lt. Tanks	250	250	360	320	515	555
Active APCs	-	-	-	-	-	550
Total APCs	2,000	825	1,000	500+	550	550
Self Propelled Artillery	-	492	350	85+	289	290
Towed Artillery	650**	500	850	1,400+	1,995	2,170
MRLs	64	72	112	400+	664	764+
Mortars	-	-	3,000+	3,000+	3,500	6,500
SSM Launchers	-	-	-	38	46	46
Light SAM Launchers	-	-	-	200	700	700
AA Guns	650	1,900	1,500	1,500	1,700	1,700
Air Force Manpower	60,000	70,000	35,000	35,000	18,000	28,000
Air Defense Manpower	-	-	-	-	12,000	18,000
Total Combat Aircraft	238	446	80	185	295	301
Bombers	0	0	0	0	0	0
Fighter/Attack	221	354	80	55-120	150	150
Fighter/Interceptor	0	77	20	15-60	115	114
Recce/FGA Recce	17	14	8	8	8	8
AEW C4I/BM	0	0	0	0	0	0
MR/MPA	0	0	0	5	6	5
OCU/COIN/CCT	0	0	0	0	0	0
Other Combat Trainers	28	-	33	-	92?	25
Transport Aircraft****	84	79	42	55	68	74
Tanker Aircraft	6	22	17	4	4	5
Total Helicopters	70	744	491?	434	609	602
Armed Helicopters****	-	205	100?	100	100	100
Other Helicopters****	70	539	391?	334	509	502
Major SAM Launchers	-	-	-	40+	204	204
Light SAM Launchers	-	45	53	90	60	45+
AA Guns	-	-	-	-	-	-

Force Trends in Iran - Part Two

<u>Category/Weapon</u>	<u>1975</u>	<u>1980</u>	<u>1985</u>	<u>1990</u>	<u>1995</u>	<u>1999</u>
Total Naval Manpower	15,000	20,000	20,000	26,500	38,000	38,600*
Regular Manpower	15,000	20,000	20,000	14,500	20,000	20,600
Naval Guards	0	0	8,000?	12,000?	18,000	18,000
Marines	(1,000)	(1,000)	(1,000)	(1,200)	(1,200)	(5,000)
Major Surface Combatants						
Missile	4	7	8	8	5	3
Other	7	8	2	2	2	2
Patrol Craft						
Missile	0	0	7	10	10	21
(Revolutionary Guards)	-	-	-	-	-	(5)
Other	25	7	7	19	26	42
Revolutionary Guards Boats	-	-	-	-	-	40
Submarines	0	0	0	0	2	3
Mine Vessels	6	5	2	3	3-5	7
Amphibious Ships	0	2	4	7	8	9
Landing Craft****	14	15	?	?	17	17
Naval Air	-	-	800?	800?	1,300	2,000?
Naval Aircraft						
Fixed Wing Combat	0	0	0	0	0	0
MR/MPA	0	6	2	(2-5)	(6)	(8)
Armed Helicopters/SAR	0	32	14?	9	9-11	11
SAR Helicopters	-	-	-	-	-	-
ASW Helicopters	-	-	-	-	-	(9)
Mine Warfare Helicopters	-	-	-	-	-	(2)
Other Helicopters	35	24	8	-	-	-

Note: Equipment in storage shown as higher figure in range. Air Force totals include all helicopters, and all heavy surface to air missile launchers.

*Does not include well over one million potential reserves in the Basijj.

** Iranian total for 1998 includes roughly 100,000 Revolutionary Guard actives in land forces and 20,000 in naval forces.

** Includes all types of tube artillery weapons, 100 mm and above.

*** Includes navy, army, national guard, and royal flights, but not paramilitary.

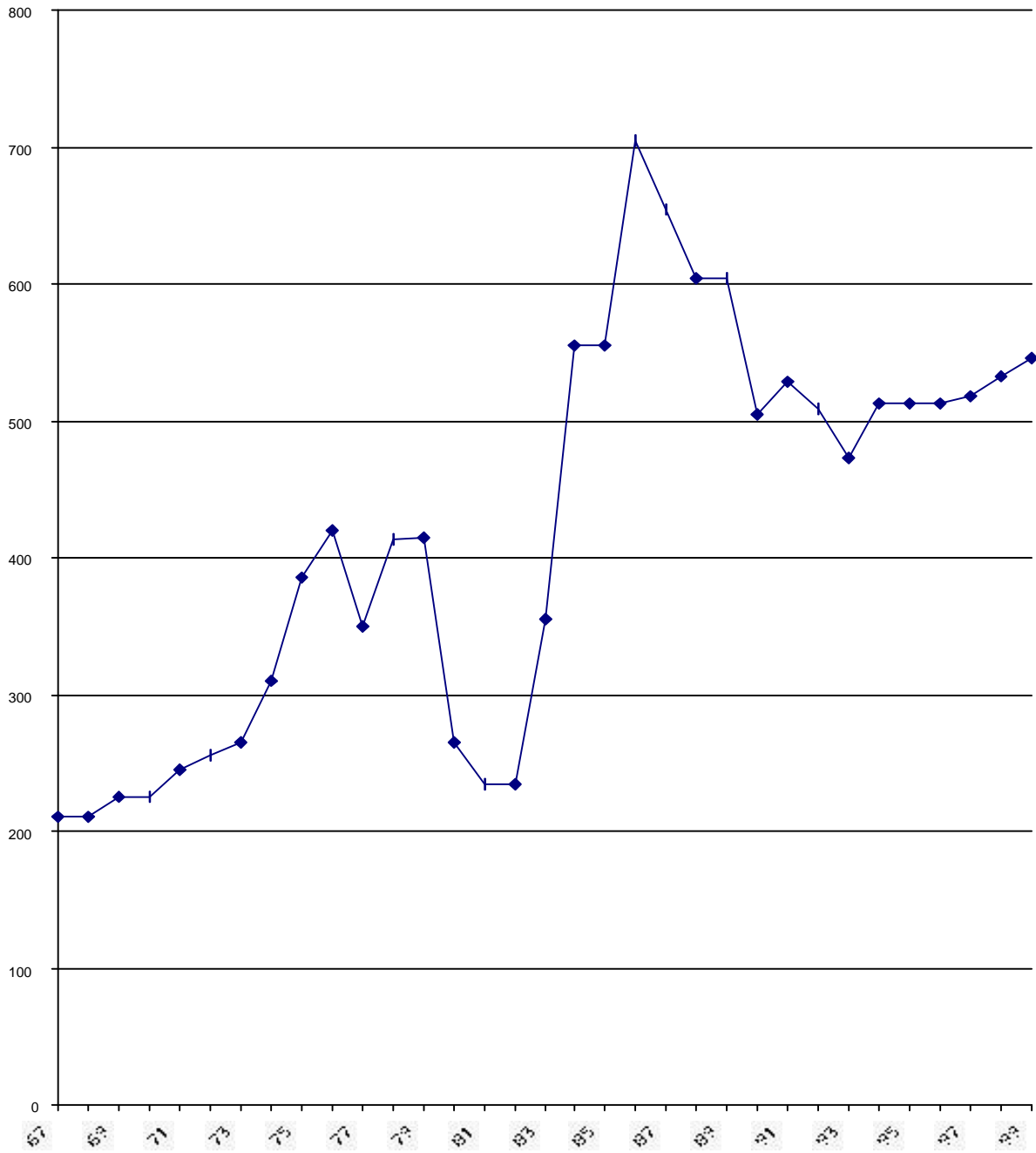
**** Includes hovercraft

Adapted by Anthony H. Cordesman from interviews, International Institute for Strategic Studies, Military Balance (IISS, London); various data available from Jane's, Military Technology, World Defense Almanac; and Jaffee Center for Strategic Studies, The Military Balance in the Middle East (JCSS, Tel Aviv)

Part Five

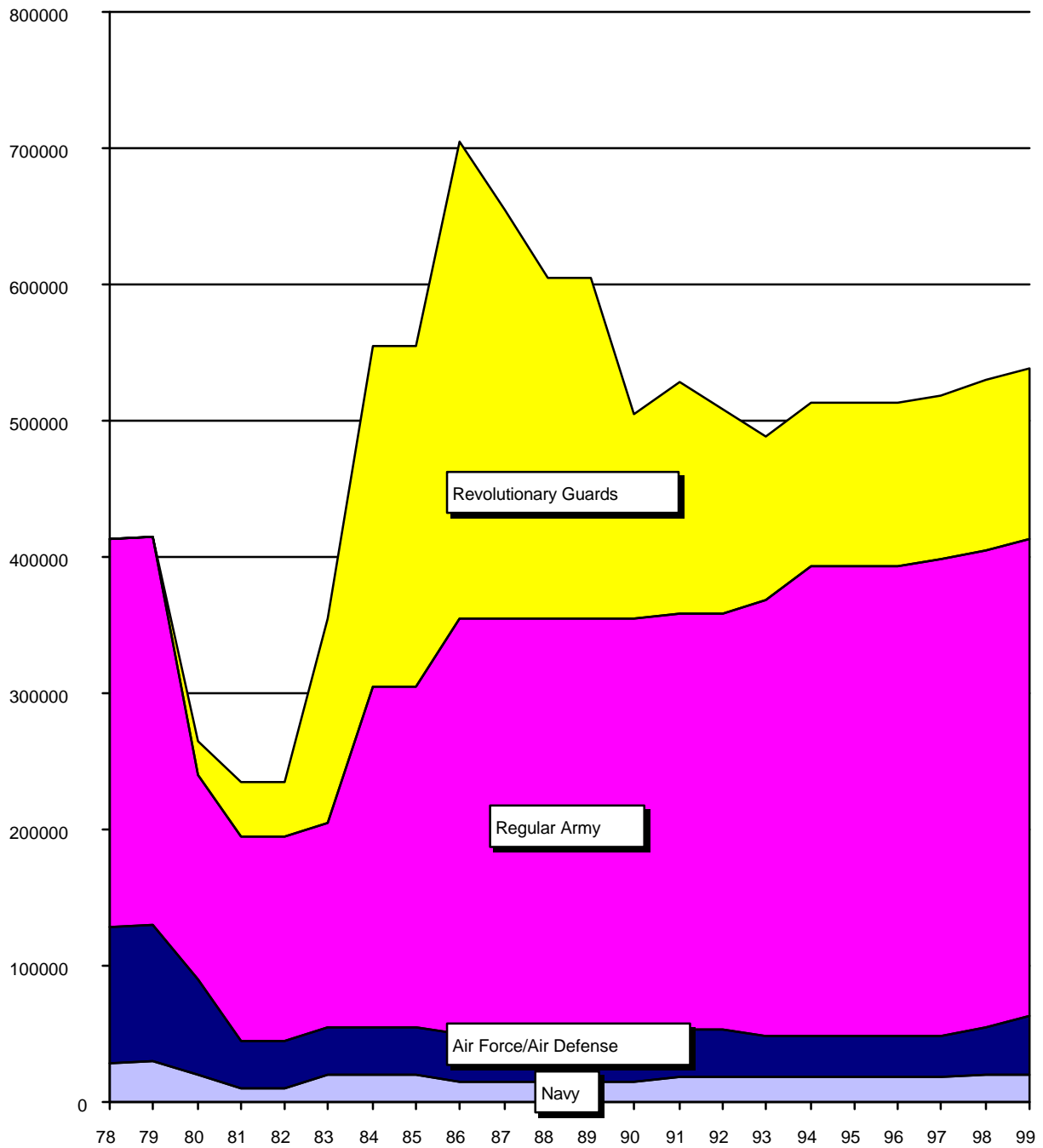
Iranian Military Manpower and Major Combat Equipment

Iran - Military Manpower: 1967-1999 (in 1,000s)



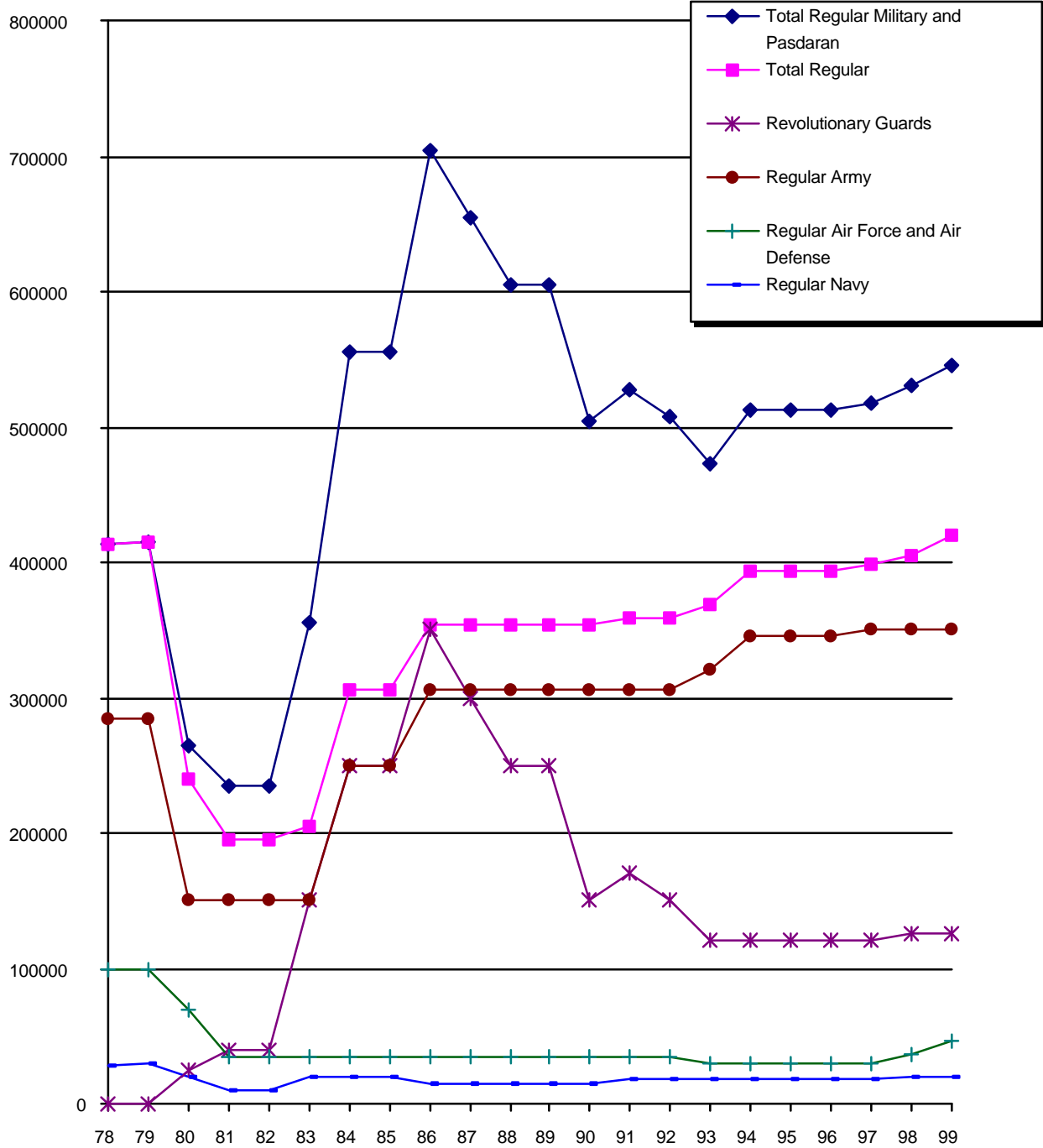
Source: Adapted by Anthony H. Cordesman from ACDA, World Military Expenditures and Arms Transfers, Table II and the IISS Military Balance with adjustments by US experts..

Trends in Total Iranian Military Manpower: 1978-1999



Source: Adapted by Anthony H. Cordesman from various editions of the IISS, Military Balance and interviews with US experts.

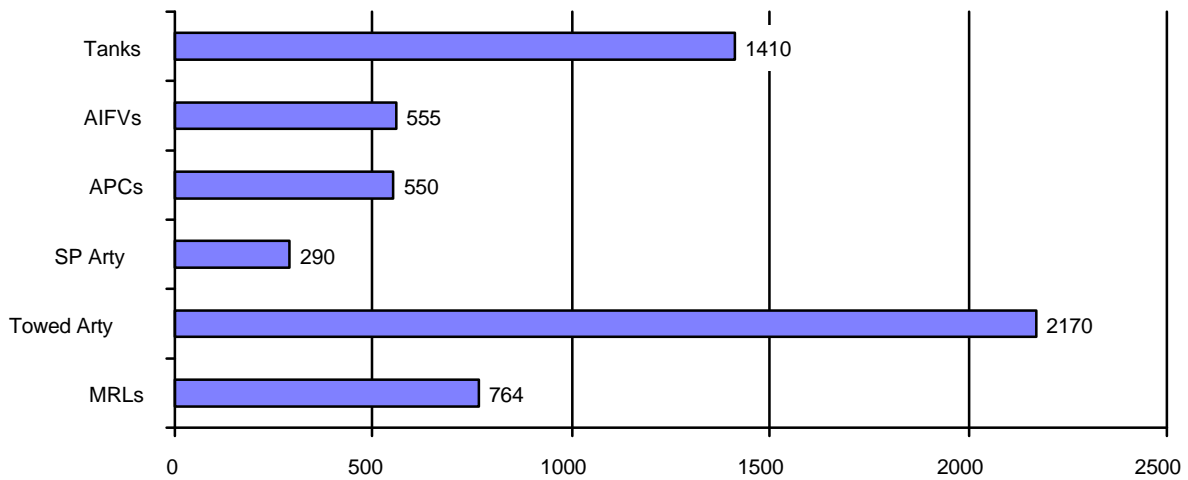
Trends in Iranian Military Manpower by Service: 1978-1999



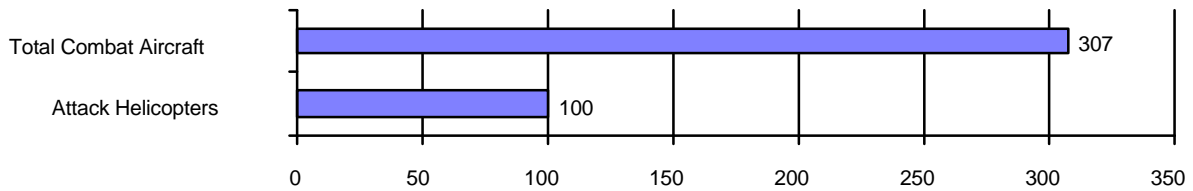
Source: Adapted by Anthony H. Cordesman from various editions of the IISS, Military Balance

Iranian Major Military Equipment in 1999

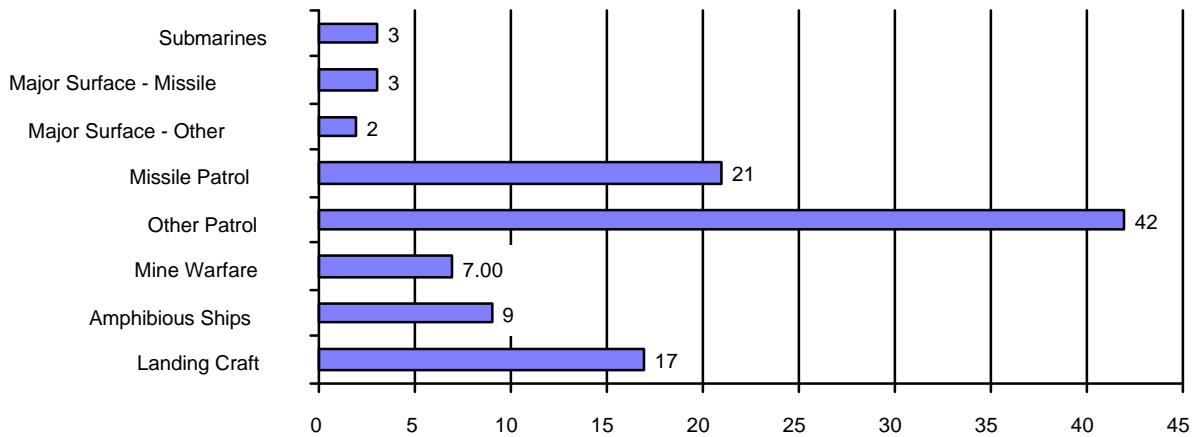
Land Forces



Air Forces



Naval Forces

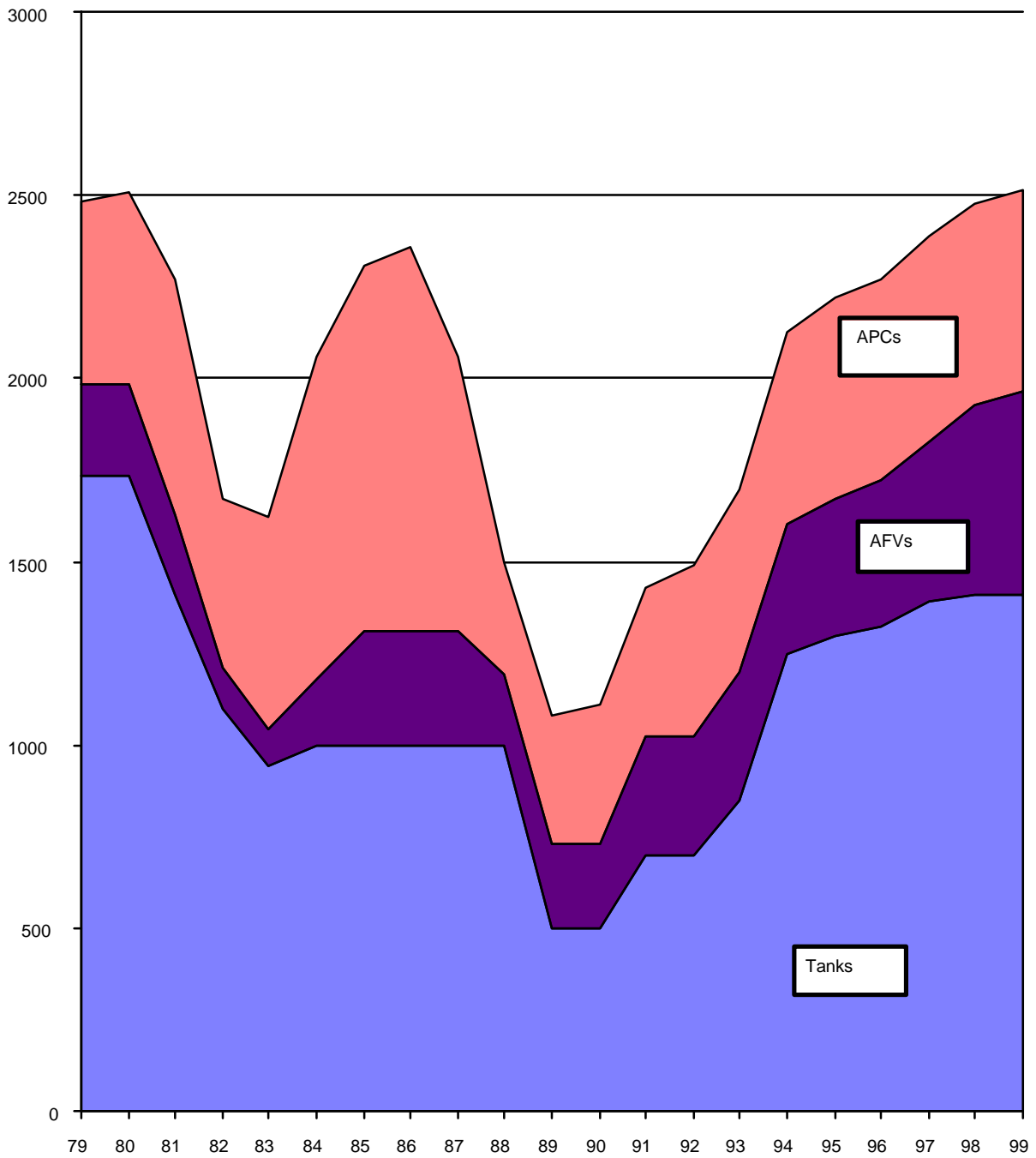


Source: Adapted by Anthony H. Cordesman from data provided by US experts, and the IISS, Military Balance

Part Six

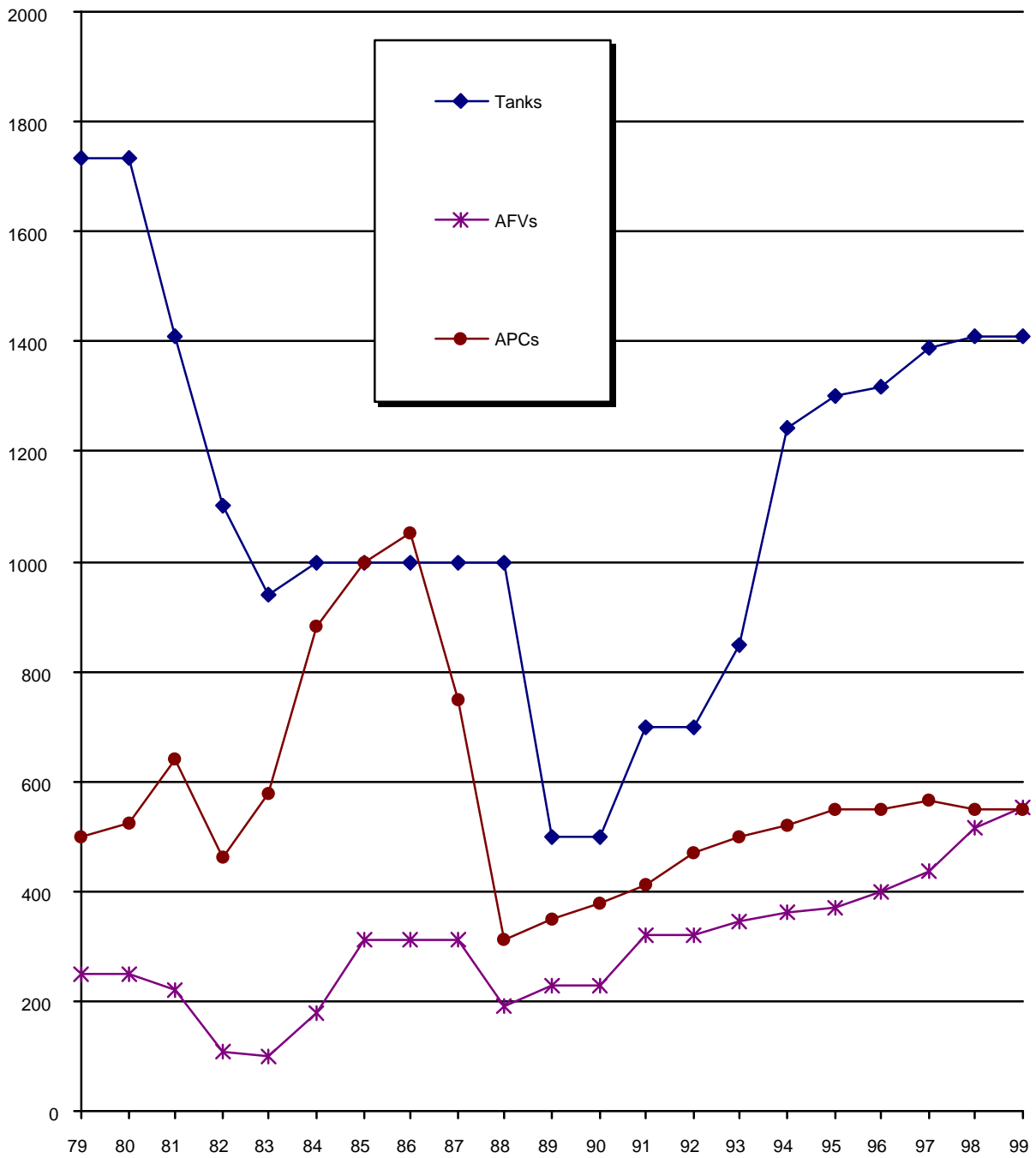
Iranian Land Forces

Trends in Total Iranian Armored Weapons: 1979-1999



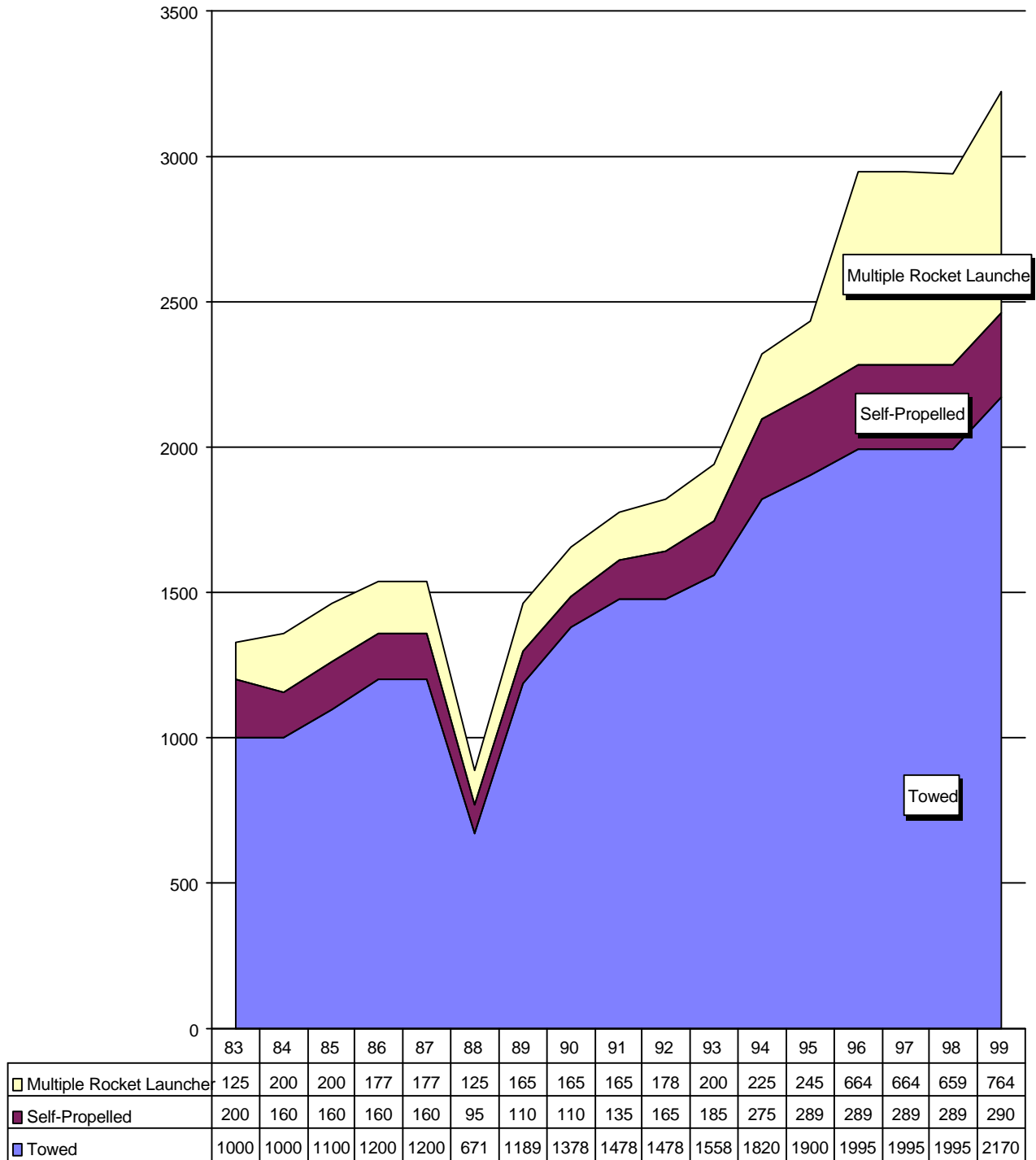
Source: Adapted by Anthony H. Cordesman from various editions of the IISS, Military Balance

Trends in Iranian Armored Weapons by Type: 1979-1999



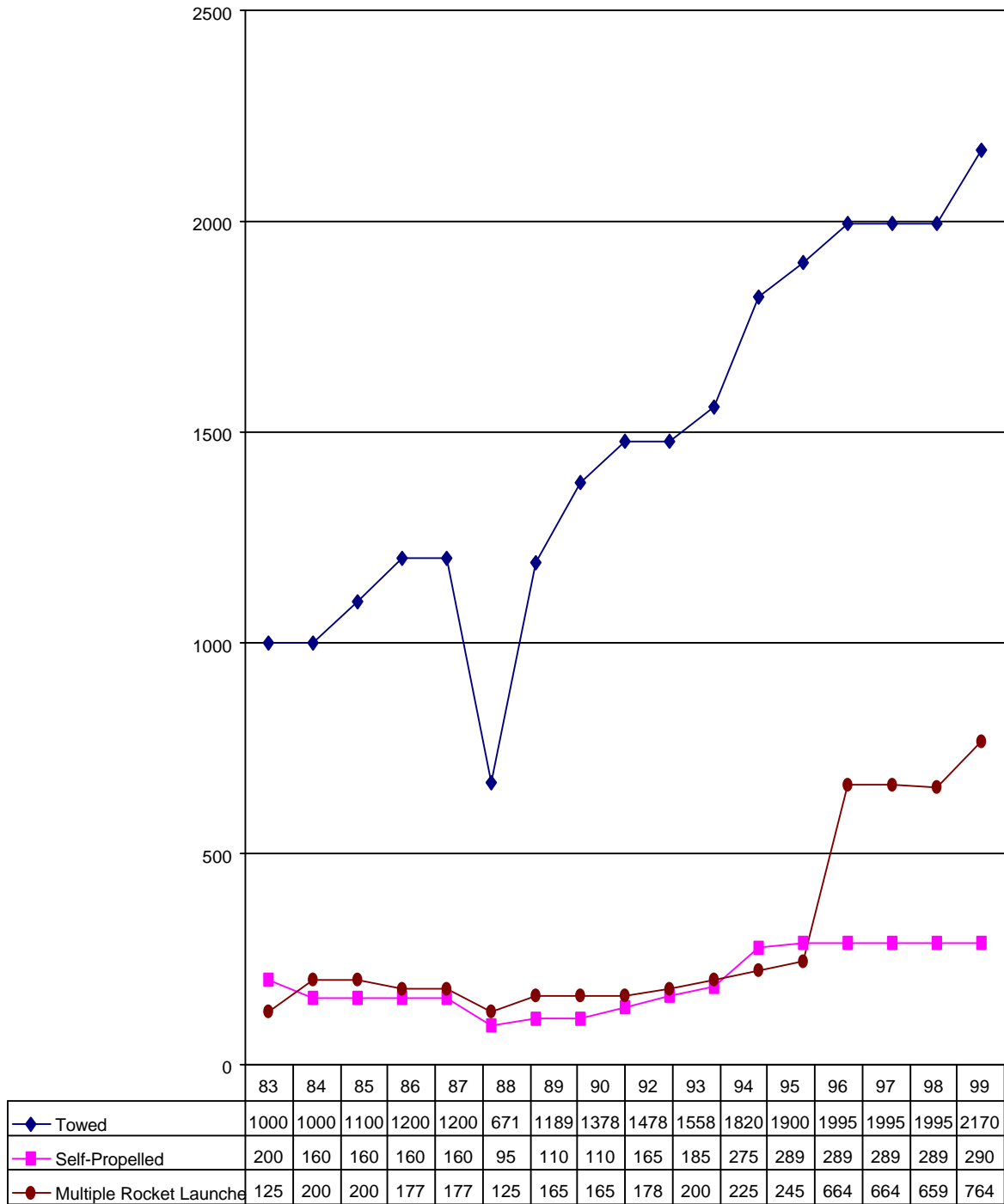
Source: Adapted by Anthony H. Cordesman from various editions of the IISS, Military Balance

Trends in Total Iranian Artillery Strength: 1979-1998



Source: Adapted by Anthony H. Cordesman from various editions of the IISS, Military Balance

Trends in Iranian Artillery Weapons By Type: 1979-1999

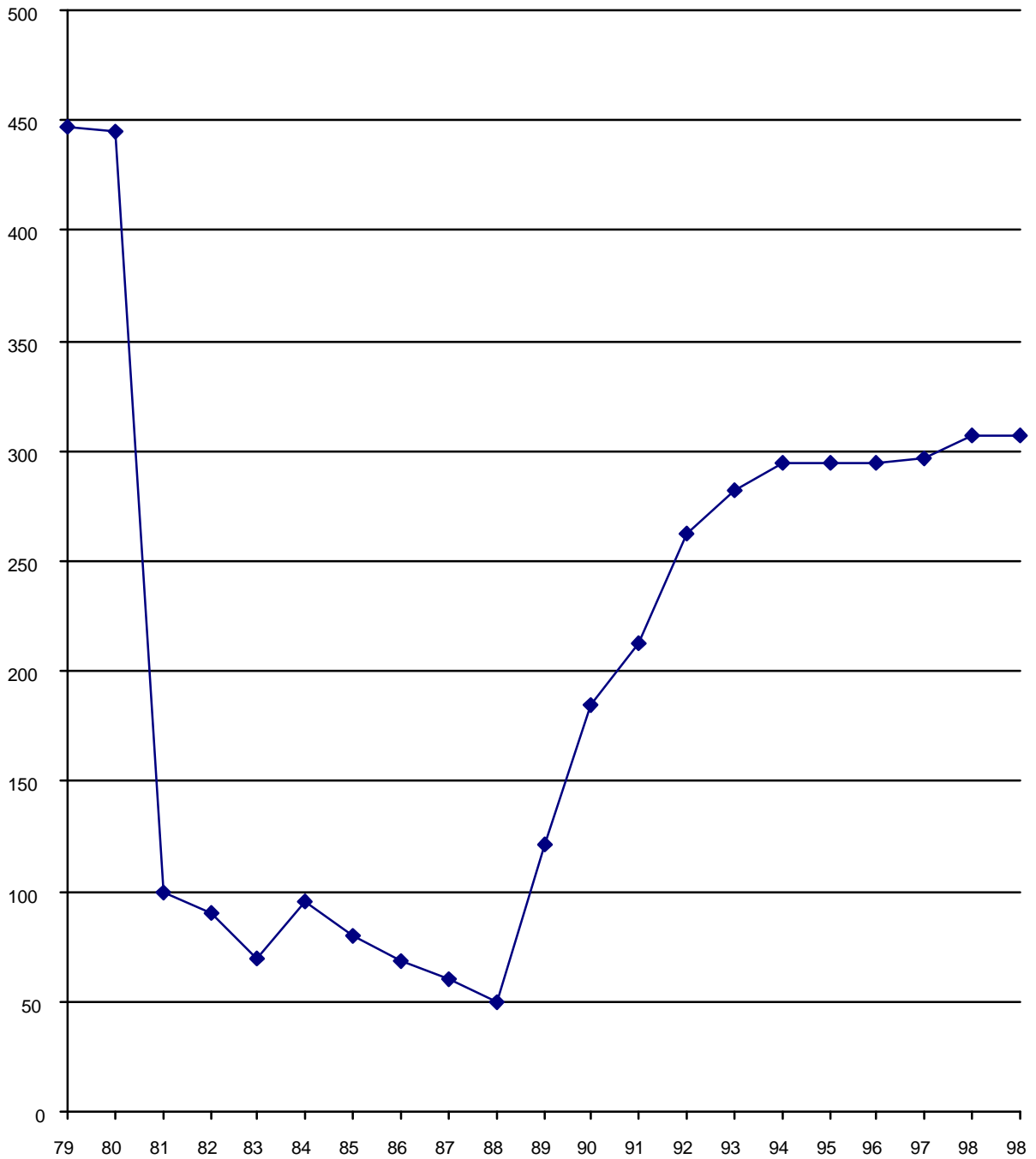


Source: Adapted by Anthony H. Cordesman from various editions of the IISS, Military Balance and interviews with US experts.

Part Seven

Iranian Air and Land-Based Air Defense Forces

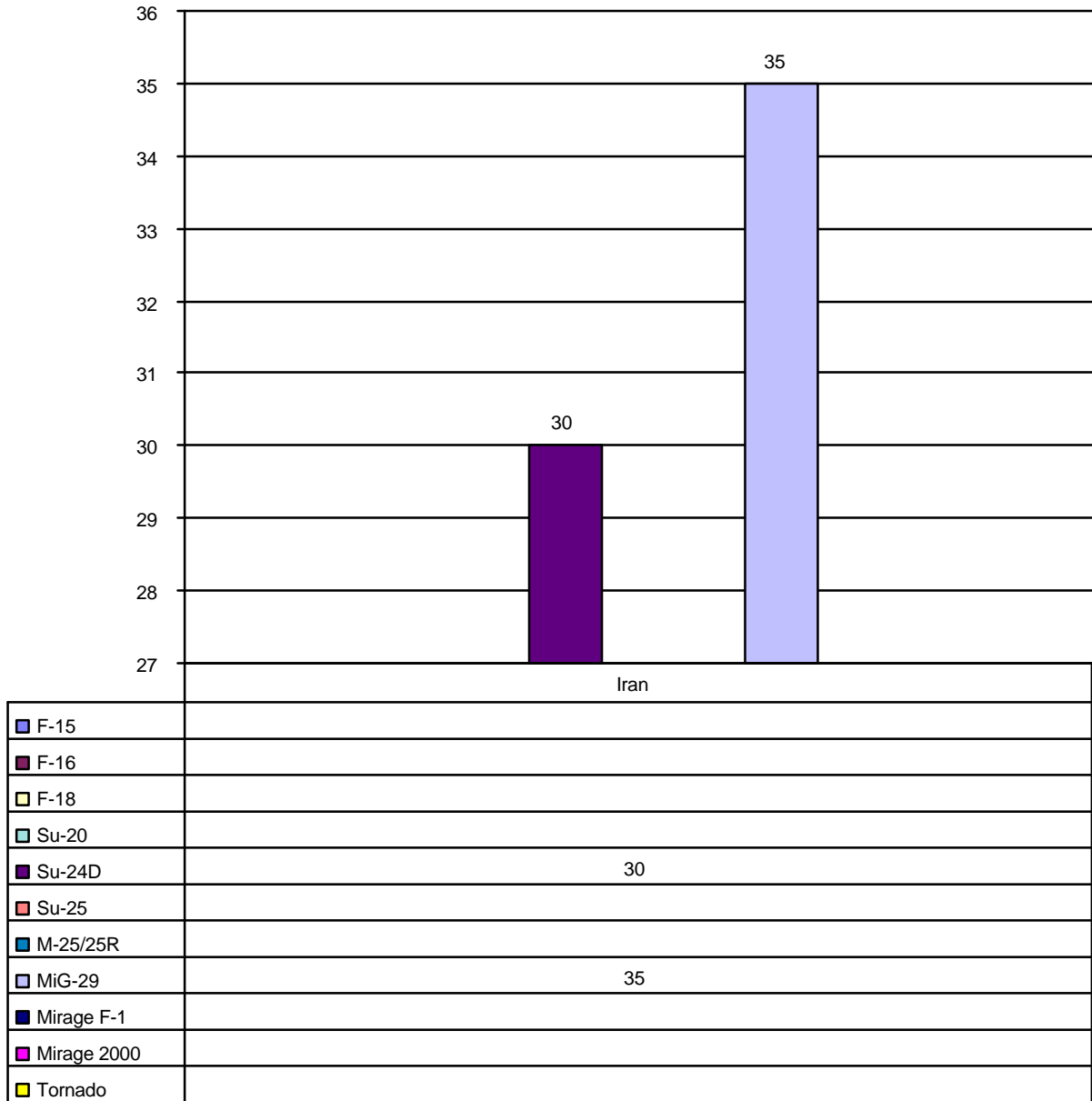
Trends in Iranian Operational Fixed Wing Major Combat Aircraft: 1979-1999



Source: Adapted by Anthony H. Cordesman from various editions of the IISS, Military Balance. No useful estimate is possible of operational armed helicopter strength. Armed helicopters are operated by the land forces.

Iranian High Quality Gulf Fixed Wing Fighter Combat Aircraft By Type - 1999

(Includes Mirage F-1, Mirage 2000, F-15, F-16, F-18, Tornado, Su-20/22, Su-24, MiG 25/25R, MiG-29)



Source: Estimated by Anthony H. Cordesman from various sources and the IISS, [Military Balance](#).

Iranian Land-Based Air Defense Systems

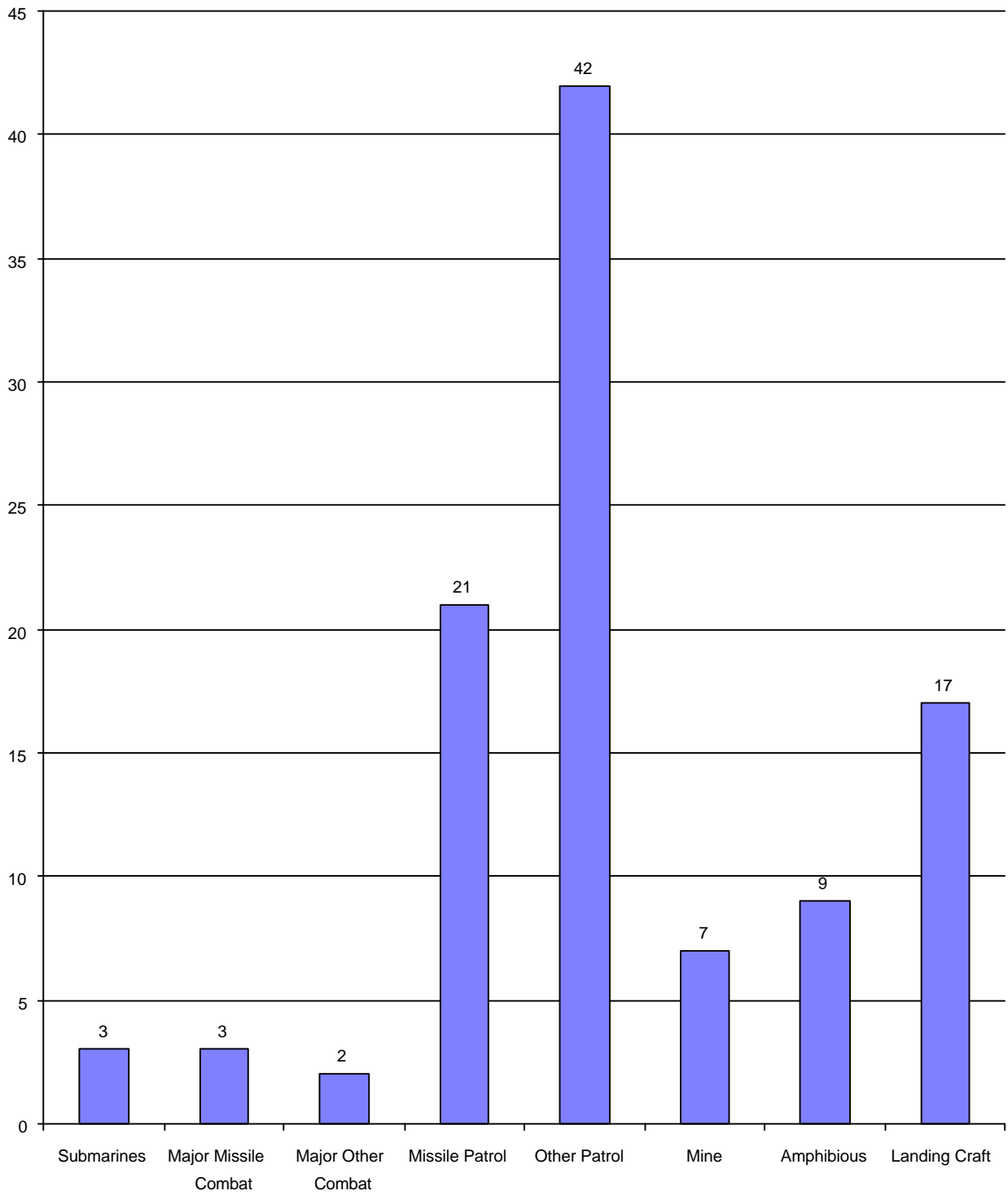
<u>Country</u>	<u>Major SAM</u>	<u>Light SAM</u>	<u>AA Guns</u>
<u>Iran</u>	12/150 I Hawk	SA-7	1,700 Guns
	3/? SA-5	<u>HN-5</u>	ZU-23, ZSU-23-4,
	45 HQ-2J (SA-2)	5/30 Rapier	ZSU-57-2, KS-19
	? SA-2	FM-80 (Ch Crotale)	ZPU-2/4, M-1939,
		15 Tigercat	Type 55
<u>Iraq</u>	SA-2	Roland	6,000 Guns
	SA-3	SA-7	ZSU-23-4 23 mm,
	SA-6	SA-8	M-1939 37 mm,
		SA-9	ZSU-57-2 SP, 57 mm
		SA-13	85 mm, 100 mm, 130 mm
		SA-14	
		SA-16	

Estimated by Anthony H. Cordesman from the IISS, Military Balance and interviews with various experts

Part Eight

Iranian Naval Forces

Iranian Naval Ships by Category in 1999



Estimated by Anthony H. Cordesman from the [IISS, Military Balance](#) and interviews with various experts

i Jane's Defense Weekly, June 5, 1996, p. 15.