

CSIS

Center for Strategic and International Studies

1800 K Street N.W.

Washington, DC 20006

(202) 775-3270

(To comment: Acordesman@aol.com)

For Updates see CSIS.ORG, "Military Balance")

If We Fight Iraq: Iraq and The Conventional Military Balance

Anthony H. Cordesman

Arleigh A. Burke Chair for Strategy

Center for Strategic and International Studies

February 27, 2002

Table of Contents

TRENDS IN THE GULF MILITARY BALANCE - OVERVIEW	1
IRAQI VS. NEIGHBORING FORCES IN 2002 - PART ONE.....	3
IRAQI VS. NEIGHBORING FORCES IN 2002 - PART ONE.....	4
GULF MILITARY FORCES IN 2002 - PART ONE.....	5
GULF MILITARY FORCES IN 2002 - PART ONE.....	6
MAJOR MEASURES OF COMBAT EQUIPMENT STRENGTH - 2002	7
TOTAL GULF MILITARY MANPOWER BY SERVICE - 2002.....	8
TOTAL ACTIVE MILITARY MANPOWER IN GULF ARMIES IN 2002	9
TOTAL GULF OPERATIONAL ARMORED FIGHTING VEHICLES - 2002	10
TOTAL OPERATIONAL TANKS IN ALL GULF FORCES 1990-2002.....	11
MEDIUM TO HIGH QUALITY MAIN BATTLE TANKS BY TYPE IN 2002.....	12
ADVANCED ARMORED INFANTRY FIGHTING VEHICLES, RECONNAISSANCE VEHICLES, SCOUT VEHICLES AND LIGHT TANKS BY TYPE IN 2002	13
TOTAL GULF SELF-PROPELLED, TOWARD AND MULTIPLE LAUNCHER GULF ARTILLERY BY CATEGORY - 2002....	14
GULF INVENTORY OF TOWED ARTILLERY BY CALIBER IN 2002.....	15
GULF INVENTORY OF SELF-PROPELLED ARTILLERY BY CALIBER IN 2002.....	16
GULF INVENTORY OF MULTIPLE ROCKET LAUNCHERS BY CALIBER IN 2002	17
TOTAL GULF AIR FORCE AND AIR DEFENSE MANPOWER – 2002	18
TOTAL OPERATIONAL COMBAT AIRCRAFT IN ALL GULF FORCES 1990-2002.....	19
GULF HIGH AND MEDIUM QUALITY FIXED WING FIGHTER, FIGHTER ATTACK, ATTACK, STRIKE, AND MULTI-ROLE COMBAT AIRCRAFT BY TYPE - 2002	20
GULF MEDIUM QUALITY FIXED WING FIGHTER, FIGHTER ATTACK, ATTACK, STRIKE, AND MULTI-ROLE COMBAT AIRCRAFT BY TYPE - 2001	21
GULF LOW QUALITY FIXED WING FIGHTER, FIGHTER ATTACK, ATTACK, STRIKE, AND MULTI-ROLE COMBAT AIRCRAFT BY TYPE - 2002.....	22
GULF RECONNAISSANCE AIRCRAFT IN 2002	23
SENSOR, AWACS, C4I, EW AND ELINT AIRCRAFT IN 2002	24
GULF ATTACK HELICOPTERS IN 2002.....	25
GULF LAND-BASED AIR DEFENSE SYSTEMS IN 2002.....	26
TOTAL GULF NAVAL MANPOWER IN 2002	27
GULF NAVAL SHIPS BY CATEGORY IN 2002	28
GULF WARSHIPS WITH ANTI-SHIP MISSILES IN 2002	29
GULF MINE WARFARE SHIPS IN 2002.....	30
GULF AMPHIBIOUS WARFARE SHIPS IN 2002.....	31
GULF NAVAL AIRCRAFT AND HELICOPTERS AIRCRAFT IN 2002	32
GULF ARMS BUYS BY SUPPLIER: 1987-2000.....	33
TOTAL GULF NEW ARMS AGREEMENTS FROM THE GULF WAR TO 2000.....	34
TOTAL GULF NEW ARMS DELIVERIES FROM THE GULF WAR TO 2000.....	35
TOTAL GULF NEW ARMS AGREEMENTS AND DELIVERIES 1997-2000.....	36
IRAQ - OVERVIEW	37
IRAQI DEPENDENCE ON DECAYING, OBSOLETE, OR OBSOLESCEANT MAJOR WEAPONS.....	38
<i>Land Forces</i>	38
IRAQ'S MASSIVE MILITARY EFFORT BEFORE THE GULF WAR.....	39

THE IRAQI CUMULATIVE ARMS IMPORT DEFICIT ENFORCED BY UN SANCTIONS	40
THE PROBLEM OF IRAQI MILITARY PRODUCTION.....	41
MAJOR IRAQI MILITARY PRODUCTION FACILITIES.....	42

Trends in the Gulf Military Balance - Overview

- Despite the Gulf War, and the loss of some 40% of its army and air force order of battle, Iraq remains the most effective military power in the Gulf.
 - It still has an army of around 375,000 men, and an inventory of some 2,200 main battle tanks, 3,700 other armored vehicles, and 2,400 major artillery weapons. It also has over 300 combat aircraft with potential operational status.
 - At the same time, Iraq has lacked the funds, spare parts, and production capabilities to sustain the quality of its consolidated forces.
 - Iraq has not been able to restructure its overall force structure to compensate as effectively as possible for its prior dependence on an average of \$3 billion a year in arms deliveries. It has not been able to recapitalize any aspect of its force structure, and about two-thirds of its remaining inventory of armor and aircraft is obsolescent by Western standards.
 - Iraq has not been able to fund and/or import any major new conventional warfare technology to react to the lessons of the Gulf War, or to produce any major equipment -- with the possible exception of limited numbers of Magic "dogfight" air-to-air missiles.
 - In contrast, Saudi Arabia has taken delivery on over \$66 billion worth of new arms since 1991, Kuwait has received \$7.6 billion, Iran \$4.3 billion, Bahrain \$700 million, Oman \$1.4 billion, Qatar \$1.7 billion, and the UAE \$7.9 billion,
 - Equally important, the US has made major upgrades in virtually every aspect of its fighter avionics, attack munitions, cruise missile capabilities, and intelligence, reconnaissance, and targeting capabilities.
 - Iraq's inability to recapitalize and modernize its forces means that much of its large order of battle is no obsolescent or obsolete, has uncertain combat readiness, and will be difficult to sustain in combat. It also raises serious questions about the ability of its forces to conduct long-range movements or maneuvers and then sustain coherent operations.
 - Iraq has demonstrated that it can still carry out significant ground force exercises and fly relatively high sortie rates. It has not, however, demonstrated training patterns that show its army has consistent levels of training, can make effective use of combined arms above the level of some individual brigades, or has much capability for joint land-air operations. It has not demonstrated that it can use surface-to-air missiles in a well-organized way as a maneuvering force to cover its deployed land forces.
- Iran remains a major threat to Iraq. Iran lost 40-60% of its major land force equipment during the climactic battles of the Iran-Iraq War in 1988. It has, however, largely recovered from its defeat by Iraq and now has comparatively large forces.
 - Iran now has an army of around 450,000 men – including roughly 125,000 Revolutionary Guards, and an inventory of some 1,600 main battle tanks, 1,500 other armored vehicles, and 3,200 major artillery weapons. It also has over 280 combat aircraft with potential operational status.
 - Iran has been able to make major improvements in its ability to threaten maritime traffic through the Gulf, and to conduct unconventional warfare.
 - Iran has also begun to acquire modern Soviet combat aircraft and has significant numbers of the export version of the T-72 and BMP.

- Iran has not, however, been able to offset the obsolescence and wear of its overall inventory of armor, ships, and aircraft.
- Iran has not been able to modernize key aspects of its military capabilities such as airborne sensors and C⁴I/BM, electronic warfare, land-based air defense integration, beyond-visual-range air-to-air combat, night warfare capabilities, stand-off attack capability, armored sensors and fire control systems, artillery mobility and battle management, combat ship systems integration, etc.
- In contrast, no Southern Gulf state has built up significant ground forces since the Gulf War, and only Saudi Arabia has built up a significant air force.
 - Only two Southern Gulf forces – those of Saudi Arabia and Kuwait – have a significant defense capability against Iraq.
 - Iran now has an army of around 11,000 men, and an inventory of some 300 main battle tanks, 500 other armored vehicles, and 100 major artillery weapons. It also has some 80 combat aircraft. It can only effectively man and deploy about two-thirds of its land weapons and
 - Saudi Arabia has made real progress in improving its 75,000 man National Guard. Its army, however, lacks effective leadership, training, and organization. It now has an army of around 75,000 men –, and an inventory of some 1,055 main battle tanks, 4,800 other armored vehicles, and 500 major artillery weapons. It also has around 350 combat aircraft with potential operational status. The army has made little overall progress in training since the Gulf War, can probably only fight about half of its equipment holdings in the Iraqi border area (and it would take 4-6 weeks to deploy and prepare this strength), and has declined in combined arms capability since the Gulf War. It has little capability for joint land-air operations. Its individual pilots and aircraft have experienced a growing readiness crisis since the mid-1990s. It has lacked cohesive leadership as a fighting force since that time and cannot fight as a coherent force without US support and battle management..
 - Kuwait now has an army of only around 11,000 men, and an active inventory of some 293 main battle tanks, 466 other armored vehicles, and 17 major artillery weapons. It has only 82 combat aircraft with potential operational status. It is making progress in training, but has not shown it can make effective use of combined arms above the battalion level, and has little capability for joint land-air operations. Its individual pilots and aircraft have moderate readiness, but cannot fight as a coherent force without US support and battle management.
 - There has been little progress in standardization and interoperability; advances in some areas like ammunition have been offset by the failure to integrate increasingly advanced weapons systems.
 - Showpiece exercises and purchases disguise an essentially static approach to force improvement which is heavily weapons oriented, and usually shows little real-world appreciation of the lessons of the Gulf War, the “revolution in military affairs,” and the need for sustainability.
- Current arms deliveries are making only token progress in correcting the qualitative defects in Southern Gulf forces, and no meaningful progress in being made towards integrating the Southern Gulf countries under the Gulf Cooperation Council (GCC).

Iraqi vs. Neighboring Forces in 2002 - Part One

	<u>Iran</u>	<u>Iraq</u>	<u>Bahrain</u>	<u>Kuwait</u>	<u>Saudi</u>	<u>Arabia*</u>	<u>Turkey</u>	<u>Jordan</u>	<u>Syria</u>
Manpower									
Total Active	513,000	424,000	11,000	15,500	201,500	515,100	100,240	321,000	
Regular	325,000	375,000	11,000	15,500	105,500	515,100	100,240	321,000	
National Guard & Other	125,000	0	0	0	75,000	0	0	0	
Reserve	350,000	650,000	0	23,700	20,000	378,700	35,000	354,000	
Paramilitary	40,000	42,000+	10,160	5,000	15,500+	152,200	10,000	108,000	
Army and Guard									
Manpower	450,000*	375,000	8,500	11,000	150,000	402,000	84,700	215,000	
Regular Army Manpower	325,000	375,000	8,500	11,000	75,000	402,000	84,700	215,000	
Reserve	350,000	650,000	0	0	20,000	258,700	30,000	280,000	
Total Main Battle Tanks***									
Total Main Battle Tanks***	1,565	2,200	106	385	1,055	4,205	1,058	3,500 (1,200)	
Active Main Battle Tanks	1,565	1,900	106	293	710	2,995	1,030	3,200	
Active AIFV/Recce, Lt. Tanks	865	1,300	71	355	1,270+	3,600	85	3,285	
Total APCs	590	2,400	235	151	3,440	3,643	1,130	1,600	
Active APCs	550	1,800	205	111	2,630	3,480	980	1,200	
ATGM Launchers	75	100+	15	118	480+	943	640	6,050	
Self Propelled Artillery									
Self Propelled Artillery	310	150	62	68 (18)	200	668	418	450	
Towed Artillery	2,085	1,900	22	0	238(58)	679	113	1,630	
MRLs	889+	200	9	27	60	84	0	480	
Mortars	5,000	2,000+	21	78	400	2,021	700	658	
SSM Launchers	51	56	0	0	10	0	0	72	
Light SAM Launchers									
Light SAM Launchers	?	1,100	78	0	650	897	944	4,055	
AA Guns	1,700	6,000	27	0	10	1,664	416	2,060	
Air Force Manpower									
Air Force Manpower	30,000	30,000	1,500	2,500	20,000	60,100	15,000	40,000	
Air Defense Manpower	15,000	17,000	0	0	16,000	0	0	60,000	
Total Combat Aircraft									
Total Combat Aircraft	283	316	34	82	348	505	101	589	
Bombers	0	6	0	0	0	0	0	0	
Fighter/Attack	163+	130	12	40	100	-	70	154	
Fighter/Interceptor	74+	180	22	14	181	-	31	310	
Recce/FGA Recce	6	5	0	0	10	59	0	14	
AEW C4I/BM	1	0	0	0	5	7	0	0	
MR/MPA**	5	0	0	0	0	-	0	0	
OCU/COIN/CCT	0	0	0	28	14	-	0	0	
Other Combat Trainers	35	157	0	0	50	-	0	111	
Transport Aircraft****									
Transport Aircraft****	68	12	3	4	61	80		25	
Tanker Aircraft	4	2	0	0	16	7	0	0	
Total Helicopters									
Total Helicopters	628	375	47	28	137	-	73	197	
Armed Helicopters****	104	100	40	16	21	37	20	87	
Other Helicopters****	524	275	7	12	116	-	53	110	
Major SAM Launchers									
Major SAM Launchers	250+	400	15	84	106	92	80	648	
Light SAM Launchers	?	1,100	-	60	309	86	-	60	
AA Guns	-	6,000	-	60	340	-	-	4,000	

Iraqi vs. Neighboring Forces in 2002 - Part One

	<u>Iran</u>	<u>Iraq</u>	<u>Bahrain</u>	<u>Kuwait</u>	Saudi	<u>Turkey</u> <u>Arabia*</u>	<u>Jordan</u>	<u>Syria</u>
Total Naval Manpower	38,000*	2,000	1,000	2,000	15,500	53,000	540	6,000
Regular Navy	15,400	2,000	1,000	2,000	12,500	49,900	540	6,000
Naval Guards	20,000	0	0	0	0	0	0	0
Marines	2,600	-	-	-	3,000	3,100	0	0
Major Surface Combatants								
Missile	3	0	3	0	8	22	0	0
Other	0	0	0	0	0	1	0	2
Patrol Craft								
Missile	10	1	6	10	9	21	0	10
(Revolutionary Guards)	10	-	-	-	-	-	-	-
Other	42	5	4	0	17	28	3	8
Revolutionary Guards (Boats)	40	-	-	-	-	-	-	-
Submarines	3	0	0	0	0	13	0	0
Mine Vessels	7	3	0	0	7	24	0	5
Amphibious Ships	9	0	0	0	0	8	0	3
Landing Craft	9	-	4	2	8	59	0	4
Support Ships	22	2	5	4	7	27	0	4
Naval Air	2,000	-	-	-	-	-	0	0
Naval Aircraft								
Fixed Wing Combat	5	0	0	0	0	0	0	0
MR/MPA	10	0	0	0	0	0	0	0
Armed Helicopters	19	0	0	0	21	16	0	16
SAR Helicopters	-	0	0	0	4	0	0	0
Mine Warfare Helicopters	3	0	0	0	0	0	0	0
Other Helicopters	19	-	2	-	6	7	0	-

Note: Equipment in storage shown in the higher figure in parenthesis or in range. Air Force totals include all helicopters, including army operated weapons, and all heavy surface-to-air missile launchers.

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

** Saudi Totals for reserve include National Guard Tribal Levies. The total for land forces includes active National Guard equipment. These additions total 450 AIFVs, 730(1,540) APCs, and 70 towed artillery weapons.

*** Total tanks include tanks in storage or conversion.

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

***** Includes in Air Defense Command

Source: Adapted by Anthony H. Cordesman from interviews, International Institute for Strategic Studies, Military Balance (IISS, London); Jane's Sentinel, Periscope; and Jaffee Center for Strategic Studies, The Military Balance in the Middle East (JCSS, Tel Aviv)

Gulf Military Forces in 2002 - Part One

	<u>Iran</u>	<u>Iraq</u>	<u>Bahrain</u>	<u>Kuwait</u>	<u>Oman</u>	<u>Qatar</u>	Saudi	<u>UAE</u> <u>Arabia*</u>	<u>Yemen</u>
Manpower									
Total Active	513,000	424,000	11,000	15,500	43,400	12,330	201,500	65,000	54,000
Regular	325,000	375,000	11,000	15,500	28,900	12,330	105,500	65,000	54,000
National Guard & Other	125,000	0	0	0	6,400	0	75,000	0	0
Reserve	350,000	650,000	0	23,700	0	0	20,000	0	40,000
Paramilitary	40,000	42,000+	10,160	5,000	4,400	0	15,500+	1,100	70,000
Army and Guard									
Manpower	450,000*	375,000	8,500	11,000	25,000	8,500	150,000	59,000	49,000
Regular Army Manpower	325,000	375,000	8,500	11,000	25,000	8,500	75,000	59,000	49,000
Reserve	350,000	650,000	0	0	0	0	20,000	0	40,000
Total Main Battle Tanks***									
Total Main Battle Tanks	1,565	2,200	106	385	117	35	1,055	411	910
Active Main Battle Tanks	1,565	1,900	106	293	117	35	710	330	910
Active AIFV/Recce, Lt. Tanks	865	1,300	71	355	78	112	1,270+	780(40)	440
Total APCs	590	2,400	235	151	189	190	3,440	620	440
Active APCs	550	1,800	205	111	103	172	2,630	570	240
ATGM Launchers	75	100+	15	118	48	124+	480+	305	71
Self Propelled Artillery									
Self Propelled Artillery	310	150	62	68 (18)	24	28	200	181	55
Towed Artillery	2,085	1,900	22	0	96	12	238(58)	80	395
MRLs	889+	200	9	27	0	4	60	72(24)	165
Mortars	5,000	2,000+	21	78	101	45	400	155	502
SSM Launchers	51	56	0	0	0	0	10	6	30
Light SAM Launchers									
Light SAM Launchers	?	1,100	78	0	72	0	650	100	800
AA Guns	1,700	6,000	27	0	26	0	10	62	530
Air Force Manpower									
Air Force Manpower	30,000	30,000	1,500	2,500	4,100	2,100	20,000	4,000	3,500
Air Defense Manpower	15,000	17,000	0	0	0	0	16,000	0	0
Total Combat Aircraft									
Total Combat Aircraft	283	316	34	82	40	18	348	101	71(40)
Bombers	0	6	0	0	0	0	0	0	0
Fighter/Attack	163+	130	12	40	12	18	100	43	40
Fighter/Interceptor	74+	180	22	14	0	0	181	22	25
Recce/FGA Recce	6	5	0	0	12	0	10	8	0
AEW C4I/BM	1	0	0	0	0	0	5	0	0
MR/MPA**	5	0	0	0	0	0	0	0	0
OCU/COIN/CCT	0	0	0	28	16	0	14	28	0
Other Combat Trainers	35	157	0	0	0	0	50	0	6
Transport Aircraft****									
Transport Aircraft****	68	12	3	4	16	6	61	21	18
Tanker Aircraft	4	2	0	0	0	0	16	0	0
Total Helicopters									
Total Helicopters	628	375	47	28	30	23	137	105	25
Armed Helicopters****	104	100	40	16	0	19	21	49	8
Other Helicopters****	524	275	7	12	30	4	116	56	17
Major SAM Launchers									
Major SAM Launchers	250+	400	15	84	40	9	106	39	57
Light SAM Launchers	?	1,100	-	60	28	90	309	134	120
AA Guns	-	6,000	-	60	-	-	340	-	-

Gulf Military Forces in 2002 - Part One

	<u>Iran</u>	<u>Iraq</u>	<u>Bahrain</u>	<u>Kuwait</u>	<u>Oman</u>	<u>Qatar</u>	Saudi	<u>UAE</u> <u>Arabia*</u>	<u>Yemen</u>
Total Naval Manpower	38,000*	2,000	1,000	2,000	4,200	1,730	15,500	2,000	1,500
Regular Navy	15,400	2,000	1,000	2,000	4,200	1,730	12,500	2,000	1,500
Naval Guards	20,000	0	0	0	0	0	0	0	0
Marines	2,600	-	-	-	-	-	3,000	-	-
Major Surface Combatants									
Missile	3	0	3	0	0	0	8	4	0
Other	0	0	0	0	0	0	0	0	0
Patrol Craft									
Missile	10	1	6	10	6	7	9	8	4
(Revolutionary Guards)	10	-	-	-	-	-	-	-	-
Other	42	5	4	0	7	-	17	6	5
Revolutionary Guards (Boats)	40	-	-	-	-	-	-	-	-
Submarines	3	0	0	0	0	0	0	0	0
Mine Vessels	7	3	0	0	0	0	7	0	6
Amphibious Ships	9	0	0	0	1	0	0	0	1
Landing Craft	9	-	4	2	4	0	8	5	5
Support Ships	22	2	5	4	4	-	7	2	2
Naval Air	2,000	-	-	-	-	-	-	-	-
Naval Aircraft									
Fixed Wing Combat	5	0	0	0	0	0	0	0	0
MR/MPA	10	0	0	0	(7)	0	0	0	0
Armed Helicopters	19	0	0	0	0	0	21	(8)	0
SAR Helicopters	-	0	0	0	0	0	4	(6)	0
Mine Warfare Helicopters	3	0	0	0	0	0	0	0	0
Other Helicopters	19	-	2	-	-	-	6	-	-

Note: Equipment in storage shown in the higher figure in parenthesis or in range. Air Force totals include all helicopters, including army operated weapons, and all heavy surface-to-air missile launchers.

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

** Saudi Totals for reserve include National Guard Tribal Levies. The total for land forces includes active National Guard equipment. These additions total 450 AIFVs, 730(1,540) APCs, and 70 towed artillery weapons.

*** Total tanks include tanks in storage or conversion.

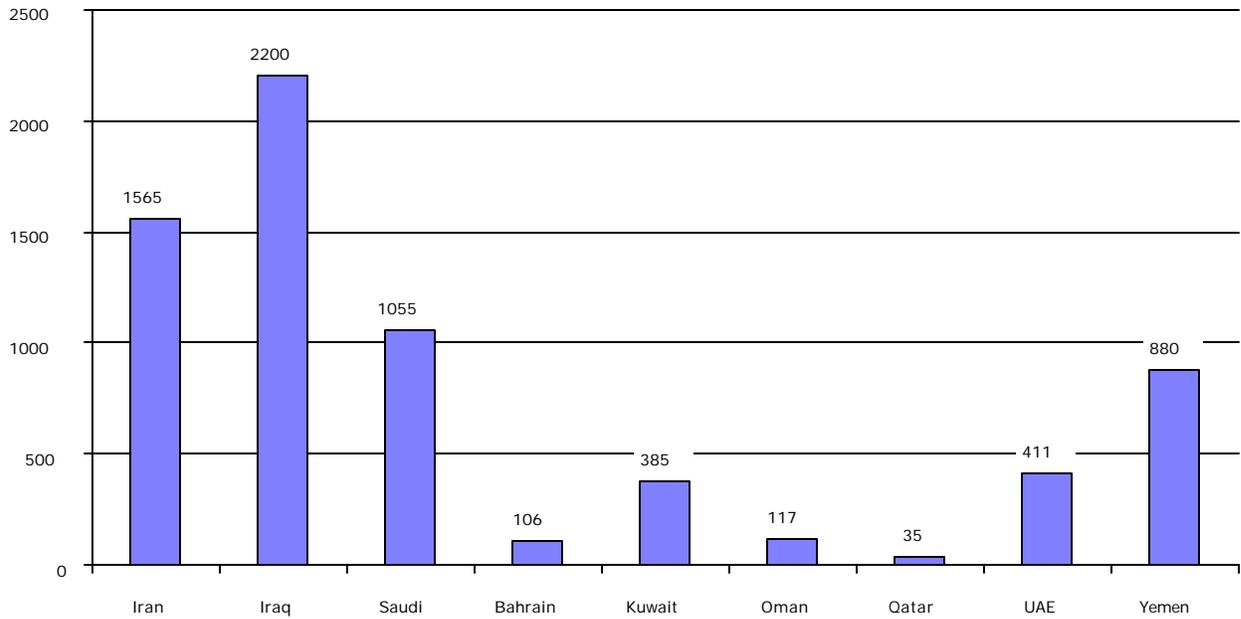
**** Includes navy, army, national guard, and royal flights, but not paramilitary.

***** Includes in Air Defense Command

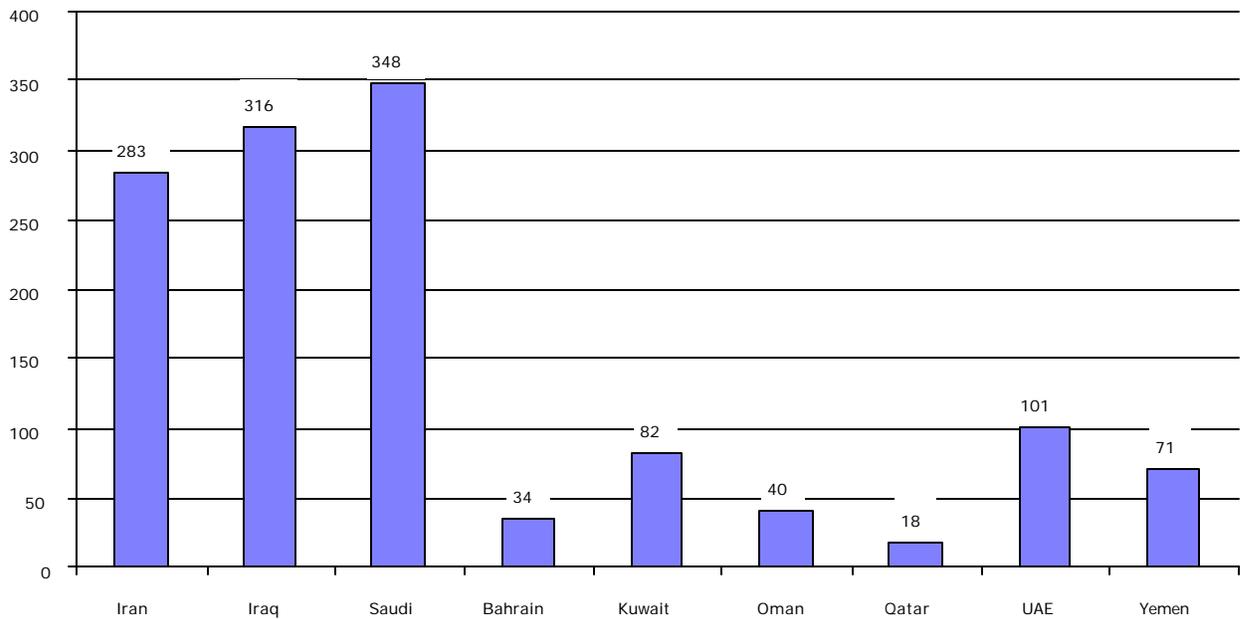
Source: Adapted by Anthony H. Cordesman from interviews, International Institute for Strategic Studies, Military Balance (IISS, London); Jane's Sentinel, Periscope; and Jaffee Center for Strategic Studies, The Military Balance in the Middle East (JCSS, Tel Aviv)

Major Measures of Combat Equipment Strength - 2002

Total Main Battle Tanks in Inventory

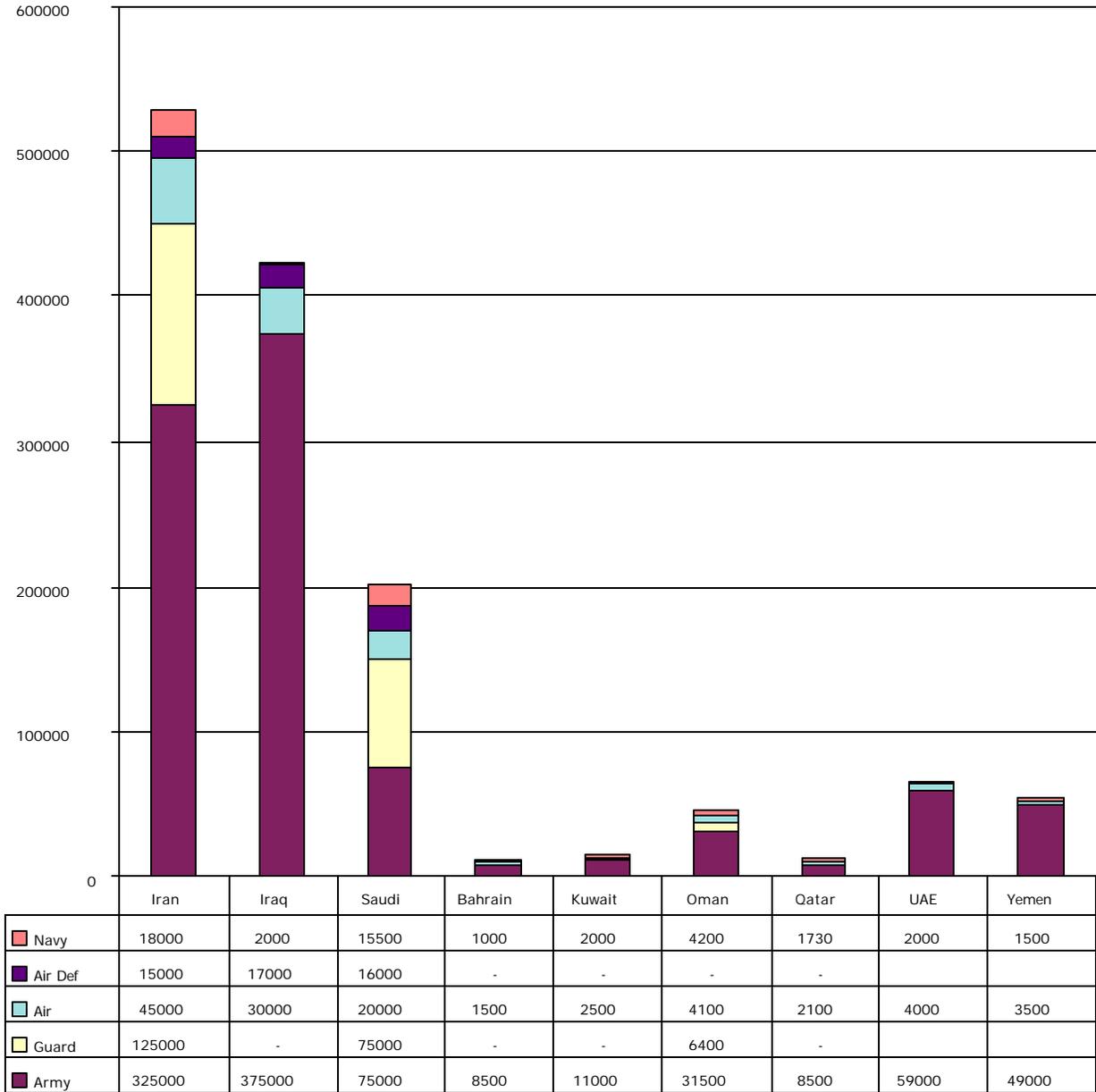


Total Fixed Wing Combat Aircraft



Source: Estimated by Anthony H. Cordesman using data from the IISS Military Balance, the on-line edition of Jane's Sentinel Security Assessment, and the on-line edition of Periscope.

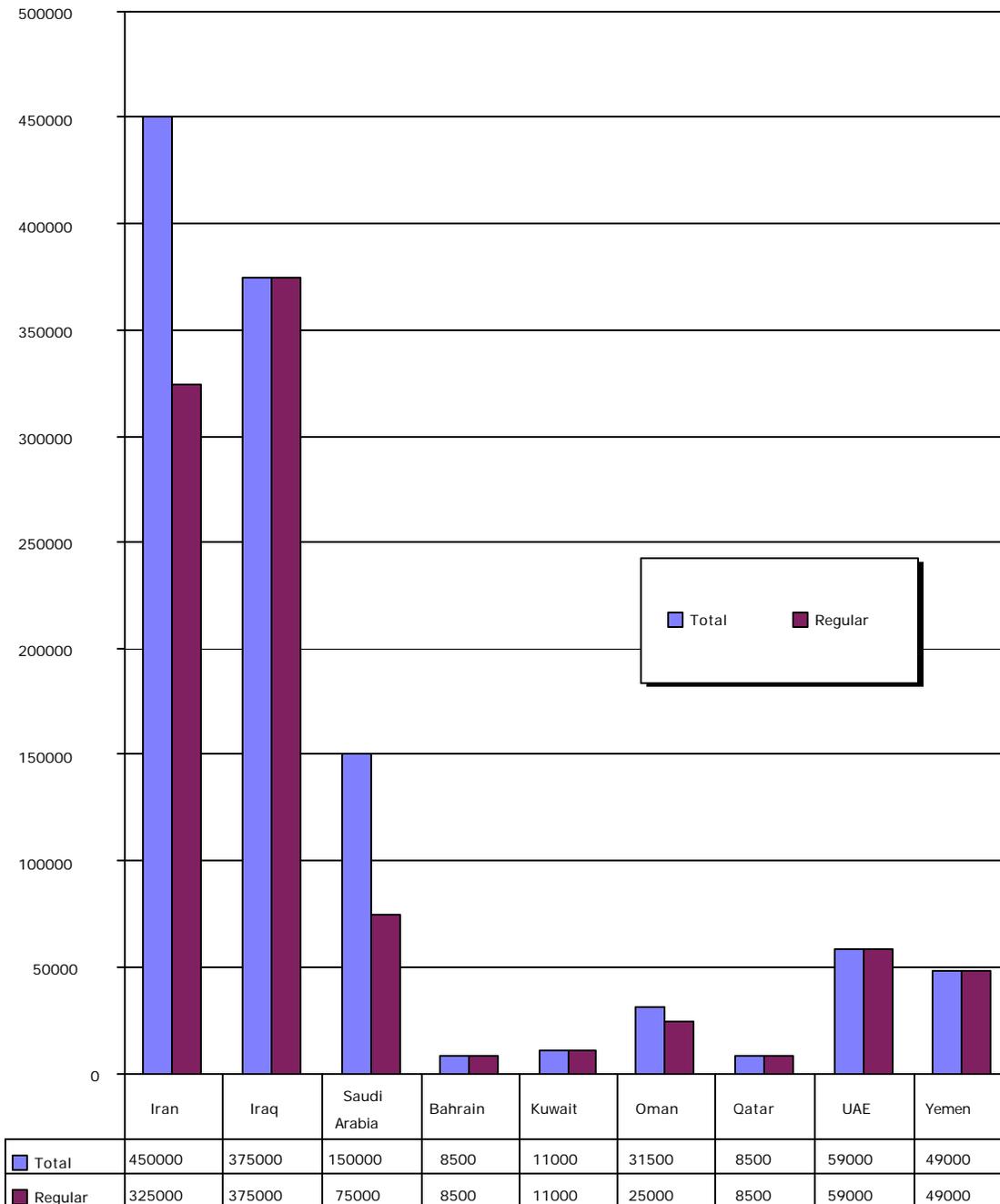
Total Gulf Military Manpower By Service - 2002



Source: Estimated by Anthony H. Cordesman using data from the IISS Military Balance, the on-line edition of Jane's Sentinel Security Assessment, and the on-line edition of Periscope.

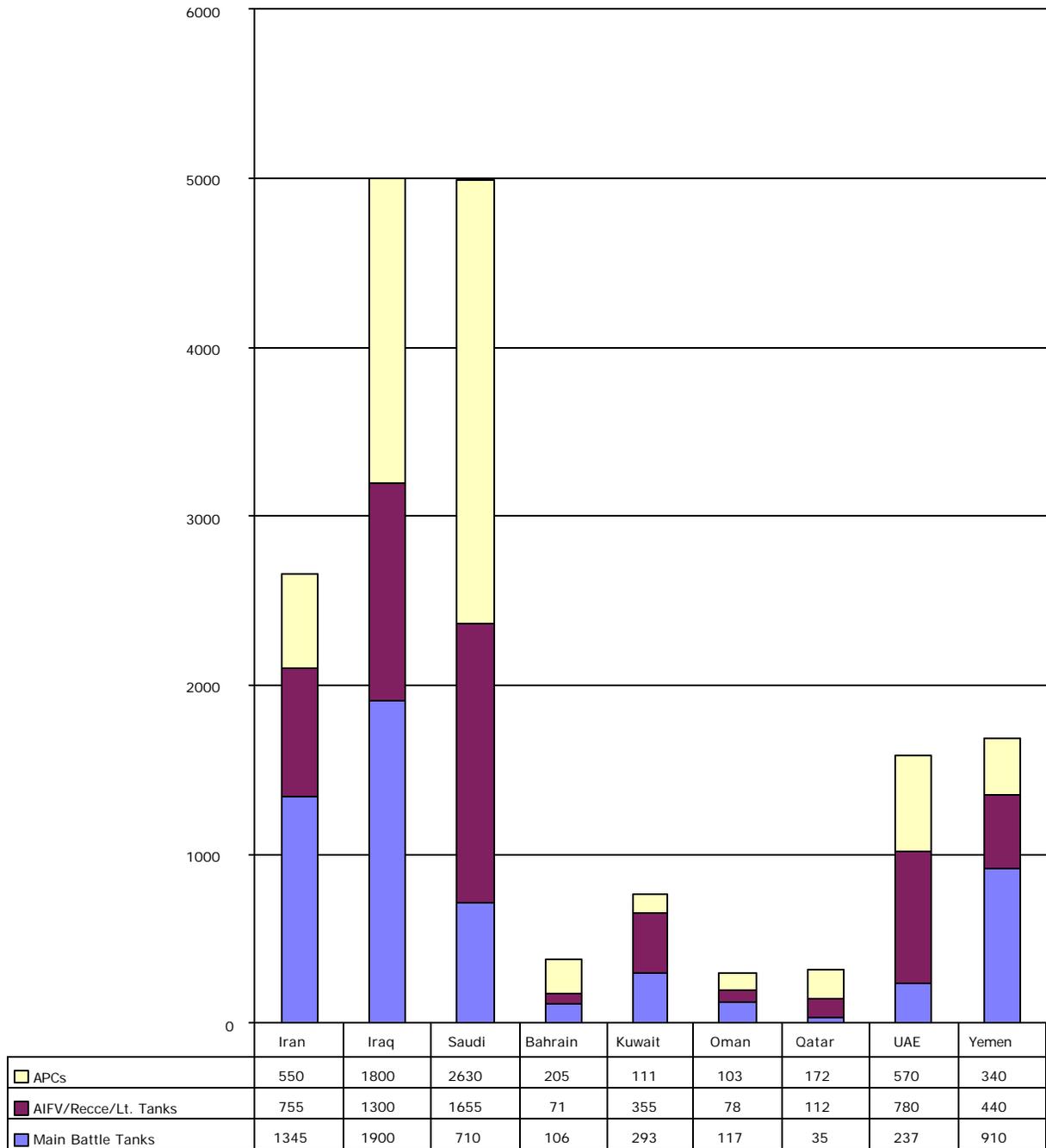
Total Active Military Manpower in Gulf Armies in 2002

(Total includes Iranian Revolutionary Guard, Saudi National Guard, and Omani Royal Guard)



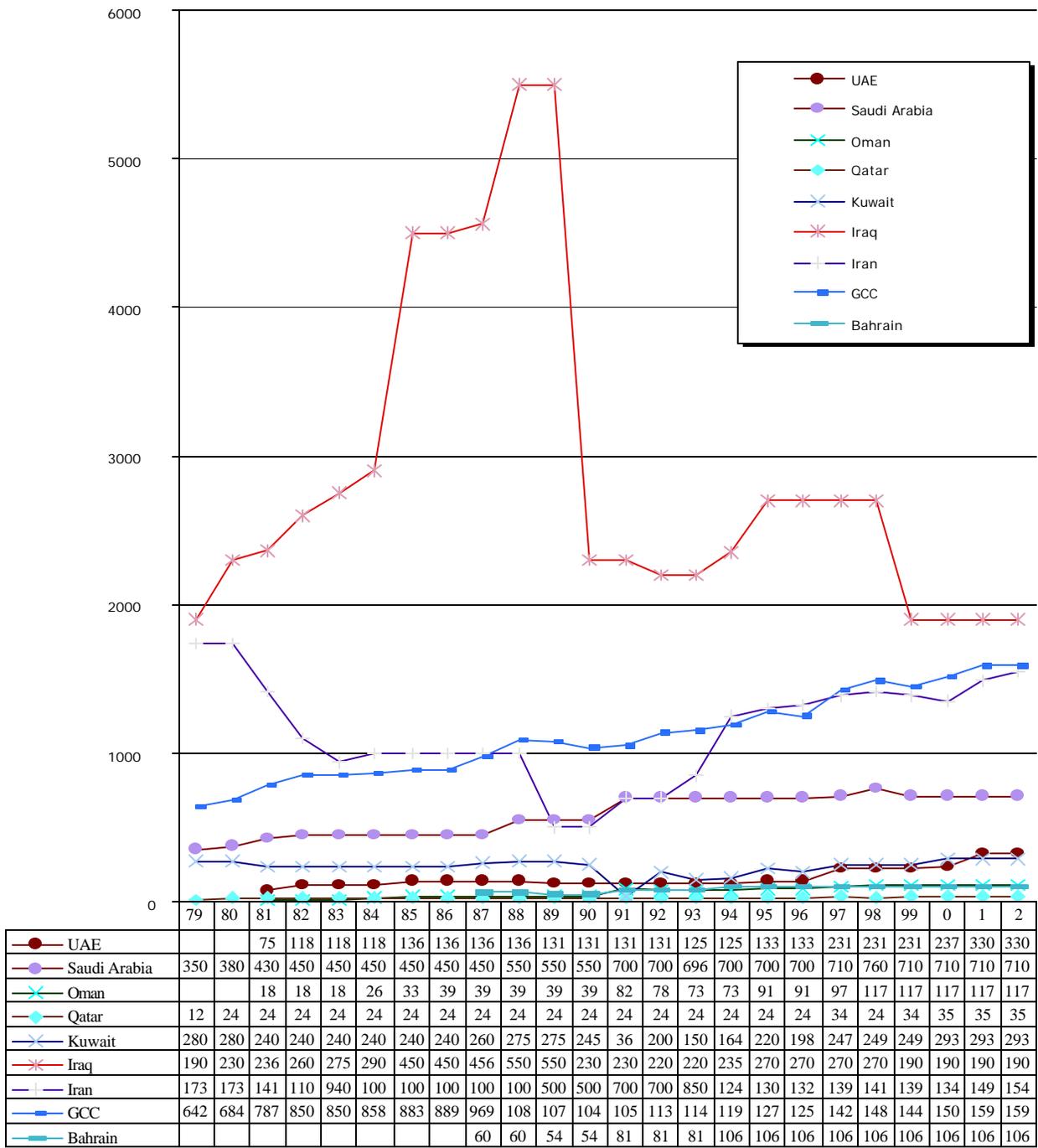
Source: Estimated by Anthony H. Cordesman using data from various editions of the IISS Military Balance, Jane's Sentinel, and Military Technology.

Total Gulf Operational Armored Fighting Vehicles - 2002



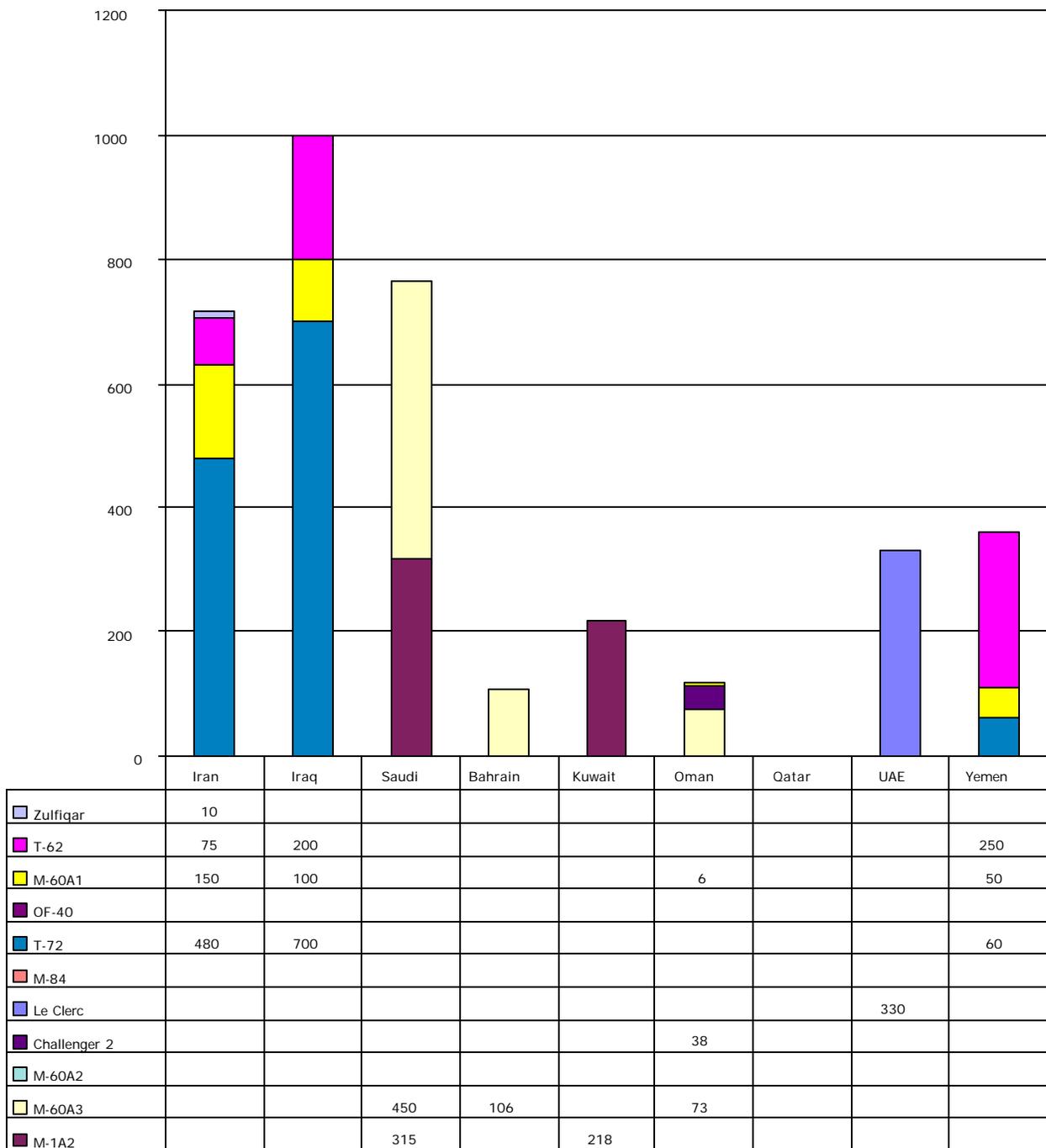
Source: Estimated by Anthony H. Cordesman using data from the IISS Military Balance, the on-line edition of Jane's Sentinel Security Assessment, and the on-line edition of Periscope.

Total Operational Tanks in All Gulf Forces 1990-2002



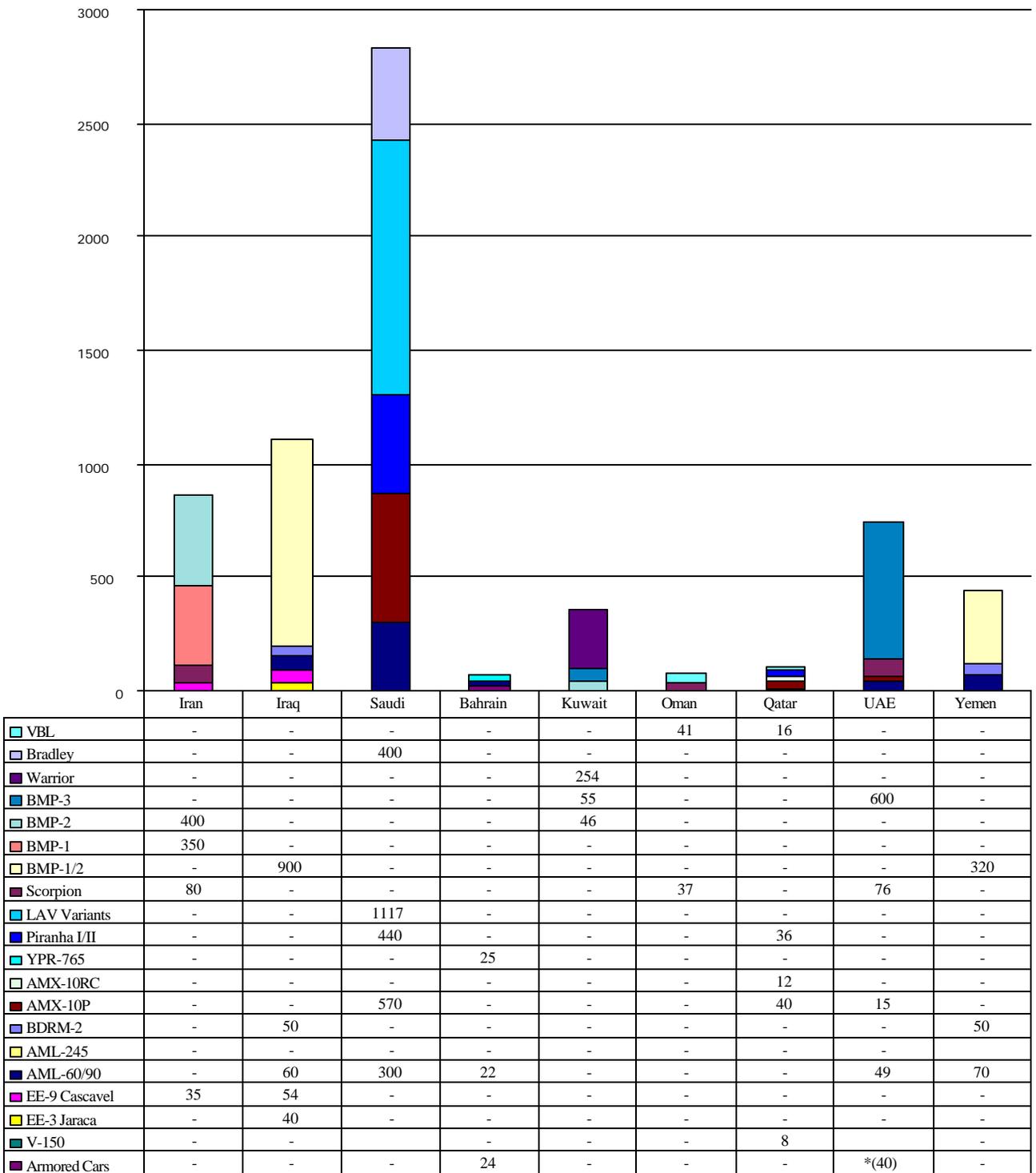
Note: Iran includes active forces in the Revolutionary Guards. Saudi Arabia includes active National Guard. Adapted by Anthony H. Cordesman from various sources and the IISS Military Balance, the on-line edition of Jane's Sentinel Security Assessment, and the on-line edition of Periscope.

Medium to High Quality Main Battle Tanks By Type in 2002



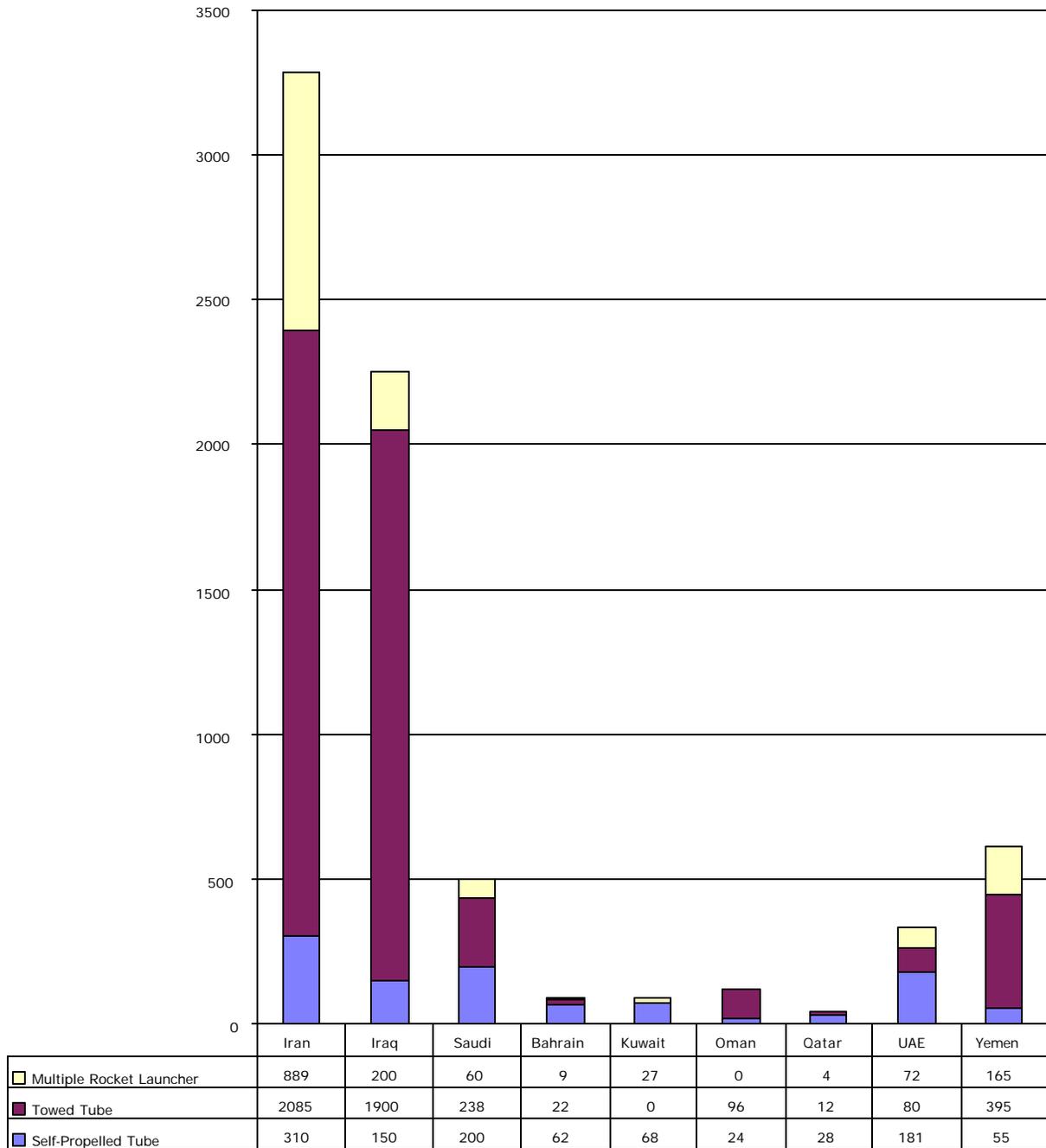
Note: Iran includes active forces in the Revolutionary Guards. Saudi Arabia includes active National Guard. Source: Adapted by Anthony H. Cordesman from the IISS, *Military Balance*, *Periscope*, JCSS, *Middle East Military Balance*, *Jane's Sentinel*, and *Jane's Defense Weekly*.

Advanced Armored Infantry Fighting Vehicles, Reconnaissance Vehicles, Scout Vehicles and Light Tanks by Type in 2002



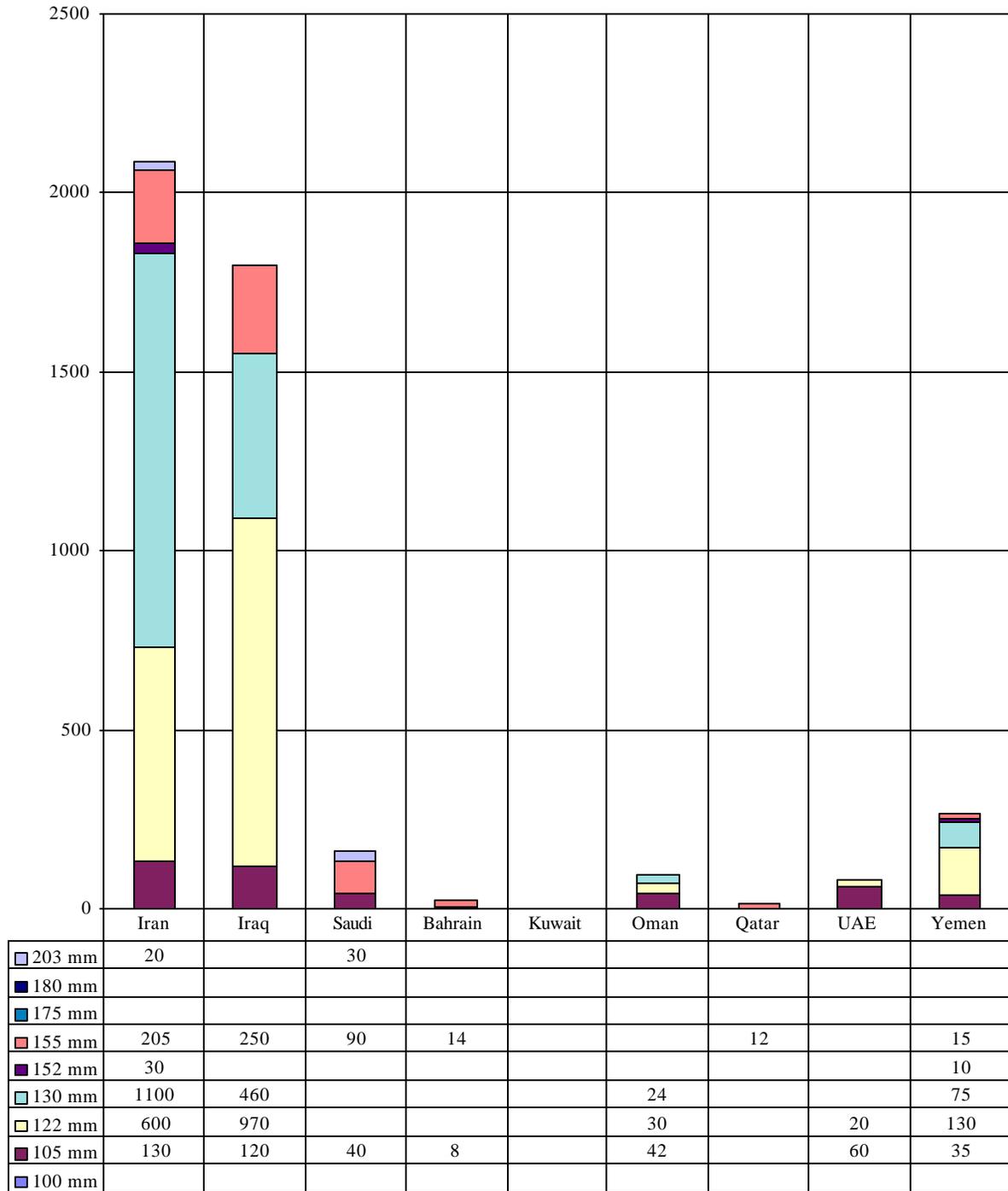
Source: Estimated by Anthony H. Cordesman using data from the IISS Military Balance, the on-line edition of Jane's Sentinel Security Assessment, and the on-line edition of Periscope.

Total Gulf Self-Propelled, Towed and Multiple Launcher Gulf Artillery By Category - 2002



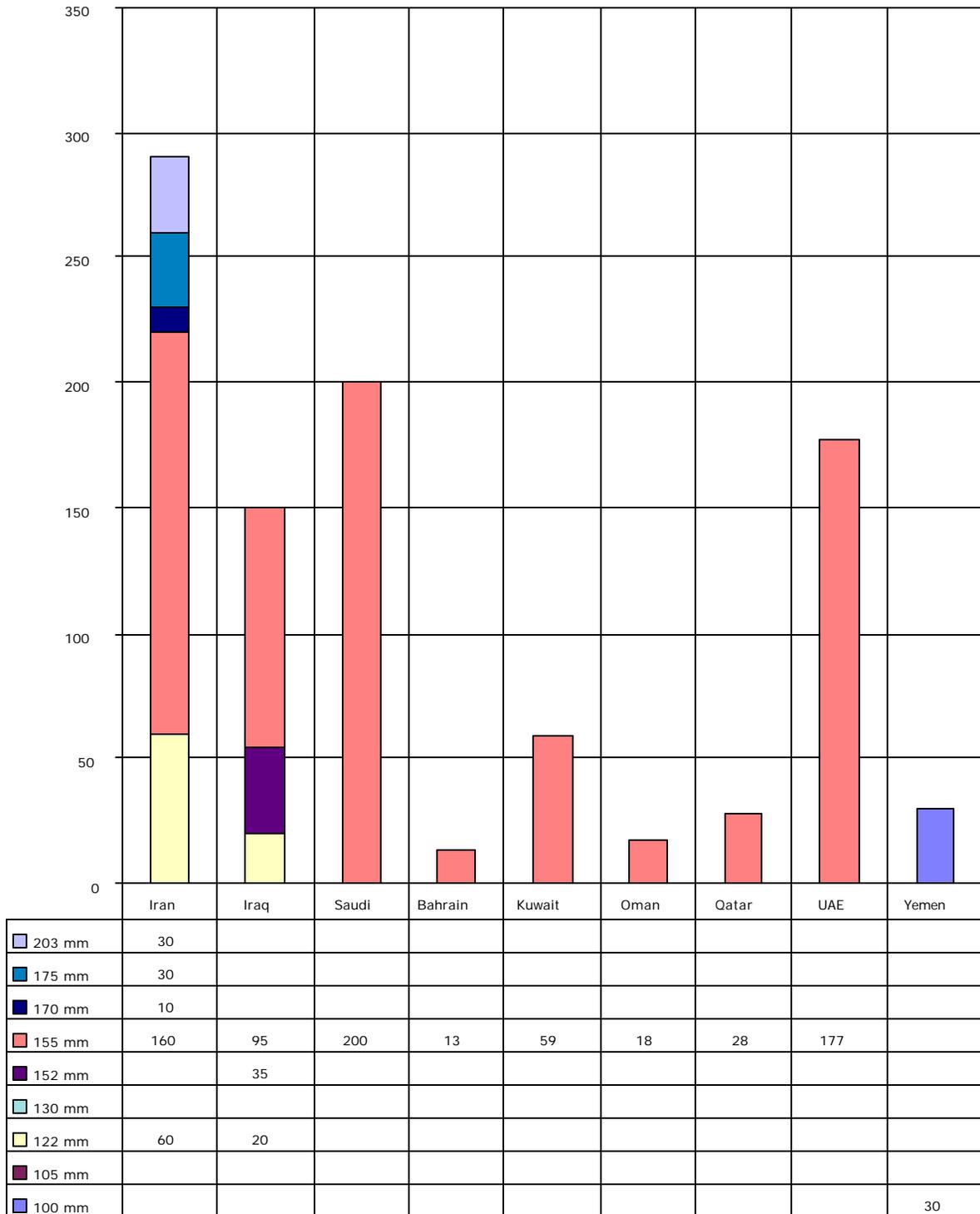
Source: Adapted by Anthony H. Cordesman from the IISS, Military Balance, Periscope, JCSS, Middle East Military Balance, Jane's Sentinel, Jane's Defense Weekly, and material provided by US experts.

Gulf Inventory of Towed Artillery by Caliber in 2002



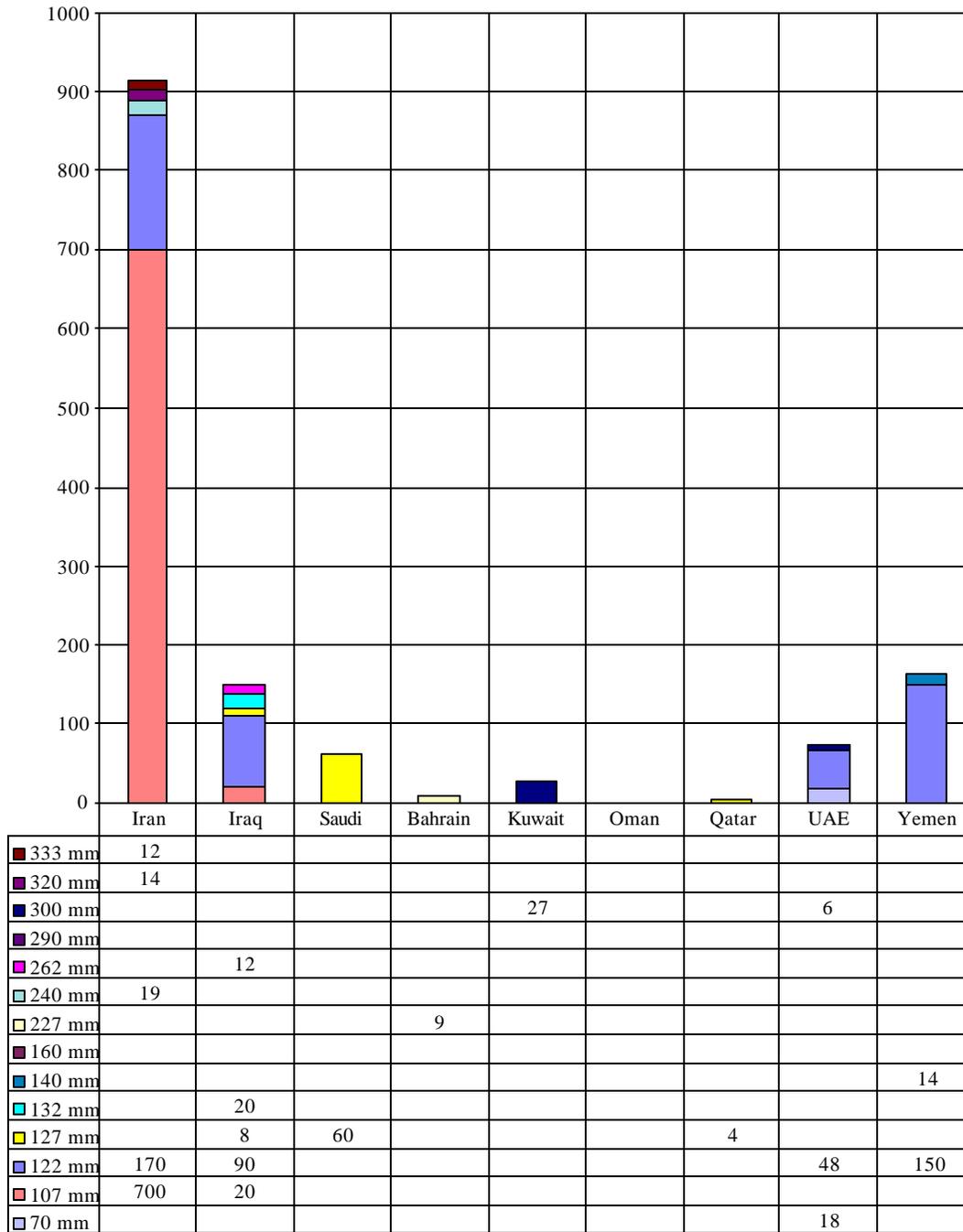
Source: Prepared by Anthony H. Cordesman, based upon discussions with US experts using data from the IISS Military Balance, the on-line edition of Jane's Sentinel Security Assessment, and the on-line edition of Periscope.

Gulf Inventory of Self-Propelled Artillery by Caliber in 2002



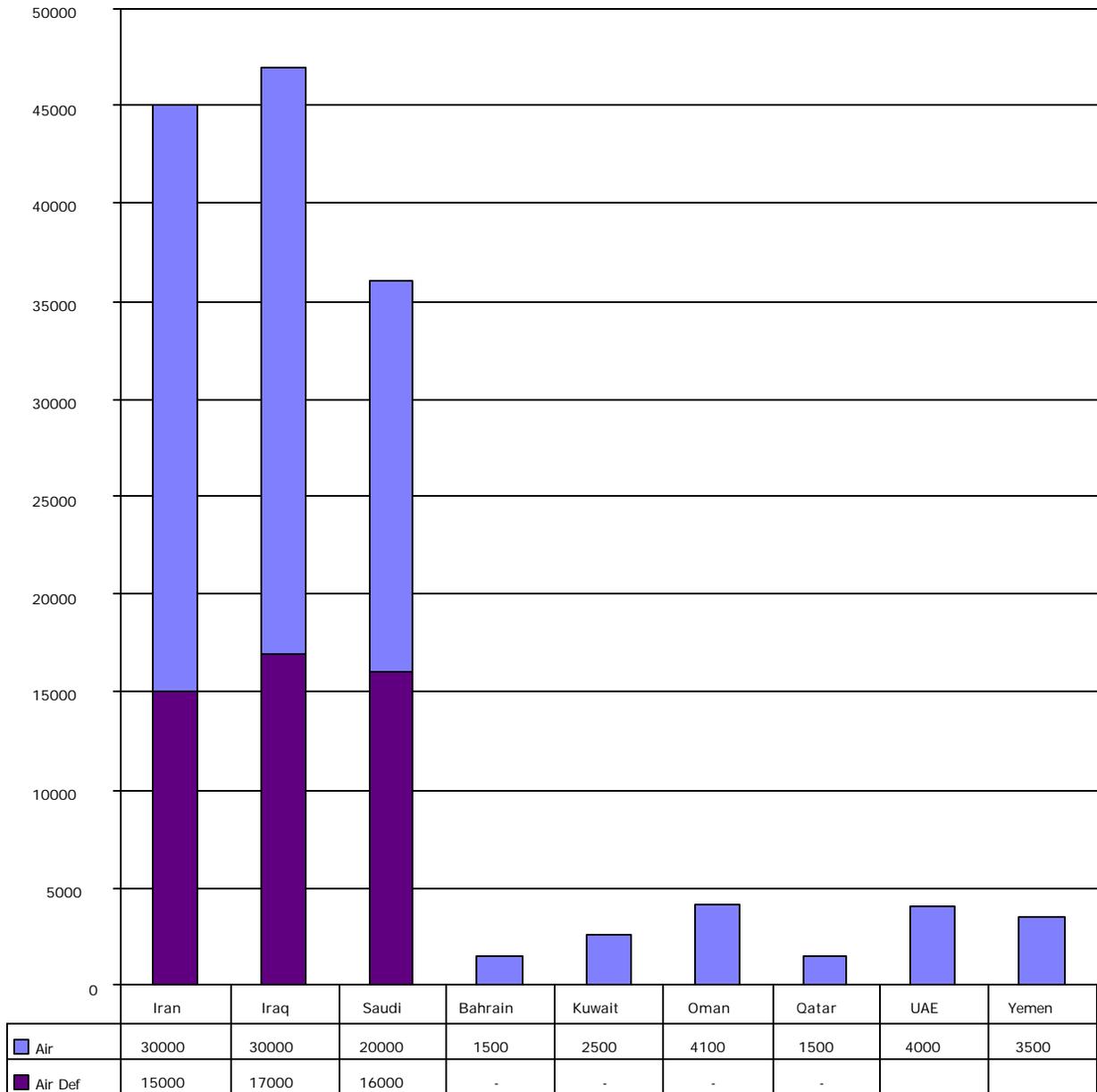
Note: Does not include weapons in full time storage, and does include Saudi National Guard and Iranian Revolutionary Guards. Source: Adapted by Anthony H. Cordesman from the IISS, Military Balance, Periscope, Jane's Sentinel, and Jane's Defense Weekly.

Gulf Inventory of Multiple Rocket Launchers by Caliber in 2002



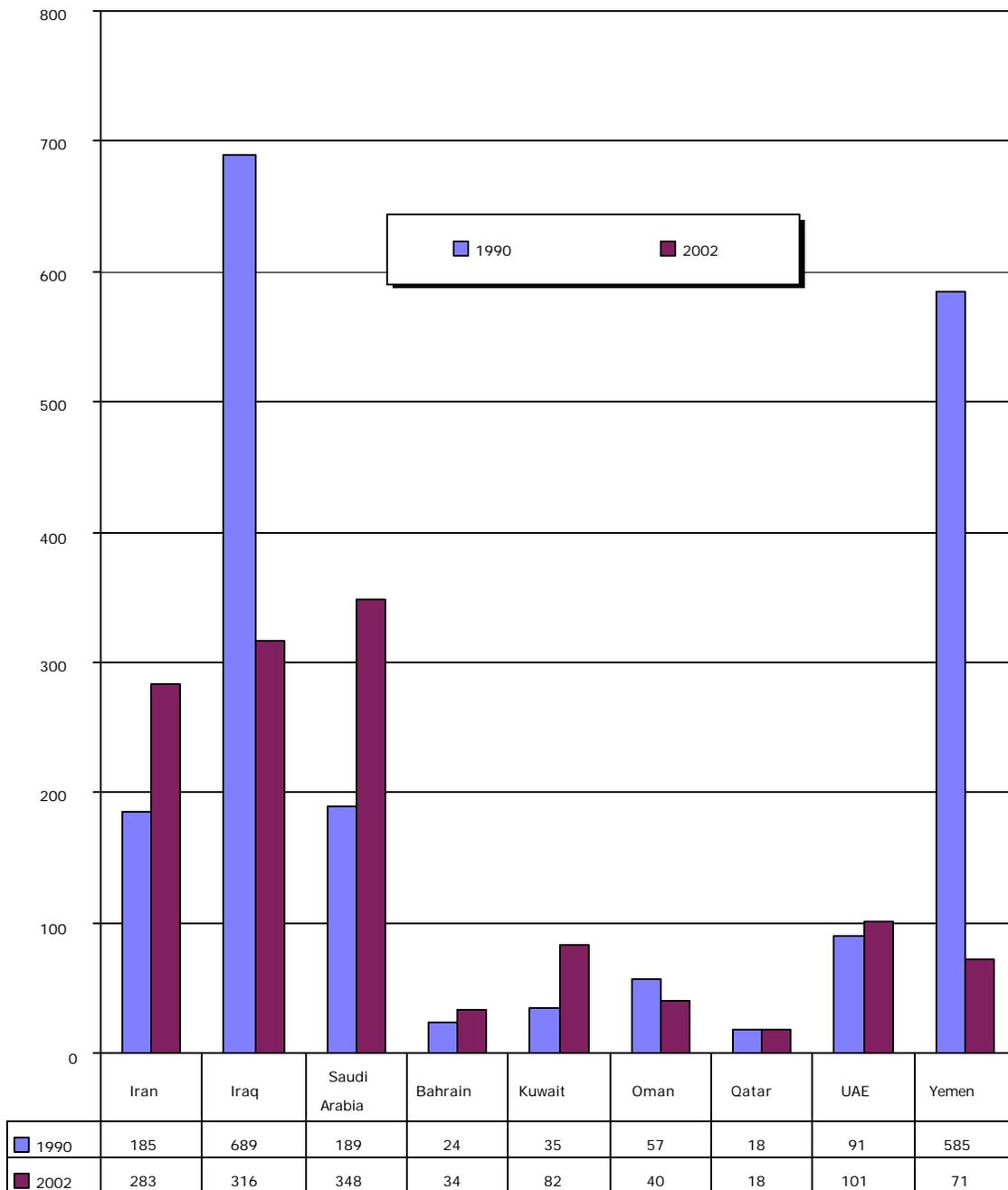
Note: Does not include weapons in full time storage, and does include Saudi National Guard and Iranian Revolutionary Guards.
 Source: Adapted by Anthony H. Cordesman from the IISS, Military Balance, Periscope, Jane's Sentinel, and Jane's Defense Weekly.

Total Gulf Air Force and Air Defense Manpower – 2002



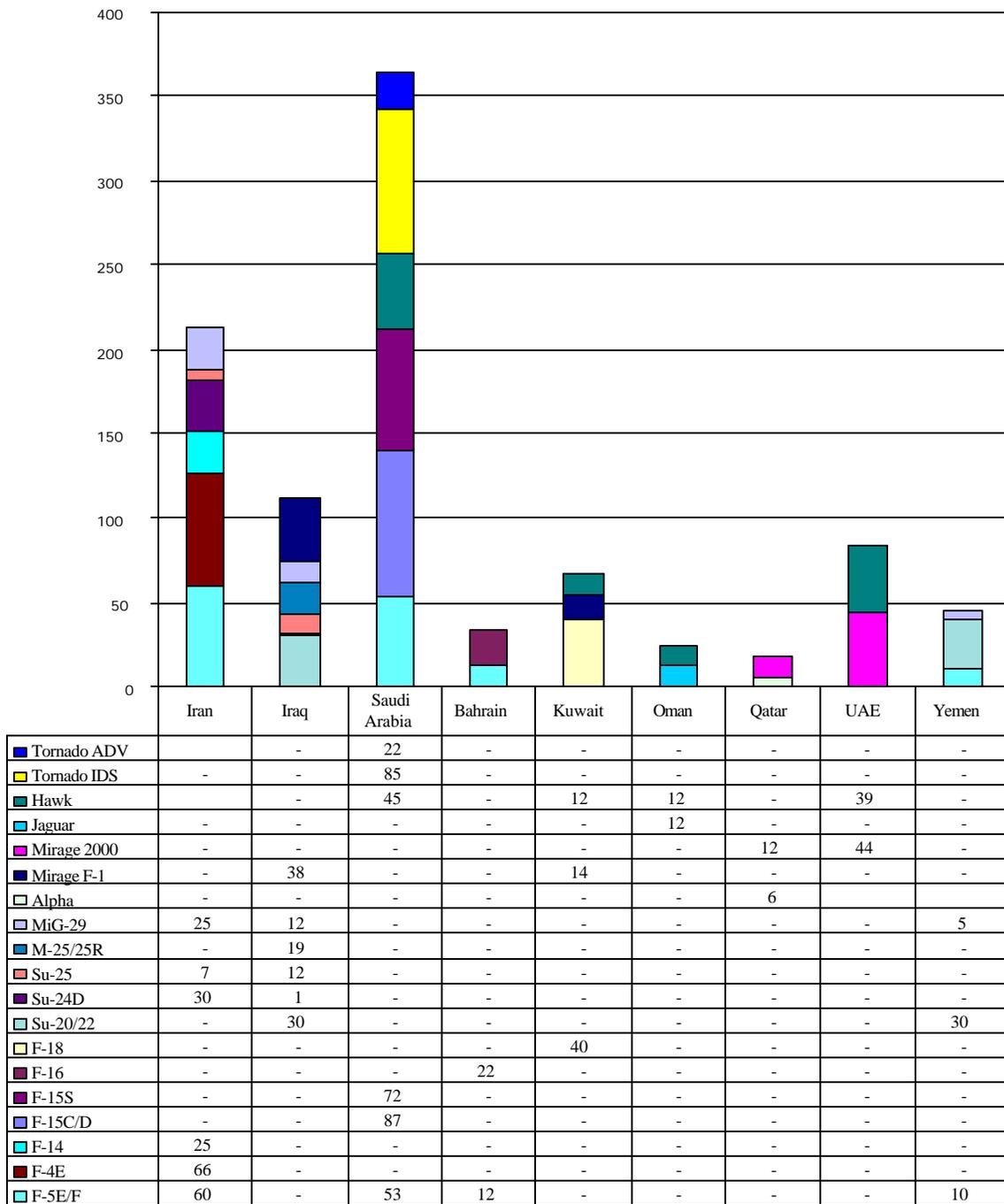
Source: Adapted by Anthony H. Cordesman from the IISS, Military Balance, Periscope, JCSS, Middle East Military Balance, Jane's Sentinel, and Jane's Defense Weekly, and material provided by US experts.

Total Operational Combat Aircraft in All Gulf Forces 1990-2002



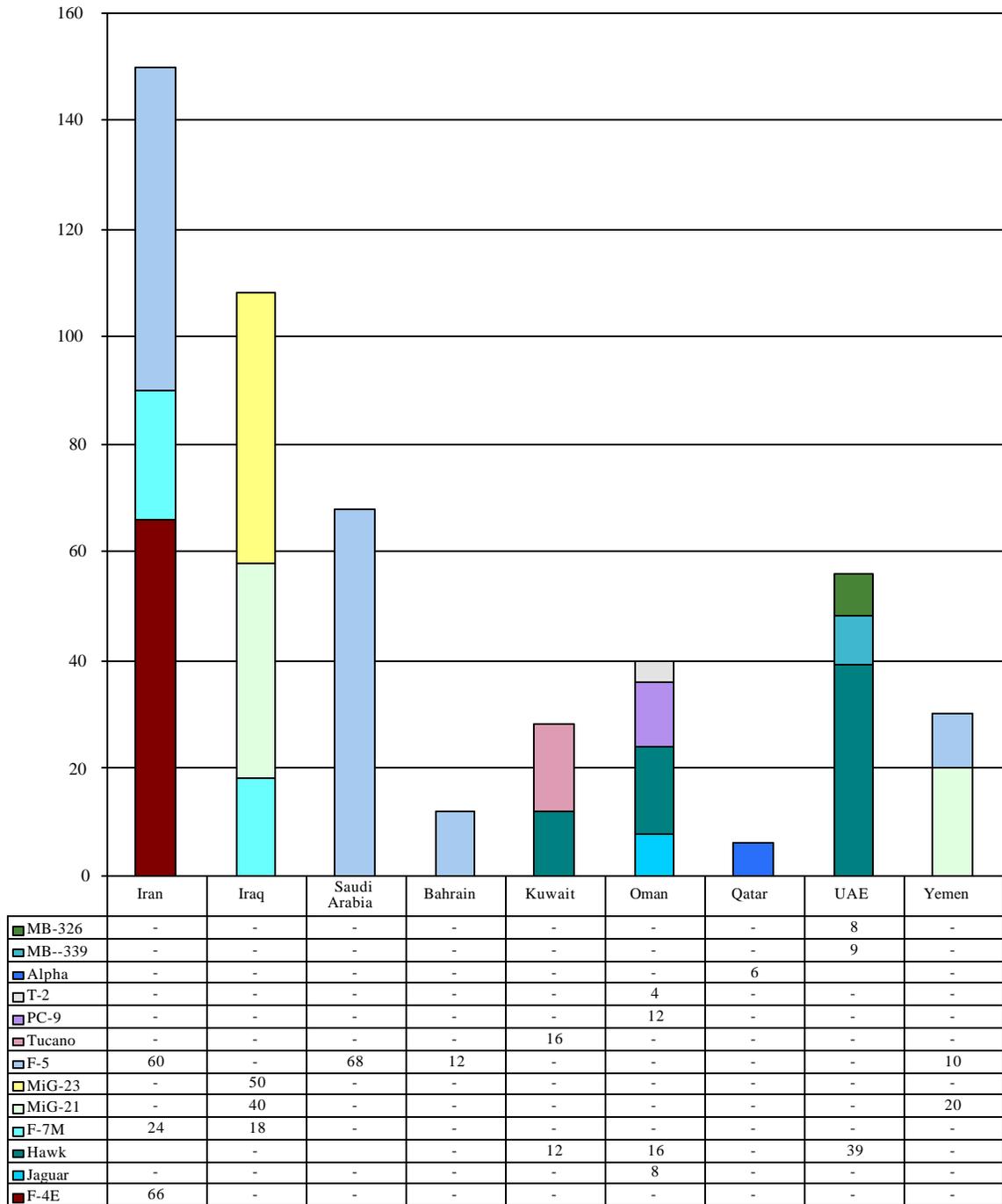
Source: Adapted by Anthony H. Cordesman from the IISS, Military Balance, Periscope, JCSS, Middle East Military Balance, Jane's Sentinel, and Jane's Defense Weekly, and material provided by US experts.

Gulf High and Medium Quality Fixed Wing Fighter, Fighter Attack, Attack, Strike, and Multi-Role Combat Aircraft By Type - 2002



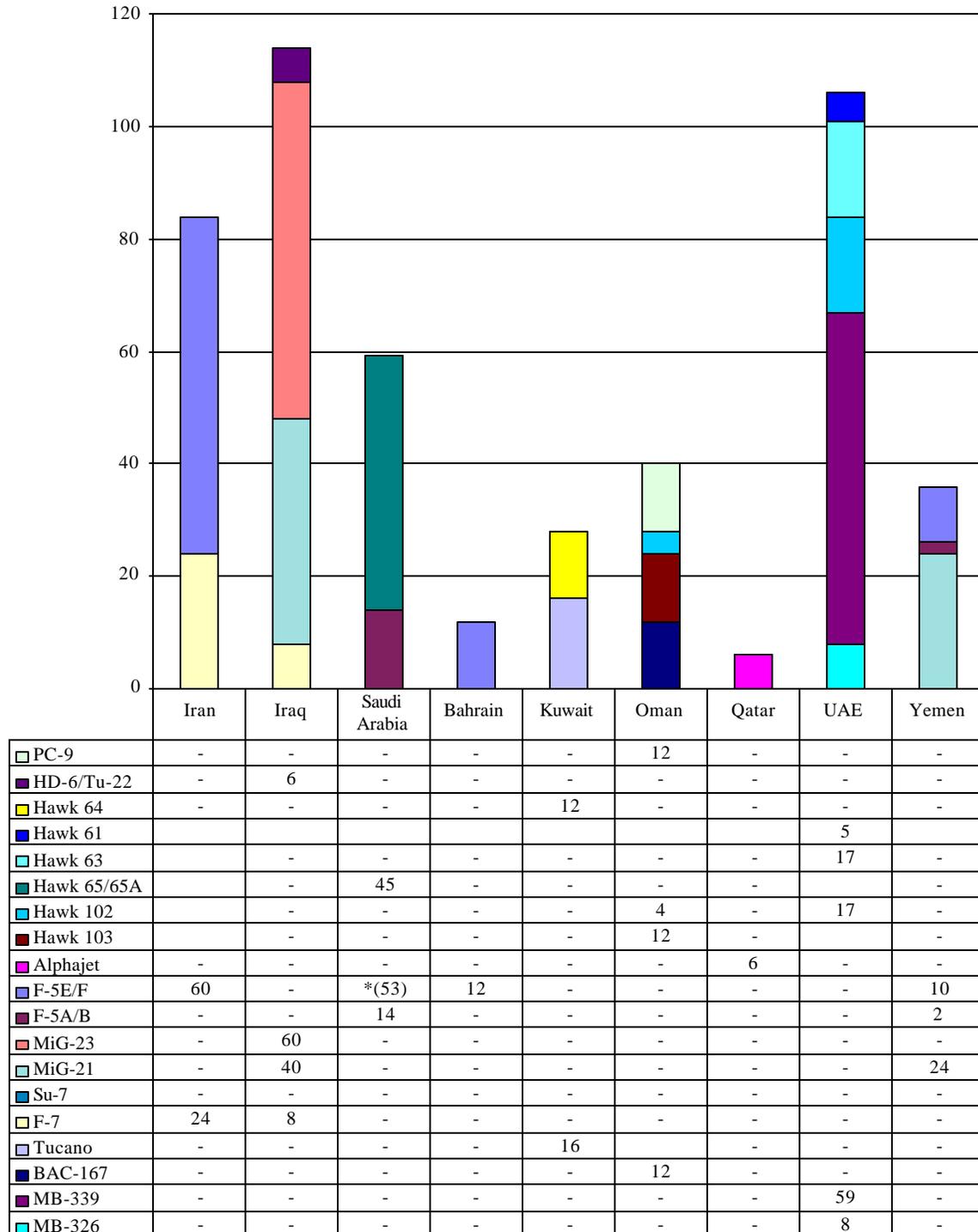
Source: Adapted by Anthony H. Cordesman from the IISS, [Military Balance](#), [Periscope](#), JCSS, [Middle East Military Balance](#), Jane's [Sentinel](#), and [Jane's Defense Weekly](#), and material provided by US experts.

Gulf Medium Quality Fixed Wing Fighter, Fighter Attack, Attack, Strike, and Multi-Role Combat Aircraft By Type - 2001



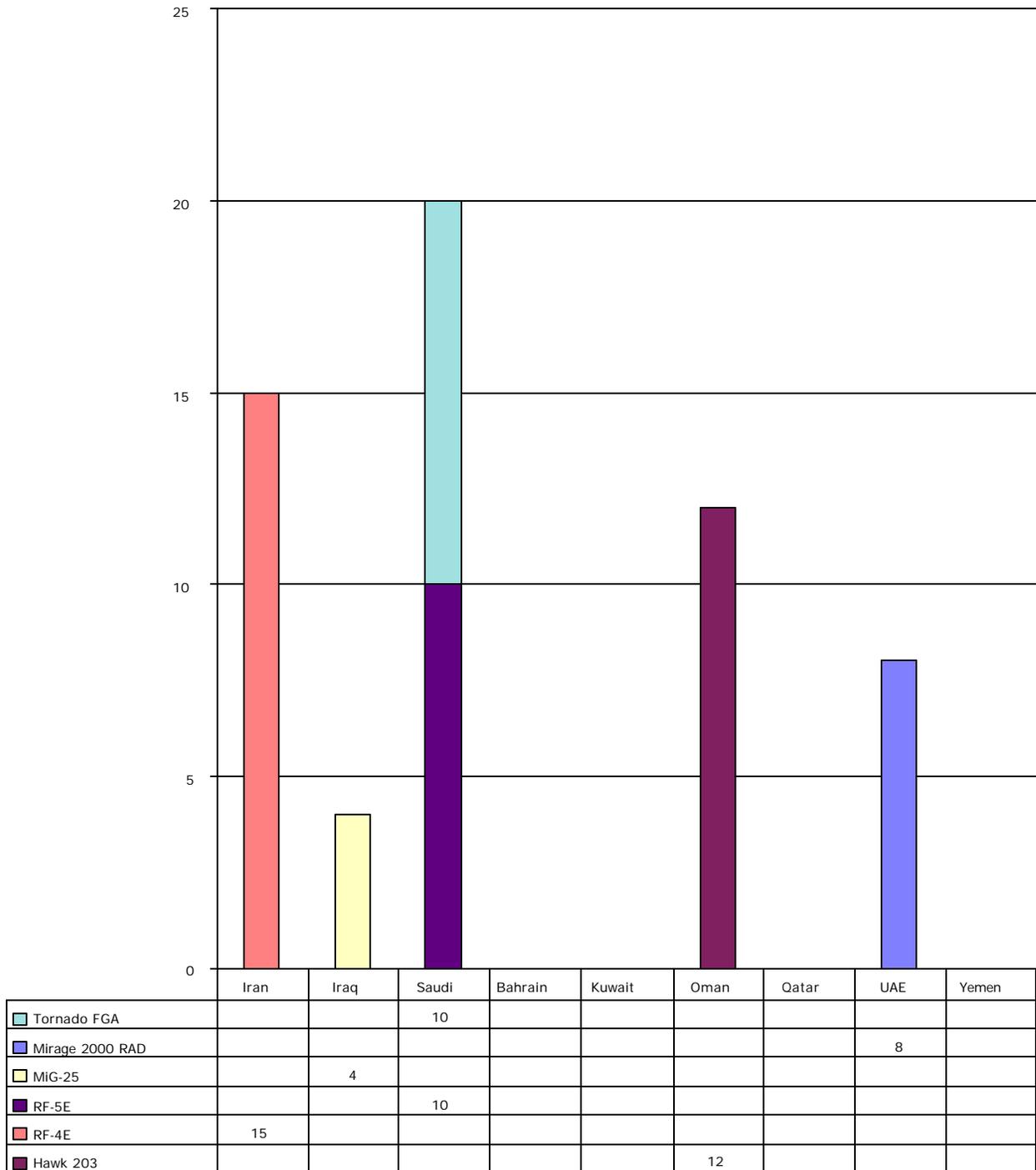
Source: Prepared by Anthony H. Cordesman, based upon discussions with US experts using data from the IISS Military Balance, the on-line edition of Jane's Sentinel Security Assessment, and the on-line edition of Periscope.

Gulf Low Quality Fixed Wing Fighter, Fighter Attack, Attack, Strike, and Multi-Role Combat Aircraft By Type - 2002



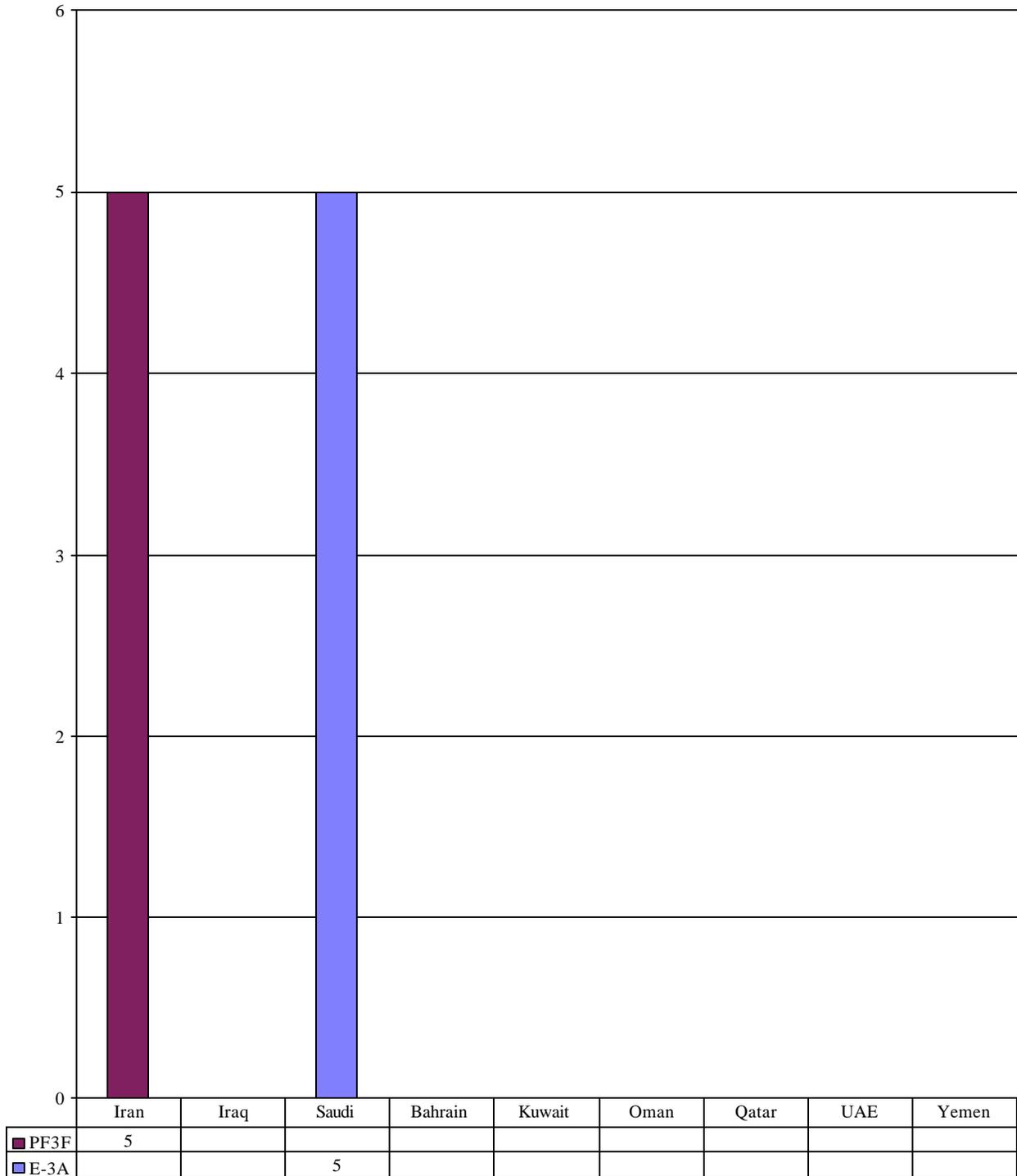
Source: Adapted by Anthony H. Cordesman from the IISS, Military Balance, Periscope, JCSS, Middle East Military Balance, Jane's Sentinel, and Jane's Defense Weekly, and material provided by US experts.

Gulf Reconnaissance Aircraft in 2002



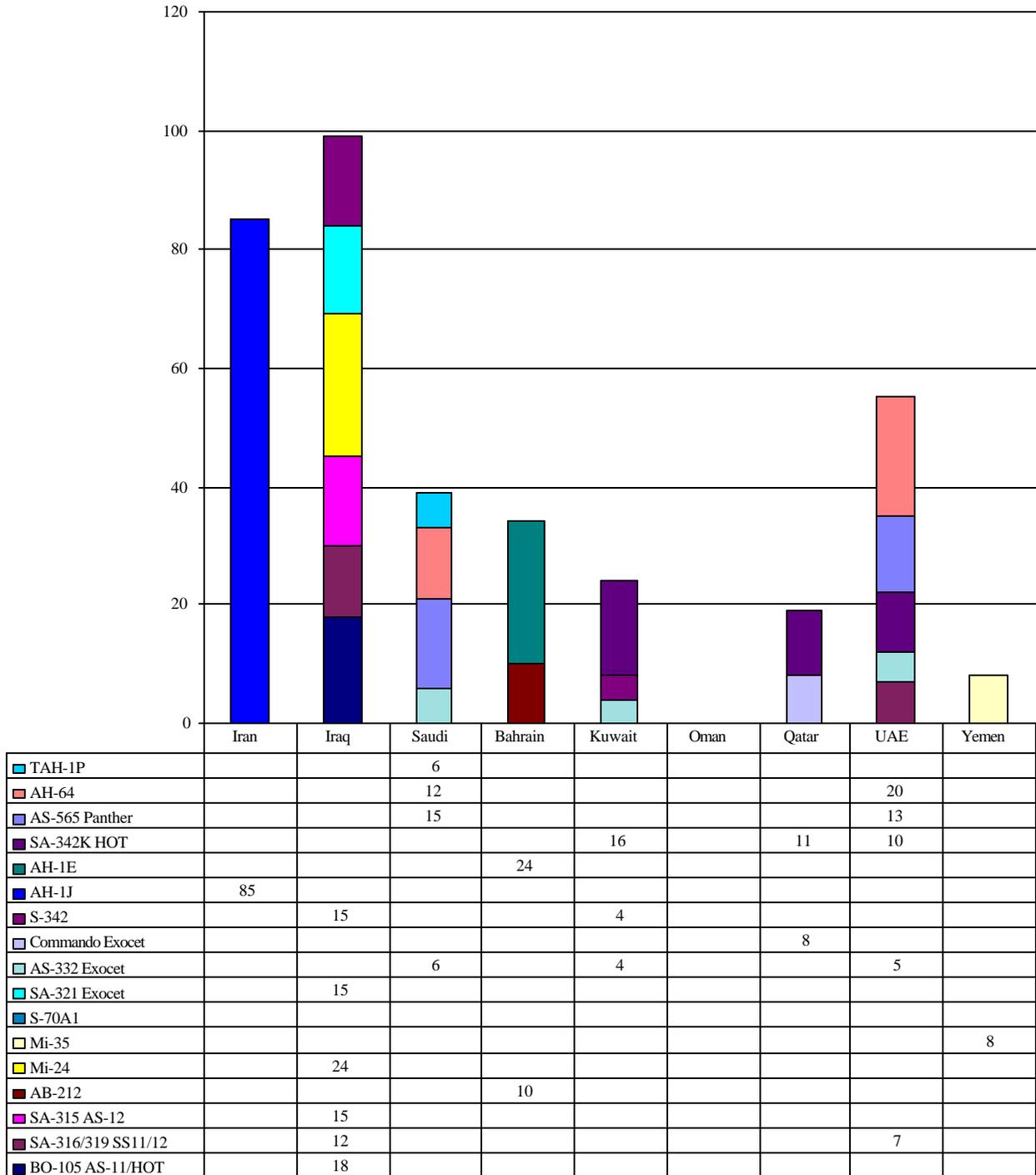
Source: Adapted by Anthony H. Cordesman from the IISS, Military Balance, Periscope, JCSS, Middle East Military Balance, Jane's Sentinel, and Jane's Defense Weekly, and material provided by US experts.

Sensor, AWACs, C4I, EW and Elint Aircraft in 2002



Source: Adapted by Anthony H. Cordesman from the IISS, [Military Balance](#), [Periscope](#), JCSS, [Middle East Military Balance](#), Jane's [Sentinel](#), and [Jane's Defense Weekly](#), and material provided by US experts.

Gulf Attack Helicopters in 2002



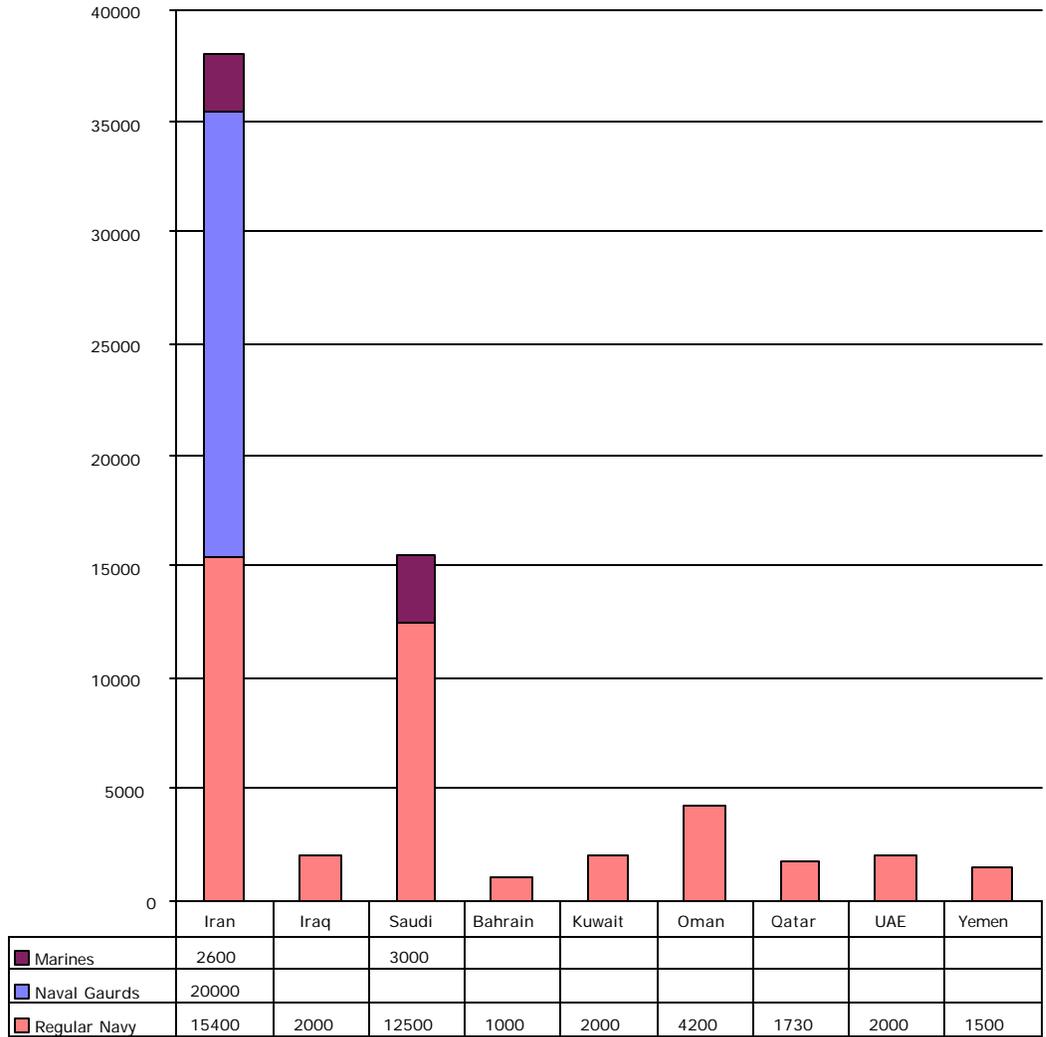
Source: Adapted by Anthony H. Cordesman from the IISS, Military Balance, Periscope, JCSS, Middle East Military Balance, Jane's Sentinel, and Jane's Defense Weekly, and material provided by US experts.

Gulf Land-Based Air Defense Systems in 2002

<u>Country</u>	<u>Major SAM</u>	<u>Light SAM</u>	<u>AA Guns</u>
<u>Bahrain</u>	8 IHawk	60 RBS-70 18 Stinger 7 Crotale	15 Oerlikon 35 mm 12 L/70 40 mm
<u>Iran</u>	16/150 IHawk 3/10 SA-5 45 HQ-2J (SA-2) ? SA-2	SA-7 <u>HN-5</u> 5/30 Rapier FM-80 (Ch Crotale) 15 Tigercat SA-7 Stinger (?)	1,700 Guns ZU-23, ZSU-23-4, ZSU-57-2, KS-19 ZPU-2/4, M-1939, Type 55
<u>Iraq</u>	SA-2 SA-3 SA-6	Roland 1,500 SA-7 (SA-8 (SA-9 (SA-13 (SA-14, SA-16	6,000 Guns ZSU-23-4 23 mm, M-1939 37 mm, ZSU-57-2 SP, 57 mm 85 mm, 100 mm, 130 mm
<u>Kuwait</u>	4/24 IHawk 4/16 Patriot	6/12 Aspede 48 Starburst	6/2X35mm Oerlikon
<u>Oman</u>	None	Blowpipe 34 SA-7 <u>14 Javelin</u> 40 Rapier	10 GDF 35 mm 4 ZU-23-2 23 mm 12 L-60 40 mm
<u>Qatar</u>	None	10 Blowpipe <u>12 Stinger</u> 9 Roland 20 SA-7, 24 Mistral	?
<u>Saudi Arabia</u>	16/128 IHawk 8/? Patriot	189 Crotale 400 Stinger 500 Mistral <u>500 Redeye</u> 17/68 Shahine mobile 40 Crotale 73 Shahine static	50-73 AMX-30SA 30 mm 92 M-163 Vulcan 150 L-70 40 mm (in store)
<u>UAE</u>	5/30 IHawk Bty.	20+ Blowpipe <u>Mistral</u> 12 Rapier 9 Crotale 13 RBS-70 100 Mistral	42 M-3VDA 20 mm SP 20 GCF-BM2 30 mm
<u>Yemen</u>	SA-2, SA3, SA-6	<u>SA-7, SA-9, SA13, SA-14</u> 800 SA-7/9/13/14	50 M-167 20mm 20 M-163 Vulcan 20mm 100 ZSU-23-4 23 mm 150 M-1939 23 mm 120 S-60 37 mm KS-12 85 mm

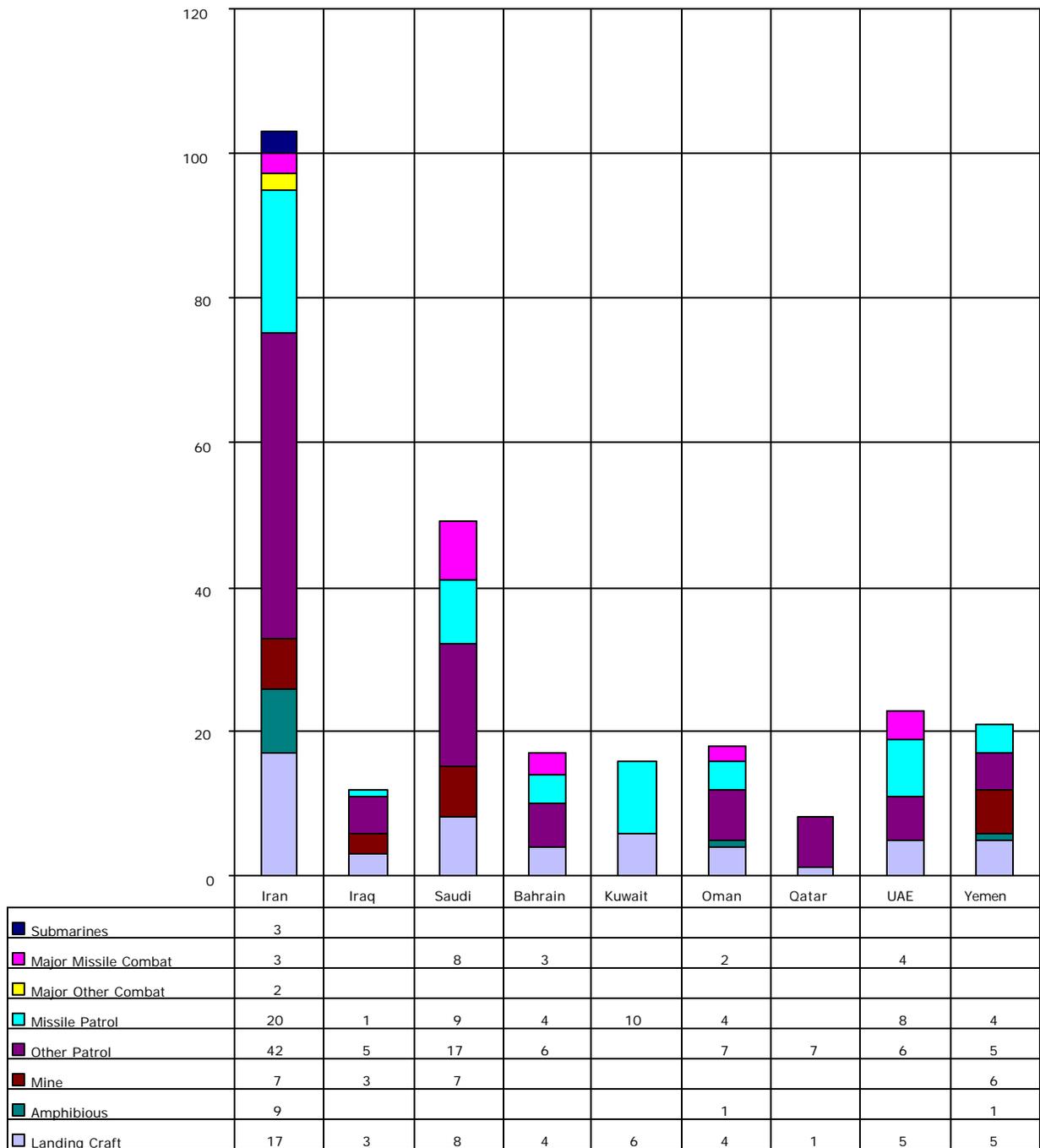
Source: Adapted by Anthony H. Cordesman from the IISS, [Military Balance](#), [Periscope](#), JCSS, [Middle East Military Balance](#), Jane's [Sentinel](#), and [Jane's Defense Weekly](#), and material provided by US experts.. Some data adjusted or estimated by the author.

Total Gulf Naval Manpower in 2002



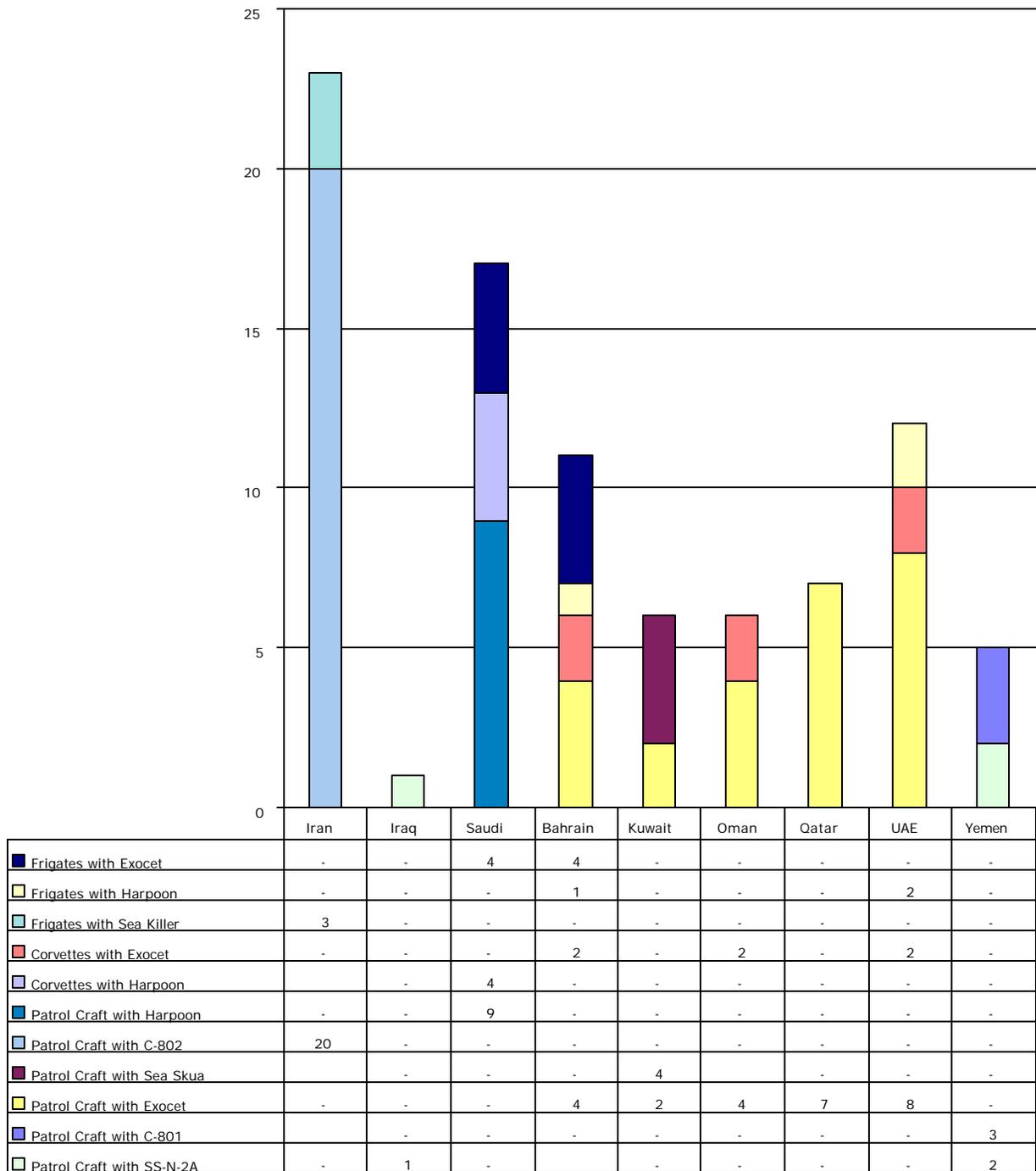
Source: Adapted by Anthony H. Cordesman from the IISS, [Military Balance](#), [Periscope](#), JCSS, [Middle East Military Balance](#), Jane's Fighting Ships, 2000-2001, Jane's [Sentinel](#), and [Jane's Defense Weekly](#)., and material provided by US experts .

Gulf Naval Ships by Category in 2002



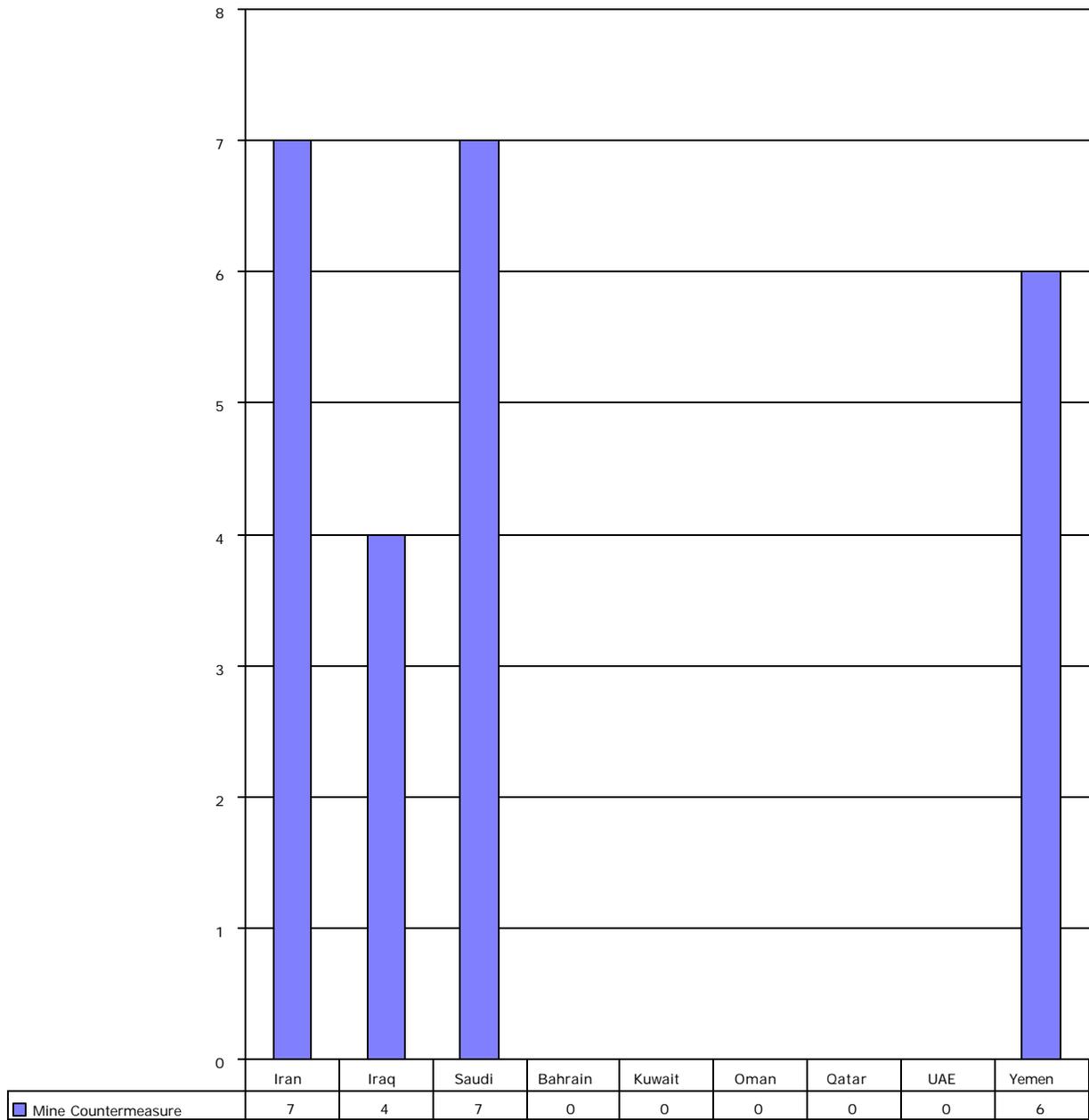
Source: Adapted by Anthony H. Cordesman from the IISS, Military Balance, Periscope, JCSS, Middle East Military Balance, Jane's Fighting Ships, 2000-2001, Jane's Sentinel, and Jane's Defense Weekly., and material provided by US experts.

Gulf Warships with Anti-Ship Missiles in 2002



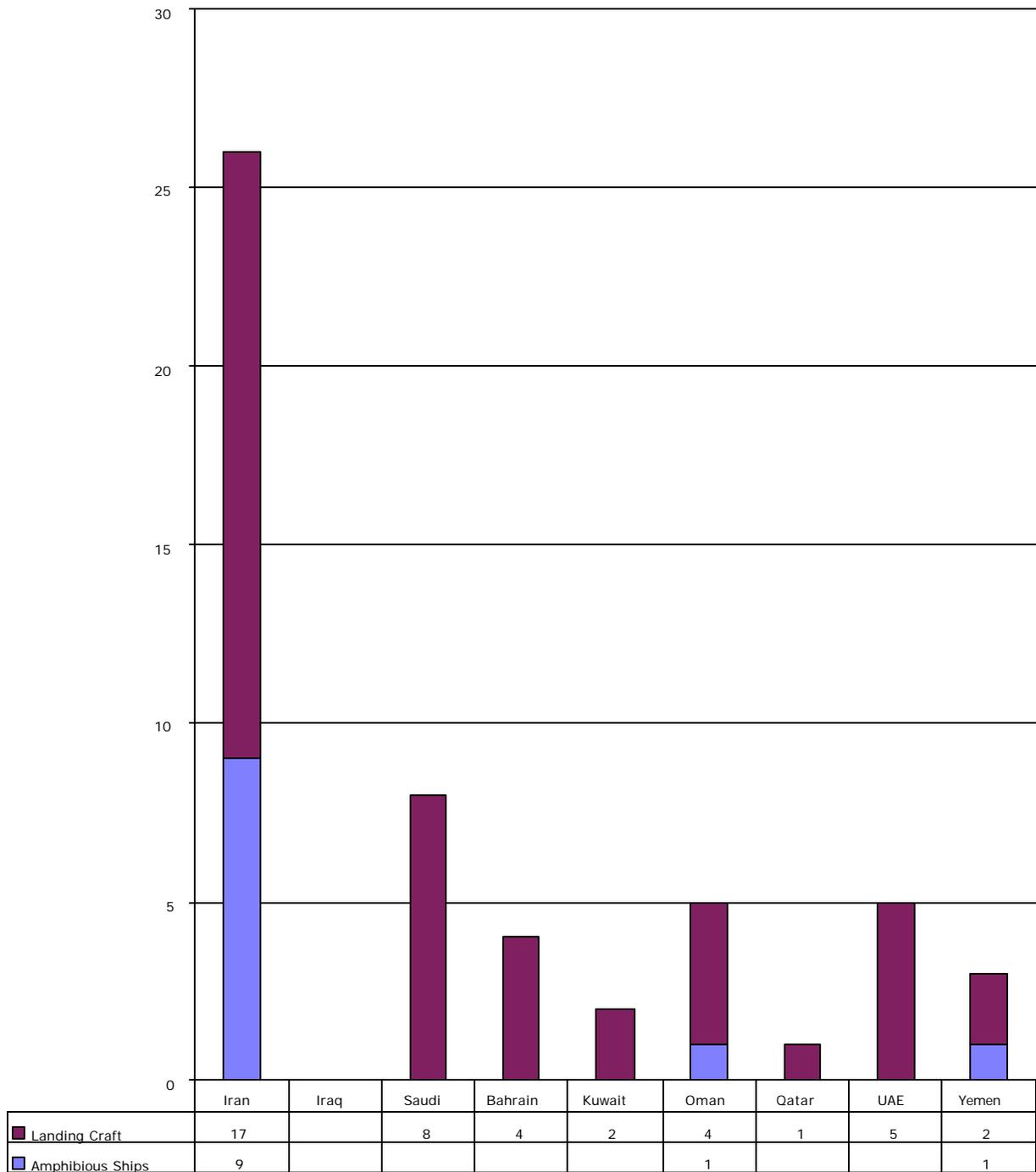
Source: Adapted by Anthony H. Cordesman from the IISS, *Military Balance, Periscope*, JCSS, *Middle East Military Balance*, Jane's Fighting Ships, 2000-2001, Jane's *Sentinel*, and *Jane's Defense Weekly*, and material provided by US experts.

Gulf Mine Warfare Ships in 2002



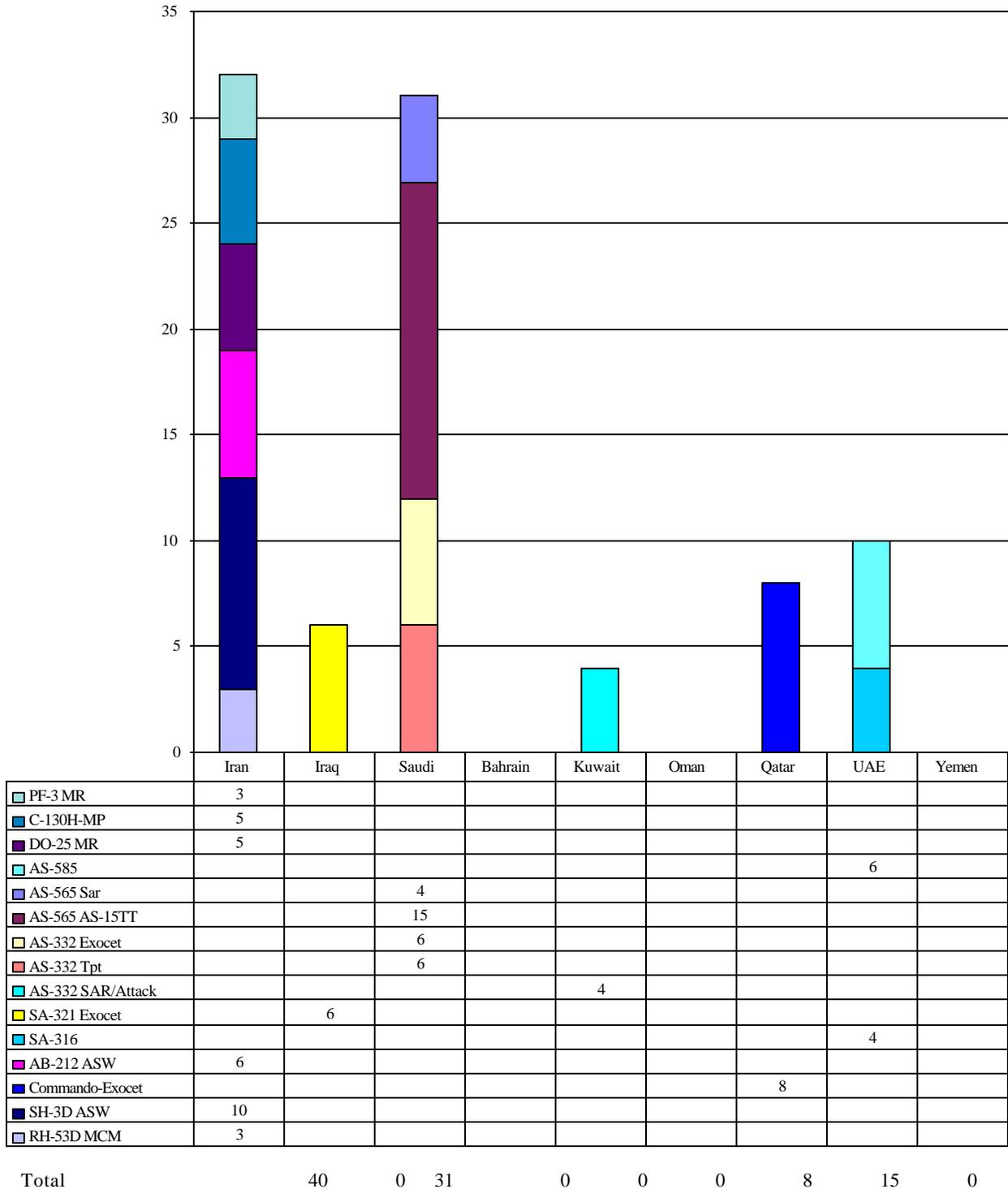
Source: Adapted by Anthony H. Cordesman from the IISS, Military Balance, Periscope, JCSS, Middle East Military Balance, Jane's Fighting Ships, 2000-2001, Jane's Sentinel, and Jane's Defense Weekly., and material provided by US experts.

Gulf Amphibious Warfare Ships in 2002



Source: Adapted by Anthony H. Cordesman from the IISS, *Military Balance*, *Periscope*, JCSS, *Middle East Military Balance*, Jane's Fighting Ships, 2000-2001, Jane's *Sentinel*, and *Jane's Defense Weekly*, and material provided by US experts.

Gulf Naval Aircraft and Helicopters Aircraft in 2002



Source: Adapted by Anthony H. Cordesman from the IISS, *Military Balance*, *Periscope*, JCSS, *Middle East Military Balance*, Jane's Fighting Ships, 2000-2001, Jane's *Sentinel*, and *Jane's Defense Weekly*, and material provided by US experts .

Gulf Arms Buys by Supplier: 1987-2000

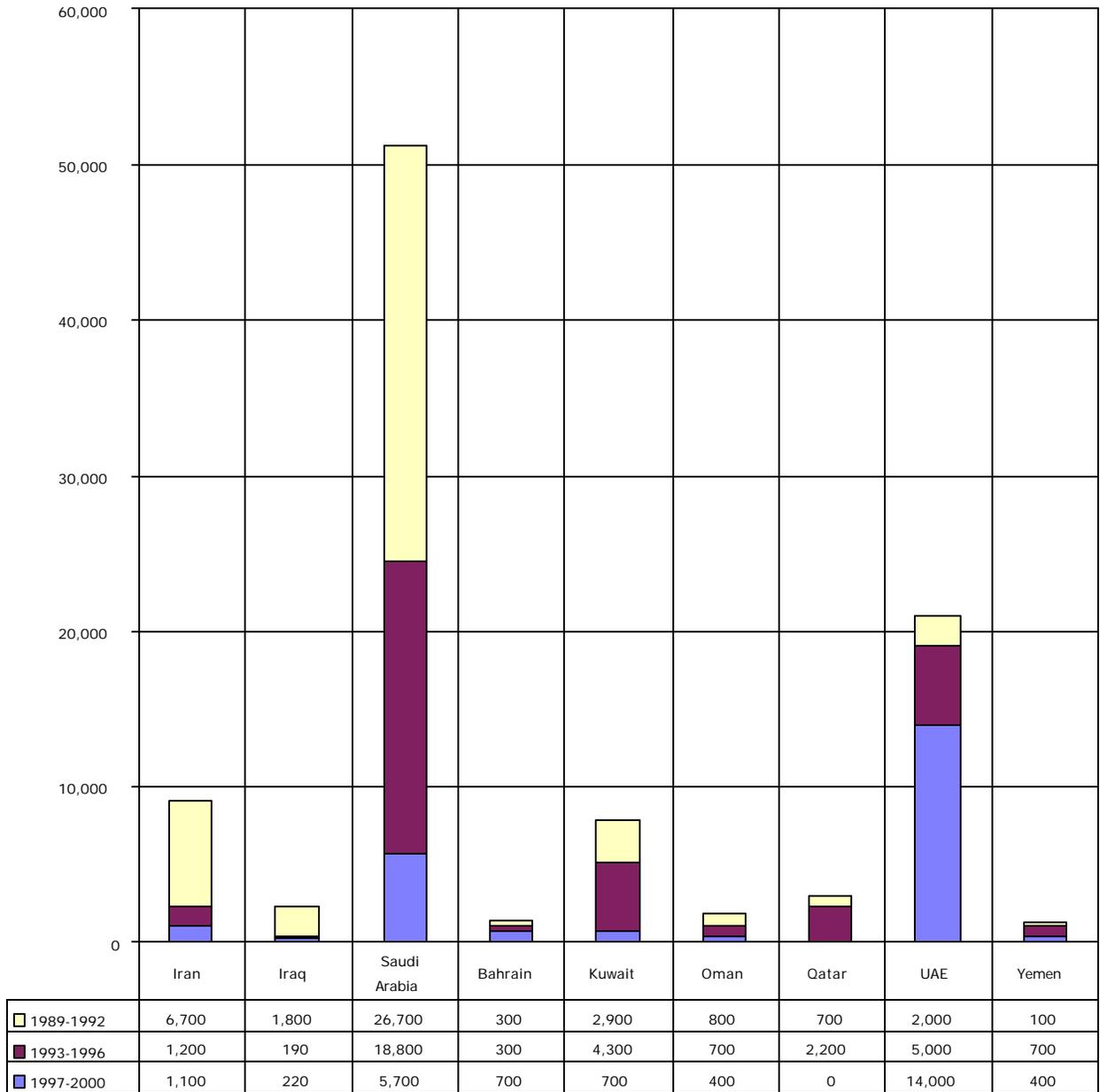
(New arms agreements in current US \$millions)

Buyer Country	Supplier Country						Total
	US	Russia	China	Major West European	Other European	All Others	
Iran							
1987-90	0	3,500	2,300	200	1,200	1,600	8,800
1991-94	0	200	200	100	100	600	1,200
1995-98	0	200	800	0	300	100	1,400
1996-99	0	200	800	0	100	0	1,100
1997-2000	0	300	600	100	100	200	1,300
Iraq							
1987-90	0	300	700	500	500	1,000	3,000
1991-94	0	0	0	0	0	0	0
1995-98	0	0	0	0	0	0	0
1996-99	0	0	0	0	0	0	0
1997-2000	0	0	0	0	0	0	0
Bahrain							
1987-90	300	0	0	0	0	0	300
1991-94	200	0	0	0	0	0	200
1995-98	500	0	0	0	0	0	500
1996-99	500	0	0	0	0	0	500
1997-2000	700	0	0	0	0	0	700
Kuwait							
1987-90	2,500	200	0	200	200	200	3,300
1991-94	3,500	800	0	1,800	0	100	6,200
1995-98	900	0	200	700	100	0	1,900
1996-99	800	0	200	100	0	0	1,100
1997-2000	500	0	200	0	0	0	700
Oman							
1987-90	100	0	0	600	0	0	700
1991-94	0	0	0	500	0	100	600
1995-98	0	0	0	300	100	100	500
1996-99	0	0	0	300	100	0	400
1997-2000	0	0	0	300	100	0	400
Qatar							
1987-90	0	0	0	0	0	0	0
1991-94	0	0	0	2,000	0	0	2,000
1995-98	0	0	0	900	0	0	900
1996-99	0	0	0	800	0	0	800
1997-2000	0	0	0	0	0	0	0
Saudi Arabia							
1987-90	18,800	200	300	23,000	2,300	200	44,800
1991-94	15,600	0	0	6,600	100	0	22,300
1995-98	5,100	0	0	1,700	800	300	7,900
1996-99	5,500	0	0	400	900	300	7,100
1997-2000	4,300	0	0	0	1,100	300	5,700
UAE							
1987-90	300	0	0	300	0	400	1,000
1991-94	300	500	0	3,900	100	0	4,800
1995-98	100	400	0	6,000	800	100	7,400
1996-99	300	400	0	6,000	800	200	7,700
1997-2000	6,800	800	-	6,000	200	200	14,000

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.

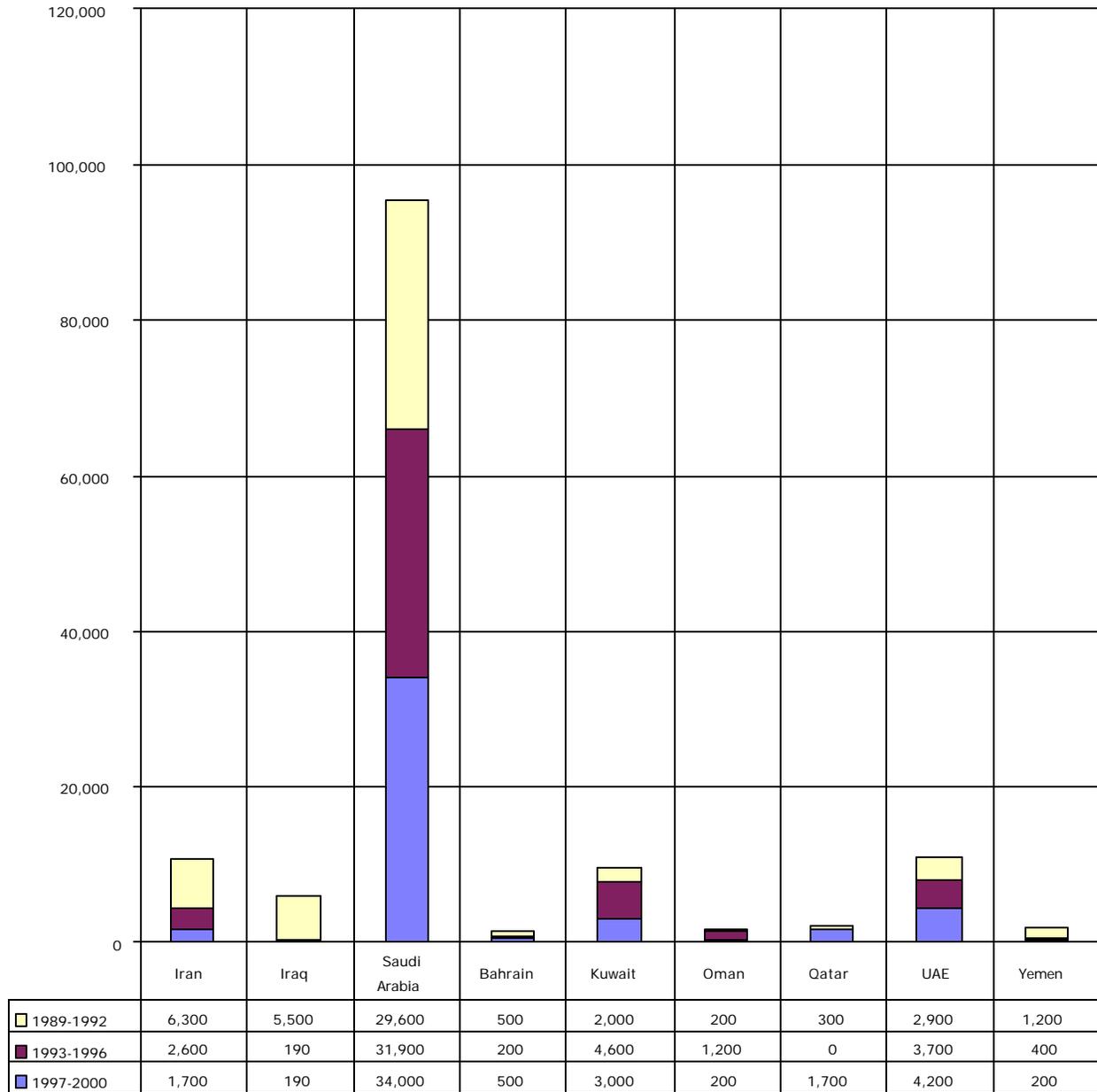
Total Gulf New Arms Agreements from the Gulf War to 2000 (\$Current US Millions)



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.

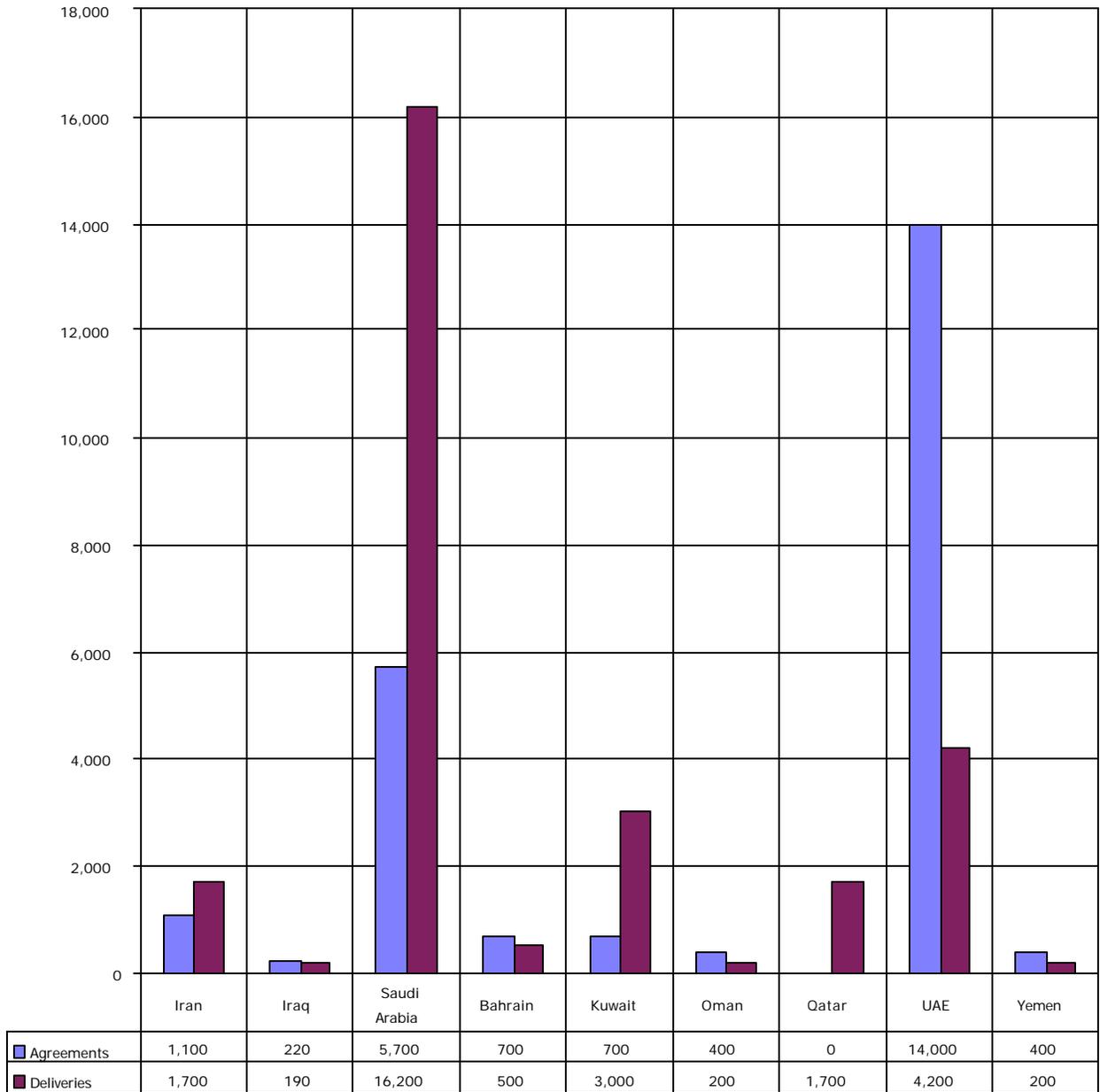
Total Gulf New Arms Deliveries from the Gulf War to 2000 (\$Current US Millions)



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.

Total Gulf New Arms Agreements and Deliveries 1997-2000 (\$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.

Iraq - Overview

- Iraqi purchases matched Saudi purchases during the mid-1980s, but Iraqi deliveries in current US dollars dropped from \$11 billion annually during 1988-1991 to below \$200 million annually in 1992-1995.
- Comparisons of Iraqi new agreements and arms deliveries by supplier country reveal a drastic decline in new agreements before the Gulf War that would have seriously compromised Iraq's import-dependent forces even without the Gulf War.
 - New agreements with Russia dropped from \$11.8 billion in 1983-1986 to \$4.1 billion in 1987-1990, before dropping to zero after 1991.
 - New agreements with China dropped from \$1.7 billion in 1983-1986 to \$0.6 billion in 1987-1990, before dropping to zero after 1991.
 - New agreements with E. Europe dropped from \$4.0 billion in 1983-1986 to \$1.0 billion in 1987-1990, before dropping to zero after 1991.
 - In contrast, new agreements with the major West European states rose from \$1.0 billion in 1983-1986 to \$2.7 billion in 1987-1990, before dropping to "zero" for everything but minor deliveries of smuggled parts and equipment after 1991 -- reflecting Iraq's growing interest in advanced military technology before the cutoff of arms imports.
- In spite of various claims, Iraq's domestic production capability can only play a major role in allowing Iraq to sustain its modern weapons and ability to use advanced military technology. Iraq remains an import dependent country.
 - Iraq's past pattern of arms imports makes it highly dependent on access to a wide range of suppliers -- particularly Western Europe and Russia. Even if one nation should resume supply, Iraq could not rebuild its military machine without broad access to such suppliers and would be forced to convert a substantial amount of its order of battle to whatever supplier(s) were willing to sell.
 - In spite of some smuggling, Iraq has had negligible export earnings since 1990, and faces significant long term limits on its ability to import even when sanctions are lifted.
 - Iraq will encounter severe problems after UN sanctions are lifted because of the inability of the FSU to provide efficient deliveries of spares and cost-effective upgrade and modernization packages.
 - No accurate data are available on Iraqi military spending and arms imports since 1991, but estimates of trends in constant dollars, using adjusted US government data, strongly indicate that Iraq would need to spend sums approaching \$20 billion to recapitalize its force structure.
 - Major modernization efforts to counter US standards of capability could add \$10 billion each to key modernization efforts like land-based air defense, air defense, air and missile strike capabilities, armored modernization, modernization of other land weapons, and reconstitution of the Iraqi Navy. Modernization to match Saudi levels of capability would be about half these totals.

Iraqi Dependence on Decaying, Obsolete, or Obsolescent Major Weapons

Land Forces

- 600-700 M-48s, M-60s, AMX-30s, Centurions, and Chieftains captured from Iran or which it obtained in small numbers from other countries.
- 1,000 T-54, T-55, T-77 and Chinese T-59 and T-69 tanks
- 200 T-62s.
- 1,500-2,100 (BTR-50, BTR-60, BTR-152, OT-62, OT-64, etc
- 1,600 BDRM-2, EE-3, EE-9, AML-60, AML-90
- 800-1,200 towed artillery weapons (105 mm, 122 mm, 130 mm, and 155 mm).
- Unknown number of AS-11, AS-1, AT-1, crew-portable anti-tank-guided missiles.
- More than 1,000 heavy, low-quality anti-aircraft guns.
- Over 1,500 SA-7 and other low-quality surface-to-air guided missile launchers & fire units.
- 20 PAH-1 (Bo-105); attack helicopters with AS-11 and AS-12, 30 Mi-24s and Mi-25s with AT-2 missiles, SA-342s with AS-12s, Allouettes with AS-11s and AS-12s.
- 100-180 worn or obsolete transport helicopters.

Air Force

- 6-7 HD-6 (BD-6), 1-2 Tu-16, and 6 Tu-22 bombers.
- 100 J-6, MiG-23BN, MiG-27, Su-7 and Su-20.
- 140 J-7, MiG-21, MiG-25 air defense fighters.
- MiG-21 and MiG-25 reconnaissance fighters.
- 15 Hawker Hunters.
- Il-76 Adnan AEW aircraft.
- AA-6, AA-7, Matra 530 air-to-air missiles.
- AS-11, AS-12, AS-6, AS-14; air-to-surface missiles.
- 25 PC-7, 30 PC-9, 40 L-29 trainers.
- An-2, An-12, and Il-76 transport aircraft.

Air Defense

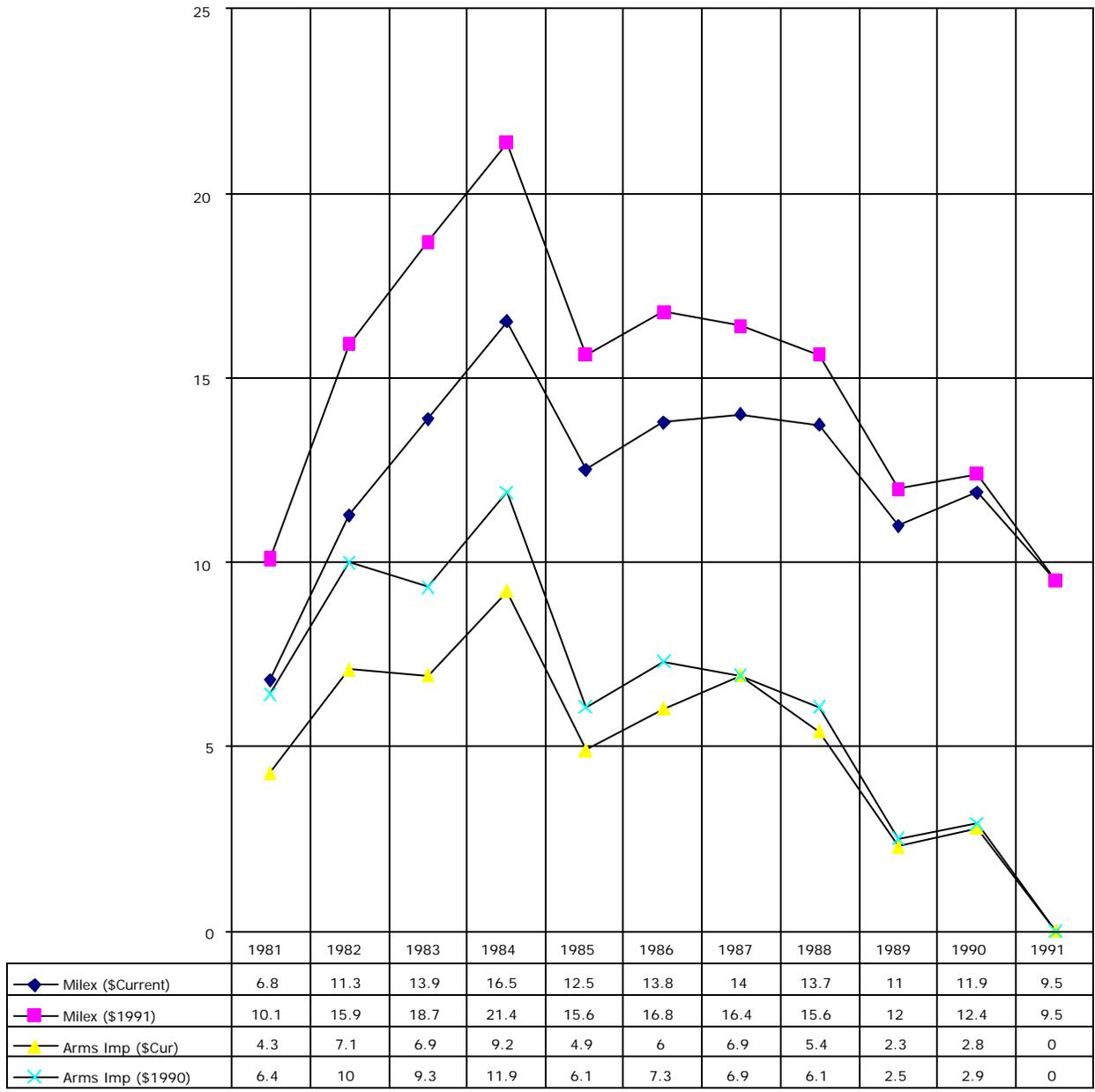
- 20-30 operational SA-2 batteries with 160 launch units.
- 25-50 SA-3 batteries with 140 launch units.
- 36-55 SA-6 batteries with over 100 fire units.
- 6,500 SA-7s.
- 400 SA-9s.
- 192 SA-13s

Navy

- *Ibn Khaldun*.
- Osa-class missile boat.
- 13 light combat vessels.
- 5-8 landing craft.
- *Agnadeen*.
- 1 Yugoslav Spasilac-class transport.
- Polnocny-class LST.

Source: Estimate made by Anthony H. Cordesman based discussions with US experts.

Iraq's Massive Military Effort Before the Gulf War (US Millions)

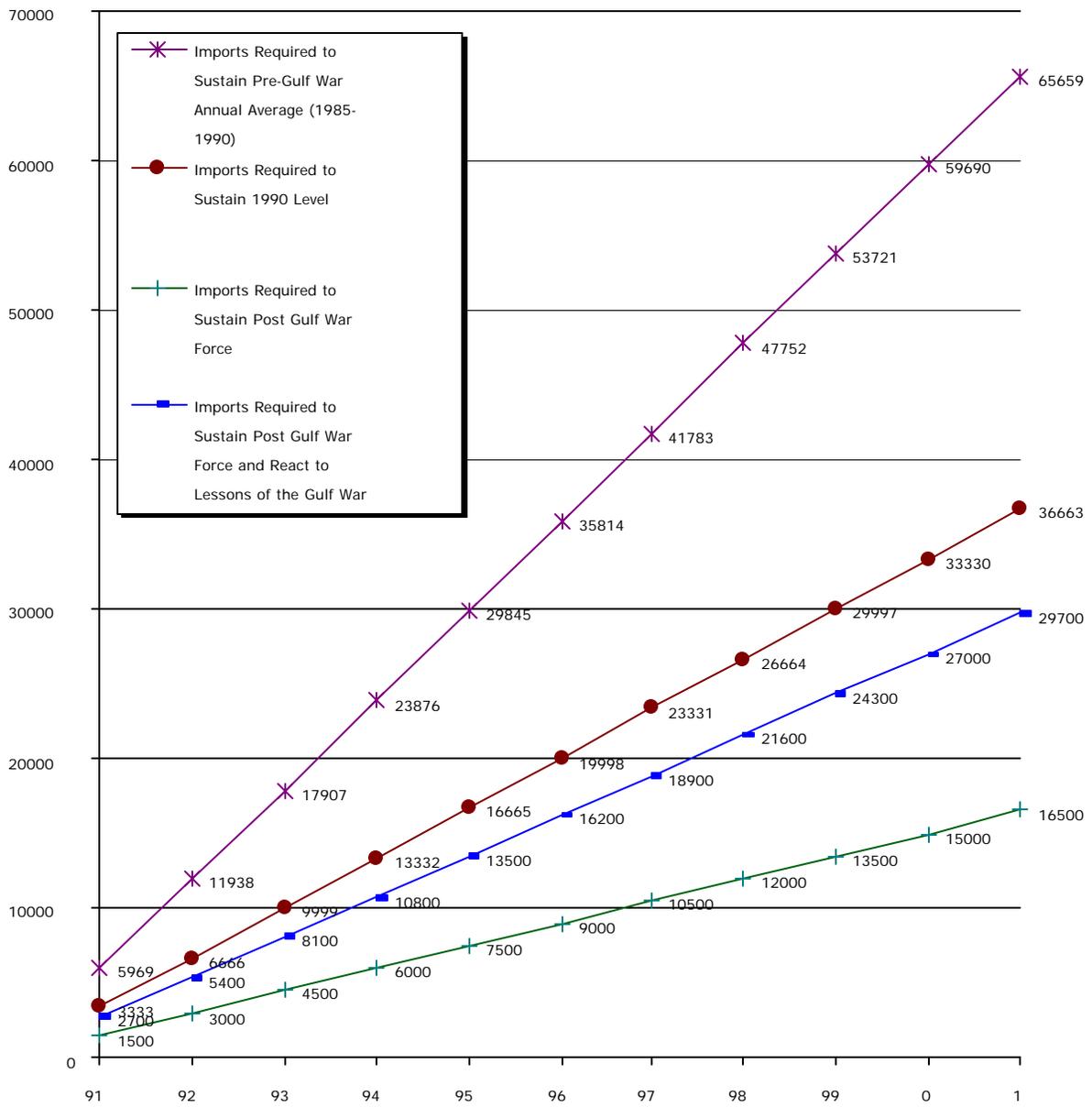


0 = less than \$50 million or nil, and all data rounded to the nearest \$100 million.

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

The Iraqi Cumulative Arms Import Deficit Enforced by UN Sanctions

(Measured in \$US 01 Constant millions)



Source: Adapted by Anthony H. Cordesman from US Arms Control and Disarmament Agency, World Military Expenditures and Arms Transfers, various editions.

The Problem of Iraqi Military Production

- Iraq developed significant ammunition, small and light arms, and gun barrel production facilities before the Gulf War, and many survive and function. However, focused most resources on weapons of mass destruction.
- Left even high tech service (e.g. French and Russian aircraft) to foreign technical support teams. Did not attempt to develop major in-house capabilities.
- Pre-1991 production was heavily prototype-oriented and largely prestige-oriented in nature.
- Did import T-72 kits, in theory as transition to production facilities. However, far from clear that Iraq has industrial base for such manufactures.
- Iraqi modifications sometimes succeeded, but many failed and had an “impress the maximum leader character.” E.g. T-72 upgrades.
- Historically, assembly of major weapons does not lead to technology transfer or effective reverse engineering capability without extensive foreign support. Net impact is to create over-specialized facilities, waste resources.
- No developing state, including India and China, has yet demonstrated that it can successfully mass manufacture an advanced fighter plane or tank, even on a turn-key basis.
- Few nations have made useful major equipment upgrades for armor and aircraft. Jordan and South Korea, Turkey are among few successes. Egypt, India, Pakistan are more typical.
- Iraq has effectively been cut off from all major imports of parts and specialized equipment since 1990s, although dual use items, civilian electronics and sensors, and computer gear are not effectively controlled.
- Black market imports, substitution, and local manufactures can only provide an erratic and inefficient substitute for large scale resources.
- Some indications that Iraq is giving priority to importing equipment for weapons of mass destruction.

Major Iraqi Military Production Facilities

- Tank assembly plant operating under Polish and Czech licenses at Al-Amen.
- Major armor refitting center at Base West World (Samawa).
- Manufacture of proximity fuses for 155 mm and cluster munitions at April 7 (Narawan Fuse) Factory.
- Manufacture of 122 mm howitzers, Ababil rockets, tank optics and mortar sights at Sa'ad 5 (Sa'ad Engineering Complex).
- Manufacture of wheeled APCs under East European license, other armor, and artillery pieces at Al Taji).
- Manufacture and repair of artillery, vehicle parts, and cannon barrels at SEHEE heavy engineering complex (Al Dura).
- Aircraft assembly and manufacturing plant under construction at Sa'ad 38. (Fao)
- Manufacture of aerial bombs, artillery pieces, and tungsten-carbide machine tool bits at Badr (al Yusufiyah).
- Production of explosives, TNT, propellants, and some vehicle production capability at Al Hiteen (Al Iskandariyah).
- Production of cluster bombs and fuel-air explosives at Fao.
- Production of aerial bombs, TNT, and solid rocket propellants at Al Qaqaa.
- Manufacture of small naval boats at Sawary (Basra).
- Production and modification of defense electronics at Mansour (Baghdad).
- Production and modification of defense electronics, radars, and frequency-hopping radios at Sa'ad 13 (Salah al Din - Ad Dawr).
- Digital computer software, assembly of process line controllers for weapons plants, and plastic castings at Diglia (Zaafarniyah).
- Precision machining at Al Rabiyah.
- Manufacture of non-ferrous ammunition cases at Sa'ad 21 (Mosul).
- Liquid nitrogen production at Al Amil.
- Production of ethylene oxide for fuel-air explosives at PCI.
- Production of HMX and RDX explosives at Fallujah chemical plant at Al Muthanna.
- Manufacture of gas masks at Sa'ad 24 (Mosul).

