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The Arab-Israeli States Military Balance:

National Forces Developments and Trends

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Please note that this document is a working draft and will be revised regularly. To comment, or to provide suggestions and corrections, please e-mail the author at acordesman@aol.com**.**

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I. Introduction

The "Arab-Israeli" states include Egypt, Israel, Jordan, Lebanon, Syria; and a Palestinian entity or proto-state. Their forces have shaped by six Arab-Israeli wars, which took place during in 1948, 1956, 1967, 1970, 1973, and 1982. These conventional conflicts have had some elements of a broader regional conflict, and some Gulf countries have sent forces to such conflict in addition to the North African states mentioned earlier.

The Arab-Israeli wars of the past, however, have been followed by peace agreements between Israel and two of its neighbors and by major changes in the potential role of Arab states outside the immediate Arab-Israeli "confrontation" or "ring" states. Egypt and Israel – the two most important military powers in the region – have been at peace since the late 1970s, and Jordan reached a peace treaty with Israel on October 26, 1994. Lebanon had never been a significant conventional military power, or threat to Israel, although various Lebanese and Palestinian groups have launched attacks from Southern Lebanon and Israel perceives groups like the Hezbollah as a serious unconventional threat.

Iraq is the only nation outside the Arab-Israeli sub region that ever sent significant military forces into an Arab-Israeli conflict, and it only sent significant forces during the 1973 war. Iraq was also the only outside Middle Eastern military power to conduct long-range air or missile strikes against Israel. It fired Scud missiles at Israel during the Gulf War in 1991. (Israel used its long-range strike fighters to destroy Iraq's Osirak reactor a decade earlier.) The fall of Saddam Hussein's regime in 2003 had eliminated Iraq as both a conventional and missile threat to Israel or any other power. At the same time, the peace proposal advanced by Crown Prince Abdullah of Saudi Arabia in 2002 received support from virtually every outside Arab power, and even former radical opponents of Israel like Libya seem to have abandoned any interest in serious military options.

These developments have made the "Arab-Israeli balance" a largely Israeli-Syrian balance in terms of conventional warfighting, although it remains possible that Egypt and/or Jordan could again become hostile to Israel in the future. One of the underlying realities that shapes the Arab-Israeli balance is that the peace between Egypt and Israel had never led either state to cease making a future war with the other state a major unstated aspect of its military planning, Neither Egypt or Israel had deployed its forces for such a war, but each state competes with the other in upgrading its conventional forces and prepares for the contingency that the other might attack it. The risk of such a conflict is also a major reason for Egypt's concern over Israel's monopoly of nuclear weapons. Ironically, the resulting arms race had been further fueled by massive US military aid and transfers of advanced weapons and technology to both sates – aid and transfers that originated out of efforts to give both states an incentive to ensure they kept their peace agreement.

The situation is different in terms of asymmetric warfare. As had been touched upon earlier, there have been three significant asymmetric Arab-Israeli conflicts in recent years. The first was the "First Intifada" between Israel and the Palestinians of Gaza and the West Bank between 1988 and 1993. The second was a struggle between Israel and an allied Christian-led Lebanese force, and Shiite factions in Southern Lebanon led primarily by the Hezbollah with Iranian and Syrian support. This war grew out of the Israeli occupation of Southern Lebanon in 1982, and lasted until Israel withdrew from Southern Lebanon in 2000. The third is the Israel-Palestinian War that began in September 2000, led to the collapse of the Arab-Israeli peace process, and which had gone on ever since.

The Israel-Palestinian War is one of the most bitter and polarizing sources of tension in the Middle East. It had led to a brutal struggle in which Israel had exploited its vast superiority in conventional forces to attack Palestinian insurgents and terrorists in ways that have often produced significant civilian casualties and collateral damage. The Arab media is filled with the images of such Israeli military activity, and the Arab world had grown steadily more angry and hostile towards Israel. This same hostility had spilled over towards the US, as Israel's only major ally and main weapons supplier. At the same time, the Palestinian side had used terrorist attacks against Israeli civilians and 'soft' targets as its principle form of military action, and shown little ability to control its extremist and terrorist movements. Neither Israel nor the Palestinians have leadership that seems capable of moving towards peace unless it is forced to do so through sheer military exhaustion, and both peoples have become steadily more distrustful of the other side and less able to understand the other side's motives and needs. However, recent changes in both Palestinian and Israeli leadership have at least held out the possibility of a resolution to the ongoing conflict.

The Israel-Palestinian War had not involved any direct intervention by outside powers, but Syria and Iran have provided extensive support to the Hezbollah, some support to Hamas, the Palestinian Islamic Jihad (PIJ), and other anti-Israeli forces in all of these conflicts. Whether one labels such movements as terrorists, freedom fighters, or

non-state combatants is a matter of perspective. What is clear is that non-state actors are beginning to play a steadily more significant role in the balance, and that states use them as proxies. Moreover, Israel had already struck at Syrian targets in retaliation for Syrian support of the Hezbollah (and tacitly for Syrian support of Hamas and the PIJ). While a serious conflict between Israel and Syria seems unlikely, an escalation to a Syrian proxy war coupled with repeated Israeli retaliation is all too possible.

It is also unclear whether nations like Egypt and Jordan can continue to ignore the steady escalation of fighting and the anger their populations have towards Israel and the US. The war had been particularly destabilizing for Jordan, which had a Palestinian majority, while at the same time had unified virtually every faction in Egypt. War between Israel and Egypt or Jordan still seems unlikely, but it is increasingly possible. It would also become much more likely if Israel should take any action that led to massive Palestinian civil casualties or a massive expulsion or flight of Palestinians from the West Bank.

Proliferation is a serious problem as well. Israel is a major nuclear power and may have chemical and biological weapons. Israel had the air and missile power to use such weapons to strike at targets anywhere in the greater Middle East. Syria had extensive chemical weapons and missiles with chemical warheads, and may have biological weapons. Egypt ceased its nuclear weapons research program in the 1970s, but had continued with chemical and biological weapons research, and may have small, aging stockpiles of chemical weapons. Moreover, states outside the subregion are coming to play another kind of role in the balance. Iran is acquiring long-range missiles, as well as weapons of mass destruction, though it pledged in 2003 to fully comply with the Nuclear Non-Proliferation Treaty (NNPT) and to allow challenge inspections by the International Atomic Energy Agency. However, Iran had asserted on multiple occasions its right to continue to pursue nuclear technologies.

As is the case with North Africa, many of these states have far larger force postures than they can properly modernize and support. This is particularly true of Syria, which ceased to get concessional arms sales and loans from the FSU and Warsaw Pact when they collapsed, after years of trying to rival Israel in military power. Much of Syria's conventional force posture is now obsolescent or obsolete, and it is failure to properly modernize and "recapitalize" its forces had reached the crisis level.

Egypt and Israel have benefited from massive US military assistance. Egypt, however, is still attempting to maintain a far larger inventory of its aging Soviet bloc and non-US equipment than it can afford to maintain, modernize, and sustain. Roughly one-third of its force posture is an obsolete and largely hollow shell that wastes resources that would be better spent on force quality than on force quantity.

Israel's forces are better modernized, but even Israel is force to maintain a "high-low" force mix with substantial numbers of obsolete systems. It also is still heavily reliant on conscript and reserve manpower to free resources for arms imports and its heavily subsidized military industries, and it is unclear that this gives it the manpower quality and readiness it needs to take maximum advantage of its high technology systems.

Jordan had made a series of painful tradeoffs between force quantity and force quality, reducing numbers to pay for modernization, readiness, and training. Even so, Jordan simply had not been able to compete with Egypt and Israel in developing high technology forces.

Lebanon had never had particularly effective military forces, and continues to recover from the impact of years of civil war. Syrian occupation forces still occupy the country (although there have been reducing in number), and the rise of independent forces like the Hezbollah have replaced the old militias that were largely disbanded at the end of the civil war. The Lebanese forces are badly undercapitalized and are likely to remain more of an internal security force than forces capable of sustained conventional warfare.

The following figures illustrate the economic forces shaping the Arab-Israeli balance:

- **Figure 1.1** provides a summary comparison of the current strength of Israeli, Egyptian, Jordanian, Lebanese and Syria forces.
- **Figure 1.2** shows the trends in military expenditures and arms imports in constant dollars. Israel has a clear lead in military spending over any of its neighbors, but several factors need to be kept in mind. Israel must still plan for a larger Arab-Israeli conflict in spite of its peace treaties with Egypt and Jordan. Israel has substantially higher manpower and maintenance costs because of high salaries and costs, and Israel has been fighting a prolonged series of asymmetric wars while its Arab neighbors have not.

Syria has had to maintain a high level of military spending in spite of the drop in arms imports shown in the following figures. It is still trying to compete on Israel at levels it cannot afford. The data show that Egypt obtained a substantial "peace dividend" in terms of military spending during the mid to late 1980s, and reduced military domestic spending, but it is important to note that the figures do not seem to include US grant aid to Egypt -- which would sharply raise the total for Egyptian spending.

- **Figure 1.3** shows more recent trends in military expenditures in current US dollars from a different source, and provides a more realistic estimate of Egyptian spending. Israel's edge in military resources remains clear, although it has had to spend more and more on the Israeli-Palestinian War since 2000, and these figures sharply understand the costs of civil programs like roads and settlements that Israel funds for security reasons. Egypt and Jordan has benefited from both peace and US aid, although it is clear that Jordan faces serious resource limitations and Egypt is only funding its forces at about 30% of the level of Israel. Syria's military expenditures continue to decline and are less that one-third of the level needed to pay for the mix of manpower quality, readiness, and modernization it would need to compete with Israel in overall conventional force quality.
- **Figure 1.4** shows the trend in military effort as a percent of GNP, and other measures of the military burden on the civil economy. The regional burden has been cut sharply since the mid-1980s, but is still one of the highest of any region in the world**.** The data also show that Israel still faces the heaviest burden, while Syria has effectively given up trying to compete with Israel in military terms.
- **Figure 1.5** shows how the national trends in Arab-Israeli arms imports compare in constant dollars. Such estimates differ sharply by source, and these are drawn from declassified US intelligence data in a US State Department report. It is interesting that these figures show that Egypt and Israel both have received similar average levels of arms imports during the period shown. While technically true, such figurers ignore the fact that Israel is the only state in the region with a relative efficient defense industry capable of producing modern military weapons and equipment and imports large amounts of US technology and equipment that it includes in its weapons systems, but which are not classified as arms imports under the present definition of the term. This estimate shows a precipitous drop in Jordanian and Syrian arms imports that has had a crippling impact on both countries since the early 1990s. Lebanon has not had significant arms imports.
- **Figure 1.6** provides more current data on both new arms orders and arms deliveries, using a different source. It reflects the same general patterns for Israel, and Egypt, and shows that new arms orders have risen sharply in recent years. Jordan also increased its arms orders in 1999-2002, largely as a result of increased US aid resulting from its peace treaty with Israel and cooperation in dealing with Iraq. Syria shows no recovery in either new arms orders or deliveries from 1998-2002, in spite of some reports of major agreements with Russia. Lebanon remained a minor player.
- **Figure 1.7** shows the source of Arab-Israel arms imports. It shows that Israel clearly has had large-scale access to US arms imports, including the most modern equipment, and these total ignore massive imports of parts and subassemblies that are not classified as arms imports. Egypt has also had access to US arms and technology, but has spent significant amounts on Russian, Chinese, and European arms to try to supplement what it can obtain with US grant aid and to keep the Soviet-supplied portion of its forces operational. Jordan has been heavily dependent on the US since 1990, although it has obtained some European arms. Syria has lost Russia as a major supplier without finding any replacement – particularly one capable of selling advanced arms and technology. Lebanon's arms imports have been too small to be significant.
- **Figure 1.8** puts the previous comparisons of Israeli and Arab arms imports in perspective. It shows that Israel has had far larger amounts of grant military assistance that Egypt and has been able to import far more equipment. These differ from the previous totals in that they include total funding for modernization, including the ability to import goods for military industry, while the other totals only counted deliveries classified as "arms."

Figure 1.1

The Arab-Israeli Balance: Forces in the Arab-Israeli "Ring" States in 2005

Category/Weapon	Israel	Syria	Jordan	Egypt	Lebanon
Defense Budget					
(In 2000, $Current Billions)	6.7	1.6	0.623	1.7	0.528
Arms Imports: 1996-1999 ($M)					
New Orders	4,500	500	800	6,800	100
Deliveries	4,500	300	300	3,800	100
Arms Imports: 2000-2003 ($M)					
New Orders	5,200	300	1,000	6,800	0
Deliveries	3,200	200	600	5,400	0
Mobilization Base (% of total population)					
People aged 0-14	27.5	39.0	37.8	34.1	30.9
People aged 15-64	62.8	57.8	59.1	61.6	63.2
People aged 65+	9.7	3.1	3.1	4.2	5.9
Manpower					
Total Active	168,000	296,000	100,500	450,000	72,100
(Conscript)	107,500	-	-	322,000+	22,600
Total Reserve	408,000	354,000	35,000	410,000	-
Total	576,000	650,000	135,500	860,000	72100
Paramilitary	8,050	108,000	10,000	330,000	13,000
Land Forces					
Active Manpower	125,000	200,000	85,000	320,000	70,000
(Conscripts)	85,000	-		250,000+	22,600
Reserve Manpower	380,000	280,000	30,000	300,000	-
Total Active & Reserve Manpower	505,000	480,000	150,000	620,000	60,670
Main Battle Tanks	3,090	4,600 (1200)	1,120 (168)	3755	110
AIFVs/Armored Cars/Lt. Tanks	408(?)	2,200	245	690(220)	40
APCs/Recce/Scouts	8,100(4,300)	2,400	1,350	4712 (500)	1423
WWII Half-Tracks	500(3,500)(?)	0	0	0	0
ATGM Launchers	1,225	3,400+	670	4600	70
SP Artillery	960	430	399	320	0
Towed Artillery	370	1630	94	971	132
MRLs	212	480	0	356+	25
Mortars	1890	710(?)	677	2,370	369
SSM Launchers	100(7)	72	0	21	0
AA Guns	0	2,060	395	674+	10+
Lt. SAM Launchers	1250	4,335+	992+	2096	20
Air & Air Defense Forces					
Active Air Force Manpower	35,000	35,000	15,000	30,000	1000
Active Air Defense Command	0	54,200	0	80,000	0
Air Force Reserve Manpower	24,500	70,000	-	20,000	-
Air Defense Command Reserve Manpower	0	-	0	70,000	0
Aircraft					
Total Fighter/FGA/Recce	399	520	101	571	(11)
Fighter	0	289	31	327	0
FGA/Fighter	373	0	0	0	0
FGA	0	130	70	131	0
Recce	0	46	0	20	0
Airborne Early Warning (AEW)	2	0	0	4	0
Electronic Warfare (EW)	29	10(?)	0	7	0
Fixed Wing	37	0	0	3	
Helicopter	0	10	0	4	
Maritime Reconnaissance (MR)	3	0	0	2	0
Combat Capable Trainer	26	131	0	93	3
Tanker	5	0	0	0	0
Transport	21	25	12	40	2
Helicopters					
Attack/Armed	95	87	20	121	0

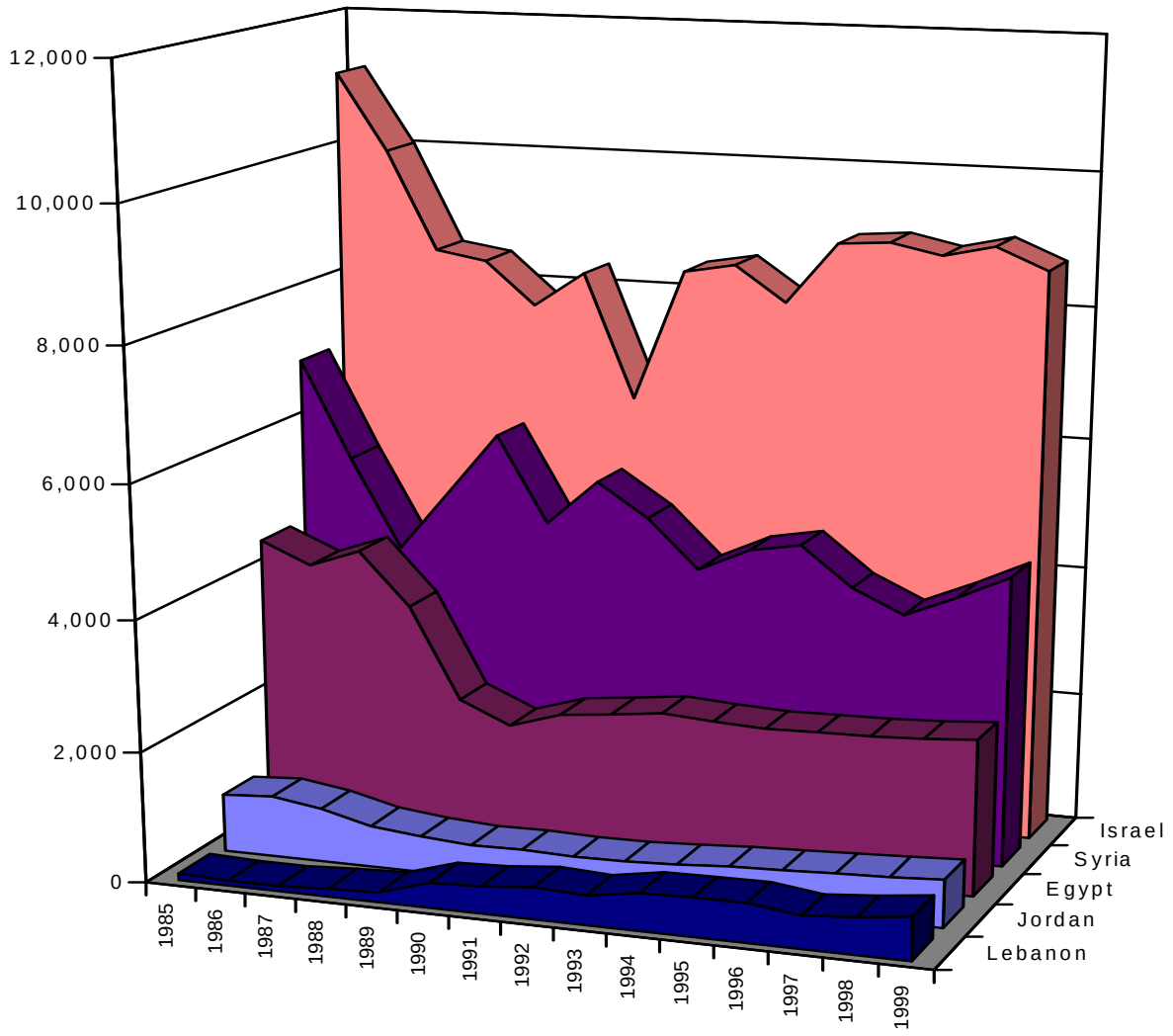
SAR/ASW	6(?)	-	-	20	-
Transport & Other	186	110	60	110	38
Total	281	197	80	251	38
SAM Forces					
Batteries	25	150	0?	38+	0
Heavy Launchers	79?	848	80	628	0
Medium Launchers	0?	60	0	36-54	0
AA Guns	850	0	-	2000	-
Naval Forces					
Active Manpower	8,000	6,000	500	20,000	1100
Reserve Manpower	3,500	4,000	-	20,000	0
Total Manpower	11,500	10,000	500	40,000	1100
Naval Commandos/Marines	300	0	0	0	0
Submarines	3	0	0	4	0
Destroyers/Frigates/Corvettes	3	2	0	11	0
Missile	3	2	0	10	0
Other	0	0	0	1	0
Missile Patrol	12	10	0	25	0
Coastal/Inshore Patrol	39	8	6	19	7
Mine	0	5	0	12	0
Amphibious Ships	2	3	0	3	0
Landing Craft/Light Support	4(?)	4	0	20	2
Fixed-wing Combat Aircraft	0	0	0	0	0
MR/MPA	0	0	0	0	0
ASW/Combat Helicopter	0	16	0	27	0
Other Helicopters	-	-	-	-	-

Note: Figures in parenthesis show additional equipment known to be in long-term storage. Some Syrian tanks shown in parenthesis are used as fire points in fixed positions.
Source: Adapted by Anthony H. Cordesman from data provided by US experts, and the IISS, Military Balance

Figure 1.2

National Trends in Arab-Israeli Military Spending in Constant Dollars: The Decline in Arab Forces as a Share of Total Spending: 1985-1999

(Military Expenditures in Constant $US 1999 Millions)



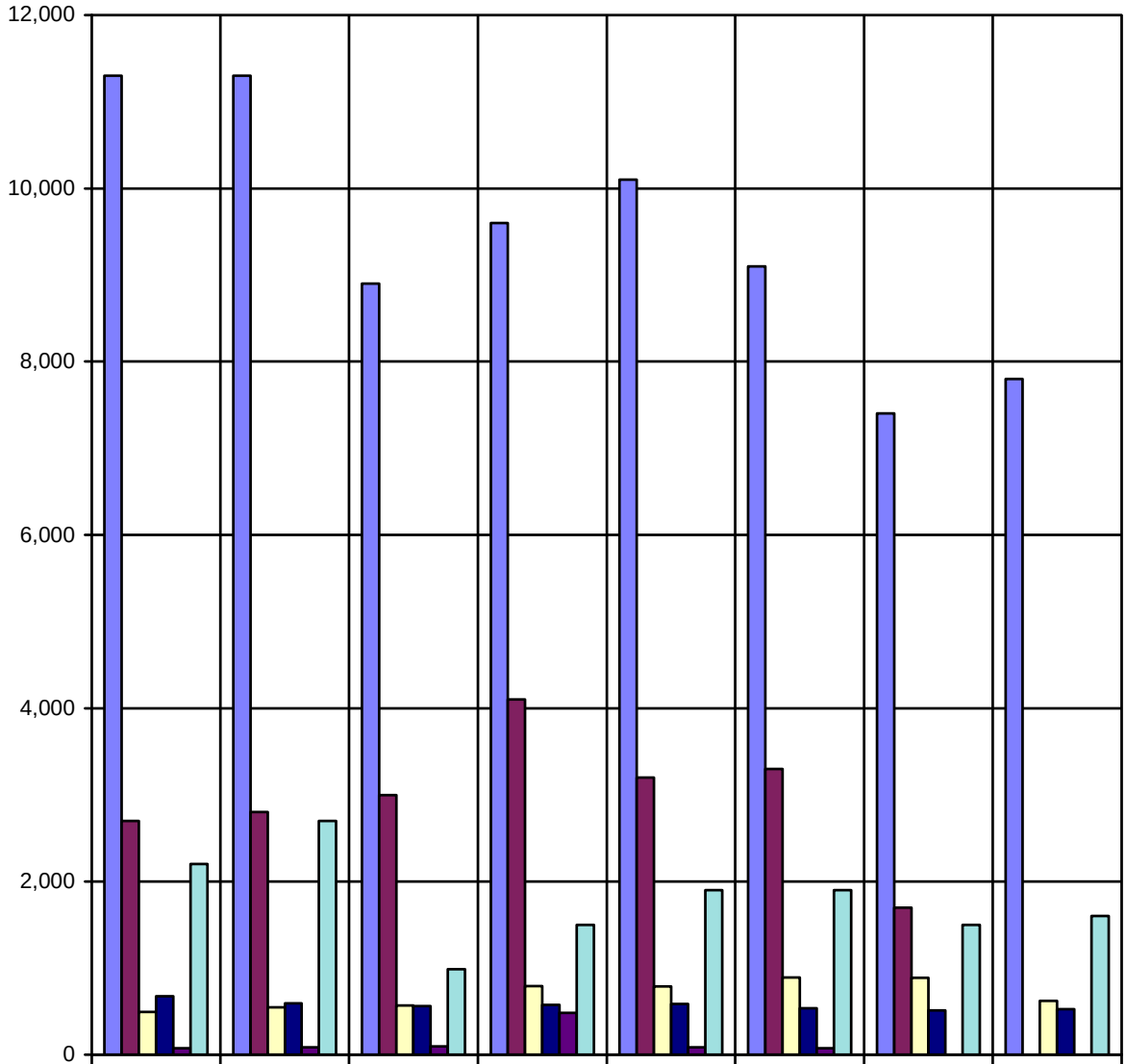
	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Lebanon	100	75	75	120	150	382	413	486	445	572	589	594	495	559	653
Jordan	889	941	825	635	554	503	513	491	499	538	589	617	651	685	725
Egypt	4,490	4,168	4,443	3,652	2,270	1,940	2,180	2,260	2,350	2,300	2,260	2,280	2,290	2,330	2,390
Syria	6,976	5,508	4,168	5,094	6,020	4,728	5,420	4,920	4,190	4,550	4,690	4,100	3,750	4,080	4,450
Israel	11,14	10,00	8,521	8,399	7,760	8,290	6,420	8,400	8,540	8,020	8,940	9,000	8,840	9,020	8,700

Source: Adapted by Anthony H. Cordesman from US State Department, World Military Expenditures and Arms Transfers, various editions.

Figure 1.3

Arab-Israeli Military Expenditures by Country: 1997-2004

(in $US Current Millions)

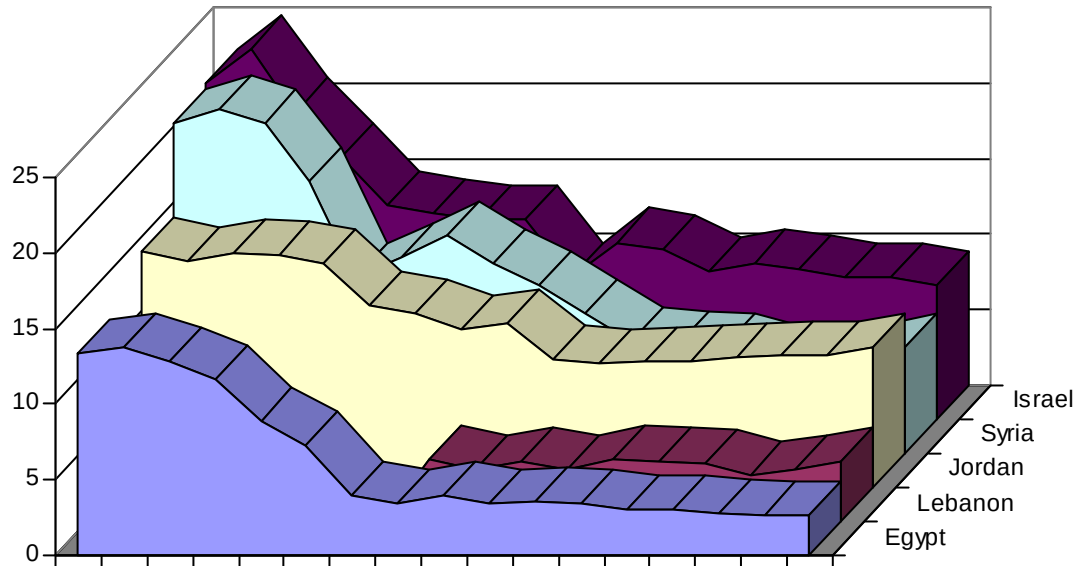


	1997	1998	1999	2000	2001	2002	2003*	2004*
Israel	11,300	11,300	8,900	9,600	10,100	9,100	7,400	7,800
Egypt	2,700	2,800	3,000	4,100	3,200	3,300	1,700	
Jordan	496	548	569	792	789	893	886	623
Lebanon	676	594	563	578	588	536	512	528
Palestinian	75	85	100	485	85	75	-	
Syria	2,200	2,700	989	1,500	1,900	1,900	1,500	1,600

Source: Adapted by Anthony H. Cordesman, the IISS, The Military Balance, various editions. Palestinian total is rough estimate based on FMA.
* Number reflects amounts budgeted as opposed to expenditures as the IISS no longer reports expenditures.

Figure 1.4

Trend in Percent of GNP Spent on Military Forces: 1983-1999: Half the Burden of the Early 1980s



	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99
Egypt	13	14	13	12	8.9	7.3	4	3.5	4	3.5	3.6	3.4	3.1	3	3	3	3
Lebanon	-	-	-	-	-	-	-	4.1	3.5	4	3.5	4.1	4	3.9	3	3	4
Jordan	16	15	16	15	15	12	12	10	11	8.5	8.2	8.3	8.4	8.6	9	9	9
Syria	22	23	22	18	12	13	14	13	11	9.2	7.4	7.2	7	6.2	6	6	7
Israel	22	25	20	17	14	14	13	13	9.4	12	11	9.8	10	9.9	9	9	9

.

IISS Estimate of Military Spending and Manpower Trends: 1985-2000

Trend: 1985 versus 2000 * ($US are in Constant 1999 prices)

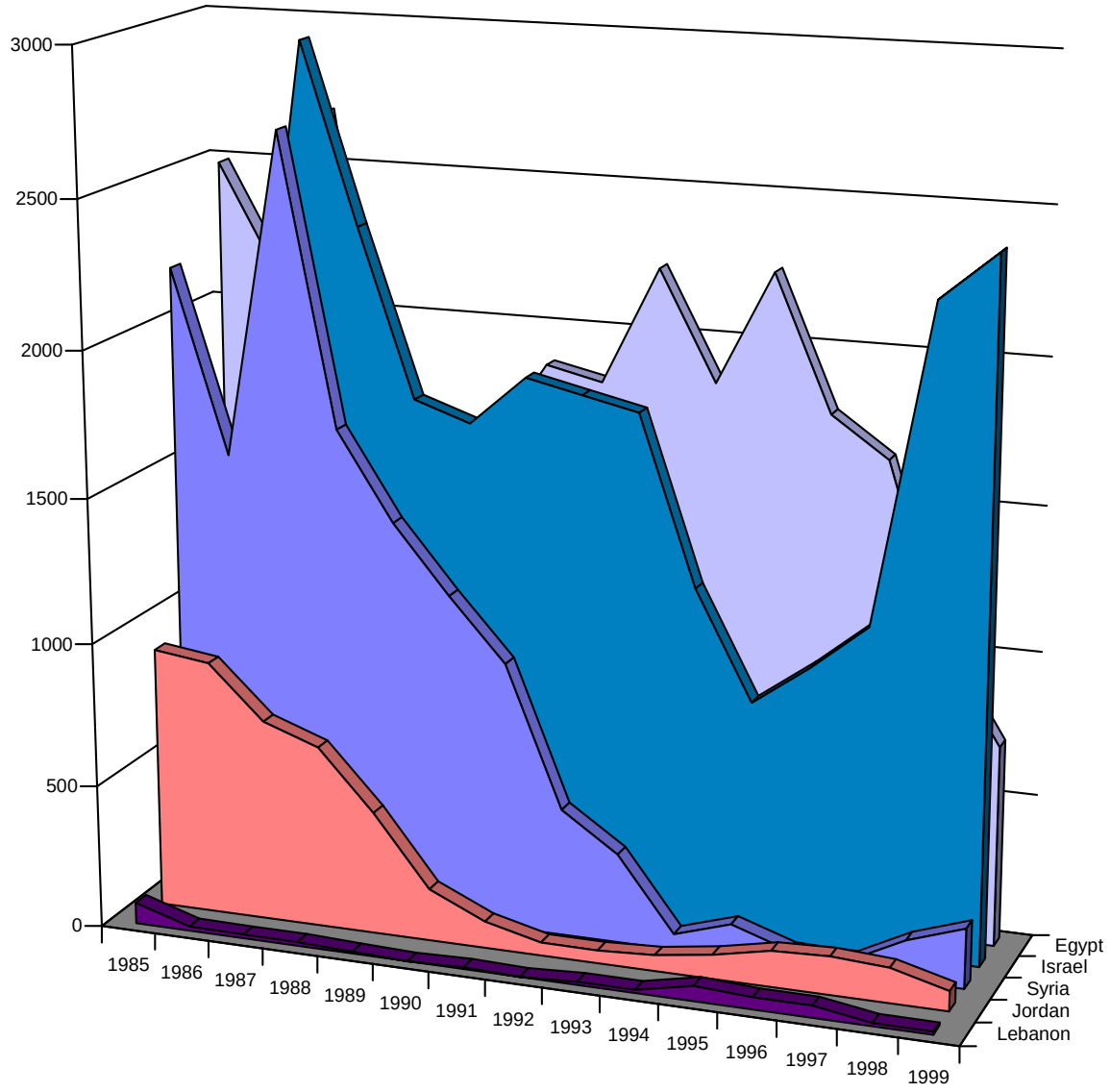
	Military Spending in $US Millions			Military Spending Per Capita ($US)			Military Spending as a % of GDP			Military Manpower (1,000s) Active	Reserve	Paramilitary
Country	85	99	00	85	99	00	85	99	00	85	00	00	00
Israel	7,486	8,846	9,373	1,768	1,465	1,512	21.2	8.9	8.9	142	172.5	400	8.0
Egypt	3,827	2,988	2,821	79	45	45	7.2	3.4	3.2	445	448.5	254	230
Jordan	891	588	510	255	95	76	15.9	7.7	6.9	70.3	103.9	35	45
Lebanon	296	563	553	111	164	468	9.0	3.4	3.5	17.4	63.6	n.a.	13
Syria	5,161	989	760	491	63	47	16.4	5.6	5.6	402.5	316	396	108.8

Source: Adapted by Anthony H. Cordesman from US State Department, Bureau of Arms Control, "World Military Expenditures and Arms Transfers," Washington, GPO, Table I, various editions and the IISS. Military Balance, various editions.

Figure 1.5

National Trends in Arab-Israeli Arms Deliveries in Constant Dollars

(Arms Deliveries in Constant $US 1999 Millions)



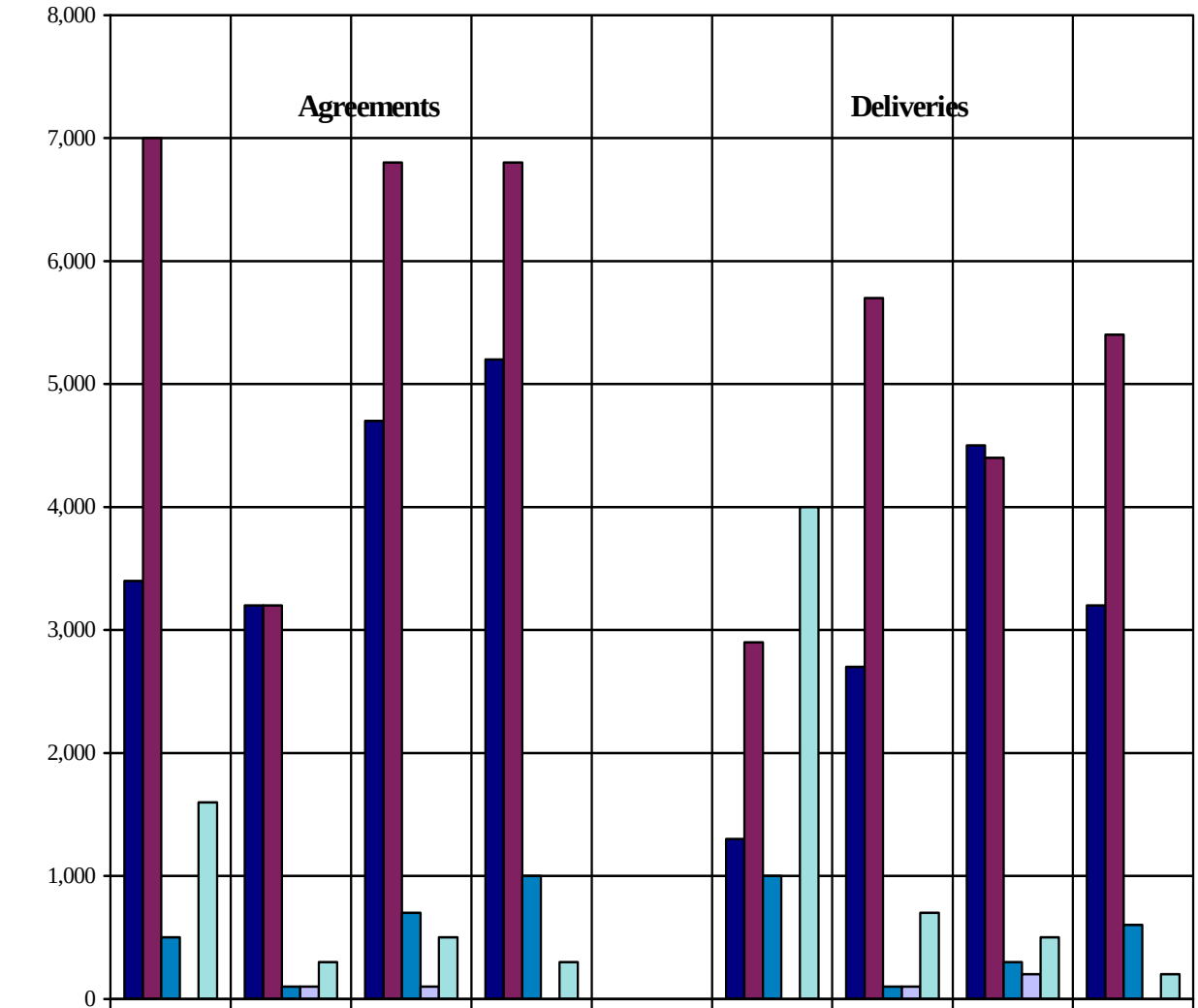
	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Lebanon	74	15	13	13	6	0	6	0	11	11	53	42	41	10	10
Jordan	915	889	704	636	428	182	93	46	45	55	85	126	134	122	70
Syria	2194	1565	2683	1687	1383	1150	934	445	312	55	117	52	41	142	210
Israel	1609	1565	2951	2336	1761	1695	1869	1825	1782	1200	827	969	1130	2233	2400
Egypt	2486	2134	2683	1427	1258	1573	1869	1825	2227	1854	2242	1780	1644	1015	700

Source: Adapted by Anthony H. Cordesman from US State Department, World Military Expenditures and Arms Transfers, various editions.

Figure 1.6

Arab-Israeli New Arms Agreements and Deliveries by Country: 1987-2003

(in $US Current Millions)



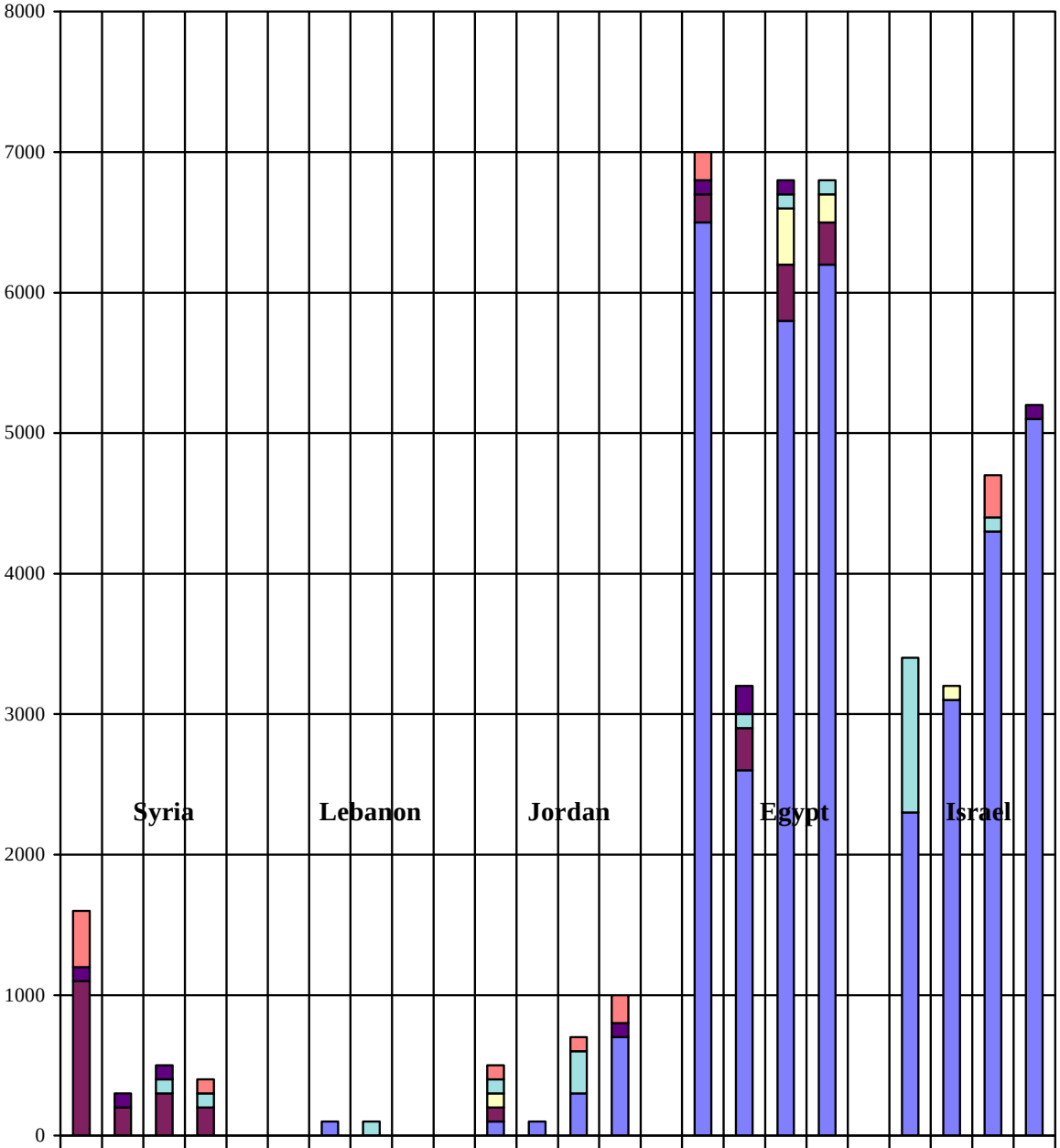
	88-91	92-95	96-99	00-03	.	88-91	92-95	96-99	00-03
Israel	3,400	3,200	4,700	5,200		1,300	2,700	4,500	3,200
Egypt	7,000	3,200	6,800	6,800		2,900	5,700	4,400	5,400
Jordan	500	100	700	1,000		1,000	100	300	600
Lebanon	0	100	100	0		0	100	200	0
Syria	1,600	300	500	300		4,000	700	500	200

0 = Data less than $50 million or nil. All data rounded to the nearest $100 million.
Source: Richard F. Grimmett, Conventional Arms Transfers to the Developing Nations, Congressional Research Service, various editions.

Figure 1.7

Arab-Israeli Arms Orders by Supplier Country: 1988-2003

(Arms Agreements in $US Current Millions)



	88-91	92-95	96-99	00-03	.	88-91	92-95	96-99	00-03	.	88-91	92-95	96-99	00-03	.	88-91	92-95	96-99	00-03	.	88-91	92-95	96-99	00-03
-			Syria					Leban					Jorda					Egypt						Israel	
All Others	400	0	0	100		0	0	0	0		100	0	100	200		200	0	0	0		0	0	300	0
Other Europe	100	100	100	0		0	0	0	0		0	0	0	100		100	200	100	0		0	0	0	100
Major W. Europe	0	0	100	100		0	0	100	0		100	0	300	0		0	100	100	100		1100	0	100	0
China	0	0	0	0		0	0	0	0		100	0	0	0		0	0	400	200		0	100	0	0
Russia	1,100	200	300	200		0	0	0	0		100	0	0	0		200	300	400	300		0	0	0	0
US	0	0	0	0		0	100	0	0		100	100	300	700		6,500	2,600	5,800	6,200		2300	3100	4300	5100

0 = less than $50 million or nil, and all data rounded to the nearest $100 million.
Source: Adapted by Anthony H. Cordesman, from Richard F. Grimmett, Conventional Arms Transfers to the Developing Nations, Congressional Research Service, various editions.

Figure 1.8

The Comparative Size of US Military Assistance and Commercial Arms Sales to the Arab-Israeli Ring States: 1986-2001

	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Israel															
Foreign Military Financing Program	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,860	2,820	1,976
Payment Waived	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,860	2,820	1,976
FMS Agreements	100.5	130.9	327.7	376.7	361.4	96.5	161.0	2,142.9	631.3	828.7	506.4	654.6	2,430.7	782.6	2,882.1
Commercial Exports	1,024.8	474.8	997.2	387.3	169.1	27.9	41.8	34.0	34.7	13.1	12.8	11.5	4.2	26.3	4.0
FMS Construction Agreements	-	-	-	-	-	-	-	-	-	-	-	-	-	0.3	9.9
FMS Deliveries	1,229.6	754.1	230.3	146.3	239.0	718.7	773.9	409.2	327.0	385.8	497.2	1,202.7	1,224.4	570.8	759.8
MAP Program	-	-	-	74.0	43.0	47.0	491.0	165.9	80.0	22.0	-	-	-	-	-
MAP Deliveries	-	-	-	-	114.7	0.6	44.7	-	0.0	-	-	-	-	-	-
IMET Program/ Deliveries	1.9(0)	1.7(0)	1.9(0)	2.1(0)	1.1(0.2)	0.6(0)	0.5(0)	0.8(0)	0.8(0)	-	-	-	-	-	-
Egypt															
Foreign Military Financing Program	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,297
Payment Waived	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,297
FMS Agreements	330.9	1,306.1	2,646.3	969.5	1,631.7	587.0	435.2	409.5	1,014.8	1,269.1	961.0	978.5	2,058.7	1,612.2	1,720.5
Commercial Exports	55.4	73.1	252.5	206.0	75.6	31.0	18.7	9.6	10.3	3.5	5.0	2.4	0.6	3.8	0.9
FMS Construction Agreements	112.4	118.8	65.1	48.2	269.7	66.9	124.0	139.2	83.0	57.0	45.6	27.3	61.9	93.3	48.9
FMS Deliveries	955.1	473.0	296.8	368.1	482.3	1,026.7	1,236.0	889.0	1,478.7	1,083.2	896.8	570.7	450.4	805.3	881.9
MAP Program	-	-	-	-	-	-	-	13.5	-	-	-	-	-	-	-
MAP Deliveries	-	-	-	-	-	-	-	1.4	1.6	-	-	-	-	-	-
IMET Program/ Deliveries	1.7	1.5	1.5	1.5	1.8	1.5	1.7	0.8	1.0	1.0	1.0	1.0	1.0	1.0	1.1
Jordan															
Foreign Military Financing Program	-	-	10.0	67.8	20.0	20.0	9.0	9.0	7.3	100.3	30.0	50.0	95.9	124.9	74.8
Payment Waived	-	-	10.0	67.8	20.0	20.0	9.0	9.0	7.3	100.3	30.0	50.0	95.9	124.9	74.8
DoD Guaranty	81.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FMS Agreements	33.9	28.7	9.4	26.7	0.4	6.8	14.5	38.7	13.0	199.5	17.5	17.9	14.7	120.5	122.3
Commercial Exports	73.4	18.3	23.5	12.1	0.9	27.9	41.8	34.0	34.7	13.1	12.8	11.5	4.2	26.3	4.0
FMS Deliveries	49.7	55.4	59.5	42.1	22.9	19.5	24.9	31.5	47.0	15.7	41.7	47.0	48.7	52.7	80.4
MAP Deliveries	1.1	0.8	-	-	0.4	-	0.1	-	-	10.7	16.3	50.2	7.5	8.2	11.5
IMET Program/ Deliveries	1.9	1.7	1.9	2.1	1.1	0.6	0.5	0.8	1.0	1.2	1.7	1.6	1.7	1.7	1.7
Lebanon															
FMS Agreements	4.9	0.5	-	-	-	-	2.4	29.3	64.4	15.8	16.7	12.3	1.6	6.9	5.5
Commercial Exports	0.1	0.0	0.2	0.1	0.5	0.4	1.0	0.8	0.5	0.3	0.8	0.8	0.1	0.1	0.1
FMS Deliveries	12.1	11.9	3.9	2.0	0.3	1.3	4.9	3.6	40.9	31.7	33.0	8.0	7.0	4.9	6.1
IMET Program / Deliveries	-	0.3	0.3	0.1	-	-	0.6	0.3	0.4	0.5	0.5	0.6	0.6	0.6	0.5

Source: Adapted from US Defense Security Assistance Agency (DSAA), Foreign Military Sales, Foreign Military Construction Sales and Military Assistance Facts, Department of Defense, Washington, various editions. Syria received no US aid or sales during the period shown.

II. National Military Forces

Each of the Arab-Israeli states has taken a different approach to shaping its military forces.

The Military Forces of Israel

For more than a decade, the conventional Arab-Israeli balance had shaped Israel's struggle to maintain a decisive qualitative edge over its Arab neighbors. While Israel had largely won this struggle, Egypt had made impressive progress in conventional military modernization and Israel's efforts have been undermined since 2002 by the steadily rising costs of the Israeli-Palestinian War and the need to devote much of Israel's forces to low intensity combat missions. As had been touched upon earlier, the asymmetric military balance is becoming as important as the conventional balance, and proliferation is a growing problem.

Israeli is now in its fifth year of asymmetric warfare with the Palestinians. This war had forced it to devote many of its military resources to low intensity conflict, raids and reoccupations of Palestinian territory, and internal security missions. There is no way to precisely quantify the resulting effort, but it seems to consume nearly half of Israel's military resources in terms of self-financed security expenditures, and some 25% of its active and mobilized reserve manpower. The end result had been a steady expansion of the training and equipment IDF units have for low intensity conflict and internal security missions, although few of the details are public. For example, Israel signed two separate security agreements, one with Russia and one with Turkey, promising to share information about terrorist groups.[i] Israel hopes that the added intelligence will boost the IDF's effectiveness in the low-intensity conflict.

Israel had begun to consider and, in some cases had utilized, unorthodox strategies both domestically and internationally in an effort to enhance security. Domestically, Israel had implemented a targeted assassination policy to try and destroy terrorist organizations by decapitating their leadership ranks. This policy had produced critics both abroad and at home. Many Arab nations, and obviously the Palestinians, opposed the policy, seeing it as counterproductive to the peace process while pointing out the strikes frequently incur bystander casualties.

Within Israel, many reservists refuse to serve in either Gaza or the West Bank, and 27 Israeli Air Force pilots, including the most decorated pilot in Israel's history, refused to carry out further strikes. Four former heads of the Shin Bet security service declared that Israel's activities in the territories actually eroded national security instead of bolstering it.[ii] A former deputy chief of staff of the IDF stated that Israel lacked a grand strategy and that the West Bank security fence that Israel is constructing at a cost of $450 million a year precludes the creation of a Palestinian state.[iii]

Yet the Israeli government asserts that the strategies are working. The IDF indicated that gunfire attacks on Israelis in the West Bank decreased by 1,016 incidents in almost one year. Israelis and the IDF were bombed 578 times in 2002 compared to around 220 times in 2003. In 2004, only 6 suicide bombings occurred inside of Israel, with the number of attempts declining by 50%.[iv] Israel touts these statistics as proof that the controversial strategies are successful. However, the number of *attempts* to kill Israelis, especially by suicide bombers, had risen dramatically.[v]

Israel had entered Syrian airspace on several occasions in a campaign aimed at encouraging Syria to end its support of the Islamic Jihad terror group. In September 2003, Israeli jets intentionally flew over a palace owned by Syrian President Bashar Assad's family. More forcefully, Israel bombed a suspected Islamic Jihad training camp outside of Damascus in October 2003. Israel had reportedly ruled out full air strikes or an invasion to remove the Islamic Jihad, but Israel remains committed to degrading Assad's influence. However, it is unclear as to whether such a campaign would diminish Assad's power or whether it might produce a rally-around-the-leader sentiment in the Syrian populace. Syria refuses to eliminate the Islamic Jihad, claiming that the group is not really a terrorist organization, had broken no Syrian laws, and does not hurt Syria.[vi] Overall, it is uncertain whether these unconventional strategies will produce the desired results.

At the same time, Israel continues to emphasize many of its classic conventional military strengths: Leadership, demanding exercise training, promoting on the basis of competence, maintaining a relatively young and aggressive officer corps, and insisting on forward leadership. It uses training that develops battlefield initiative, and it allows flexibility in executing orders. In contrast, Arab forces often require highly detailed written orders and systems of accountability in order to ensure that orders are obeyed, and commanders are taught not to deviate from orders when presented with new battlefield opportunities or unanticipated problems. Most exercises have predetermined

outcomes that sharply limit the initiative of the officers involved, and make it impossible to determine the relative effectiveness of the forces involved.

The IDF had been forced to adopt a new, radical training regimen for its soldiers. In the past, it assumed that soldiers needed to be trained for months prior to deployment. Largely as a result of the Israeli-Palestinian War, however, Israel had instituted a different three-pronged approach. Training consists of a brief yet difficult month-long training program followed by immediate deployment to either the occupied territories or the border with Lebanon. The training regimen, 40% of which had been altered, stresses the challenges soldiers will face during low-intensity conflict in an urban setting. Forgoing the traditional 17-week course enables soldiers to acquire "on the job training," an experience at least on IDF official states cannot be replicated. The fluidity and rapidly changing tactics of the Israeli-Palestinian War render many forms of lengthy training anachronistic by the time soldiers complete the various courses. Three field schools supplement the regimented and on the job training for IDF soldiers. Every month, each soldier spends four to five days in a field school being trained in the latest techniques tailored to their specific functions in the context of the most recent developments. After six months of deployment, soldiers train for yet another month and attend the field schools once more.

Israel makes good use of advanced military technology and of its access to arms transfers from the US, and Israel had done more than procure high technology equipment. While most Arab states focus on the "glitter factor" inherent in buying the most advanced weapons systems, Israeli had given the proper weight to battle management, sustainability, and systems integration. Israel integrates technology into its force structure in ways that emphasize tactics, training, and all aspects of technology rather than relying on force strengths and weapons performance.

The recent trends in Israeli forces are shown in **Figure 2.1**. One key factor behind Israeli military efforts is a continuing emphasis on force quality over force quantity in order to maintain a decisive conventional and nuclear superiority, or "edge," over any likely combination of hostile Arab military forces. The end result is that Israel organizes its forces and military manpower in different ways from those of its Arab neighbors, and comparisons of either total active manpower or total active and reserve manpower have only limited meaning in measuring military effectiveness.

In spite of the Israel-Palestinian War, Israel had cut its total active manpower in recent years from around 175,000 men and women in its peacetime force structure to 167,600. This total includes some 107,500 conscripts. Israeli male conscripts serve a total of 36 months (21 months for women, 48 months for officers), and a significant number are still in training or gathering combat experience at any given time.

Israel's military effectiveness depends heavily on the ability to call up the key elements of a reserve manpower pool of that had also been cut in recent years from 430,000 to 408,000. A significant number of the personnel now fighting in the Israeli-Palestinian War are reservists. As a result, Israel had far more real world manpower strength than its total active military manpower would indicate. At the same time, Israel's use of reserves makes it dependent on timely mobilization for its war fighting capability, and Israel requires 36-48 hours of strategic warning and reaction time to fully prepare its defenses in the Golan -- its most vulnerable front. Only about one-third of Israel's total manpower consists of full time actives, and much of this manpower consists of conscripts. Some of Israel's best troops consist of its younger reserves.

However, as a result of the Iraq War, a view that war with Syria is increasingly unlikely and the realities of low-intensity and urban warfare, Israel had begun to reshape its military forces according to a plan dubbed the "Kela 2008" plan. With the "eastern front" now gone, a discussion is underway about whether to lump the West Bank and Gaza under one command, and whether a Southern Command is still needed against Egypt. Furthermore, the IDF wants to reduce the number of expensive reservists it had to draw upon while growing the number of cheaper, regular troops to carry out tasks such as border patrol. Other major aspects of the plan include transforming Merkava Mk 1 and 2 MBT chadsis or newly produced Merkava Mk 4 hulls into a new, heavily armored APC called the "Nemara" (Tigress.) To improve their command, control, communications, computers and intelligence (C4I), "Kela 2008" introduced the Tsayad project, intended to fully integrate all ground platforms with broadband communications capabilities. The plan also calls for heavy investments into researching and procuring UAV's. The military will outsource maintenance and administration functions in an effort to cut costs further. Initiatives that will surely raise concerns among soldiers and veterans are a move to cut wages up to 20%, the elimination of welfare programs for officers, and the increase in the minimum retirement age. Overall, the army will cut 10% of its regular forces and minimize the use of unskilled reservists who typically incur large operating expenses.[vii]

The effect these cuts will have on the IDF's ability to confront the Palestinian militants is also unclear. Some reports indicate that the IDF believes that Kela 2008 will streamline their forces, make them more effective, and cut unnecessary costs. However, some of the measures, such as the pay cuts and elimination of jobs, are likely to be highly unpopular and run the risk of fomenting discontent within the military. At a time when Israel leans increasingly heavily on the IDF despite reduced threats from Iraq and Syria, cuts in benefits are likely to discourage Israelis from pursuing long-term military careers.

In addition, a panel of industrialists, former generals, and security experts recommended further reductions on top of the Kela plan. The panelists want to decrease the number of combat helicopters by 20%, the number of tanks by an additional 10%, the older fighter planes by 5%, and the patrol boats by 15%. Reportedly, the resulting force numbers would be sufficient to face Israel's threats.[viii]

Other reports indicate that Israeli concerns over funding and the threat of budget reduction had led the navy, army, and air force to fight fiercely over US Foreign Military Financing allocations. The navy was once thought to have been assured a lion's share, but the other services have raised questions as to whether Israel would be best served by using those funds to purchase additional Arrow missile batteries, Apache AH-64Ds, or Stryker armored vehicles. It seemed likely that the navy would have used those funds to purchase additional missile corvettes, ostensibly to counter threats from Libya. However, Libya is perceived as somewhat less threatening and there had been a second successful test of the Arrow system, making it unclear which service will secure the funds.[ix]

Israeli Land Forces

As of the end of 2004, Israel had an active army strength of 125,000 and had a well-trained and active reserve force of 380,000. It was organized into three territorial and one home front command, and into a combat structure of four corps. Its active forces had a nominal strength of four armored divisions, five infantry divisions, and five air-mobile brigades. Its reserves had a nominal strength of five armored divisions, with a total of 14 armored brigades, three infantry brigades, and five artillery regiments. There were four infantry divisions with a total of 17 infantry brigades, one artillery regiment, and five mobile brigades. In practice, however, Israel adjusted its force mix to the mission at hand, and each of these units had reserve elements. Another six of Israel's 11 armored "divisions" were reserve forces, as are one air mobile mechanized division. These reserve units had a total of ten armored brigades, four infantry brigades, and four artillery regiments.

The IDF's major combat equipment included 3,090 main battle tanks. It had an inventory of some 7,700 APCs: 670 AIFVs, 4,300 obsolete half tracks, 960 self-propelled artillery weapons, 370 towed weapons, 212 multiple rocket launchers, some 1,360 mortars, over 1,200 modern anti-tank guided weapons launchers, some 250 recoilless rifles, and over 1,300 light surface-to-air missiles (many obsolete). The land forces are reported to operate Israel's nuclear-armed Jericho missiles.

The cost and force-wide impacts of the Israel-Palestinian War have had a major impact on Israel's military development. Israel does not face recapitalization problems that approach those of Jordan or Syria, but it does have problems. It cannot afford to convert its armor to a coherent force of first-line systems that had the mix the IDF would like of both the most advanced tanks and the most advanced infantry fighting vehicles.

Israel's 1,790 Merkavas are, however, designed for the specific tactical conditions Israel faces. They are more advanced than any tank in Arab hands, except for Egypt's 550 M1A1s, and can defeat most anti-tank weapons in Arab forces. This is particularly true of the Merkava IV, Merkava III Baz, and Merkava III, which have excellent protection and some of the best fire control and sighting systems available. The Merkava IV is just becoming operational and is much more powerful that the previous versions without an increase in weight. It also had much better day and night vision systems, and new and improved version of ballistic protection. The Ministry of Defense recently decided to forgo the development of the Merkava V, citing the success and cost effectiveness of the Merkava IV.[x]

The cost of the existing Merkavas had raised questions about the viability of continuing the 34-year-old program. It had been reported that some elements within the Israeli Ministry of Defense are suggesting that the Merkava line be abandoned in favor of the U.S. M1A2 main battle tank. Viewed as widely successful, the M1A2 would also be paid for by U.S. Foreign Military Financing aid, making it an even more attractive option. Others suggest that Israel should ask for inclusion in the U.S. Future Combat Systems program which aims to develop a future armored force that is far lighter, easier to transport and that integrates manned and unmanned vehicles while maintaining survivability and lethality. Critics argue, however, that, while they would be willing to participate in aspects of the

program, the FCS program's stress on weight and transportability does little to solve Israel's needs. They maintain that the Merkava line is sufficient and call for an increase in the program's budget.[xi] A recent proposal to sell the Merkava tank production line, either to a private Israeli defense firm or to another owned by the government, had further clouded the tank's future. Proponents believe that the sale would increase efficiency and drastically cut the line's costs.[xii]

Israel's 600 M-60A3s are not up to the standard of the Merkava, but have an "edge" in fire control and sights, and a marginal advantage in protection, over Syria's 1,500 export versions of the T-72 and T-72M – the only relatively modern tank in Syrian forces, Israel's 300 M-60/M-60A1 have been upgraded to the point where they may well have a similar advantage. They may not have such an advantage over Egypt's nearly 1,000 M-60A3s and 400 M-60A-1, or Jordan's 288 M-60A1/A3 or 288 Al Hussein (Challenger 1) – which also have improved armor and other upgrades. Egypt also had some 1,400 M-60s, which have significant capabilities relative to Israel's first line tanks. Israel had already upgraded at least 180-190 of its M-48s and M-60s to the MAGACH 6 and 7 modifications, with improved passive and reactive armor, power, guns, and fire control, It may upgrade the rest to a further improved version in the MAGACH series, and it had also developed a Sabra upgrade of the M-60, with improvements in fire control, protection, and mobility.

Israel's other tanks are much less advanced than its Merkavas and M-60s. They included 114 Ti-67 (somewhat improved T-54/T-55) and 100 T-62s. This means that 114 of Israel's tanks were of low to medium quality, although many of these tanks have been upgraded and are considerably better than the original US, British, and Soviet-supplied version.

Israel had to choose between funding improved tanks and funding improvements of other armored fighting vehicles. As a result, it hada relatively limited number of modern AIFVs to supplement its tanks. These included some 400 light wheeled RAMTAs and RBYs, BRDM-2 amphibious scout cars, and 8 Fuchs. Israel's APCs include converted Centurions called Nagmaschons (400?), 270 heavy Achzarit APC conversions of the T-54 designed to accompany the Merkava, Puma combat engineer APCs, and Nakpadons. In addition, large numbers of its 7,700 M-113 Zeldas had been upgraded from APCs to something approaching AIFVs. It was still dependent on a stockpile of some 4,300 half-tracks for support vehicles and reserves – although most are in storage or will be replaced in storage shortly.

Israel is seeking to supplement this force, and possibly to replace the M113s, through its development and procurement of the "Nemara" APC as well as through the purchade of 100 Dingos.[xiii] Israel had a wide range of advanced anti-tank guided weapons including 300 TOW 2A/B, many mounted on armored vehicles, 90 Dragon manportable weapons, AT-3 Saggers, and an unknown number of Israel-developed weapons including 25 Mapats, Gill, Spike and Dandy. The Dandy can be fired from either a helicopter or a ground-based vehicle.[xiv] The Spike, available in medium-range, long-range and ER, had received a significant upgrade. Named Spike C41, the upgrade included a GPS receiver, computer, and datalink as well as a hand-held laser rangefinder, and a laptop command unit and radio system. The C41 decreases the chance of friendly-fire incidents while providing a network capability to Spike units in the field.[xv] It had large numbers of rocket launchers and some 250 106mm recoilless rifles.

Israel had built up a modern artillery force of some 960 self-propelled weapons and more than 212 multiple rocket launchers -- including 48 US MLRS. Its self-propelled weapons included 148 L-33 and 704 M-109A1/A2 weapons, 72 M-107 175mm weapons, and 36 M-110 203 mm weapons. It had upgraded its 175mm M-107 weapons into a version called the Romach, and had upgraded many of its 155mm M-109 weapons into a version called the Doher, which had improved mobility, NBC protection, and fire control and accuracy. The L-33 Soltam is an aging Israeli system placed on a Sherman M4A3e8 tank chadsis. Its operational status was unclear. Some sources indicate that 200 were built and the system was in reserve. Israel also had370 towed weapons, including 70 105mm, 5 122mm, 15 130mm, and 280 155mm weapons.

Israel's multiple rocket launcher strength included 58 BM-21 122mm, 50 LAR 160 160mm, 48 MRLS 227mm, 36 BM-24 240mm, and 20 LAR-90 290-350mm weapons. These weapons often had substantial modifications and upgrades, and the LAR had both three 160mm and one 290-350mm versions. The 160mm version had a range of 12-45 kilometers, and the 350mm version from 30 to 100 kilometers, varying in range from 12 to 30 kilometers. Israel also had some 1,300 81mm, 400 120mm, and 130 160mm mortars, many mounted on armored vehicles.

Additionally, the IDF had absorbed 33 AFB-142F-1 and seven AGM-142 Have Nap Popeye Standoff Attack Missiles.[xvi] Israeli weapons manufacturers developed a deep-strike, precision guided missile dubbed LORA, or Long Range Artillery. The LORA, with a range of approximately 120 kilometers, is similar to the SS-21s employed by the Russians or the ATACMS utilized by the Americans. The operational status of the missile remained

uncertain, however, as the developers accidentally broadcast a failed LORA missile test in 2003.[xvii] Israel handover 100 active variants of the Jericho long-range ballistic missile (IRBM), plus 7 Lance surface-to-surface missile fire units in storage.

Israel was steadily upgrading its battle management and targeting systems and self-propelled artillery force was also enhancing its long-range strike capabilities with advanced multiple rocket launchers. However, it still wanted to acquire much larger stocks of advanced and specialized ammunition, upgrade to weapons like an upgunned version of the M-109 and Soltam Slammer self-propelled 155mm howitzers, and increase its number of MLRS and other advanced multiple rocket launchers.

It may, however, have to concentrate on upgrading its targeting sensors like radars and UAVs and battlefield management systems. The Ministry of Defense ordered additional special surveillance coverage to be provided by Searcher UAVs that have been in service since 1992.[xviii] It is not clear that the Searcher will satisfy the IDF's needs. The Israeli Army would like to acquire a number of Skylark mini UAVs for special operations purposes, but it had yet to place a specific order.[xix] In the realm of battlefield management, the IDF acquired the PNR-500 personal radio network system that allows units to communicate in a manner similar to a conference call, enhancing coordination and information relay.[xx] On a much grander scale, Israel planed to develop a fleet of aircraft that would mimic the abilities of US aircraft equipped with the Joint Surveillance Target Attack Radar System, or JSTARS. This would greatly enhance long-range battle management.[xxi] The Israel Air Force will have acquired three signals intelligence collection aircraft (SIGINT) by 2006.[xxii]

Some reports indicate that Israel's Project Anog will seek to apply existing technologies to create an integrated battle suit system in an effort to boost each individual soldier's effectiveness. It was reported that the system will sport interconnected weaponry, headgear, and body systems, providing soldiers with GPS receivers, laser range finders, wireless communicators, and a combined reflex sight and laser-aiming light. Field trials could begin as early as 2006 with full prototypes available by 2010 at a reported cost of less than $10 million.[xxiii]

The IDF increasingly emphasized joint operations in its training and doctrine, and seemed likely to develop fully mobile and air mobile infantry units that match or exceed the maneuver capability of its armored forces. It was still a twelve-division force, of which some nine divisions were manned by reserves. However, it seemed to be moving towards a more flexible task force concept in which the independently controlled infantry brigades could be placed under the overall control of the armored divisions in order to enhance armored combat under fire-saturated battlefield scenarios. The resulting units could operate independently in a number of scenarios.

Israel also is one of the few armies in the Middle East with anything approaching the advanced training facilities that the US Army had at Fort Irwin or that the US Marine Corps had at Twenty Nine Palms. Egypt and Jordan are the only two Arab powers acquiring somewhat similar capabilities. The Israeli army had a computer corps called Mamram. It had a training center at Mabat in the Negev desert, which used a modern computerized training range, an advanced command and control simulator, an area-weapons effect system, and over 1,000 MILES II instrumented player outfits for infantry, anti-tank weapons, and armored vehicles. There are other MILES systems for infantry and special forces training, and some form of equipment was used to simulated helicopter and fixed wing aircraft in joint training. The facility was scarcely as advanced as its US counterparts, but had well over $50 million worth of equipment.

The IDF had to concentrate many of its recent efforts on internal security and counter insurgency/counter terrorism missions, but it had also sought to restructure its support and logistic elements to allow more rapid support of maneuver operations at the brigade or task force level. Such forces would be re-equipped with a mix of specialized armored and tracked support vehicles like the Achsarit, Puma, and Nakpadon to provide both better mobility and some degree of NBC protection. Recently, the IDF had been deploying its 'Solid Mirror' integrated system along the expanding security fence and on the border of the Gaza Strip. 'Solid Mirror' detects and identifies threats, tracks their progress, and had the ability to warn or set off an alarm. The system utilizes a variety of sensors and automated constructs to perform its mission. It had been deployed along the 120-kilometer border with Lebanon since 1999.[xxiv]

The IDF was examining different ways to man "high alert" forces. Some included larger numbers of career actives and fewer reserves. Others seemed to involve more use of attack helicopters, air support, and long-range firepower systems like rockets with advanced conventional warheads. It had placed an increasing emphasis on improving combined arms and joint operations at every tactical level.

Israeli Air Forces

As of the end of 2004, the IAF had a nominal strength of 35,000. These included 20,000 conscripts, largely assigned to land-based air defense forces. It had some 399 active combat aircraft, plus 250 in storage, and some 95 armed helicopters. It had13 fighter and fighter attack squadrons with a total of 340-360 aircraft authorized. These included 36 F-15A/B, 28 F-15 C/D, 25 F-15I, 102 F-16A/B, 101 F-16C/D, and 102 F-16I that are now in delivery and conversion. It also had one attack squadron of 39 A4Ns, a 2 Phalcon AEW aircraft, 29 EW and ELINT aircraft, 95 attack helicopters (16 AH-1E, 39 AH-1S, and 40 AH-64A) and 6 ASW helicopters. It had5 KC130H tankers, 21 major transport aircraft, and some 186 scout and transport helicopters. It also had a wide range of unmanned aerial vehicles (UAVs), and a large inventory of advanced air-to-air and precision guided air-to-surface weapons – including both Israeli and US-made weapons.

According to some reports, the IAF was pursuing the development of multispectral sensor systems to be fitted on UAVs, planes, and helicopters. Replacing forward-looking infrared systems with synthetic aperture radar or millimeter wave radio systems would drastically reduce the effects of poor weather conditions on reconnaissance and targeting. However, development and deployment may be 10 to 20 years away by some estimates.[xxv]

Israel was the only Middle Eastern air force that combines all of the elements of modern air power into an efficient and integrated whole. Israel had advanced combat, electronic warfare, intelligence and targeting, and battle management aircraft. These were supported by a host of advanced and special purpose weapons systems, combat electronics, unmanned airborne vehicles, night and all weather combat systems, and command and control facilities. Israel was one of the few countries capable of creating advanced chaff, electronic warfare, and electronic supporting measures and its own guided air weapons.

Israel had long stressed joint warfare, and combines its skills in land maneuver warfare with one of the most effective air forces in the world. The Israeli Air Force (IAF) is one of the most modern air forces in the world. It had systematically improved its conventional attack -- or "soft strike" – capability. It now had many of the advantages US airpower enjoyed during the Gulf War, plus a wide range of subsystems and weapons tailored to deal with threats like Syria and the special conditions in its theater of operations. The IAF had recently absorbed 20-24 F-15Is, 50 surplus USAF F-16s, additional AH-64s, 10 Black Hawk helicopters, advanced new UAVs, and ongoing Israeli upgrades to existing aircraft like the F-15, F-16, and Phantom 2000. The Israelis were considering the purchase of six more AH-64D Apache Longbow attack helicopters, bringing their fleet to 18.[xxvi] Additionally, the IAF was buying 102 F-16I fighters. The older F-15Is will be fitted with Mk84 Joint Direct Attack Munitions (JDAMS) by late 2005.[xxvii] Israel purchased four G550s, with an option for two more, to provide an airborne early-warning capability.[xxviii] However, they will not be fully operational until 2007.

Israel not only had the technical resources to steadily modernize and improve the capability of its electronic warfare and reconnaissance aircraft but additionally had the C^4I/BM, training, night warfare, electronic warfare, support, sustainability, and other specialized qualitative capabilities necessary to exploit the revolution in military affairs. Its superior technology was fully supported by superior tactics and training, and this gave it all of the qualitative advantages over Syria that were discussed earlier.

Israeli pilot and aircrew selection and training standards are the highest in the Middle East and some of the highest in the world. In addition, Israel had developed a reserve system that requires exceptional performance from its air force reservists. There were no reserve squadrons in the IAF, and all squadrons could operate without mobilization. However, about one-third of the aircrew in each squadron were reservists. Reserve aircrews trained 55-60 days a year, and flew operational missions with the squadron to which they are assigned. In the event of a call-up, the reserve air crews and operations support personnel report first, and then support personnel for sustained operations. About 60% of the IAF reserves were in air and ground defense units.

In contrast, other Middle Eastern forces were weakened by their failure to enforce rigorous selection procedures for assignments other than combat pilot, and by their failure to create a highly professional class of non-commissioned officers that were paid, trained, and given the status necessary to maintain fully effective combat operations. In most cases, these problems were compounded by poor overall manpower policies and promotion for political and personal loyalty. Other Middle Eastern air forces also tended to be weakened by a failure to see command and control, intelligence and targeting, high-intensity combat operations, and sustainability as being equal in importance to weapons numbers and quality. While Egypt, Iraq, and Saudi Arabia have moved towards the idea of force-wide excellence in supporting an overall concept of operations, they still have a long way to go before approaching Israel's level of capability.

While the Israeli air defense system was scarcely leak proof -- a fact it demonstrated some years ago when a defecting Syrian pilot flew undetected deep into Israeli air space -- a fully alert Israeli air defense was capable of coordinating its sensors, fighters, and land based defenses with a level of effectiveness that no other Middle Eastern air force can approach.[xxix] Israel had a better overall mix of systems, better-trained personnel, and a far better ability to integrate all its assets with its own technology and software than any other Middle Eastern air force.

The Israeli Air Force (IAF) had an unequalled record in air-to-air combat. It destroyed many of its opponent's aircraft on the ground in the 1967 war and then scored 72 air-to-air kills over the rest. It destroyed 113 Egyptian and Syrian aircraft in air-to-air combat during the war of attrition, and killed 452 Egyptian, Syrian, Iraqi, and Jordanian aircraft during the October War in 1973. It killed at least 23 Syrian aircraft between 1973 and 1982, and killed 71 fixed-wing aircraft during the fighting in 1982. It shot down three Syrian fighters between 1982 and 1992. While it had lost 247 aircraft in combat since the beginning of the 1948 war, only 18 have been lost in air-to-air combat. In contrast, Arab forces have lost at least 1,428 fixed-wing and rotary-wing aircraft in combat and 817 have been lost in air-to-air combat.

Israel's advantages in strategic and long-range offensive operations were even greater. The IAF is the only air force in the Middle East that was seriously organized for strategic attacks on its neighbors. Other Middle Eastern air forces may have had long-range strike aircraft, effective munitions, and even a limited refueling capacity. They were, however, essentially amateurs in using their assets to inflict strategic damage on an enemy nation or in conducting effective long-range strategic strikes.

Israel had shown it had the ability to strike deep into the Arab world, and had greatly improved its long-range strike capability since its attacks on Osirak in 1981 and on Tunisia in 1985. It had the F-15I and greatly improved refueling capability, targeting capability, stand-off precision munitions, and electronic warfare capability. Israel could probably surgically strike a limited number of key targets in virtually any Arab country within 1,500 nautical miles of Israel, and could sustain operations against Western Iraq. It would, however, probably be forced to use nuclear weapons to achieve significant strategic impact on more than a few Iraqi facilities, or if it had to simultaneously engage Syrian and Iraqi forces.

Israel has also been in talks with the United States to obtain $319 million worth of air-launched bombs, including 500 “bunker busters,” possibly to use on Iran’s alleged underground nuclear facilities.[xxx]

Nevertheless, several Arab forces now have combat elements with moderate to high capabilities. Two Arab air forces -- Egypt and Saudi Arabia -- had relatively good training standards, modern combat aircraft, and advanced battle management systems like the E-3A and E-2C. The IAF faces growing problems over the cost of advanced new aircraft, munitions, sensors and battle management systems. Modernization will continue to present financial challenges. The IAF would like to buy up to 42 more AH-64 Apache or AH-64D Longbow attack helicopters, including at least one more squadron equipped with Longbow long-range, all-weather, fire-and-forget, anti-armor missiles.

More generally, the IAF faces two evolving challenges that could erode its present almost decisive superiority. One is the risk that a nation like Syria will acquire large numbers of truly modern surface-to-air missiles like the S-300 or S-400, and the necessary command and control system and sensors. The other is proliferation. Long-range missiles and weapons of mass destruction pose a risk to all of Israel’s conventional forces, but they pose a particular challenge to Israel’s air forces because they (a) provide the ability to strike directly at Israel’s densely packed main operating bases, and (b) bypass its air combat capabilities. Israel’s very strengths drive its opponents towards asymmetric warfare, and to use proliferation as a way to exploit its remaining areas of vulnerability.

Israeli Land-Based Air Defenses

The IAF operated Israel’s land-based air defense units. These were organized into six brigades covering five geographic regions (central, northwestern, southeastern, southwestern, and northeastern), plus a training unit. Weapons were deployed into battalions organized by weapons type. This included Israel’s Patriot/I Hawk battalions (136, 138, and 139 Battalions) that have one Patriot battery and three IHawk batteries each. Israel had 17 batteries of MIM-23 Improved Hawk surface-to-air missiles, and 3 batteries of upgraded Patriot missiles with improved anti-tactical ballistic missile capabilities, and had deployed two Arrow batteries at Palmahim and Ein Shemer.[xxxi] The Patriot batteries have three multiple launcher fire units each.

Israel was the only state that had the resources, technology, organizational skills, war planning capability, and leadership to provide such a comprehensive approach to combining land-based air defense and air warfare. Jordan

had the technical understanding, but lacked the equipment and resources. Egypt combined some modern capabilities with large obsolete forces, and a lack of overall systems integration and military coherence. Syria relied on aging Soviet systems, the most modern of which date back to the early 1980s. Its air defense deployments and battle management systems were poorly executed in detail, and lacked effective systems integration, electronic warfare capability, and modern C^4I/BM capabilities.

The Israeli system was believed to make use of the Hughes technology developed for the USAF, including many elements of the USAF 407L tactical command and control system and Hughes 4118 digital computers. The system had main control centers in the Negev and near Tel Aviv. It had a mix of different radars, including at least two AN/TPS-43 three-dimensional radars with three AN/MPQ-53 radar sets and three AN/MSQ-104 engagement control stations bought in 1998. This system was tailored to Israel's local threats and had sufficient technology to meet these threats in combat. Israel also had the ability to coordinate its air defenses from the air, had superior electronic warfare and systems integration capability, and had a clear strategy for suppressing enemy land-based air defenses and the ability to execute it.

The Israeli Army also had eight short-range Chaparral missile fire units and units with large numbers of Stinger, Grail, Redeye manportable missiles and Vulcan anti-aircraft guns. It had over 250 Stingers, 1,000 obsolescent Redeye manportable surface-to air missiles, and 45 Chaparral crew-served missile launchers. It also had some 850 20mm anti-aircraft (AA) guns -- including TCM-20s and M-167 Vulcans. It had35 M-163 Vulcan/M-48 Chaparral gun-missile systems, 100 ZU-23 23, 60 ZSU-23-4 23mm AA guns, some M-39 37mm and L-70 40mm AA guns. The IAF had eight Stinger batteries and eight Chaparral batteries. These assets gave Israel fewer land-based air defense forces and mobility than some of its neighbors, but Israel relied primarily upon its air force for such defense.

Two Israeli defense firms had jointly produced a new surface-to-air missile platform dubbed the "SPYDER." The all-weather day/night system is truck mounted along with a surveillance radar and a command and control unit. The SPYDER was designed to target precision guided munitions, helicopters, UAVs, and aircraft up to 15 kilometers away and up to 9,000 meters in the air.[xxxii] The IDF had not, however, announced any plans to acquire SPYDER units.

Additionally, the IDF, in conjunction with the US Army, is developing a Mobile Tactical High Energy Laser (MTHEL) that will target UAVs, some types of cruise missiles, artillery shells, and short-range rockets. A similar system, albeit much larger and in prototype form only, had already been produced in the US. The Ministry of Defense envisions deploying it by 2007.[xxxiii]

Israeli Naval Forces

Israel's naval forces had 8,000 actives, and 3,500 reserves. Conscripts serve three years. The Israeli Navy had 3 submarines, 3 Sa'ar 5-class corvettes, 12 missile patrol craft, 39 inshore patrol craft, and 1 amphibious ship. It had a small commando force of 300 men, and had 5 AS 565SA Sea Panther anti-submarine warfare helicopters. Its forces are based at Haifa, Ashdod, and Eilat. The Israeli Navy was trying to purchase two or three Multi-Mission Combat Ships, dubbed the Sa'ar 5 plus plus program, by 2005.[xxxiv] The vessels would extend the navy's sensor capability and possibly could serve as the platform for a sea-based missile defense system.[xxxv] At this point in time, Israel has little or no capability in the Red Sea -- reflecting its peace with Egypt and Jordan.

Israel had replaced its three Gal-class submarines with three modern Dolphin-class submarines (Commission in 1999 and 2000). Israeli Navy plans originally called for Israel to maintain all five submarines to do this, but it is unclear that such a force is affordable. The Dolphins gave Israel considerably greater strategic depth in operating in Mediterranean waters. They can be operated at ranges of up to 8,000 miles and have an endurance of up to 30 days. They have modern sonars, wire-guided torpedoes, and facilities for the launch of Harpoon anti-ship missiles. The Dolphins were the most advanced submarines in the Middle East. They weigh 1,700 tons and are twice the size of the Gal-class subs. In addition, Israel was to receive German Seahake heavyweight torpedoes. The navy was considering the acquisition of two more Dolphins, and some opposition seemed to have developed to its plans to buy two additional missile corvettes due to the concern that the corvettes would be vulnerable to terror attacks either in the Suez Canal or in the Straits of Gibraltar. Some within the navy have also stressed the importance of submarines over the corvettes in order to preserve a nuclear second-strike capability in the event of an attack.[xxxvi] There are reports that Israel can use its submarines to provide a secure and relatively invulnerable launch platform for nuclear-armed missiles. These initially would be a nuclear-armed version of a system like the Harpoon, with a nominal range of 70 miles or 130 kilometers. They may be followed by new long-range cruise missiles.

Israel had three new Sa'ar 5 (Eliat or Sa'ar V)-class missile corvettes, with a fourth due to be commissioned in 2004-2005. These are 1,227-ton ships, each of which had two quad launchers for Harpoon missiles with a range of up to 130 kilometers, 1 76mm gun, a Dauphin SA-366G helicopter, a Phalanx close-in defense systems, and six torpedo launchers. They may be equipped with eight IAI MBT Gabriel 5 anti-ship missiles with radar and optical homing and ranges of up to 36 kilometers, but there are top weight problems. Other upgrades may include giving each ship two 32 cell launchers for Barak air defense missiles The Sa'ar 5s also had modern electronic support and countermeasure systems, and advanced software for target tracking and identification. These facilities included a sophisticated command information center (CIC) sheltered deep within the ship that can act as task group command centers, as well as fight the individual ship. The sea and air tracking and battle management system are also advanced for a ship of this class.[xxxvii]

The ships also had extensive countermeasure and some stealth features, and were to be upgraded to use the Barak missile when suitable funds become available. The ships give Israel additional "blue water capability," and were superior to any similar missile ships in service with Israel's Arab neighbors. Israel had sought funds for up to 5 more ships through US aid, but it was unclear whether it will have sufficient funds to do so. Nevertheless, the Ministry of Defense continues to pursue funds for and development of sea-based vessels capable of interdicting air, surface, and submarine-fired missiles.[xxxviii]

Israel had 12 additional missile craft – including eight Sa'ar 4.5 (Hetz)-class ships with eight Harpoons and six Gabriels each. It had two Sa'ar 4.5 (Aliya)-class ships with 6 Harpoons and 6 Gabriels. It retained two Sa'ar 4 (Reshef) class missile patrol boats for spaces. The Sa'ar 4.5s had been extensively modernized under the Nirit (4.5)-class upgrade program which incorporateed a "modernization by cannibalization" approach, scrapping much of the material from the Sa'ar 4s while outfitting the vessels with new hulls, low-radar-signature masts, new fire-control detectors, updated sensors, and four eight-cell launchers for Barak point-defense missiles. All Sa'ar 2s and 3s had been retired.[xxxix]

Israel also had 13 Super Dorva-class fast attack craft with 20mm guns and short-range Hellfire missiles. Two were based at Eliat on the Red Sea. It had 15 land-transportable Dabur-class coastal patrol boats (two are based at Eliat on the Red Sea.) There were three small Bobcat (coastguard)-class patrol boats as well.

The Israeli Navy had one Ashdod-class LCT (400-tons, 730-tons fully loaded). It may lease a Newport-class LST from the US. Its six Phalcons could provide maritime surveillance, as well as airborne early warning, and it had 19 Bell 212 helicopters for coastal surveillance tasks. It had 5 Sea Panther helicopters for its Sa'ar 5s, and Sea Scan UAVs for maritime surveillance and targeting.

Israel was the only navy in the Middle East supported by an industrial base that had advanced electronic warfare design and modification capabilities, and with the ability to manufacture and design its own sensors and anti-ship missiles. These developments should allow Israel to maintain a decisive edge over Syria in the Mediterranean and more limited advantage in tactics, training, and technology over the Egyptian Navy -- although the Egyptian Navy was receiving significant modernization.

The Israeli Navy was also considering the purchase of either a 13,000-ton amphibious ship that could carry troops, tanks, aerial vehicles and helicopters as far as 2,000 miles away (the Multi-Mission Combined Arms Platform) or a 3,000 ton Sa'ar 5 II Advanced Surface Warship.[xl] However, due to budgetary concerns, the Navy has shelved any procurement plans until at least 2008.[xli]

Sea power is not likely to be a significant issue in any near-term Arab-Israeli conflict -- particularly one between Israel and Syria. Israel had massive naval superiority over Syria and Lebanon. It also can probably use joint naval-air operations win superiority over Egypt except in Egyptian waters.[xlii] It should be noted, however, that Israel had effectively ended its naval presence in the Red Sea, and had had to make trade-offs that have reduced its naval capabilities. It had to cut its procurement of new Sa'ar corvettes from eight to three and may have problems in funding all three Dolphin-class submarines. It also had to cut back substantially on its Barak ship defense missile -- although these were armed with Harpoon and Gabriel ship-to-ship missiles. The practical issue is whether this matters given the strategic partnership between the US and Israel and US dominance of the sea. It simply is not clear that any of Israel's naval trade-offs erode its edge in any probable contingency.

Israel's continuing Strategic Challenges

In spite of Israel's conventional military superiority, and its nuclear forces – Israel does face continuing strategic challenges:

- The IDF must make hard trade-offs between technology and force size, mass intakes of conscripts for "nation building" and real war fighting needs, and high quality, long-call up reserves and large reserve forces.
- Israel must deal with an ongoing asymmetric war with the Palestinians and the constant threat of extremist and terrorist attacks. These partly offset its advantages in conventional force strength, force it to constantly devote major resources to offensive missions, and are a major threat to any new peace process.
- Israel must plan for continued warfare with the Palestinians even as it seeks a peace. A sovereign Palestinian state or entity would also change the strategic geography of Israel at virtually every level and a failed peace could mean massive problems in terms of terrorism and urban, asymmetric, and occupation warfare.
- Israel must simultaneously plan to deter Syria, to fight Syria, and to make peace with Syria, with or without peace with Lebanon. It must also prepare for low-level war, large-scale conventional combat, and warfare involving chemical and biological weapons. Under worst cases, this could involve outside Arab intervention.
- The IDF must plan for a the risk of an extended low-intensity war on its border with Lebanon.
- Israel cannot count on coalition warfare, but it must decide how to strengthen alliances and secure its peaces with Egypt, Jordan, and other powers in the region. So far, this has meant closer strategic cooperation with the US and Turkey, but the IDF must also be prepared to rethink the way in which it would assist Jordan in the event of Iraqi or Syrian pressure or attack, and the possibility of extending missile defense over Jordan and Palestinian territory.
- The IDF must look beyond defense against its neighbors, most of whom now have peace treaties with Israel, to a broader range of threats like Iran which will acquire very long-range strike capabilities and which can support proxies in asymmetric warfare.
- Nuclear and retaliatory survivability is becoming a growing problem, as is reliance on an undeclared nuclear deterrent. Israel continued to use its limited resources to build more nuclear warheads, but its shelters are not hardened silos and do not protect its existing warheads and Jericho medium-range missiles from a pre-emptive surprise nuclear attack.
- Israel's move to place a number of nuclear missiles in submarines[xliii] is likely to be challenged by other Middle Eastern countries that may respond by acquiring attack subs, helicopters and planes with anti-submarine warfare capabilities, and more sensitive detection devices. Iran had acquired three older submarines and while they may not be able to challenge the Israeli subs, it may signify a new proliferation arena. Saudi Arabia had expressed interest in purchasing submarines and is seeking ten NH-90 helicopters with anti-submarine warfare capabilities for their Alriyadh-class frigates.
- Counterproliferation involves both offense and defense. In 1981, the IAF was able to destroy an Iraqi nuclear reactor before it could start to produce material or waste that could be used for atomic weapons. Now Iran has been successful in using Chinese and Russian support to develop a nuclear program that is spread out and not susceptible to long-range attack. This requires a shift to missile defense, but it also requires a broader counterproliferation strategy and possibly a new approach to deterrence and retaliation – making nuclear deterrence more overt and mixing it with credible long-range precision conventional strikes.

The Military Forces Egypt

Egypt has been at peace with Israel since 1979, and has scrupulously honored the terms of this peace. Nevertheless, it had never been able to plan on a secure peace because of ongoing conflicts between Israel and the Palestinians and the risks illustrated by Israel's past conflicts with Lebanon. Egypt had also planned for the risk of a military confrontation with the Sudan over the control of the Nile, to provide security for the transit of shipping through the Suez Canal and Red Sea, and for potential conflicts with Libya – although the risk of these latter conflicts has diminished steadily in recent years.

These risks, the political and bureaucratic momentum behind maintaining a large force posture for status purposes, and the fact that Egypt's armed forces play a major role in its government, have led Egypt to spend far more on

military forces than it can really afford. It had also used US grant assistance for military purposes that would be far better spent on economic development and reform. Such spending also limits Egypt's ability to deal with a serious Islamic extremist and terrorist threat, caused in part by deteriorating economic conditions and living standards for much of the population.

The end result is that Egypt had formidable military forces by regional standards. Egypt retained much of the force levels it had during the October War in 1973, and, as of the end of 2004, had an active strength of 450,000 men, although 322,000 were conscripts serving 12-36 months, who often lacked adequate training. The recent trends in Egyptian forces are shown in **Figure 2.2**, and show that Egypt's greatest strength lay in its pool of advanced modern equipment. Egypt had also benefited from well over a decade of large amounts of US grant aid, and was the only Arab state bordering Israel that had been able to compete in arms imports during the 1990s. Egypt had massive supplies of US and other Western arms, and had a substantial backlog of new orders. At the same time, Egypt is extremely dependent on US aid. This dependence will present problems if US aid declines in the future, or if Egypt should ever back away from the peace process. Egypt would face an immediate cut off of US aid and resupply if it should come under extremist Islamist rule, and this would present major near-term problems in Egypt's effort to support US-supplied systems as well as probably lead to an immediate internal economic crisis.

Egypt had also generally emphasized force strength over force quality, often limiting its ability to make effective use of its modern weapons. Its active forces had serious manpower quality, readiness, and sustainability problems. Egypt also maintained massive 410,000-man reserve forces (300,000 army, 20,000 air force, 70,000 air defenses, 20,000 navy)that have been allowed to collapse into near decay since the 1973 war. Reserves still had nominal assignments to fill in badly undermanned regular units, but most reservists received little or no training. Those reserves that did train usually did not receive meaningful training above the company to battalion level, with many training using obsolete equipment that is different from the equipment in the active units to which they are assigned.

Egyptian Land Forces

The Egyptian army had a strength of 320,000 actives, including 250,000 conscripts, plus a reserve pool of up to 300,000 men. Egypt's command structure was organized into five military zones: The Central Zone (Cairo), the Eastern Zone (Ismailiya), the Western Zone (Meksa Matrun), the Southern Zone (Alexandria), and Northern Zone (Aswan). In spite of the fact that Egypt had strictly adhered to the terms of its peace with Israel, the Eastern Zone and defense of Suez and the Sinai was still its major military priority. Its two field armies (the 2nd Field Army and 3rd Field Army) were placed under the Eastern Zone Command.

Egypt's combat strength emphasizeed heavy forces. It had four armored divisions, each with a nominal organization of two armored, one mechanized, and one artillery brigades. It had eight mechanized infantry divisions, each with a nominal strength of one armored, two mechanized, and one artillery brigades. It also had one Republican Guard armored brigade, four independent armored brigades, one air-mobile brigade, four independent mechanized brigades, two independent infantry brigades, one Special Forces group, one air mobile brigade, and five-six commando groups. Like Syria, a substantial part of this order of battle was composed of relatively low-grade and poorly equipped units, many of which would require substantial fill-in with reservists -- almost all of which would require several months of training to be effective. Major combat support forces includeed fifteen independent artillery brigades, one FROG surface-to-surface rocket brigade, and one Scud-B surface-to-surface missile brigade,

Each military zone had a nominal strength of one armored division with two armored and one mechanized brigades, except for the Central Zone. The mechanized divisions were concentrated in the Eastern Zone, but some were in the other zones. Each mechanized division had two mechanized and one armored brigade. The Republican Guard was under the command of the Central Zone, but took its orders directly from the President. The air mobile and paratroop units also seemed to be under presidential command. The army's main bases were in Cairo, Alexandria, El Arish, Ismailiya, Luxor, Matruh, Port Said, Sharm el-Sheik, Taba, and Suez.

The Egyptian army had large holdings of modern equipment and continues to modernize. They had had 650 M-1A1 tanks, plus 400 M-60A1s and 1,000 M-60A3s. This was a total of 2,050 relatively modern tanks out of a total of 3,855, or 58%. These forces compare with 2,880 modern tank for Israel, out of overall holdings of 3,495 tanks (59%). A decade earlier, Egypt only had 785 M-60A3s out of a total of 2,425 tanks. Egypt lagged in modern armored fighting vehicles, but had 1,900 M-113s. Egypt is scheduled to produce additional M-1A1s to bring Egypt's total M1A1 fleet to 880 by June 2008.[xliv] Egypt had bought 21 M88A2 Hercules heavy recovery vehicle kits from the US.[xlv]

Egypt had, however, weakened its ability to use its modern weapons effectively by over-extending its force structure. It tried to support far too large a land force structure at the cost of relying on low quality conscripts, poor training for most of its forces, and increasingly underpaid officers and other ranks. In spite of a decade of ongoing modernization, about 35-40% of Egypt's total inventory of major land combat weapons still consisted of obsolete and badly worn Soviet bloc systems supplied in the late 1960s, and none of its Soviet bloc inventory was supplied after 1974. For example, the rest of its tanks consisted of obsolete to obsolescent Soviet bloc models, with some conversions and upgrades of dubious value. These included 1,155 T-54/T-55s, only 260 of which had had any real upgrading into the Ramses version, and 550 T-62s. The most Egypt could do to modernize the rest of these tanks was to obtain British aid in upgrading their ammunition.

The IISS estimates that only 225 YPR-765s of Egypt's holdings of 690 AIFVs were relatively advanced types, although Jane's reports that some 611 were delivered, including 304 with 25mm cannon, six command post vehicles with 25mm cannon, 210 PRAT-TOW vehicles with a twin TOW ATGM launcher, 79 other command post vehicles with 12.7mm machine gun, and 12 other communications and command post variants. Egypt had some 220 BMP-1s in storage, and its other holdings consisted of 250 Spanish lightly armored, wheeled BMR-600Ps.

Egypt had 300 worn and aging BRDM-2, and 112 more modern Commando Scout light wheeled armored reconnaissance vehicles. Its 4,300 APCs included some 2,400 relatively low quality systems: 650 Walids, 1,000 Fahds, 500 worn and aging BTR-50/OT-62s (most in storage), 250 aging BRT-60s. Egypt may upgrade around 350 BTR-50s with the help of Belarus.[xlvi] They also, however, included some 1,900 of variants of M-113A3. Some of Egypt's M-113s have been upgunned and may have add-on armor. The Egyptian Armed Forces are trying to procure 100 up-armored armament carrier 4x4 high mobility multipurpose wheeled vehicles.[xlvii]

Egypt had 3,200 numbers of advanced US-made TOW anti-tank guided weapons (including the TOW-2A that had a significant capability against reactive armor), 50 mounted on M-901 armored vehicles and 210 on YPR-765s. Egypt was seeking TOW-2B missiles. Egypt also had 200 relatively effective Milan manportable weapons. However, Egypt also had 1,200 aging, second-generation AT-3 Saggers and 200 Swingfires.

Egypt had significant artillery strength. It had 320 self-propelled weapons: 196 modern self-propelled M-109A2 155-mm howitzers, and 169 M-109A2/A3s in delivery, plus 124 122-mm self-propelled systems using a mix of Soviet supplied and US-supplied chadsis. Egypt had some 1,000 towed tube artillery weapons, including 551 FSU-supplied 122mm, and 420 FSU-supplied 130mm weapons. Its roughly 356 multiple rocket launchers included 96 BM-l1 60 BM-21 and, 200 Saqr 10/18/36 122mm weapons. It had some 26/227mm MLRS weapons, and 2,850 rockets, entering service and in delivery.

Unlike some Arab states, Egypt had made a major effort to improve and modernize its artillery targeting and fire control systems, and had procured AN/TPQ-37 counterbattery radars, UAVs, and RASIT artillery support vehicles to support its artillery in maneuver warfare. However, the rest of its artillery consisted of 76 aging FSU-supplied 122-mm self-propelled weapons, 971 towed weapons, and 156 operational multiple rocket launchers, only a limited number of which had been modernized. Egypt had never fully trained and organized the forces using its older weapons into a modern warfighting force and most of its artillery forces still lack modern support vehicles, C^4I, battle management and fire control, and target acquisition and counter-battery radars and sensors. Many of its forces are not trained or equipped for effective BVR targeting, counter-battery fire, and rapid shifts of mass fire.

Egypt had large numbers of short-range air defense weapons, which included over 1,000 anti-aircraft guns. Most were obsolete weapons suitable only for suppressive fire, but as many as 118 were radar-guided ZSU-23.4 radar-guided, self propelled systems. Egypt had over 2,000 manportable surface-to-air missiles, largely versions of the SA-7 but including some Stingers. It had 20 SA-9s, 26 M-54 Chaparrals, and 50 Avengers.

In spite of its obvious successes in many aspects of force modernization, these figures show that the Egyptian Army is still heavily dependent on aging and obsolescent Soviet-supplied system, many of which are inoperable or incapable of sustained combat. Ironically, the Egyptian army could probably be much more effective if it concentrated its manpower and training resources on a much smaller and better-equipped force. It could also use the resulting savings in military spending to either improve its readiness and sustainability or for economic development.

It is also important to note that Egypt had honored its peace treaty. It had never taken the steps necessary to deploy for war with Israel. In spite of ongoing improvements, it had never modernized its infrastructure, support, and sustainment capabilities near the Suez Canal in ways that allow it to efficiently mobilize and assemble a massive armored force that can rapidly thrust across the Sinai and then sustain itself in intense combat. It had emphasized

acquisition and modernization over overall readiness and sustainability, and it is much better postured to defend in depth than to attack in a massive war of offensive maneuver.

Egyptian Air Forces

Egypt had the only air force in the Arab "ring states" with large numbers of modern fighters capable of advanced strike/attack missions and BVR/look-down shoot-down air-to-air combat. The air force had 30,000 actives in 2004, including 10,000 conscripts, and a reserve pool of 20,000 men. Egypt had 26 F-16A, 113 F-16C, and 15 Mirage 2000B/Cs in 2004. This was 154 advanced aircraft out of a total of 571 combat aircraft (27%). Egypt's holdings compared with 64 F-15A-Ds, 25 F-15Is, and 237 F-16A-Ds for Israel. Israel had a total of 326 advanced combat aircraft out of a total of 399, or 82%.

Egypt's total forces included 131 attack fighters, 327 fighter-attack aircraft and 20 reconnaissance fighters. Its forces have 7 attack squadrons, equipped with 2/42 Alphajets, 2/44 obsolete PRC-made J-6s, 29 aging F-4Es, and 16 aging Mirage 5E2s. Its fighter attack units included 2/26 F-16A, 7/113 F-16C, 1/15 Mirage 2000C, 2/53 aging Mirage 5D/E, 6/67 obsolete MiG-21, and 3/53 obsolescent J-7s. It had two reconnaissance squadrons, equipped with 6 aging Mirage 5SDR and 14 obsolete MiG 21-R. It also had 12 F-16B, 6 F-16D, 3 Mirage 2000B, 15 MiG-21U, 16 JJ-6, and 35 L-59E armed aircraft in its training units.

Egypt had 121 armed helicopters. It had 36 AH-64 Apache attack helicopters on order, and had 6/65 SA-342Ks (44 with HOT and 25 with 20mm guns). It also had 5 SA-342L, 5 Sea King 47, and 10 SH-2G ASW helicopters, many serving with the Navy.

Egypt is the only Arab air force with AEW aircraft and some modern electronic warfare, intelligence, and reconnaissance aircraft -- including 4 E-2Cs, 2 C-130H ELINT, and 1-4 Beech 1900 ELINT, and 4 Commando 2E ECM helicopters. It had 2 Beech 1900C surveillance aircraft. Egypt also makes growing use of UAVS, including 20 R-E-50 Skyeyes and 29 Teledyne-Ryan 324 Scarabs. The EAF absorbed the first of a planned six E-2C Hawkeye 2000 aircraft. The fleet will eventually replace Egypt's older E-2Cs.[xlviii]

Egypt had significant force improvements underway. It is currently scheduled to receive a total of 220 F-16s and to upgrade its AH-64s to Longbow. Egypt had large numbers of modern air-to-surface, anti-radiation, and air-to-air precision guided weapons. It is taking delivery on the AMRAAM and had the technology to make Fuel-Air-Explosive (FAE) weapons, although it is not clear it has done so. Egypt is seeking an additional 414 AIM-9M-1/2 Sidewinder missiles and 459 Hellfire II missiles.[xlix] The air force will upgrade 35 of the AH64As with the Modular Mission Support System, or MMSS, that will enable Egypt to integrate its jets with its Apaches.[l] The air force will be equipping several of its F-16s with reconnaissance pods as part of its ongoing Theater Airborne Reconnaissance Systems program. To be completed by 2007, the program will include the construction of two ground stations as well as extensive training and repair programs.[li]

The EAF had large transport assets. It had some 60 fixed wing transport aircraft, including 22 C-130Hs. It had 141 transport helicopters, including 19 CH-47C/D heavy transports; 62 Mi-8, 25 Commando, and 2 S-70 medium helicopters coupled with 10 Mi-6, 17 UH-12E, 2 UH-60A, 2 UH-60L, and 2 AS-61 light helicopters. The readiness and operational status of its older helicopters was, however, uncertain.

The Egyptian air force was still developing effective joint warfare capabilities, but could already do a far better job of supporting its land and naval forces than most Arab air forces, and some Egyptian squadrons had excellent readiness and proficiency. However, the Egyptian air force wasted its resources on ineffective systems like its J-6s, J-7s, and MiG-21s. The EAF had not done well in keeping its Mirage 5s at a high degree of combat readiness. Egypt still had aging Alpha Jets, and well-worn F-4Es. The operational readiness of many of its 65 SA-342K armed helicopters was limited.

More generally, the Egyptian air force cannot compete with the Israeli air force in overall battle management, the exploitation of modern sensors and targeting systems, electronic warfare, beyond-visual-range warfare, and in using precision strike and attack munitions. It also focuses more on numbers than sustainability, and had limited ability to sustain high sortie rates.

Egyptian Land-Based Air Defenses

As a result of the Canal War of 1970, Egypt had developed one of the largest dedicated air defense forces in the Middle East. It had a separate Air Defense Command with nearly 80,000 personnel. Its forces were organized into four divisions with regional brigades and a countrywide total of 100 air defense battalions. These forces included

large numbers of worn obsolete Soviet-bloc systems that had only limited upgrading. These assets included 40 SA-2 battalions with 282 launchers, 53 SA-3 battalions with 212 launchers, and 14 SA-6 battalions with 56 launchers. These Egyptian forces had low readiness and operational sustainability, and only limited capability to resist modern jamming and other air defense suppression techniques. They were vulnerable to modern anti-radiation missiles.

Egypt does have substantial holdings of more modern and more effective Western supplied systems. They include 12 batteries of Improved Hawks with 78 launchers. Egypt is also developing an integrated command and control system, with US assistance, as part of Program 776. This system is not highly advanced by US standards, but it will allow Egypt to (a) integrate airborne and land-based air defenses into a common air defense system, (b) create a single C^4I/BM network, and (c) manage a defense against air attacks that bring a moderate number of sorties together at the same time and near the same area.

Egypt had long been trying to upgrade its older air defense systems and will improve its surface-to-air missile capabilities in the near future. Egypt first considered trying to update some of its systems with modern Russian-made S-300 or S-400 surface-to-air missiles. In 1997, Egypt is reported to have submitted a proposal to Russia whereby it would purchase the S-300 in a package containing 224 missiles and nearly 100 mobile launchers and radar systems at a cost of at least $700 missile. The S-300 is not only an effective surface-to-air missile, but also a competent anti-tactical ballistic missile system and defense against cruise missiles. Egypt lacked the funds to complete this contract, however, and could not use US aid funds for such a purpose. It limited its purchase from Russia to a $125 million contract to upgrade 50 Egypt's SA-3a missile launchers and their associated units by 2003.

As a result, Egypt turned to the US. In March 1999, the US agreed to sell Egypt $3.2 billion worth of new American weapons, including 24 F-16C/D Block 40 fighter jets, 200 M-1A1 tanks and 32 Patriot missiles. The sale gave Egypt is first battery of Patriot-3 missiles at a cost of $1.3 billion. The battery consisted of eight firing units, each containing four missiles. At the same time, the US announced that it would provide Egypt with the same warning data on the launch of any hostile ballistic missile that it provided to Israel. Egypt will almost certainly acquire several more batteries over time, acquiring far better air, cruise, and tactical ballistic missile defenses than it had.

Egypt is also upgrading its AN/TPS50(V)2 air defense radars to the (V)3 standard. This will provide new software and hardware, including new signal processing centers. It will also give Egypt considerably more ballistic missile attack warning and tracking capability, and advanced long-range, three dimensional air-surveillance capabilities. The radars are linked to 12 operations centers in Egypt which will be able to pass intercept data to both airborne and ground-based are defenses and anti-ballistic missile warning data to Egypt's IHawks and Patriots.

The Egyptian ground forces have large numbers of AA weapons. The army's surface-to-air missile assets include some 2,000 obsolete SA-7s and slightly better performing Egyptian- made variants of the SA-7 called the Ayn-as-Saqr. The Army also had 12 batteries of short-range Chaparrals with 26 M-54 self-propelled Chaparral fire units, 14 batteries of short-range Crotales with 36 launchers, and at least 20 SA-9 fire units. The Egyptian Army's holdings of air defense guns included 200 14.5mm ZPU-2/4, 280 23mm ZU-23-2/4, 200 37mm M-1939, and 200 57mm S-60 towed-unguided guns. They also include 118 ZSU-23-4 and 36 Sinai radar-guided self-propelled guns. The SA-9s, Chaparrals, ZSU-23-4s, and Sinais provided the Egyptian Army with maneuverable air defenses that can accompany Egyptian armored forces.

In addition, Egypt's Air Defense Command had some 2,000 Soviet-bloc supplied unguided towed AA guns ranging from 20mm to 100mm, and a number of light air defense systems. These include 72 Amoun (Skyguard/RIM-7F Sparrow) system with 36 twin guns and 36 quad launchers, a number of ZSU-23-4s, and Sinai-23 systems that are composed of Dassault 6SD-20S radars, 23mm guns, and short-range Ayn-as-Saqr missiles. These weapons provide low-altitude defense of military installations and critical facilities, and can often be surprisingly effective in degrading attack sorties or destroying attack aircraft that attempt to fly through a "curtain" of massed anti-aircraft fire.

Egypt cannot project large mobile land-based surface-to-air missile forces into the Sinai without having to operate individual fire units outside the full sensor and C^4I/BM capabilities of its central air defense command and control system. It would have to support its advancing land forces with individual surface-to-air missile units that would become progressively more vulnerable to the IAF as they moved across the Sinai. Unless Egypt had months in which to build up its forces near Israel's border, they would become progressively more vulnerable to air attack in terms of both Israel's ability to rapidly suppress Egyptian air defenses and target and attack Egyptian land units.

Egyptian Naval Forces

Egypt had a 16,000- 20,000-man navy, including a 2,000-man coast guard. Much of this force consisted of conscripts with limited experience and training. Its headquarters was in Alexandria, and its forces were based primarily at Port Said, Mersa Matruh, Safaqa, Port Tewfiq, and Hurghada. In the past, the navy tended to emphasize force quantity over force quality, trying retain its past strength levels even at the cost of obsolescence and limited readiness.

Egypt's forces were numerically much larger than those of Israel – four submarines and 11 principle surface combatants versus three submarines and five principle surface combatants for Israel.[lii] While the Egyptian navy had impressive combat strength, however, this strength came at the cost of holding on to aging and low-capability ships and limited overall effectiveness – although the navy was improving as it continued to modernize.

Egypt's major combat ships included four ex-Chinese, Romeo-class submarines. These were badly aging designs, but they had been modernized to use Western periscopes, trailing GPS, passive sonars and fire control systems; fire modern wire-guided torpedoes and Harpoon missiles (130 kilometer maximum range); and to use modern torpedoes. One of the submarines had not, however, been seen operational since 1986. Egypt had examined replacing them with two former Royal Dutch-Navy Zwaardvis-class submarines, which could be specially refitted for Egypt. Egypt hoped to use its US FMF grants to purchase these subs and to buy to two new-build RDM-designed Moray 1400 submarines or German Type-209s. These deliveries would significantly increase the capabilities of the Egyptian Navy, but there was little evidence as yet that the US will agree to the use of funds for foreign ships or that the Egyptian Navy will get the funding priority it needs to use US aid. Egypt will receive an additional 62 Harpoon missiles by mid 2005.[liii]

Egypt had two low-quality 1,425-ton Jianghu 1-class Chinese frigates dating back to the early 1980s, and which had never been upgraded and refitted as the Egyptian Navy once planned. Each was equipped with 4 HY-2 anti-ship missiles (with a maximum range of 80 kilometers) and four 57mm guns. These ships were both active in the Red Sea, where no other regional navy except Saudi Arabia deployed more modern major combat vessels.

Egypt did, however, have two El Suez (Spanish Descubierta-class) frigates. The ships date back to the early 1970s, but each was modernized in the early 1980s. These are 1,479-ton ships equipped with 8 Harpoon anti-ship missiles (maximum range 70 nautical miles, 130 kilometers) in two quadruple launchers, an octuple Albatros anti-air missile launcher, a 76 mm gun, two triple torpedo tubes, and anti-submarine mortars. Their combat data systems, air search, and fire control radars were updated in 1995-1996. They can be modified to carry up to eight Otomats.

Egypt also had two 3,011-ton Damyat (ex-US FF-1051 Knox)-class guided missile frigates. While they date back to the 1970s, they were recommissioned in 1995. Each had eight Harpoon missiles, ASROC anti-submarine rocket launchers, Phalanx close-in air/missile defenses, and a 127 mm gun. They had two twin torpedo tubes, and relatively modern combat data systems, electronic countermeasures, search and surface radars, and fire control systems. Each can carry one Kaman Seasprite SH-2G helicopter. However, they had boiler problems, their ASROC system wasdated, and they lacked long-range air defenses. The navy will receive an additional four Phalanx systems by mid-2005.[liv]

In 1996 the Egyptian Navy began to acquire four Oliver Hazard Perry-class frigates in a $600 million deal with the US. These frigates are 2,750-ton vessels. They were in service as the Mubarak-class, and are armed with four Harpoon anti-ship missiles, 76mm guns, Standard SM-1 surface-to-air missiles, Vulcan, and six torpedo tubes with Mk 46 anti-submarine torpedoes. All of these ships date back to the early 1980s, but they were upgraded and had relatively modern radars, sonars, fire control, combat data management, and electronic warfare capability. Each could carry two Kaman Seasprite SH-2G helicopters.

Egypt had 25 missile patrol craft, 12 of which are relatively capable ships armed with the Harpoon and Otomat anti-ship missile. These include six 307-ton Ramadan-class ships, each with four Otomat I anti-ship missiles and 76mm gunsand six 82-ton October-class craft with two Otomat I missiles and 30mm guns.Egypt had six aging 68-ton Hegu-class (the Chinese version of the FSU Komar-class) vessels with SY-1 missiles. They were refitted with improved electronic support measures in 1996, but one seemed to be laid up on what may be a permanent basis. Egypt still had four obsolete Osa I-class with four SS-N-2A Styx missiles; and had 3 Komar-class vessels with SS-N-2A missiles laid up in reserve. Several of the Hegu, Osa and Komar-class ships had serious combat damage or been taken out of service, but two Hegus and four Osa-class boats were still operational.

Egypt had 19 other patrol ships (4 Shanghai-class, 6 Shershen-class, 6 Hainan-class, and 3 Polnochny class.). Some were armed with 122 mm multiple rocket launchers, torpedoes, or 57-mm guns. They could also be used to lay mines. These had some value in the patrol mission and fire support mission in secure waters. Egypt had 12 operational mine vessels, including two relatively modern Swiftship coastal mine hunters and route survey vessels. The rest of its mine vessels could lay mines, but its 4 ex-Soviet Yurka and 6 T-43-class mine vessels had little modern mine detection and mine sweeping capability. Plans to modernize their capabilities had never been implemented.

The Egyptian Navy had three Polnochny-class amphibious vessels (100 troops and 10 tanks capacity each) and nine Vydra-class landing ships (200 troops capacity each). It had some 20 support ships, including diving and support ships. There are six specialized Seafox ships for deliveries of underwater demolition teams.

The army operates three land-based, truck-mounted batteries of Otomat anti-ship missiles with Plessey targeting radars, and two brigades of 100mm, 130mm, and 152mm SM-4-1 coastal defense guns. These defenses are located near major ports and the approaches to the Suez Canal and are under Egyptian Navy command.

In addition, the Egyptian Air Force is equipping a limited number of F-16s to carry Harpoon anti-ship missiles, and Egypt wants to acquire 10 anti-submarine warfare helicopters. It had nine operational SA-342L anti-ship missile-equipped helicopters (out of a total of 12) armed with AS-12 guided missiles, and 10 SH-2(G)E Seasprite helicopters equipped for anti-submarine warfare, and which carry sonars and two torpedoes or depth charges as well as five Mark 47 Sea Kings equipped for both the anti-ship and anti-submarine warfare roles. The EAF had five E-2C Hawkeyes with search and warning radars and both electronic support and counter measures, and two Beech 1900C surveillance aircraft with surveillance radars and electronic support measures that it can use in the maritime patrol role.

The Egyptian navy had many capable vessels, and a steadily increasing capability to defend Egypt's coast, the approaches to the Suez Canal, and Egypt's interests in the Red Sea. However, its naval modernization was still limited and its training and sustainability had comparatively limited funding. The Egyptian Navy is improving, but it had not yet received the funding necessary to fully modernize its ships, or to carry out the levels of advanced joint warfare training it needs. It had difficulties in maintaining ships from so many different countries, and many of its ships and boats are worn and obsolete and have little operational effectiveness.

Egypt could not defeat Israel at sea, but had the capability to pose a limited to moderate threat to Israel, although it would face major problems. It did not have the training, electronic warfare, or navy-air force joint operations capabilities to challenge Israel's best Sa'ar-class vessels in joint operations, except in Egyptian waters, where Egyptian ships might have had air cover and protection from its submarines. Most importantly, Egypt's navy would not have had the air cover and air defense capability necessary to protect itself from the Israeli Air Force.

The Egyptian navy was, however, the dominant regional naval power in the Red Sea. It had moderate capabilities to defend the approaches to the Suez Canal. Egypt can play an important role in dealing with the less sophisticated naval and air forces of potentially hostile Red Sea countries and in securing the Egyptian coastline and approaches to the Suez Canal. The better-crewed and funded Egyptian ships have drawn considerable praise from their US counterparts during joint exercises.

Egyptian Paramilitary Forces

Egypt had a wide range of paramilitary forces, including the National Guards, Central Security Force, Border Guards, Internal Security Forces, General Intelligence Service, and Department for Combating Religious Activity. The National Guard, Central Security Force, and Border Guards are all under the command of the Ministry of Interior. Egyptian military intelligence had a separate, and large, internal security force to preserve the loyalty of the armed forces.

The National Guard had some 60,000 personnel. Its training and effectiveness have improved steadily in recent years, and it had become a key element of Egypt's efforts to suppress violent Islamic extremists. It was dispersed throughout the country and had automatic weapons, armored cars, and some 250 Walid armored personnel carriers. The Central Security Force was also under the Ministry of Interior and plays a major role in fighting Islamic extremists. It had some 325,000 men, and it was this force that mutinied near the pyramids in 1986. It remained relatively poorly trained, paid, and equipped and was given lower-grade conscripts while the army got the better educated intake. The Border Guards included some 12,000 men in 18 regiments.

Internal Security Forces and General Intelligence Service played a major role in dealing with Islamic extremists, other militant opposition groups, and foreign agents. Both services report to both ministers and the president. The Department for Combating Religious Activity is under the command of an army general, and had focused on the most extreme religious groups. These included the Islamic Jihad, Jamaat Islamiya (Islamic Group), and Vanguards of Conquest. The Moslem Brotherhood was the subject of considerable government concern but was more a political party than an extremist movement.

The Military Forces of Jordan

Jordan had spent much of its modern history caught up in the pressures of various Arab-Israeli conflicts. Its peace agreement with Israel in 1994 had greatly eased the most serious pressure on its security and military development, and the end of Saddam Hussein's regime in Iraq in 2003 removed the threat to its Eastern border. As of the beginning of 2005, the two major threats it faced are securing its border with Israel in the face of the Israel Palestinian War, a low-level risk of some crisis with Syria, and the internal instability growing out of its largely Palestinian population and the resulting internal security problems and tensions with Israel. Jordan also faced a limited internal security problem in dealing with Islamic extremist groups and domestic opponents of the regime.

The recent trends in Jordanian forces are shown in **Figure 2.3.** Jordan had long maintained some of the best-trained and most professional military forces in the Middle East, and maintained a force structure of 100,500 actives and some 35,000 reserves. At the same time, Jordan had faced massive problems in financing its military modernization. This recapitalization crisis is shown in the steady decline in the value of Jordan arms imports reflected in **Figure 2.4**.

Jordan had dealt with this situation as effectively as its resources permit, It had focused on buying the key weapons systems that do most to improve its capabilities, and had developed a steadily improving domestic capability to modify and upgrade its weapons. It had also developed steadily better light forces, including some of the best-trained and most combat effective special forces in the region. These steps, however, have not enabled Jordan to been able to begin to keep up with the rate of military modernization in Israel and Egypt.

Jordanian Army

The Jordanian Army had a total of some 85,000 actives and 30,000 reserves. It was organized into four commands, with a strategic reserve and Special Operations Command. The North Command had two mechanized, one infantry, one artillery, and one aid defense brigade, and defends its border with Syria. The Central Command had one mechanized, one light infantry, one artillery, and one air defense brigade. The Southern Command had one armored and one infantry command. The Eastern Command, which will be reorganized as a result of the fall of Saddam Hussein's regime, had two mechanized, one artillery, and one air defense brigade. The Strategic Reserve is a heavy, highly mobile force composed of the Royal Armored Division, and had three armored, one artillery, and one air defense brigade. The Special Operations Command had two Special Force, brigades, a ranger unit, and a counter-terrorism battalion.

This command structure reflects Jordan's conversion to a lighter force structure emphasizing smaller combat formations and fewer tank battalions. It had become more professional, cheaper, more mobile, and better able to deal with internal security problems and the defense of Jordan's borders against threats like smuggling and infiltration across the Jordanian border. As part of this conversion, Jordan had put more emphasis on special forces, and on equipment like the AB3 Black Iris light utility vehicle, and remotely piloted helicopters for border surveillance.

Jordan's Special Operations Command is one of the most effective in the MENA area. It was under the Command of King Abdullah II before he became king, and had received strong support from the Jordanian government. It had been extensively reorganized since 1992, and had extensive special equipment, including advanced intelligence, communications, night vision devices, and special purpose vehicles. It conducts joint training with the British 5th Airborne Brigade and Parachute Regiment. The Special Operations Command also includes the royal guard brigade, elements of the police, and an air wing with AH-1F attack helicopters and UH-1H utility helicopters. The Special Operations Command played a critical role in securing the Iraqi border in the years before the Iraq War, where almost nightly clashes take place with Iraqi smugglers, and in blocking infiltration across the Syrian border.

Jordan also had 10,000 men in its Public Security Directorate, which is under the command of the Ministry of the Interior and includes the police and Desert Patrol. The Desert Patrol had about 2,500 men and 25 EE-11 and 30 aging Saracen armored infantry and scout vehicles. The Peoples Army is a broad pool of reserves with some military

training and which would assume part of the internal security mission in time of war. It had a large pool of mobilizable manpower, but little equipment and recent training. Its current strength is unclear.

Jordan had reorganized its land force deployments to improve coverage of the Iraqi and Syrian borders, and provide a lighter border force to cover its border with Israel to emphasize border security over defense against Israel. This new border force was highly mobile, had improved surveillance technology, and could be supported by an electrified border fence and systems of thermal TV cameras. These efforts were mainly to provide protection from infiltration and smuggling from Iraq and Syria as well as to counter terrorist threats. Talks were underway between Israel and Jordan on cooperative border surveillance.

Jordan could not significantly increase its combat unit numbers with reserves. It had to cut back on reserve training to the point where its reserves had limited effectiveness, and had recently frozen its intake of conscripts for its active forces to reduce the cost of its forces. This freeze effectively ensured that Jordan's active and reserve forces would not grow with its population, and Jordan may have to make additional cuts in both its active and reserve strength.

Given its resource limitations, the Jordanian army had one of the most effective equipment mixes in the Middle East, and it had been able to retain significant defensive and warfighting capabilities in spite of its economic problems Jordan is one of the few countries that could -- and had -- upgraded and modified much of its land force combat equipment . At the same time, Jordan had been forced to reduce its main battle tank strength from over 1,200 to 1,018. Its first line tanks consisted of 390 Challenger I (Al Hussein) and 288 upgraded M-60A1/A3 conversions, supported by 274 much less capable Khalid (Chieftain) tanks. Jordan had 78 additional M-47/M-48s and 90 Centurions (Tariq).

Some of these older tanks have been heavily modernized but many are not operational or effectively are in storage. Jordan's Al Husseins capabilities are to be extended by the addition of a 120mm mechanical load assist system that will give the tanks a 120mm smoothbore capability.[lv] In addition, Jordan is studying a 'Hybrid Turret' upgrade to the Al Hussein that would give the tank a greater degree of system commonality with Jordan's other tanks.[lvi] 100 of Jordan's M60's will be upgraded with the Integrated Fire-Control System, or IFCS. The IFCS will boost the tanks' target acquisition and surveillance abilities during mobile conflicts, improve long-range fire, and enable them to engage multiple targets more rapidly.[lvii] The Jordanian military recently placed an order for 100 Turkish tracked FNSS ACVs to be delivered over the next three years.[lviii]

Jordan's 245 armored infantry fighting vehicles consist of 19 aging Scorpions, 26 BMP-2s, and 200 Ratel 20s. Jordan had converted some of its roughly 1,200 M-113s from APCs to AIFVs, but some of the rest of its M-113s are not fully operable. Jordan also had 100 Spartan and 50 BTR-94 APCs, for a total of 1,394. Jordan had also developed its own prototype of an AIFV called the Temsah (Crocodile) which would convert a Tariq tank chassis in ways somewhat similar to the Israeli conversions of main battle tanks. It would give Jordan one of the few AIFVs with the passive armor and other protection necessary to accompany its tanks into maneuver warfare and deal with well armed infantry and insurgent threats.

The Jordanian Public Security Directorate ordered 60 AB2 Al-Jawad armored troop carriers in 2002, though it is unclear as to whether these vehicles have been delivered.[lix]

Jordan was well armed with anti-tank guided weapons: 330 TOW and TOW-2As, 20 on M-901 AFVs, with 310 Dragons, and 30 Javelin. It had large numbers of light anti-tank weapons, including RPG-26s, 2,500 LAW-80, and 2,300 APILAS.

Jordan had relatively large amounts of self-propelled artillery for a force its size, including 35 M-52 105mm, 29 M-44 155mm, 253 M-109A1/A2 conversions, and 82 M-110A2 203mm weapons. It had 76 towed artillery weapons: 36 M-107 105mm, 18 M-114 155mm, and 18 M-59/M-1 155mm, and 4 M-115 203 mm guns., Jordan cannot support much of its artillery with advanced target acquisition, fire and battle management, and counter-battery capabilities. The JAF intends to replace its existing M102 105mm field pieces with 18 truck-mounted MOBAT (MOB ArTillery) 105mm howitzers sometime in 2004.[lx] These guns will be fitted with the newly ordered Laser Inertial Automatic Pointing System (LINAPS) that will allow operators to aim them faster and more accurately.[lxi] Jordan had 450 81m mortars (130 on AFVs), 60 107mm mortars, and 230 120mm mortars.

Jordan had some 400 AA guns -- including 52 ZSU-23-4 radar guided guns It had 60 self-propelled SA-8s, plus 92 SA-13s, 50 SA-7B2, 300 SA-14, 240 SA-16 and 250 obsolete Red Eye manportable surface-to-air missile launchers. These were only capable of protecting ground troops at short ranges and against aircraft flying at low altitudes.

Training and readiness were generally good to very good by regional standards. Jordan carried out maneuver exercises, organizes and trains for effective sustainability, and practiced combined arms warfare more realistically than most of its neighbors. Jordan had an effective defense industry for a nation its size, capable of modernizing many of its weapons and repairing combat damage.

Jordanian Air Force

Jordan's 15,000-man air force had 101 fully operational combat aircraft, and 22 armed helicopters. Air force training and readiness are good, and air and air-to-ground combat training is more demanding and realistic than it most regional powers.

The air force had four fighter attack/reconnaissance squadrons with 3/55 F-5E/Fs and 1/15 F-1EJ. It had two fighter squadrons with 1/15 Mirage F-1 CJ/BJ and 1/16 F-16A/B. Jordan's aircraft are comparable to those held by Syria but not comparable to those held by Israel. Its F-16A/Bs are its only modern fighter, but do not have the performance capability of Israel's F-16C/Ds or F-15s. The RJAF had ordered 17 upgrade kits to boost the service life of its F-16s.[lxii] Jordan's F-5Es are aging although they may be upgraded as a result of an agreement with Singapore. The Mirage F-1 aircraft could not hope to engage modern IAF fighters with any success, and Jordan lacks any form of AEW aircraft and Jordan's ground based air battle management capabilities have severe technical limitations.

Jordan had some 20 AH-1F attack helicopters with TOW anti-armor missiles. These were effective systems, and Jordanian proficiency in using them was good, but they could not fly evasive attack profiles along most of the border with Israel because they would be highly vulnerable to Israeli air power.

Jordanian Land-Based Air Defenses

Jordan had modernized some aspects of its ground-based air defense C^4I/BM system with US aid, but had lacked the funds to compete with Israel in systems integration, sensor and sensor integration capability, digital data links, and electronic warfare capabilities. It now had two incompatible air defense systems: its air force and Improved Hawk forces use a US system supplied by Westinghouse, and its land forces use a Russian system.

Jordan had 4 batteries of Improved Hawk launchers, organized into two brigades with a total of 24 launchers. Jordan's Improved Hawk forces, however, have important limitations. They are not mobile, they have blind spots in their low altitude coverage, and Israel can easily target them. The Improved Hawks have been upgraded to Phase 3 Pip (product improvement program) status, but may still be vulnerable to Israeli and Syrian electronic countermeasures. The Jordan military maintains three Patriot missile batteries around Amman and Irbid.[lxiii]

Jordanian Naval Forces

Jordan's small naval forces reported to the Director of Operations at the headquarters of the general staff and consisted of a 500-man force with several coastal patrol boats: 3 124-ton Al Hussein class, and 4 small 8-ton Faysal class. Most patrol boats were based at Aqaba, but some can deploy to the Dead Sea. [lxiv] The three 30-meter, Al Hussein-class boats were built by Vosper and had twin 30-mm guns, radars, and chaff launchers. The Faysal-class boats only had machine guns. Jordan also had three Rotork-class, 9-ton craft capable of carrying 30 troops each. [lxv]

Jordan saw its navy as a coastal patrol force designed to provide inspection for incoming cargo ships and guard its coasts and ports against infiltration. It was not designed to have a warfighting capability against Israel or any neighboring state.

The Military Forces of Lebanon

Lebanon was recovering from a long period of civil war, from the Israeli and Syrian occupations, that resulted from Israel's invasion of Lebanon in 1982, and from Syria's interventions in the civil and enforcement of a peace settlement in 1990. Israel left South Lebanon in 2000, after years of low intensity civil conflict with Shi'ite militias like the Hezbollah and Amal. Syria has reduced its military presence. Lebanon now, however, faces the risk that the Hezbollah may intervene more actively in the Israel Palestinian War and the resulting conflict may spread to the Israeli-Lebanese border area and lead to Israeli reprisals that strike deep into Lebanon and/or which could involve Syria and Syrian forces.

The Lebanese command structure reflects the nation's serious religious divisions. The President is the nominal commander, but cannot act without Syrian approval. The commander of the army is Maronite Christian, the Deputy Commander is a Muslim (Shi'ite), and the Army Council had Druze and Sunni members. Lebanon's military forces totaled some 72,100 actives, including some 22,600 conscripts. It was unclear, however, that all this strength was actually present, and Lebanese forces were lightly armed, poorly trained and organized for maneuver warfare, and lacked both a meaningful air force and modern land-based air defense assets.

The recent trends in Lebanese forces are shown in **Figure 2.5**. Lebanon was making some progress towards rebuilding its national military forces. Additionally, since the Israeli pullout from Southern Lebanon in May 2000, the Lebanese government had authorized deployment of a small joint force army commandos and military police to join its internal security personnel already in the south. Lebanon, however, showed great caution in attempting to actively control Southern Lebanon and bring the Hezbollah under its control. The Lebanese government must evaluate every use of military force in the context of Lebanon's history of civil war, and the risk of dividing its military forces if they are used for any mission that all major factions do not perceive as being in Lebanon's national interest.

Syria had reduced its force presence in Lebanon, but still had some elements of one mechanized infantry brigade and Special Forces battalions near Beirut, much of a mechanized division in the Bekaa Valley area, and forces near Metn, Tripoli, Batrum, and Kfar Falous.

The Lebanese Army

The Lebanese Army was the only element of Lebanon's military forces that had any serious potential war fighting capability against a well-organized military force. It had played a steadily more important internal security role since the final battles of the civil war in October 1990. It had deployed south from Beirut and occupies Lebanese territory as far south as Sidon and Tyre, north to Tripoli, and in the Shuf Mountains. Most militias have been contained to their local territory, and most are largely disarmed. Some militias have been integrated into the Army, and most have turned over or sold their heavy weapons. Furthermore, the command structure is tightly linked to Syria (to the dismay of many Lebanese) and might deploy in support of Syria if it came under intense pressure to do so.

The army had an authorized strength of about 70,000 men. Its order of battle had 11 mechanized infantry brigades, a Presidential Guard Brigade, a Ranger Regiment, five Special Forces regiments, an air assault regiment, and two artillery regiments. Its major combat equipment included 310 tanks -- with an estimated 110M-48A1 and M-48A5 tanks and 200-212 T-54 and T-55 tanks. It had phased out its Ferret, and Staghound light armored reconnaissance vehicles. It did, however, have 125 other armored fighting vehicles: 40 AMX-13 light tanks, 60 AML-90 and 25 Saladins. It had some 1,338 APCs, including the operational portion of an inventory of 1,164 M-113s, 81 VAB-VCIs, 81 AMX-VCI, and 12 Panhards.

The Lebanese army had 203 towed artillery weapons – of which some 147 are counted as operational: 13 105mm M-101A1s, 32 M-1938, and 24 D-20 122mm weapons,, 16 1130mm M-46s, and 15 Model 50, 15 M-114A1, and 32 M-198 155mm weapons. It also had 23-25 multiple BM-11 and BM-21 rocket launchers, and over 280 81mm, 82mm, and 120mm mortars. It had 24 BGM-71A TOWs 16 Milan and 30 ENTAC anti-tank guided missiles, plus large numbers of light anti-tank weapons – including 50 M-40A1 106mm recoilless rifles. It had 20-60 SA-7A/B fire units, and large numbers of 20mm and 23mm AA guns, plus 10 M-42A1 40mm guns.

Since the end of Lebanon's civil war in 1990, Beirut had benefited from its relationship with the U.S. military. The US had either donated, or sold at minimal prices, sixteen Huey helicopters, and earmarked another sixteen for future delivery, comprising the entirety of Lebanon's air force. The U.S had furnished a large portion Lebanon's ground transportation, including 850 armored personnel carriers, 3,000 trucks and jeeps and 60 ambulances. The Pentagon had also provided much equipment, labeled as "excess defense articles," which had included small weapons, spare parts, grenade launchers, night-vision goggles, and communications equipment. Much of the army's inventory is worn or obsolete, however, and is useful largely for internal security purposes. The Lebanese army is far too lightly equipped, and its equipment is too old or limited in capability, to engage either Israeli or Syrian forces.

More broadly, the Lebanese army underwent a massive reorganization in 1997, integrating Muslim and Christian brigades in an attempt to end factional rivalries and bias. Units became subject to rotation to prevent any regional bias from forming and commanders within units are rotated regularly to ensure that religious prejudice does not create informal hierarchies. Although these changes cannot compensate for Lebanon's weaknesses in materiel or its

client relationship with Syria, many hope they will insulate the military from the religious tensions that plague the country.

In spite of these improvements, the army is still emerging from the chaos of civil war. Lebanon may have some excellent individual officers and some good combat elements, but there are still ethnic and sectarian divisions within its forces. Its "brigades" and "regiments" are often badly undermanned. Conscripts train for only one year. Career soldiers still tend to be politicized, are generally low in quality, and receive limited training for anything other than defensive infantry combat. The Lebanese Army's seemingly impressive equipment pool is worn, often obsolescent, and much of it is inoperative.

The army is seeking to recreate itself as an independent national force and many Lebanese officers are struggling hard to maintain the army's independence. The fact remains, however, that it still is heavily under Syrian influence, and even the best leaders cannot quickly overcome its heritage of incompetence, corruption, and ethnic divisions. It will be years before the Lebanese Army can emerge as an independent fighting force that could engage Israeli or Syrian forces in anything other than well positioned defensive combat.

The Lebanese Air Force

Lebanon had no real air force or navy. Its air force had 800-1,000 men on paper, but its real strength was much lower. It only had six worn, obsolete, low-capability Hunter light attack and 5 Fouiga fixed-wing aircraft, all in storage. It had two SA-342 attack helicopters armed with obsolete short-range AS-11 and AS-12 missiles. It had no significant surface-to-air missile defenses. The only significant assets of the Lebanese air force are its transport helicopters, which consist of about 24 UH-1Hs, 1 SA-318, 5 Bell-212s, and 3 SA-330s. A substantial number of these helicopters need major overhauls or are only semi-operational.

Lebanese Naval Forces

Lebanon had some 1,100 men assigned to its navy, including 100 marines. Its forces are based in Beirut and Jounieh. It had seven coastal patrol craft, including five British-made, 38-ton, Attacker-class inshore patrol craft with radars and twin 23mm guns. It also had two British-made, 31-ton Tracker-class inshore patrol craft with radars and twin 23mm guns. It had two aging 670-ton Sour-class (French Edic-class) landing craft, which can carry about 33 troops each. The navy had other small-armed boats in inventory, including 13 6-ton inshore patrol craft and two more Tracker-class boats in the Customs service. It is not clear how many are operational. [lxvi]

The Lebanese Navy had a coastal patrol capability, and some troop lift capability, but no war fighting capability against Israel or any neighboring state. It can perform a surveillance role, inspect cargo ships, and intercept small infiltrating forces along a limited part of Lebanon's coastline. [lxvii]

Lebanese Paramilitary Forces and the Hezbollah

Lebanon's paramilitary forces include a large 13,000 man internal security force that is part of the Ministry of the Interior, and which includes the regional and Beirut Gendarmerie and Judicial Police. It is armed with automatic weapons and had some Chaimite APCS. There is a small customs force, equipped with light patrol boats.

The most important paramilitary elements in Lebanon, however, is the Hezbollah. Estimates differ regarding its force strength, but **Figure 2.6** provides a roughly estimate of its current military capabilities. The Hezbollah had already defeated the South Lebanese Army and driven Israel out of Lebanon. It would have far more difficulty in attacking across the Israeli border or infiltrating into the country, but it does have rockets and other weapons that it can fire into Israel and had shown it can conduct small border raids and shown it could kidnap Israeli soldiers in the Shebaa Farms area. The Hezbollah had had significant Iranian and Syrian support in the past, and is helping to train anti-Israeli Palestinian groups.

The Military Forces of Palestine

The Palestinian Authority is a proto-state that had been effectively at war with Israel since September 2000. The security forces of the Palestinian Authority had taken massive losses during the course of the fighting and independent anti-peace groups like Hamas and the Palestinian Islamic Jihad had also suffered major losses. It is currently almost impossible to make a detailed assessment of Palestinian military capabilities, most of which now consist of scattered elements of irregular forces plus organization which make extensive use of covert and terrorist

attacks. A nominal estimate of Palestinian forces is shown in **Figure 2.7,** and a more detailed estimate of the Palestinian and Lebanese forces that can pose a threat to Israel is shown in **Figure 2.8.**

It is not clear at this point how much progress the IDF is making in reducing the Palestinian threat. It had certainly crippled the Palestinian security forces that existed when the war began, which are shown in **Figure 2.8.** At the same time, the Jaffee Center estimates that the size of the Palestinian security forces increased from 36,000 in 2000 to 45,000 in 2002. It estimates that in 2002, the Palestinian Authority had the following force strength: Public Security or National Security Force: 14,000. Coastal Police 1,000, Aerial Police 50, Civil Police 10,000, Preventive Security Force 5,000, General Intelligence 3,000, and Presidential Security Force 3,000. There were additional men in the Military Intelligence and Civil Defense forces.

Hard line extremist groups have also gained in strength, and this includes militias in the Palestinian Authority like the Fatah-based Tanzim. The Palestinian forces also had begun to acquire longer range weapons like mortars and rockets such as the Qassim-2 and Qassim-3. The Qassim-3 had a range of more than 10 kilometers.

The Military Forces of Syria

The trends in Syrian forces are shown in **Figure 2.9**. They reflect the fact that Syria still treats Israel as an enemy power, but had to abandon its search for conventional parity. As a result, it had to minimize the risk of a future military clash with Israel, and make shifts in its strategy and procurement effort which included a new focus on "asymmetric warfare:" These shifts:

- Emphasize the procurement of long-range ballistic missiles and weapons of mass destruction as a relatively low cost offset to Israel's conventional superiority while giving Syria a limited counterweight to Israel's nuclear strike capability.
- Give priority to elite commando and special forces units that can be used to defend key approaches to Syria and spearhead infiltrations and attacks. Many of these forces are equipped with modern anti-tank guided weapons and other modern crew and manportable weapons that allow them to disperse without relying on armored weapons and other systems Israel can target more easily. They are supported by attack helicopters.
- Maintain a large tank force both as a deterrent to any Israeli attempt to penetrate Syria and to maintain a constant threat to the Golan, even if Syria had no hope of achieving overall parity.
- Use the Hezbollah and Amal as proxies to attack Israel and the SLA in Southern Lebanon, the Golan Heights, and the Shebaa Farms area. Following the October 5, 2003 bombing of a suspected Islamic Jihad training camp near Damascus by Israel, it was speculated that the Golan Heights in particular could become a new battleground. However, critics of such a view argue that it would be very difficult for Syria to establish a credible resistance movement among the Syrians in the Golan Heights, mostly the Druze, since they have faced little repression. Some Druze serve in the IDF. They contend that attacks on the Shebaa area by Hezbollah are much more likely.[lxviii]

These shifts could not compensate for the recapitalization crisis reflected in **Figure 2.10**, and a lack of modern arms and military technology. Syria had attempted to remedy some of its growing modernization problems by procuring upgrades and technology from Russia and the West, but Syria had not done well in obtaining such help. Its only major conventional force improvements during the mid and late-1990s were some Ukrainian modifications for part of the T-55 tank fleet and AT-14 Kornet anti-tank guided missiles. Some reports indicate that the Syrian Armed Forces did acquire an additional 1500 Kornets as well as upgrade packages for up to a brigade of T-72 tanks. The upgrade will boost the T-72's armor while adding an attachment that would enable the tank to fire ATGMs.[lxix] Yet it is important to note that Syria had tried four previous times to upgrade the T-72s with little success and past attempts to incorporate elements of the current upgrade package were met with great difficulty.

Syria, however, had not yet succeeded in negotiating major new arms agreements with Russia and other suppliers. Western firms want firm cash guarantees and are reluctant to sell to Syria. China and North Korea cannot supply the quality of conventional arms Syria needs, and any purchase of equipment that does not come from Russia will create interoperability problems that will compound Syrian weaknesses in sustainability and combined arms.

Bulgaria, for example, could supply Syria with much of the Soviet-era replacement parts that it needs, as an illegal sale by a Bulgarian firm of 50 sets of gear boxes and engines for T-55s in 2001 illustrates, but the country had expressed its desire to join NATO. NATO clearly does not support the export of arms to Syria, and Bulgaria had

launched an investigation into the sale of Soviet APC parts to Syria in 2003, culminating in at least six arrests. Bulgaria hopes to rid itself of the perception that it will sell arms to almost any group interested to support its flagging defense industry and thus is unlikely to continue or strengthen ties with Syria.[lxx]

Russia is Syria's most logical source of new conventional arms, and there were reports during the early 1990s that indicated that Syria would be able to spend some $1.4 billion on military modernization between 1992 and 1994. Syria found, however, that post-Communist Russia did not make concessionary arms sales that approached the level of gifts, or show the past tolerance for unpaid loans. This was a major stumbling block throughout the 1990s. Syria had plied up a massive debt over the years. It owed Russia roughly $7.0-11 billion for past arms purchases, and a total of $20 billion for both its military and civil debt. Russia was well aware that there was little prospect that it would ever be paid and this had a chilling impact on Syria's ability to obtain arms. [lxxi]

Russia and Syria had claimed to resolve the issue on several occasions. Syria signed a new cooperation agreement with Russia in April 1994, for "defensive weapons and spare parts." Syria held extensive new arms purchasing talks with Russia in 1997 and 1998. In February 1999, Syria announced plans to spend as much as $2 billion on a range of Russian armaments, including more anti-tank systems – which seem to have included deliveries of more AT-14 Kornets.[lxxii] Syria and Russia held talks in May 1999 to discuss expanding military cooperation, and in particular to arrange the sale of Russian advanced weapons systems to Syria.[lxxiii] According to some reports, Russia now seemed willing to put repayments of its debt on hold.[lxxiv] A five-year, $2 billion contract was under discussion.[lxxv] According to one report, Syria apparently requested Su-27 fighters and the S-300 air defense system, but was offered the cheaper MiG-29 fighters and Tor-M1 air defense systems.[lxxvi]

Syria and Russia held new high level talks on military cooperation in September 1999. These talks seem to have again involved a $2-2.5 billion deal over five years, and the possible purchase of the S-300 surface-to-air missile defense system, the Sukhoi Su-27 multirole fighter, MiG-29SMT fighters, T-80 tanks, and more anti-tank weapons. Once again, however, the contractual status of such agreements, the weapons involved, and delivery schedules remained unclear.[lxxvii]

What is a cause for concern on Syria's part, however, is that Russia may be seeking to develop a closer relationship with Israel. Israeli Prime Minister Sharon stated that Russia had decided not to sell the SA-18 Grouse surface-to-air missile systems to Syria over Israeli concerns that the weapons might fall into the hands of Hezbollah.[lxxviii] Sharon indicated that Israel and Russia intend on sharing intelligence in their respective fights against 'terrorism.' If Israel and Russia continue to strengthen their ties, Syria could face additional weapons procurement problems as Israel is likely to pressure Russia on other arms sales.

However, more recent reports indicated that a spat has brewed between Russia and Israelis over Russian intentions to sell Syria new Iskandar missiles, which would give Syria the ability to hit anywhere inside Israel save the southernmost areas[lxxix], as well as the Igla manportable air-defense systems. The Igla and possibly the Iskandar sale were part of discussions to sell not only the missiles, but also Kornet-E anti-tank guided missile system and possibly the Almaz S-300PMU medium-range low- to high-altitude SAM system.[lxxx]

It is not clear how Hafez Assad's death, and Bashar's succession, will ultimately affect this situation. Even if reports of major new Russian arms sales in 2004 and 2005 should eventually prove true, any foreseeable new agreements will still leave Syria with far fewer funds than it needs to recapitalize its current force structure and compete with Israel in modernization. It is hard to see how Syria can finance even half the funds and projected deliveries necessary to replace its older land force equipment and aircraft in the near to mid-term. Furthermore, if Syria could order all of the arms it wants, it would still take some three to five years to fully absorb all of the new technology it needs, integrate it into effective combat systems, and retrain its forces -- assuming it recognizes the need to do so. Barring massive outside aid, Syrian forces are almost certain to continue to go "hollow" for the foreseeable future, although moderate deliveries of advanced modern aircraft, tanks, and surface-to-air missile systems like the S-300 could still help correct key Syrian weaknesses.

Syria's limitations will be further compounded by its problems in absorbing new equipment. These include the endemic corruption. They also include its politicized and compartmented command structure, inadequate military pay, poor manpower management, poor technical training, and poor overall training - particularly in realistic combat exercises and aggressor training. Syrian forces have inadequate combat and service support, equipment for night and poor weather warfare, long-range sensors and targeting systems, and mobile rapidly maneuverable logistics, recording, and combat repair capability. While individual Syrian officers have shown a keen understanding of many of these problems, Syria had never taken effective action to deal with them.

Syrian Land Forces

Syria organized its ground forces into two corps that reported to the Land Forces General Staff and Commander of the Land Force. The chain of command then passes up to the Chief of the General Staff and Deputy Defense Minister, Minister of Defense (Deputy Commander in Chief of the Armed Forces, and Supreme Commander of the Armed Forces. The Syrian 1st Corps was headquartered near Damascus, and commands forces in southeastern Syria, opposing Israel. The 2nd Corps was headquartered near Zabadani, near the Lebanese border, and covers units in Lebanon. The command relationships involving Jordan, Turkey, and Iraq are unclear. The 1st Corps had two armored and three mechanized divisions. The 2nd Corps had three armored and two mechanized divisions.

The Syrian army had a total of 200,000 active men and is organized into seven armored divisions, including the 1st, 3rd, 9th, 11th, and 569th. Syrian armored divisions vary in size. They have 3 armored brigades2 mechanized brigades, and one artillery regiment. A typical division had around 8,000 men. A typical armored brigade had 93 main battle tanks, and 30 other armored fighting vehicles like the BMP. The Syrian army had 3 mechanized divisions. They normally have about 11,000 men, but vary in structure. They have 1-2 armored brigades, 2-3 mechanized brigades, and 1 artillery regiment. A typical mechanized brigade had 40 main battle tanks, and 90 other armored fighting vehicles like the BMP.

Syria also had 1 Republican Guard division, with 3 armored brigades, 1 mechanized brigade, and 1 artillery regiment that reports directly to the Commander of the Land Forces, plus a special forces division with 3 special forces regiments and ten independent special forces regiments.

Syria's other independent formations included four independent infantry brigades, two independent artillery brigades, and two independent anti-tank brigades. Its active smaller formations include 1 border guard brigade, 3 infantry brigades, 1 anti-tank brigade, 1 independent tank regiment, 8 special forces regiments, three surface-to-surface missile brigades with an additional coastal defense brigade, and 2 artillery brigades. According to some reports, it had one reserve armored division, and 30 reserve regiments, including infantry and artillery formations.[lxxxi]

On paper, Syria had one low-grade reserve armored unit with about half the effective strength of its active divisions, plus 31 infantry, three artillery reserve regiments, four armored brigades and two armed regiments. Most of these Syrian reserve units are poorly equipped and trained. Those Syrian reserves that do train, usually do not receive meaningful training above the company to battalion level, and many train using obsolete equipment that is different from the equipment in the active units to which they are assigned. The Syrian call-up system is relatively effective, but the Syrian army is not organized to make use of it. Virtually all of the Syrian reserves called up in the 1982 war had to be sent home because the Syrian army lacked the capability to absorb and support them.

Although Syria now had a total of some 4,600 tanks, at least 1,200 of these tanks were in static positions or in storage. Roughly half were relatively low-grade T-54s and T-55s, and only 1,500 were relatively modern T-72s. Even the T-72s lacked the advanced thermal sights, fire control systems, and armor to engage the Israeli Merkavas and M-60s on anything like a 1:1 basis. The T-72 also performed surprisingly poorly in Iraqi hands during the Gulf War. Its armor did not prove to be as effective against modern Western anti-tank rounds as was previously expected, and its sensors and fire control systems proved inadequate for night and poor visibility combat and could not keep up with Western thermal sights in range and target acquisition capability.[lxxxii]

Syria had some 4,600 armored vehicles, of which approximately 2,100 are BMPs. These armored fighting vehicles could supplement and support Syria's tanks in combined arms combat, and increase its potential ability to overwhelm immobilized Israeli forces with sheer mass. Only about 100 of these BMPs were the more modern BMP-2s, plus a limited number of BMP-3s. Nearly half of Syria's other armor consisted of low-grade BRDM-2 and BTR-40, 50, 60, and 152 reconnaissance vehicles and APCs. Even the BMP-2 had relatively light armor, and retained many of the ergonomic problems in fighting from the vehicle and using its guns and anti-tank guided missile launchers as with the BMP-1. The BMP had only moderate ability to escort tanks in a combat environment where the opponent had modern sensors and anti-tank guided weapons. US experts believed Syria had made relatively limited progress in improving its combined arms and armored warfighting capabilities since 1982, although it did have more advanced anti-tank guided weapons like the Milan, AT-10, and AT-14. They believed that Syrian exercise and command post training was weak above the battalion or regimental level, that Syrian tactics were rigid, and that Syrian reaction times were slow.

Syria could mass large numbers of towed artillery weapons and multiple rocket launchers. Syria maintained an inventory of 150 122mm M-1938, 600 122mm D-30, 100 122mm M-1931 (mostly in storage), 600 130mm M-46, 20 152mm D-20, 50 152mm M-1937, and 10 180mm S23 towed weapons. Additionally, Syria employs 200 107mm Type-63 and 280 122mm BM-21 rocket launchers. This could have a major impact in an area like the Golan where ranges are relatively short and where Syria normally deploys much of its artillery. At the same time, massed artillery fire has only limited lethality against well dug in defenses and armor, and Syria lacked the sensors and battle management systems to concentrate its artillery fire with great precision and to rapidly switch fires. Syria would also have problems in maneuvering its artillery. Only about 28% of Syria's artillery consisted of modern self-propelled weapons. These weapons include 380 122mm 2S1 and 50 152mm 2S3s.

Syria did have good physical defenses of its own positions on the Golan. Syria had spent decades in improving its terrain barriers and creating anti-tank barriers and ditches, and many of its units in the area between Damascus and the Golan had considerable readiness and effectiveness. However, Syria had not come close to Israel in developing the kind of capabilities for combined operations that the IDF takes virtually for granted. For example, Syria's only modern third-generation anti-tank guided missile launchers consisted of 200 Milans, 40 AT-5s, and an unknown number of AT-10s and AT-14s out of total holdings of some 3,390 anti-tank guided missile launchers.[lxxxiii] Most of its systems were still relatively low-grade anti-tank guided missiles systems can hardly be ignored, but they greatly reduce the effectiveness of Syrian anti-tank forces both in the defensive mode and in providing mechanized infantry support for armored operations.

Syrian Air and Air Defense Forces

The Syrian Air Force and Air Defense Command have more severe problems than Syrian land forces. Although Syria possessed 520 combat aircraft and a force of 35,000 men, the 20 Su-24s were its only truly modern attack fighters and they lacked the avionics and precision all-weather strike capabilities of first-line Israeli attack aircraft. Similarly, Syria's 42 MiG-29s and 8 Su-27s were its only modern fighters with advanced beyond-visual-range and look-down shoot-down capabilities, and Syria so far had shown little ability to use such aircraft effectively in training and simulated combat or to generate high sortie rates. Other aircraft include 50 Su-22s, 167 MiG-23 and MiG-23 BNs, 102 MiG-21s, and 30 MiG-25s. Of these, the exact number in service was unclear. The bulk of Syria's air defense fighters have poor look-down, shoot-down capabilities and beyond visual range combat capability, and still operate largely using obsolete and electronically vulnerable ground controlled intercept (GCI) techniques.

Syria had also been slow to modernize its attack helicopter tactics. While Syria's attack helicopter tactics were successful in the 1982 war, they were successful largely because the IDF did not expect them and was often trying to rush its advances without adequate coordination. The IDF had now greatly improved its counter-attack helicopter training and tactics, arms its helicopters to attack other helicopters, and its anti-aircraft systems and light air defense weaponry. Syria had some 36 Mi-25s and SA-342ls in service, with up to another 35 in storage.

Syria had no airborne early warning and electronic intelligence and warfare aircraft that approach Israel's capabilities. Syria had vast holdings of land-based air defenses, but these consist largely of obsolescent SA-2, SA-3, SA-5, and SA-6 surface-to-air missile systems and shorter-range systems. Israel was able to defeat all of these systems in 1982, except for the SA-5, which was only deployed late in 1982, after the fighting.

Syria had not modernized its C^4I/BM system to anything approaching a high capability automated system, and virtually all of its systems required active radar to operate -- which made them very vulnerable to Israeli anti-radiation missiles, target location and identification systems, and electronic warfare capabilities. While such land-based air defenses can scarcely be disregarded, and are certain to both force Israel to conduct a massive air defense suppression campaign and fly attack missions that avoid or minimize exposure to surviving defenses, Syrian air defenses did not have the quality necessary to match their quantity.

Syria had a large separate Air Defense Command with nearly 54,200 personnel. Its forces were organized into 25 regional brigades and a countrywide total of 150 air defense batteries. There were two major air defense commands, a North Zone and a South Zone. The defenses were concentrated to protect the south, but Syria had recently redeployed some forces to strengthen the North Zone and defenses against Turkey and Iraq. Some forces were deployed to cover Lebanon.

These forces included large numbers of worn obsolete Soviet-bloc systems which have only had limited upgrading. These assets included 11 SA-2 and SA-3 brigades with 60 batteries and some 480 launchers. They included 11

brigades with 27 batteries that were armed with 200 SA-6 launchers and some air defense guns. In addition, there were two regiments that had two battalions with two batteries each, and which were armed with 48 SA-5 and 60 SA-8 surface-to-air missile launchers. The SA-5s seemed to be deployed near Dumayr, about 40 kilometers east of Damascus, and at Shansur near Homs.

The SA-2 and SA-3 were effectively obsolete. They were hard to move, large enough to be easy to target, and were vulnerable to Israeli, Jordanian, and Egyptian countermeasures. The SA-5 was an obsolescent long-range system whose primary value was to force large, fixed-wing aircraft like Israel's E-2Cs to stand off outside their range. The SA-6 was Syria's only moderately effective long-range system. The SA-8 was a mobile medium-range system that was effective, but limited in capability.

Syria badly needs a new type of missile system to develop the range of air defense capabilities it requires. Its SA-2s, SA-3s, SA-6s, SA-5s, and SA-8s are vulnerable to active and passive countermeasures. If Syria is to create the land-based elements of an air defense system capable of dealing with the retaliatory capabilities of the Israeli air force, it needs a modern, heavy surface-to-air missile system that is part of an integrated air defense system. Such a system will not be easy for Syria to obtain. No European or Asian power can currently sell Syria either an advanced ground-based air defense system, or an advanced heavy surface-to-air missile system. The US and Russia are the only current suppliers of such systems, and the only surface-to-air missiles that can meet Syria's needs are the Patriot, S-300 series, and S-400.

In practice, Russia the only potential source of the required land-based air defense technology. This explains why Syria had sought to buy the S-300 or S-400 heavy surface-to-air missile/anti-tactical ballistic missile systems and a next generation warning, command, and control system from Russia.[lxxxiv] The SA-10 (also named the Fakel 5300PMU or Grumble) had a range of 90 kilometers or 50 nautical miles. It had a highly sophisticated warning radar, tracking radar, terminal guidance system and warhead, and had good electronic warfare capabilities. The SA-10 is a far more advanced and capable system than the SA-2, SA-3, SA-5, or SA-6.[lxxxv]

Much depends on Russian willingness to make such sales in the face of Syria's debt and credit problems. Russia had the capability to provide Syria with the SA-300 or S-400 quickly and in large numbers, as well as to support it with a greatly improved early warning sensor system, and an advanced command and control system for both its fighters and land-based air defenses.

Such a Russian-supplied system would, however, still have important limits. Russia had not fully completed integration of the S-300 or S-400 into its own air defenses. It also had significant limitations on its air defense computer technology, and relies heavily on redundant sensors and different, overlapping surface-to-air missiles to compensate for a lack of overall system efficiency. A combination of advanced Russian missiles and an advanced sensor and battle management system would still be vulnerable to active and passive attack by the US.

It would take Syria at least three to five years to deploy and integrate such a system fully, once Russia agreed to the sale. Its effectiveness would also depend on Russia's ability to both provide suitable technical training, and to adapt a Russian system to the specific topographical and operating conditions of Syria. A Russian system cannot simply be transferred to Syria as an equipment package. It would take a major effort in terms of software, radar deployment and technology -- and considerable adaptation of Russian tactics and sighting concepts -- to make such a system fully combat effective. As a result, full-scale modernization of the Syrian land-based air defense system is unlikely to occur before 2005 under the most optimistic conditions, and will probably lag well beyond 2010. [lxxxvi]

As for Syria's short-range air defenses, Syria was keenly aware that Iraqi short-range air defenses proved relatively ineffective in the Gulf War and Iraq Wars, and that Israel was now equipped with stand-off air-to-ground missiles, high speed anti-radiation missiles (HARMs), UAVs that can target mobile and concealed systems, and extensive countermeasures.

The Syrian army had roughly 4,000 manportable light surface-to-air missiles, including SA-7s. It had a number of vehicle-mounted, infrared systems that included 20 SA-9s and 35 SA-13s. Syria's 160 radar guided SA-8 fire units are assigned to its Air Force as part of its Air Defense Command. Like all similar weapons in Arab forces, these systems have low individual lethality, but help keep attacking aircraft at stand-off distances, can degrade the attack profile of aircraft they are fired at, and have some cumulative kill probability.

The Syrian Army had over 2,000 anti-aircraft guns, including some 400 radar-guided 23mm ZSU-4-23s, and 10 57mm unguided ZSU-57-2 self-propelled guns. It also had 650 23mm ZU-23, 300 M-1939 37mm, 675 57mm S-60, and 25 100mm KS-19 unguided towed guns. These anti-aircraft guns have limited lethality even at low altitudes,

except for the ZSU-23-4. They can, however, be used effectively in "curtain fire" to force attacking aircraft and helicopters to attack at high altitudes or at stand-off ranges.

Syrian Naval Forces

Syria had a small 7,600-man navy, manned largely by conscripts with 18 months service. It is based in Latakia, Tartus, Baniya, and Minet el-Baida. Junior naval officers receive training at the Jableh Naval Academy. Senior officers receive training as part of the normal program of the general staff's center at Quabon. Petty officer and enlisted training is conducted at Minet el Baida, Lattakia, and on-ship. Training standards are low. Syria had some 2,500-4,000 naval reserves, but they have little training and warfighting capability. The navy had 25 surface ships and three non-operational Romeo-class submarines moored at Tartus.[lxxxvii]

Syria's only significant surface ships include two obsolete Petya III class frigates. These ships are equipped with torpedo tubes and rocket launchers, but have no modern air defense capability or anti-ship missiles. Their seagoing status is unclear and one may no longer be functional. It had two obsolescent Osa I and eight Osa II missile patrol boats dating back to the 1970s. Each is equipped with four SS-N-2 Styx anti-ship missiles. Some have only limited operational capability while others are on the edge of being laid up or may already lack operational capability. Syria did, however, modernize some of its Osas in the mid-1980s.[lxxxviii]

Syria had eight light Soviet Zhuk-class patrol boats. These light 39-ton coastal patrol boasts had little firepower and combat capability. It had five operational obsolescent FSU-supplied mine warfare craft, including one Natya-class, one T-43, one Sonya, and three Yevgenya-class ships. Only some of these mine craft are operational; the Natya-class vessel had its minesweeping gear removed and the Sonya may not be operational. They can lay mines, but have little minesweeping capability except for the one Sonya-class vessel. Syria had three Polnochny-class landing ships (LSMs) with a lift capacity of 100 troops and 5 tanks.

There was a small naval aviation branch with 16 armed helicopters. These include 20 operational Mi-14P Hazes and five Kamov Ka-28 Helixes, and were manned with air force operators. The Mi-14 did have dipping sonar, radar, MAD, and could use sonobouys, and could launch torpedoes, depth bombs, or mines. The Ka-28s were relatively modern and also had dipping sonar, radar, MAD, and could use sonobouys, and could launch torpedoes, depth bombs, or mines.

The coastal defense force was placed under naval command in 1984. It had two infantry brigades for coastal surveillance and defense, two artillery brigades with 18 130 mm M-46 coastal guns and around six KS-19 anti-aircraft guns. Its main armament consists of 8-12 batteries of aging SSC-1B Sepal and SS-N-2 Styx anti-ship missiles.[lxxxix]

The Syrian Navy's primary mission was the defense of Syria's ports at Lattakia and Tartous, coastal surveillance and defense, and peacetime patrol missions. Its major bases were at Banias, Mina el Beida, Lattakia, and Tartous, with small marine detachments at Banias, Lattakia, and Tartous. There were Scuba and UDT units at Mina el Beida. Most surface forces were based at Lattakia and Tartous, and the submarines at Tartous. [xc] Overall readiness, training, and funding levels were low. It rarely practiced meaningful exercises, had almost no joint warfare training, and it had little war fighting capability against either Israel or Turkey. [xci] It was largely a coastal surveillance and patrol force.

Figure 2.1

Force Trends in Israel

Category/Weapon	1975	1980	1985	1990	1995	2000	2004	2005
Manpower								
Total Active	156,000	169,600	142,000	141,000	172,000	175,000	167,600	168,000
(Conscript)	(125,000)	(125,300)	-	(110,000)	(138,500)	(138,500)	(107,500)	(107,500)
Total Reserve	275,000	-	370,000	504,000	430,000	430,000	358,000	408,000
Total Actives & Reserves	400,000	400,000	512,000	645,000	602,000	605,000	525,600	576,000
Paramilitary	9,000	9,500	4,500	6,000	6,050	6,050	8,050	8,050
Land Forces								
Active Manpower	135,000	135,000	104,000	104,000	134,000	134,000	125,000	125,000
(Conscripts)	(120,000)	(120,000)	(88,000)	(88,000)	(114,700)	(114,700)	(85,000)	(85,000)
Reserve Manpower	240,000	-	310,000	494,000	365,000	365,000	330,000	380,000
Total Reserve & Active Manpower	375,000	375,000	414,000	598,000	499,000	499,000	455,000	505,000
Main Battle Tanks	2,700	3,050	3,600	4,288	4,095	4,300	3,950	3,090
(Static & In Storage)	-	-	-	-	-	-		-
AIFVs/Armored Cars/Lt. Tanks	365	80+	300	400	408	408	408	408
APCs/Recce/Scouts	3,000*	4,000*	4,000	5,980	5,980	5,980	7,990	8,770
WWII Half-Tracks	*	*	4,000	4,400	3,500	500(4,000)	500	(4,300)
ATGM Launchers	-	-	-	-	1,005	1,005	1,225	1,225
SP Artillery	660**	228	488	816	1,150	1,150	960	960
Towed Artillery	**	950	570	579	400	400	370	370
MRLs	**	-	180	175	160	160	212	212
Mortars		900+	900+	-	2,740	2,740	1,890	1,360
SSM Launchers	-	-	-	112	100+	48-96	100	100(7)
AA Guns		900+	900+	850+	850	850+	850+	-
Lt. SAM Launchers		-	-	-	945+	945+	1,298	1,250
Air & Air Defense Forces								
Active Air Force Manpower	16,000	38,000	28,000	28,000	32,000	37,000	35,000	35,000
Active Air Defense	-	-	-	-	-	-	-	-
Reserve Manpower	4,000	9,000	9,000	9,000	20,000	20,000	24,500	24,500
Air Defense Command Reserve	-	-	-	-	-	-	-	-
Aircraft								
Total Fighter/FGA/Recce	481	535	684 (90)	553	449	459(250)	438(250)	399
Fighter	0	0	0	0	0	0	0	0
FGA/Fighter	275	265	402	393(+83)	373(+120)	405	340	373
FGA	200	200	130	121(+14)	50(+150)	25	39	39
RECCE	6	14	15	14	22	10	13	?
Airborne Early Warning (AEW)		4	4	4	4	6	6	2
Electronic Warfare (EW)		-	10	26	36	37	39	32
Fixed Wing						37	39	32
Helicopter						0	0	0
Maritime Recon. (MR)	0	0	0	5	3	3	3	3
Combat Capable Trainer	25	74	123	48	14-24	19	26	26
Tanker	2	2	2	7	8	8	5	5
Transport	54-98	58-70	45	58	47	36	22	21
Helicopters								
Attack/Armed/	-	6	58	74	116	133	100	100
ASW/SAR	-	-	37	2	2	6	6	6
Transport & Other	97	145	92	143	145	160	186	186
Total	97	151	187	219	263	299	292	286
SAM Forces								
Batteries	15	15	15	17	17	28	25	25
Heavy Launchers	90	60	60	68	68	79	79	79
Medium Launchers	-	-	-	-	-	-	-	-
Naval Forces								

Active Manpower	5,000	6,600	10,000	9,000	6,000-7,000	6,500	7,600	8,000
Reserve Manpower	1,000	3,400	10,000	1,000	10,000	5,000	3,500	3,500
Total Manpower	6,000	10,000	20,000	10,000	16,000-17,000	11,500	11,100	11,500
Submarines	2	3	3	3	2	4	3	3
Destroyers/Frigates/Corvettes	0	0	6	0	3	3	3	3
Missile	0	0	6	0	3	3	3	3
Other	0	0	0	0	0	0	0	0
Missile Patrol	18	22	24	26	23	14	11	12
Coastal/Inshore Patrol	36	38	45	37	40	36	39	39
Mine	0	0	0	0	0	0	0	0
Amphibious Ships	0	3	3	0	1	1	1	1
Landing Craft/Light Support	10	6	9	9	4	4	4	5?
Fixed-wing Combat Aircraft	0	0	0	0	0	0	0	0
MR/MPA	0	3	0	0	0	0	0	0
ASW/Combat Helicopter	0	0	0	0	0	0	0	0
Other Helicopters	-	-	-	-	-	-	-	-

* Includes all types of other armed vehicles except tanks and self-propelled artillery
* Includes all medium and heavy self-propelled and towed weapons.
Source: Adapted by Anthony H. Cordesman from data provided by US experts, and the IISS, Military Balance

Figure 2.2

Force Trends in Egypt

Category/Weapon	1975	1980	1985	1990	1995	2001	2004	2005
Manpower								
Total Active	322,500	367,000	445,000	450,000	450,000	448,500	450,000	450,000
(Conscript)	-	-	(250,000)	(252,000)	(320,000)	(322,000)	322,000	(322,000)
Total Reserve	-	-	380,000	623,000	254,000	254,000	410,000	410,000
Total	-	-	825,000	1,073,000	704,000	703,500	860,000	860,000
Paramilitary	120,000	49,000	139,000	374,000	230,000	230,000	330,000	330,000
Land Forces								
Active Manpower	275,000	245,000	320,000	320,000	320,000	320,000	320,000	320,000
(Conscripts)	-	-	(250,000)	(180,000)	(250,000+)	(250,000+)	250,000+	(250,000+)
Reserve Manpower	500,000	350,000	323,000	500,000	150,000	150,000	300,000	300,000
Total Reserve & Active Manpower	775,000	595,000	643,000	820,000	470,000	470,000	620,000	620,000
Main Battle Tanks	1,945	1,600	2,159	3,190	3,500	3,960	3,655	3,755
(Fixed & in Storage)	-	-	-	-	-	-	-	
AIFVs/Armored Cars/Lt. Tanks	130	580	747	770	1,080	740 (220)	470(220)	470(220)
APCs/Recce/Scouts/	2,500	2,550	2,550	2,745	3,834	3,990(1,075)	3,800(500)	4712(500)
WWII Half-Tracks	0	0	0	0	0	0	0	0
ATGM Launchers	-	1,000	-	3,340	2,785	2,660	4,600	4,600
SP Artillery	200	200	200	185	200	251	320	320
Towed Artillery	1,300	1,500	1,500	1,120	971	971	971	971
MRLs	420	300	300	300	296	156	354	416
Mortars	-	-	-	-	-	2,400	2,370	2370
SSM Launchers	18+	54	-	13	21	18-	24	21
AA Guns (Army + ADC)	2,500	2,500+	2,500+	1,070+	1,677+	834	2,674+	674
Lt. SAM Launchers	-	-	-	1,226+	2,046	1,146	2,096+	2,096+
Air & Air Defense Forces								
Active Air Force Manpower	30,000	27,000	25,000	80,000	30,000	30,000	30,000	30,000
Air Defense Command	(75,000)*	75,000	80,000	30,000	80,000	80,000	80,000	80,000
Total Reserve Manpower	20,000	-	42,000	109,000	90,000	90,000	90,000	90,000
Aircraft								
Total Fighter/FGA/Recce	608**	363(305)	427	475	564	583	579	571
Bomber	30	23	13	0	0	0	0	0
Fighter	-	45	164	272	339	363	335	380
FGA/Fighter	200	92	103	0	0	0	0	0
FGA	205-253	201	73	139	135	133	131	129
Recce	-	-	34	20	20	20	20	20
Airborne Early Warning (AEW)	0	0	0	5	5	5	4	4
Electronic Warfare (EW)	0	2	2	10	10	10	7	7
Maritime Reconnaissance (MR)	0	0	0	2	2	2	2	2
Combat Capable Trainer/OCU	153	50	38	48	70	64	64	53
Tanker	0	0	0	0	0	0	0	0
Transport	70	65	37	25	32	32	41	40
Helicopters								
Attack/Armed	0	0	48	74	103	129	101	121
ASW/SAR	0	0	5	0	14	0	10	20
Transport & Other	138	168	108	118	115	158	158	141
Total	138	168	161	192	232	287	259	282
SAM Forces								
Batteries	-	-	-	-	-	38+	38+	38+
Heavy Launchers	635	635	727	808	702	628	628	628
Medium Launchers	-	20	36-54	36-54	36-54	36-54	36-54	36-54
Naval Forces								
Active Manpower	17,500	20,000	20,000	20,000	16,000	18,500	20,000	20,000
Reserve Manpower	15,000	-	15,000	14,000	14,000	14,000	20,000	20,000

Total Manpower	32,500	-	35,000	34,000	30,000	34,000	40,000	40,000
Submarines	12	10(1)	14	10	4	4	4	4
Destroyers/Frigates/Corvettes	8	8	10	5	7	11	11	11
Missile	-	5	7	4	6	10	10	10
Other	-	3	3	1	1	1	1	1
Missile Patrol	13	22	30	21	25	25	26	25
Coastal/Inshore Patrol	42	38	32	18	18	15	21	19
Mine	12	14	15	9	7	13	12	12
Amphibious Ships	-	3	3	3	3	3	3	3
Landing Craft/Light Support	14	17	13	-	11	9	20	20
Fixed Wing Combat Aircraft	0	0	0	0	0	0	0	26
MR/MPA	0	0	0	0	0	0	0	0
ASW/Combat Helicopter		6	(5)	(17)	(14)	24	24	27
Other Helicopters	-	-	-	-	-	-	-	-

* Included in the army total.
** Includes 108 fighters in the Air Defense Command
Source: Adapted by Anthony H. Cordesman from data provided by US experts, and the IISS, Military Balance

Figure 2.3

Force Trends in Jordan

Category/Weapon	1975	1980	1985	1990	1995	2001	2004	2005
Manpower								
Total Active	80,200	67,200	70,300	82,250	98,800	103,880	100,500	100,500
(Conscript)	-	-	-	-	-	-	-	-
Total Reserve	-	-	35,000	35,000	35,000	35,000	35,000	35,000
Total Actives & Reserve	-	-	105,300	117,250	133,800	139,000	135,500	135,500
Paramilitary	10,000	10,000	11,000	17,000	10,000	10,000	8,050	10,000
Land Forces								
Active Manpower	75,000	60,000	62,750	74,000	90,000	90,000	85,000	85,000
(Conscripts)	-	-	-	-	-	-	-	-
Reserve Manpower	-	-	30,000	30,000	30,000	30,000	30,000	30,000
Total Reserve & Active Manpower	-	-	92,750	104,000	120,000	120,000	115,000	115,000
Main Battle Tanks	440	609	795	1,131	1,141	1,246	1,018	1,120
(Fixed & in Storage)			-	(260)	(270)	(300)	(78)	(78)
AIFVs/Armored Cars/Lt. Tanks	240	140	32	188	204	241	226	245
APCs/Recce/Scouts	440	962	850	1,244	1,100	1,100	1,350	1,350
WWII Half-Tracks	0	0	0	0	0 0		0	0
ATGM Launchers	-	162	610	640	640	610	640	670
SP Artillery	55	173	144	237	370	412	399	399
Towed Artillery	160	90	91	89	115	132	76	94
MRLs	0	0	0	0	0 0		0	0
Mortars	-	400	500	600	450+	800	740	740
SSM Launchers	0	0	0	0	0	0	0	0
AA Guns	200	200	366	408	360	416	395	395
Lt. SAM Launchers	-	-	-	-	890	1,184	992	992
Air & Air Defense Forces								
Active Air Force Manpower	5,000	7,000	7,200	10,000	8,000	13,400	15,000	15,000
Active Air Defense	-	-	-	-	(2,000)	(3,400)	(3,400)	3,400
Air Force Reserve Manpower	-	-	-	5,000	5,000	-	-	-
Air Defense Reserve Manpower	0	0	0	0	0	0	0	0
Aircraft								
Total Fighter/FGA/Recce	42	58	121	104	82	106	101	101
Fighter	18	24	35	32	30	41	31	31
FGA/Fighter	0	0	0	0	0	0	0	0
FGA	24	24	68	72	50	65	70	70
Recce	0	0	0	0	0	0	0	0
Airborne Early Warning (AEW)	0	0	0	0	0	0	0	0
Electronic Warfare (EW)	0	0	0	0	0	0	0	0
(Fixed Wing)	-	-	-	-	-	-	-	-
(Helicopter)	-	-	-	-	-	-	-	-
Maritime Reconnaissance (MR)	0	0	0	0	0	0	0	0
Combat Capable Trainer/OCU	7	10	18	0	2	2	2	0
Tanker	0	0	0	0	0	0	0	0
Transport	11	9	10	13	20	12	12	12
Helicopters								
Attack/Armed	0	0	0	24	24	16	22	20
ASW/SAR	0	0	0	0	0	0	0	0
Transport & Other	13	17	38	32	20	52	37	60
Total	13	17	38	56	44	68	59	80
SAM Forces (operated by Army)								
Batteries	0	14	14	14	14	14	14	14
Heavy Launchers	0	-	-	126	80	80	80	80
Medium Launchers	0	-	20	40	-	-	-	

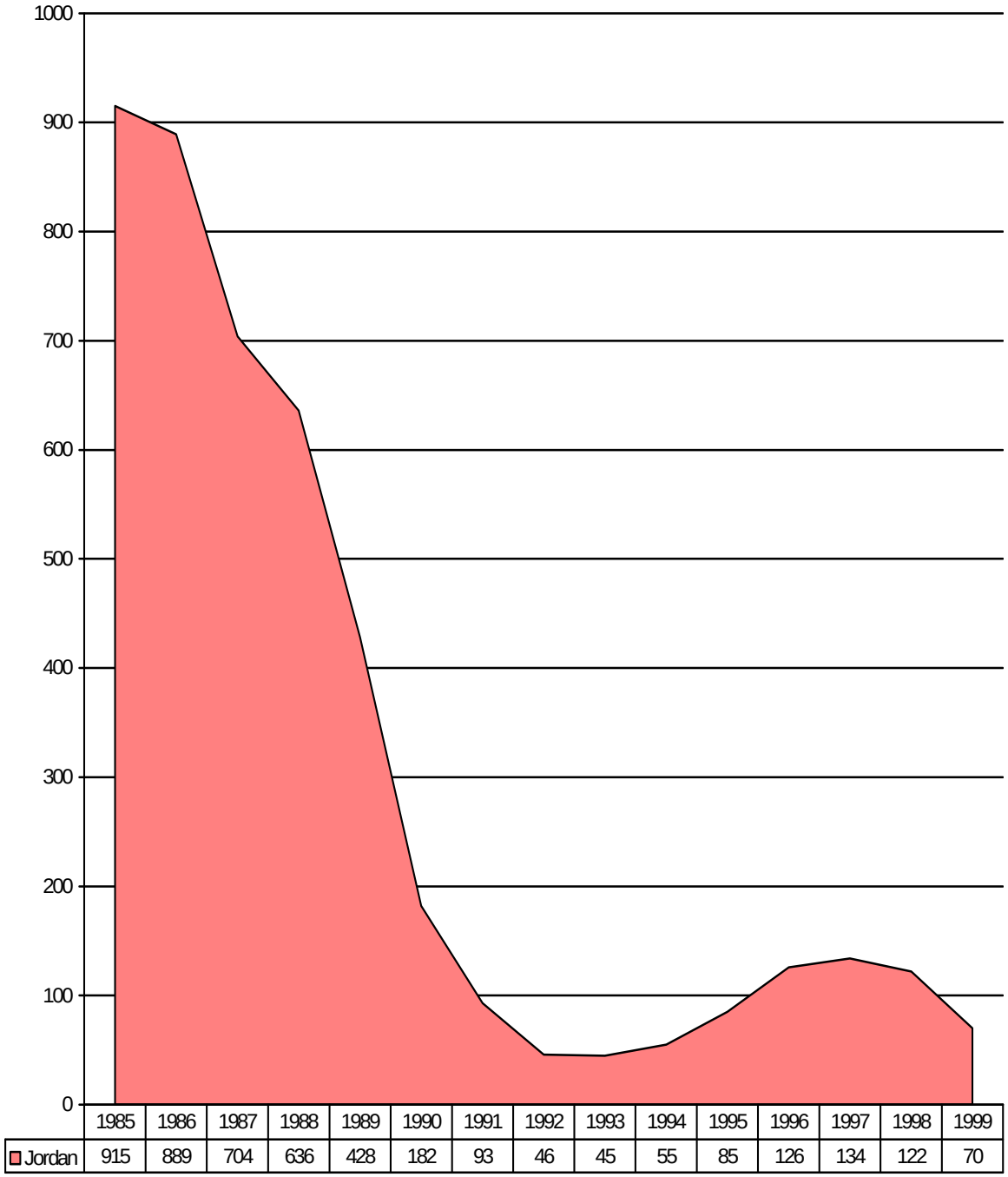
AA Guns	-	-	-	-	-	-	-	
Naval Forces								
Active Manpower	250	200	350	250	600	480	500	500
Reserve Manpower	-	-	-	-	-	-	-	-
Total Manpower	250	200	350	250	600	480	500	500
Submarines	0	0	0	0	0	0	0	0
Destroyers/Frigates/Corvettes								
Missile	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0
Missile Patrol	0	0	0	0	0	0	0	0
Coastal/Inshore Patrol	12	9	9	1	5	6	3	3
Mine	0	0	0	0	0	0	0	0
Amphibious Ships	0	0	0	0	0	0	0	0
Landing Craft/Light Support	0	0	0	0	3	(3)	17	17
Fixed Wing Combat Aircraft	0	0	0	0	0	0	0	0
MR/MPA	0	0	0	0	0	0	0	0
ASW/Combat Helicopter	0	0	0	0	0	0	0	0
Other Helicopters	0	0	0	0	0	0	0	0

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

Figure 2.4

The Jordanian Recapitalization Crisis: Arms Deliveries during 1985-1999

(Arms Deliveries in Constant $US 1999 Millions)



	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Jordan	915	889	704	636	428	182	93	46	45	55	85	126	134	122	70

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

Figure 2.5

Force Trends in Lebanon

Category/Weapon	1975	1980	1985	1990	1995	2001	2004	2005
Manpower								
Total Active	15,300	23,000	17,400	21,000	44,300	63,750	72,100	72,100
(Conscript)	-	-	-	-	-	(22,600)	(22,600)	(22,600)
Total Reserve	-	-	-	-	-	-	-	
Total	-	-	17,400	21,000	44,300	63,750	94,700	72,100
Paramilitary	5,000	-	13,000	8,000	13,000	13,000	13,000	13,000
Land Forces								
Active Manpower	14,000	22,250	16,000	21,000	43,000	60,670	70,000	70,000
(Conscripts)	-	-	-	-	-	22,600	-	-
Reserve Manpower	-	-	-	-	-	-	-	-
Total Manpower	14,000	22,250	16,000	21,000	43,000	60,670	70,000	70,000
Main Battle Tanks	60	0	50	200	300	327	310	310
(Fixed & in Storage)	-	-	-	-	-	-	-	-
AIFVs/Armored Cars/Lt. Tanks	43	17	150	102	175	125	40	40
APCs/Recce/Scouts	180	80	420	340	740	1,388	1,423	1,423
WWII Half-Tracks	0	0	0	0	0	0	0	0
ATGM Launchers	-	-	-	-	200	250	70	70
SP Artillery	0	0	0	0	0	0	0	0
Towed Artillery	50	28	125	111	200	151	147	147
MRLs	0	0	0	-	30	23	25	25
Mortars	-	-	200+	120+	280+	377	369	369
SSM Launchers	0	0	0	0	0	0	0	0
AA Guns	-	-	-	-	-	220	220	10+
Lt. SAM Launchers	-	-	-	-	-	-	20	20
Air & Air Defense Forces								
Active Manpower	1,000	500	1,100	800	800	1,700	1,000	1,000
Reserve Manpower	-	-	-	-	-	-	-	-
Aircraft	19							
Total Fighter/FGA/Recce		7	7	3	3	(16)	(11)	(11)
Fighter	6(5)	(9)	0	0	0	0	0	0
FGA/Fighter	0	0	0	0	0	0	0	0
FGA	13	7	7	3	3	0	0	0
Recce	0	0	0	0	0	0	0	0
Airborne Early Warning (AEW)	0	0	0	0	0	0	0	0
Electronic Warfare (EW)	0	0	0	0	0	0	0	0
Maritime Reconnaissance (MR)	0	0	0	0	0	0	0	0
Combat Capable Trainer	0	0	0	0	0	3	3	0
Tanker	0	0	0	0	0	0	0	0
Transport	3	2	2	2	2	2	2	0
Helicopters								
Attack/Armed	0	4	4	1	4	0	0	0
ASW/SAR	0	0	0	0	0	0	0	
Transport & Other	16	17	28	15	46	30	38	38
Total		21	32	16	50	30	38	38
SAM Forces								
Batteries	0	0	0	0	0	0	0	0
Heavy Launchers	0	0	0	0	0	0	0	0
Medium Launchers	0	0	0	0	0	0	0	0

Naval Forces								
Active Manpower	300	250	300	-	500	1,200	1,100	1,100
Reserve Manpower	0	0	0	-	0	0	0	0
Total Manpower	300	250	300	-	500	1,200	1,100	1,100
Submarines	0	0	0	-	0	0	0	0
Destroyers/Frigates/Corvettes	0	0	0	-	0	0	0	0
Missile	0	0	0	-	0	0	0	0
Other	0	0	0	-	0	0	0	0
Missile Patrol	0	0	0	-	0	0	0	0
Coastal/Inshore Patrol	5	6	4	-	9	7	7	7
Mine	0	0	0	-	0	0	0	0
Amphibious Ships	0	0	0	-	0	0	0	2
Landing Craft/Light Support	1	1	1	-	2	2	2	0
Fixed Wing Combat Aircraft	0	0	0	-	0	0	0	0
MR/MPA	0	0	0	-	0	0	0	0
ASW/Combat Helicopter	0	0	0	-	0	0	0	0
Other Helicopters	0	0	0	-	0	0	0	0

Note: Lebanese combat aircraft shown in parenthesis are in storage or are for sale.
Source: Adapted by Anthony H. Cordesman from data provided by US experts, and the IISS, Military Balance

Figure 2.6

Developments in Hezbollah Military Forces in Lebanon in 2004

- Roughly 2,500-3,500 men, heavily dependent on part-time and irregular forces. Many are now highly experienced, often well-educated forces.
- Composed of a core of around 300 guerrillas. Has deliberately cut its force over the past years to prevent infiltration and leaks.
- Hezbollah fighters are old by comparison to Israeli fighters. Any age up to 35, usually married, often university students or professional men.
- Still seems to have Iranian Revolutionary Guards as advisors. Heavily supplied and financed by Iran, but Syrian personnel seem to be involved in training and in coordinating with Iran. Iranian and Syrian coordination of support for military supply and possibly operations of Hezbollah seems to occur at the general officer, deputy minister level.
- Conflicting intelligence reports estimate Iranian aid to Hezbollah to involve tens of million dollars a year.
- Equipped with APCs, artillery, multiple rocket launchers, mortars, anti-tank guided missiles (including AT-3 Sagger, AT-4 Spigot ATGWs, and captured TOWs), recoilless rifles, SA-7s, anti-aircraft guns.
- Guerrilla mortar strikes have improved in both accuracy and range, indicating better range-finding systems, low signature weapons, and the use of mortar boosters that enable consistent hits for 2 to 3 miles.
- Supply of rockets is estimated to have risen to 1,000. These include Iranian produced 240mm rockets with a range of 40 km, according to Israeli intelligence reports. Most of the rockets are 120mm and 127mm variants with a maximum range of 22 km. Types include the Katyusha, Fajr 3/5, and Zelzal-2.
- Has great expertise in using improvised explosive devices like the improved radio detonated roadside bombs that proved effective against the Israelis. Some are disguised as large rocks. These rock-like explosives are reportedly produced in Iran.

Figure 2.7

Military and Paramilitary Strength of Key Palestinian Factions and The Hezbollah at the start of the Israel-Palestine War

Palestinian Authority

- 29,000 Security and paramilitary pro-PLO forces enforcing security in Gaza and Jericho, including:
- Public Security (14,000) – 6,000 in Gaza and 8,000 in West Bank
- Civil police (10,000) – 4,000 in Gaza and 6,000 in West Bank
- Preventive Security (3,000) – 1,200 in Gaza and 1,800 in West Bank
- General Intelligence (1,000),
- Presidential Security (500),
- Military Intelligence (500), and
- Additional forces in Coastal Police, Air Force, Customs and Excise Police Force, University Security Service, and Civil Defense.
- Equipment includes 45 APCs, 1 Lockheed Jetstar, 2 Mi-8s, 2 Mi-17s, and roughly 40,000 small arms. These include automatic weapons and light machine guns. Israeli claims they include heavy automatic weapons, rocket launchers, anti-tank rocket launchers and guided weapons, and manportable anti-air missiles.
- The PA wants 12,000 more security forces after further withdrawals. Israel had proposed some 2,000.

Pro PLO

- Palestinian National Liberation Army (PNLA)/Al Fatah – 5,000-8,000 active and semi-active reserves that make up main pro-Arafat force, based in Algeria, Egypt, Iraq, Lebanon, Libya, Jordan, Sudan, Syria, and Yemen under the tight control of the host government.
- Palestine Liberation Front (PLF) – Abu Abbas Faction - 200 men led by Al-Abbas, based in Syria.
- Arab Liberation Front (ALF) – 500 men led by Abdel al Rahim Ahmad, based in Lebanon and Iraq.
- Democratic Front for the Liberation of Palestine (DFLP) – 400-600 men led by Naif Hawatmeh, which claims eight battalions, and is based in Syria, Lebanon, and elsewhere.
- Popular Front for the Liberation of Palestine (PFLP) – 800-1000 men led by Ahmed Sadaat, based in Syria, Lebanon, West Bank, and Gaza.
- Palestine Popular Struggle Front (PSF) – 200 men led by Samir Ghawsha and Bahjat Abu Gharbiyah, based in Syria.

Anti-PLO

- Palestinian Islamic Jihad (PIJ) – 500 men in various factions, led by Assad Bayud al-Tamimi, Fathi Shakaki, Ibrahim Odeh, Ahmad Muhana, and others, based in the West Bank and Gaza.
- Hamas - military wing of about 300 men, based in the West Bank and Gaza.
- As-Saiqa – 600-1,000 men in pro-Syrian force under Issam al-Qadi, based in Syria.
- Fatah Revolutionary Council (FRC)/Abu Nidal Organization (ANO) – 300 men led by Abu Nidal (Sabri al-Bana), based in Lebanon, Syria, and Iraq.
- Popular Front for the Liberation of Palestine – General Command (PFLP-GC) - 500 men led by Ahmad Jibril, based in Syria, Lebanon, elsewhere.
- Popular Front for the Liberation of Palestine – Special Command (PFLP-SC) - 50-100 men led by Abu Muhammad (Salim Abu Salem) based in Lebanon, Syria and Iraq.
- Palestine Liberation Army (PLA) – 2,000 men, based in Syria.
- Fatah Intifada – 400-1,000 men led by Said Musa Muragha (Abu Musa), based in Syria and Lebanon.

Hezbollah (Party of God),

- About 300-500 actives with 2,000 men in support, Shi'ite fundamentalist, APCs, artillery, MRLs (107 and 122 mm), rocket launchers, recoilless launchers, AA guns, SA-7 SAMs, Anti-tank missiles (AT-3 Saggers, AT-4 Spigots).

Source: Adapted from US Department of State, Patterns of Global Terrorism, various editions; IISS, The Military Balance, various editions.

Figure 2.8

Current Palestinian and Lebanese Forces

Origin	Organization and Aims (Remarks)	Established	Estimated Strength	Status	Operates
Lebanon	**Asbat al-Ansar** Advocates Salafism, opposed to any peace with Israel	1990s	300	Active	Lebanon
Lebanon	**Hizbullah** (Party of God) • **Islamic Jihad-Revolutionary Justice Organization** • **Organization of the Oppressed on Earth** ▲ Iran-style Islamic republic in Lebanon; all non-Islamic influences removed from area (Shi'ite; formed to resist Israeli occupation of south Lebanon with political representation in Lebanon Assembly).	1982	2,000+	Active	Bekaa Valley, Beirut, south Lebanon, Shebaa Farms
Palestinian Autonomous Areas of Gaza and Jericho	**Al-Aqsa Martyrs Brigade** ▲ Associated, though not officially backed, by Arafat Military offshoot of Fatah	2000	Not known	Active	Palestinian Autonomous Areas of Gaza and Jericho, Israel
Palestinian Autonomous Areas of Gaza and Jericho	**Al Saika** Military wing of Palestinian faction of Syrian Ba'ath Party (Nominally part of PLO)	1968	300	Active	Palestinian Autonomous Areas of Gaza and Jericho, Israel
Palestinian Autonomous Areas of Gaza and Jericho	**Arab Liberation Front** Achieve national goals of Palestinian Authority (Faction of PLO formed by leadership of Iraq Ba'ath party)	1969	500	Dormant	Palestinian Autonomous Areas of Gaza and Jericho, Israel
Palestinian Autonomous Areas of Gaza and Jericho	**Democratic Front for the Liberation of Palestine** (DFLP) Achieve Palestinian national goals through revolution (Marxist-Leninst; splintered from PFLP)	1969	100+	Active	Palestinian Autonomous Areas of Gaza and Jericho, Israel
Palestinian Autonomous Areas of Gaza and Jericho	**Fatah Tanzim** Armed militia link to Fatah	1995	1000+	Active	Palestinian Autonomous Areas of Gaza and Jericho, Israel
Palestinian Autonomous Areas of Gaza and Jericho	**Harakat al-Muqawama al-Islamiyya** (HAMAS) **Islamic Resistance Front** Establish an Islamic Palestinian state in place of Israel	1987	Not known	Active	Palestinian Autonomous Areas of Gaza and Jericho, Israel
Palestinian Autonomous Areas of Gaza and Jericho	**Izz al-Din al-Qassam Brigades** (IDQ) ▲ Replace Israel with Islamic state in Palestinian Areas (Armed wing of Harakat al-Muqawama al-Islamiyya (Hamas); separate from overt organization)	1991	500	Active	Palestinian Autonomous Areas of Gaza and Jericho, Israel

Palestinian Autonomous Areas of Gaza and Jericho	**Palestine Islamic Jihad** (PIJ) ▲ Destroy Israel with holy war and establish Islamic state in Palestinian areas (One of the more extreme groups from the Palestinian areas.)	1970s	Estimated 500	Active	Palestinian Autonomous Areas of Gaza and Jericho, Israel
Palestinian Autonomous Areas of Gaza and Jericho	**Palestine Liberation Front** (PLF) ▲ Armed struggle against Israel (Splintered from PFLP)	1977	300-400	Dormant	Palestinian Autonomous Areas of Gaza and Jericho, Israel
Palestinian Autonomous Areas of Gaza and Jericho	**Popular Front for the Liberation of Palestine** (PFLP) Armed struggle against Israel (Marzist-Leninist)	1967	1000	Active	Palestinian Autonomous Areas of Gaza and Jericho, Israel
Palestinian Autonomous Areas of Gaza and Jericho	**Popular Front for the Liberation of Palestine—General Command** (PFLP-GC) ▲ Armed struggle against Israel (Marzist-Leninist; Split from PFLP to focus on fighting rather than politics)	1968	500	Dormant	Palestinian Autonomous Areas of Gaza and Jericho, Israel

Notes:

▲ Group known to carry out suicide attacks
A—active
C—cease-fire
D—dormant (inactive for the past 12 months)

Source: Adapted from the IISS, Military Balance, 2004-2005.

Figure 2.9

Force Trends in Syria

Category/Weapon	1975	1980	1985	1990	2001	2004	2005
Manpower							
Total Active	177,500	247,500	402,500	404,000	320,000	319,000	296,800
(Conscript)	-	-	-	-	-	-	
Total Reserve	102,500	-	273,500	400,000	500,000	354,000	354,000
Total	280,000	-	676,000	804,000	820,000	673,000	650,800
Paramilitary	9,500	9,500	6,300	10,800	8,000+	108,000	108,000
Land Forces							
Active Regular Manpower	150,000	200,000	270,000	300,000	215,000	215,000	200,000
(Conscripts)	-	(140,000)	(135,000)	(130,000)	-	-	-
Republican Guards	-	-	-	10,000	-	-	1 division
Reserve Manpower	100,000	-	270,000	392,000	400,000	280,000	280,000
Total Reserve & Active Manpower	250,000	-	540,000	702,000	615,000	495,000	480,000
Main Battle Tanks	1,400	2,920	4,200	2,900	3,450	4,500	4,600
(Static & in Storage)		-	-	(1,100)	(1,200)	(1,200)	(1,200)
AIFVs/Armored Cars/Lt. Tanks	70	700	1,400	2,800	3,010	2,200	2,200
APCs/Recce/Scouts	1,100	1,600	1,600	1,500	1,500	2,400	2,400
WWII Half-Tracks	0	0	0	0	0	0	0
ATGM Launchers	-	-	-	1,100	3,390	4,390	4,190
SP Artillery	75	800*	-	186	450	430	430
Towed Artillery	700	*	-	2,000	1,630	1,630	1,630
MRLs	57	-	-	250	480	480	480
Mortars	-	-	-	-	4,500+	710	710
SSM Launchers	-	54	54	61	62	82	72
AA Guns	-	-	1,000	1,700	2,060	2,050	2,050
Lt. SAM Launchers	-	-	-	-	4,055	4,335	4,335
Air & Air Defense Forces							
Active Air Force Manpower	25,000	45,000	70,000	40,000	40,000	40,000	35,000
Air Force Reserve Manpower	-	-	-	-	92,000	70,000	70,000
Active Air Defense Command	-	(15,000)	60,000	60,000	60,000	60,000	54,200
Air Defense Command Reserve	-	-	-	-	-	-	-
Aircraft							
Total Fighter/FGA/Recce	400	395	500	558	589	548	520
Bombers	4	0	0	0	0	0	0
Fighter	250	225	280	312	310	300	289
FGA/Fighter	0	60	0	0	0	0	0
FGA	140	110	193	170	154	130	130
Recce	0	0	10	6	14	46	46
Airborne Early Warning (AEW)	0	0	0	0	0	0	0
Electronic Warfare (EW)	0	0	-	8	10	0	0
(Fixed Wing)							
(Helicopter)							
Maritime Reconnaissance (MR)	0	0	0	0	0	0	0
Combat Capable Trainer	-	20	10-60	76-96	111	111	63
Tanker	0	0	0	0	0	0	0
Transport	9	17	23	28	49	23	21
Helicopters							
Attack/Armed	0	0	100	100	72	36	36
ASW/SAR	0	35	23	25	0	0	0

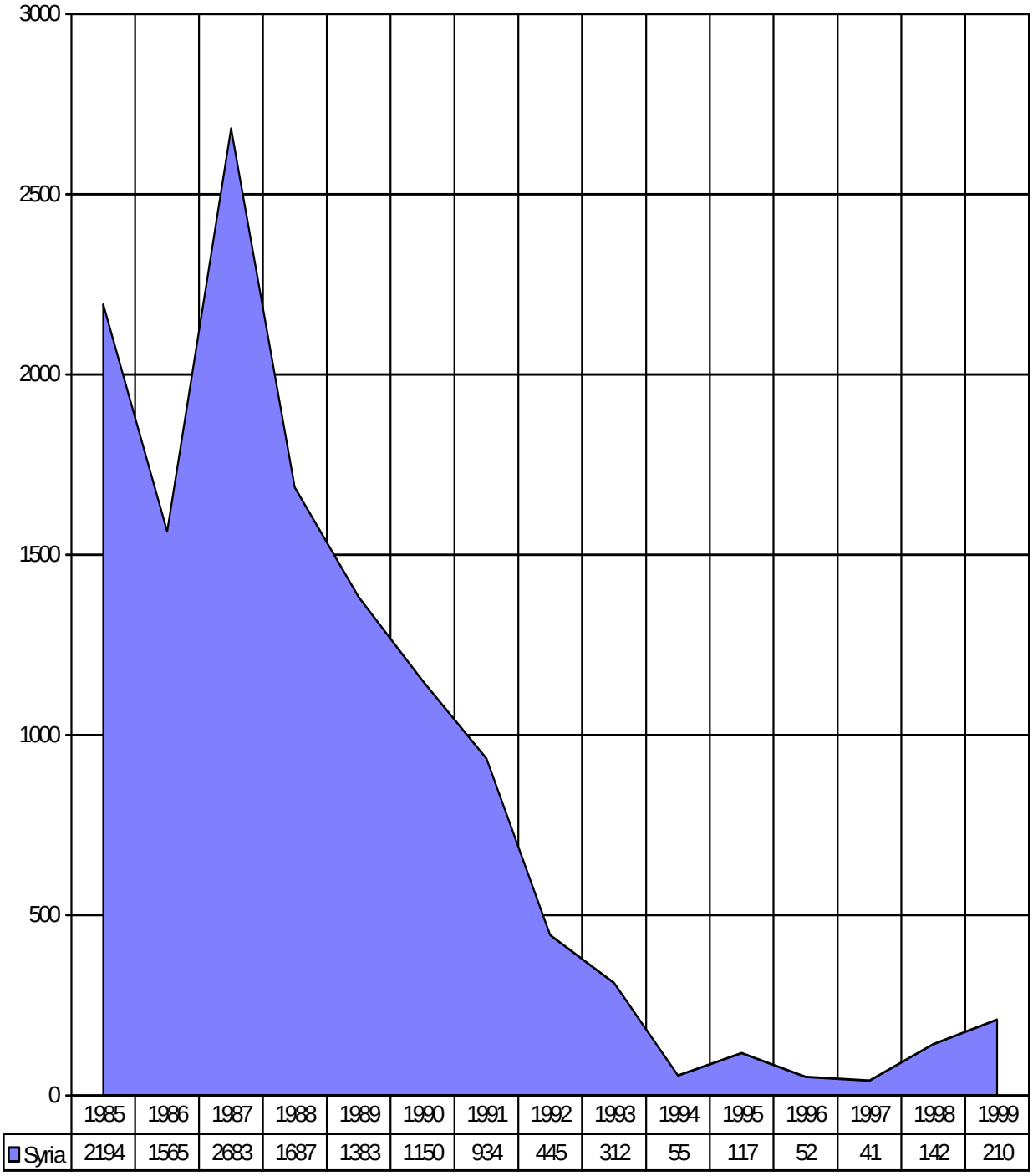
Transport & Other	60	82	160	155	110	120	158
Total	60	117	283	280	182	156	194
SAM Forces							
Batteries	-	75	126	126	130	130	150
Heavy Launchers	-	-	658	640	728	728	728?
Medium Launchers	-	-	-	60	60	60	
AA Guns	-	-	-	-	-	-	
Naval Forces							
Active Manpower	2,500	2,500	2,500	6,000	6,000	4,100	7,600
Reserve Manpower	2,500	-	2,500	8,000	4,000	4,000	4,000
Total Manpower	5,000	-	5,000	14,000	10,000	8,100	11,600
Submarines	0	0	0	3	0(3)	0	0
Destroyers/Frigates/Corvettes	0	0	0	2	2	2	2
Missile	0	2	2	2	2	2	2
Other	0	0	0	0	0	0	0
Missile Patrol	6	18	22	12	10	10	12
Coastal/Inshore Patrol	12	9	7	8	8	8	8
Mine	1	3	4	9	5	5	5
Amphibious Ships	-	-	2	3	3	3	3
Landing Craft/Light Support	-	-	-	-	5	4	4
Fixed Wing Combat Aircraft	0	0	0	0	0	0	0
MR/MPA	0	0	0	0	0	0	0
ASW/Combat Helicopter	-	-	-	17	24	25	25
Other Helicopters	-	-	-	-	-	-	-

* Includes all types of towed and self-propelled artillery, but not multiple rocket launchers.
Source: Adapted by Anthony H. Cordesman from data provided by US experts, and the IISS, The Military Balance

Figure 2.10

The Syrian Recapitalization Crisis: Arms Deliveries during 1985-1999

(Arms Deliveries in Constant $US 1999 Millions)



Source: Adapted by Anthony H. Cordesman from US State Department, World Military Expenditures and Arms Transfers, various editions.

III. Major Trends in Arab-Israeli Forces

The trends in the strength of Arab-Israeli military forces become clearer when they are examined by major category of military strength. The data on manpower have already been discussed.

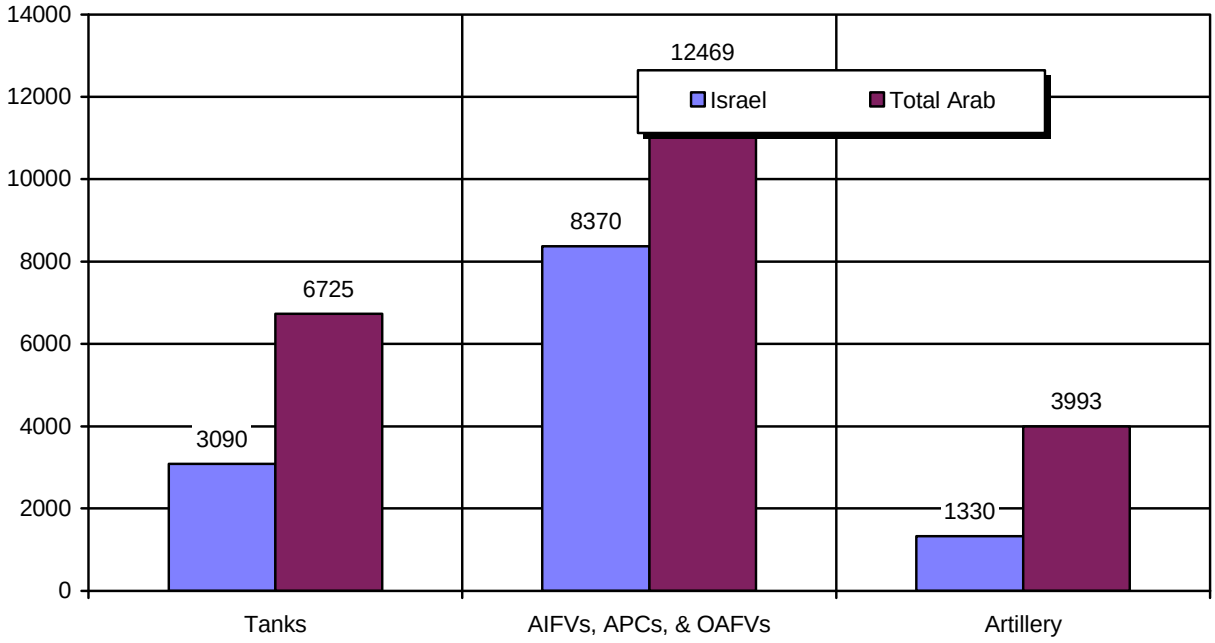
- **Figure 3.1** shows Israel's force strength relative to all of the Arab states combined. This comparison may fit the traditional "worst case," but is extremely unlikely to ever occur. Egypt and Jordan are at peace with Israel and Lebanon has little real-world military capability.
- **Figure 3.2** shows the balance between Israel and Syria. This is a far more realistic balance for scenario purposes, although Syria could not sustain anything like its total force numbers in combat. Such numbers also disguised the major qualitative weaknesses in Syrian forces.
- **Figure 3.3** emphasizes the difference in force modernization between Israel and Syria. Even so, it sharply understates Israel's qualitative advantage. Israel has excellent access to the most advanced US military technology and has a large and effective military industry in addition to being able to import far more arms.
- **Figure 3.4** serves as a reminder of just how small the area of operations is in an Arab-Israel conflict, and of Israel's problems in defending its borders.
- **Figure 3.5** compares Arab and Israeli military manpower. It is clear that Egypt and Syria have an advantage in terms of active manpower numbers, but such an advantage is of little practical meaning because of their problems in manpower quality, readiness, and sustainability.
- **Figure 3.6** shows that much of the Egyptian or Syrian advantage in manpower disappears when the superior quality of Israel's reserve manpower is considered.
- **Figures 3.7** through **30** display the trends in armor, tanks, and artillery. As **Figure 3.7** shows, Israel does not have a significant numerical superiority over Syria or Egypt and would have a severe numerical inferiority if it had to face a broad attack from all of its Arab neighbors..
- **Figures 3.8** through **3.9,** however, show the number and type of tanks in each country**.** Israel has a massive qualitative advantage over Syria and a major advantage over Egypt.
- **Figure 3.10** shows the number of other armored fighting vehicles in each**.** Israel has large numbers, and a highly mechanized force, although its total includes large numbers of obsolescent systems. **Figure 3.11** shows that Syria is much better equipped in terms of armored infantry fighting vehicles, although they remain highly vulnerable to Israel armor and airpower. **Figure 3.12** shows Israel's advantage in APC – some of which it has armed and uparmored, but that it also retains significant numbers of obsolete half-tracks.
- **Figure 3.13** shows that Syria has massive artillery strength, while Egypt, Israel, and Jordan's totals reflect considerably less emphasis on artillery than on armor. Most of this artillery is towed, however, and cannot rapidly or effectively maneuver. Moreover, Syrian lacks the command and control, sensor, and counter battery radar assets to rapidly shift and concentrate fires, carry out efficient beyond line of sight targeting, and efficient counterbattery fire. Israel has all of these capabilities.
- The totals for self-propelled weapons provided in **Figures 3.14** and **3.15** show the number of self-propelled weapons, and provide a rough indication of the capability to carry out combined arms maneuver, and rapidly deploy artillery to a new sector of a front.
- **Figures 3.15 and 3.16** reflect the major emphasis region power place on multiple rocket launchers, although only Israel has effective beyond visual range targeting capabilities, however, and the technology to use such weapons with relative precision.
- **Figures 3.17** through **3.21** display data on combat aircraft, armed helicopters, and electronic warfare aircraft.
- **Figure 3.17** shows that Egypt and Syria now each have numerical superiority over Israel in terms of total combat aircraft.

- **Figure 3.18**, however, shows that these aircraft differ radically by type and capability.
- **Figure 3.19** shows that comparisons of high quality aircraft give Israel a significant lead over Egypt and a massive lead over Syria. Recent wars have also show that the quality of air forces is far more important than force numbers.
- **Figure 3.20** shows that Israel also has major lead in both the quantity and quality of the air battle management, intelligence, warning, and targeting systems critical to making use of modern airpower and precision weapons and this advantage is greatly enhance by superior Israel tactics, overall training, and other technologies. Egypt, along with Saudi Arabia, has acquired some of these capabilities, but cannot truly compete. Syria has little or no meaningful capability.
- **Figure 3.21** reflects the growing emphasis regional powers are putting on combat and attack helicopters. Israel again leads in both numbers and quality, although Egypt has substantial modern assets. Syria's helicopter assets are approaching obsolescence, and readiness is dropping.
- **Figure 3.22** shows the strength of land-based air defense forces. Egypt, Israel, and Syria all have large forces, but only the forces of Egypt and Israel are relatively modern, and Egypt dilutes its force capability by retaining large numbers of obsolete Soviet-bloc systems. It also has a weak command and control system and training and readiness problems. Syria's system is obsolete in weapons, sensors, and command and control capability. Jordan has improved a cost-effective system with reasonable readiness and proficiency but has never had the resources to compete with the larger Arab-Israeli powers.
- **Figure 3.23** compares the combat ship strength in Arab-Israeli forces. The qualitative issues affecting the forces have been described earlier. Israel had relatively modern and effective submarines and surface forces, backed by effective airpower. Egypt is less proficient, and again dilutes force quality but maintaining too many obsolete and ineffective ships, but has effective force elements. Syria's navy is obsolete and ineffective. Jordan and Lebanon have only token navies.

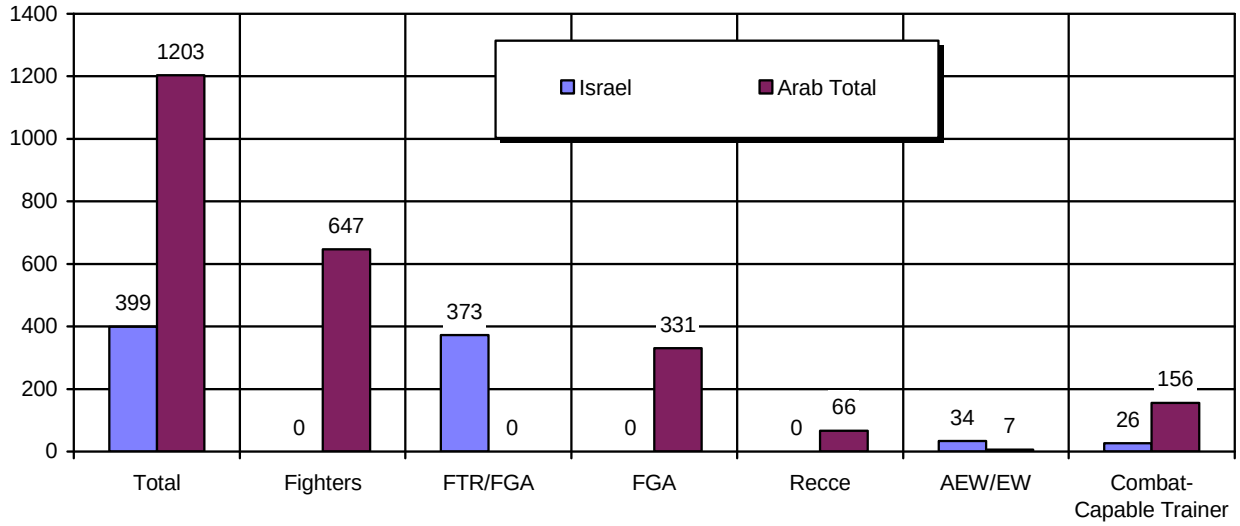
Figure 3.1

Israel versus Egypt, Syria, Jordan, and Lebanon in 2005

Land Weapons



Air Force



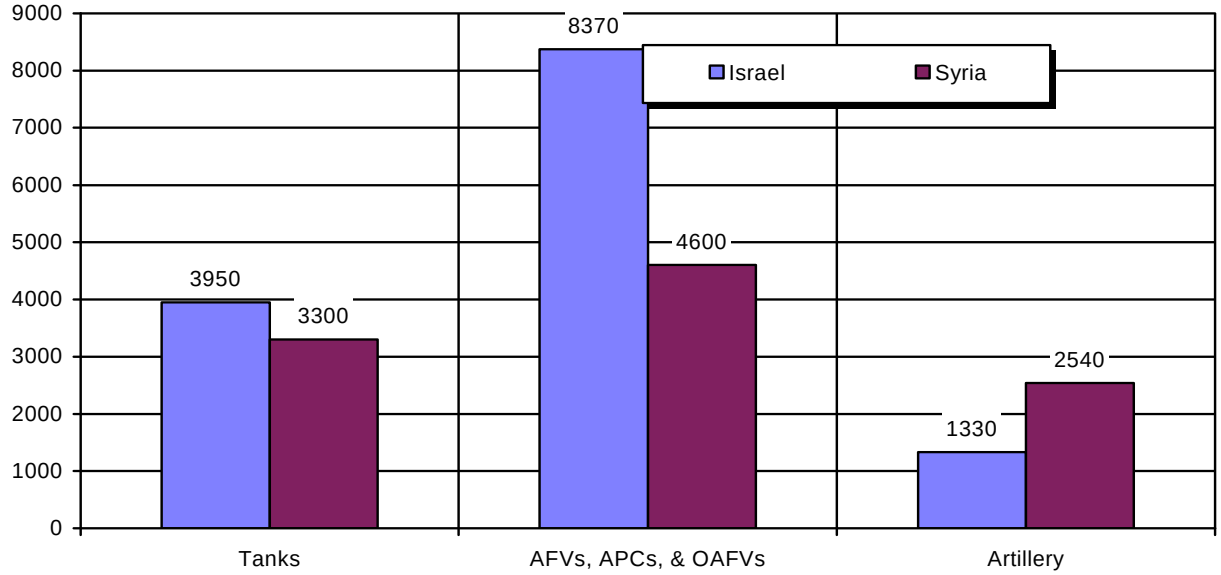
Note: Israel had 3 Gulfstream V ELINT aircraft on order, Egypt had 100 M-1A1 tanks, 179 M-109A2/3 artillery and 1 E-2C AEW aircraft on order, Jordan is awaiting delivery of 47 Challenger 1 tanks. AEW/EW Arab totals include 4 Commando 2E ECM helicopters. Total Artillery includes towed and self-propelled tube artillery and multiple rocket launchers. Total air forces include operational fixed-wing combat and combat-capable aircraft, including fighters, attack, fighter-attack, and combat-capable reconnaissance and training aircraft. IISS now labels all Israeli aircraft as FGA/FTR.

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

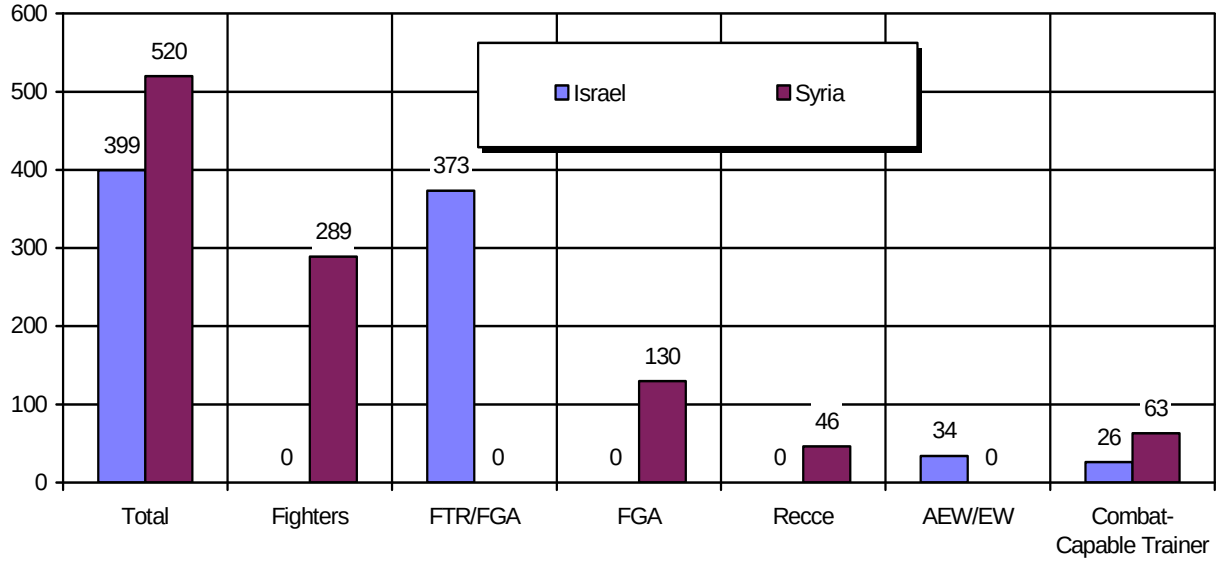
Figure 3.2

Israeli versus Syrian Operational Force Strength in 2005

Land Weapons



Air Forces

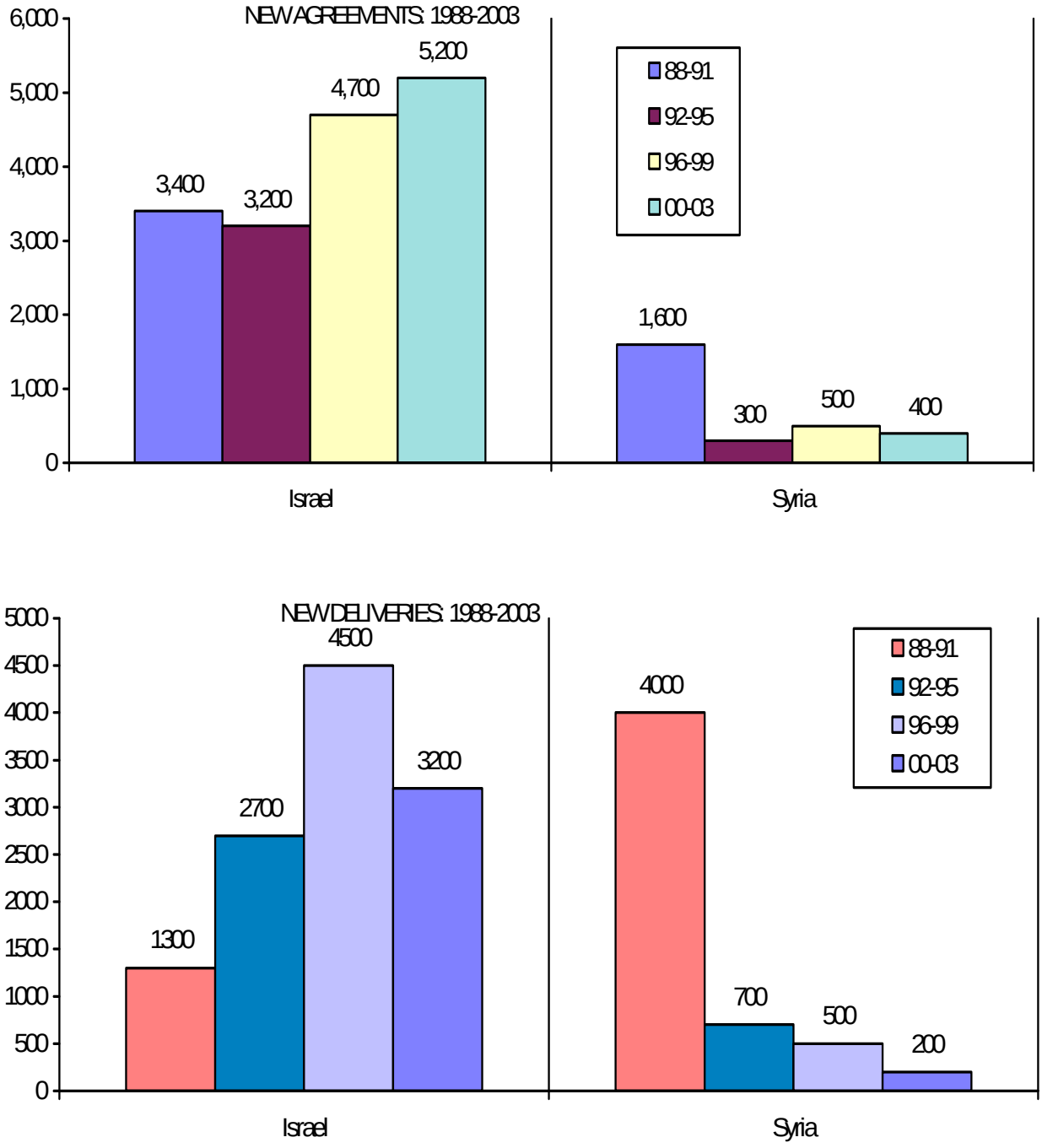


Note: Israel had 3 Gulfstream V ELINT aircraft on order. Total Artillery includes towed and self-propelled tube artillery and multiple rocket launchers. Total air forces include operational fixed-wing combat and combat-capable aircraft, including fighters, attack, fighter-attack, and combat-capable reconnaissance and training aircraft.
Source: Adapted by Anthony H. Cordesman from data provided by US experts, and the IISS, The Military Balance, various editions.

Figure 3.3

Syrian-Israeli Arms Agreements and Deliveries: 1988-2003

($US Current Millions)

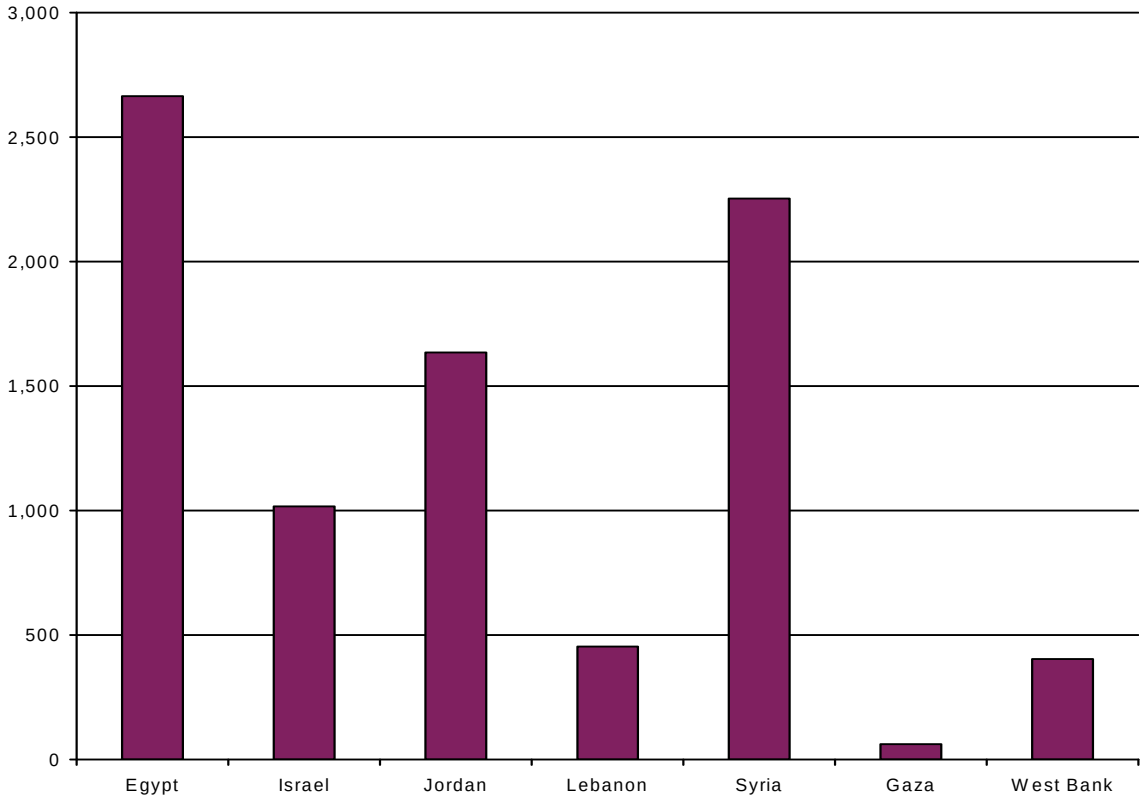


Source: Adapted by Anthony H. Cordesman, from Richard F. Grimmett, Conventional Arms Transfers to Developing Nations, Washington, Congressional Research Service, various editions.

Figure 3.4

Arab-Israeli Borders

(Total Length Kilometers)



Land Boundaries in Kilometers

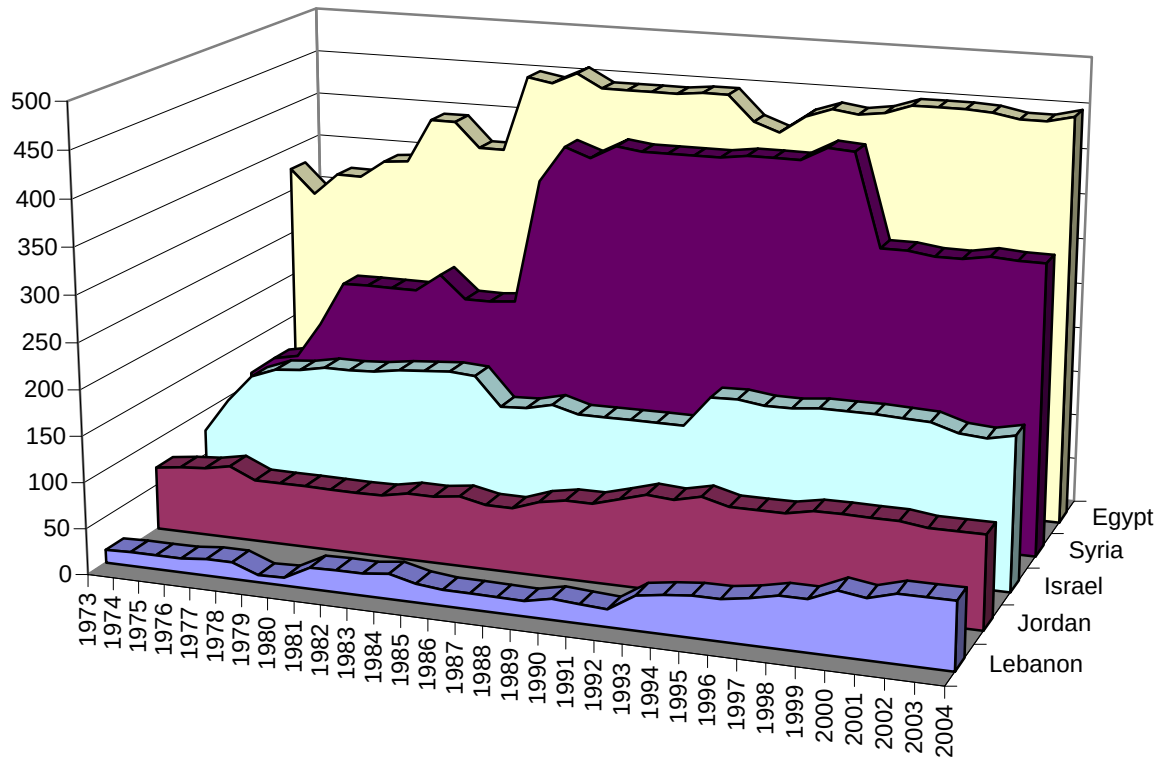
	Egypt	Israel	Jordan	Lebanon	Syria	Gaza	West Bank
Egypt	-	266	-	-	-	11	-
Gaza	11	51	-	-	-	-	-
Israel	266	-	238	79	76	51	307
Iraq	-	-	181	-	605	-	-
Jordan	-	238	-	-	375	-	97
Lebanon	-	79	-	-	375	-	-
Libya	1,115	-	-	-	-	-	-
Saudi Arabia	-	-	744	-	-	-	-
Sudan	1,273	-	-	-	-	-	-
Syria	-	76	375	375	-	-	-
Turkey	-	-	-	-	822	-	-
West Bank	-	307	97	-	-	-	-
Total	2,665	1,017	1,635	454	2,253	62	404
Coastline	2,450	273	26	225	193	40	-
Maritime Claims in Kilometers							
Contiguous	38.4	-	-	-	41	-	-
Territorial	15.2	15.2	4.8	15.2	35	-	-

Source: Adapted by Anthony H. Cordesman from CIA, World Factbook, 2002.

Figure 3.5

Total Arab-Israeli Active Military Manpower: 1973-2005

(Troops in thousands)



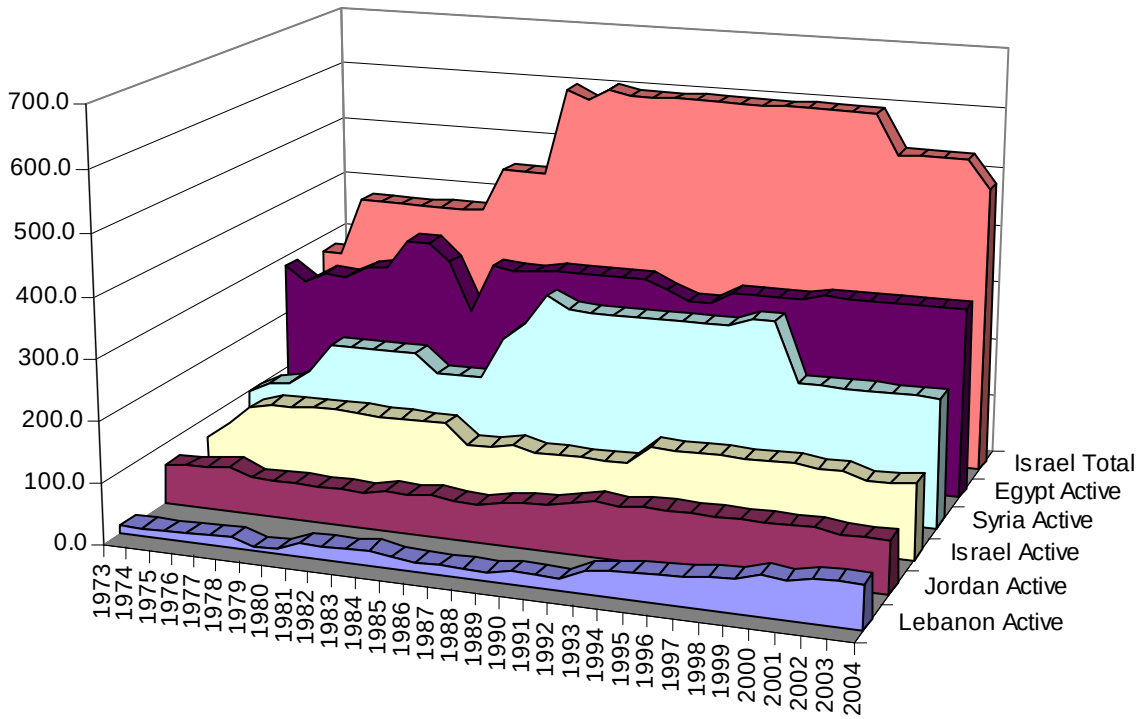
	'73	'76	'79	'82	'85	'88	'91	'94	'97	'00	'04	'05
Lebanon	14.3	15.3	7.8	23.8	20.3	16.7	20.6	41.3	48.9	67.9	72.1	72.1
Jordan	69.3	80.3	67.9	67.5	76.3	80.3	93.3	106.0	98.7	104.0	100.5	100.5
Israel	77.0	156.0	164.0	172.0	141.0	141.0	141.0	176.0	175.0	173.5	167.6	168.0
Syria	111.8	177.5	227.5	222.5	362.5	407.5	404.0	408.0	421.0	316.0	319.0	296.8
Egypt	325.0	322.5	395.0	367.0	460.0	445.0	448.0	430.0	440.0	450.0	450.0	450.0

Source: Adapted by Anthony H. Cordesman from the IISS, The Military Balance, various editions. Some data adjusted or estimated by the author.

Figure 3.6

Arab Active versus Israeli Mobilized Army Manpower: 1973-2005

(Troops in thousands)

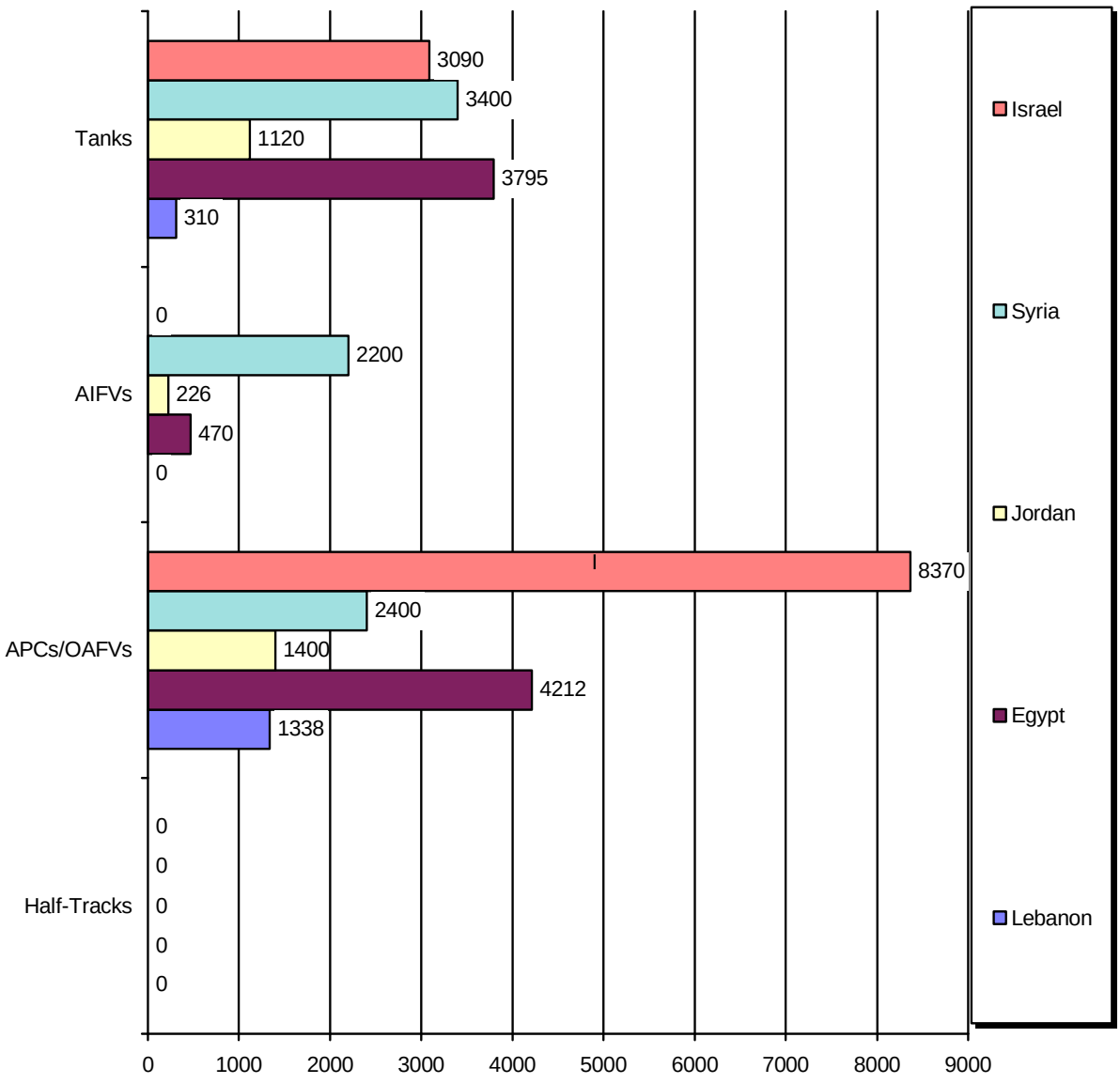


	'73	'76	'79	'82	'85	'88	'91	'94	'97	'00	'04	'05
Lebanon Active	13.0	14.0	7.0	22.3	19.0	15.0	19.3	40.0	47.5	65.0	72.1	72.1
Jordan Active	65.0	75.0	61.0	60.0	68.0	70.0	82.0	90.0	90.0	90.0	100.5	100.5
Israel Active	65.0	135.0	138.0	135.0	104.0	104.0	104.0	134.0	134.0	130.0	167.6	168.0
Syria Active	100.0	150.0	200.0	170.0	240.0	300.0	300.0	300.0	315.0	215.0	319.0	296.8
Egypt Active	285.0	275.0	350.0	235.0	315.0	320.0	305.0	310.0	310.0	320.0	450.0	450.0
Israel Total	275.0	375.0	375.0	450.0	600.0	598.0	598.0	598.0	598.0	530.0	525.6	576.0

Source: Adapted by Anthony H. Cordesman from the IISS, The Military Balance, various editions. Some data adjusted or estimated by the author.

Figure 3.7

Arab-Israeli Armored Forces in 2005

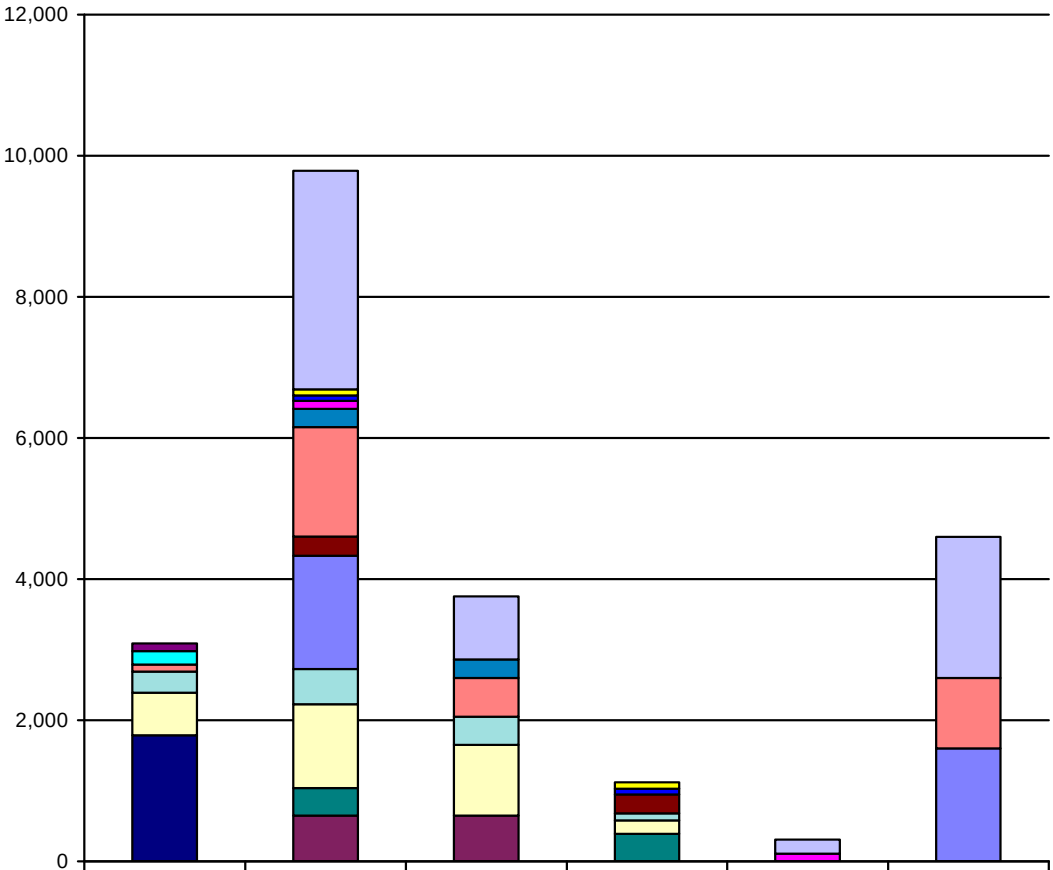


	Half-Tracks	APCs/OAFVs	AIFVs	Tanks
Israel	0	8370	0	3090
Syria	0	2400	2200	3400
Jordan	0	1400	226	1120
Egypt	0	4212	470	3795
Lebanon	0	1338	0	310

Source: Adapted by Anthony H. Cordesman from the IISS, The Military Balance, various editions. Other data based upon discussions with US experts.

Figure 3.8

Israel versus Egypt, Syria, Jordan, and Lebanon: Operational Tanks by Type



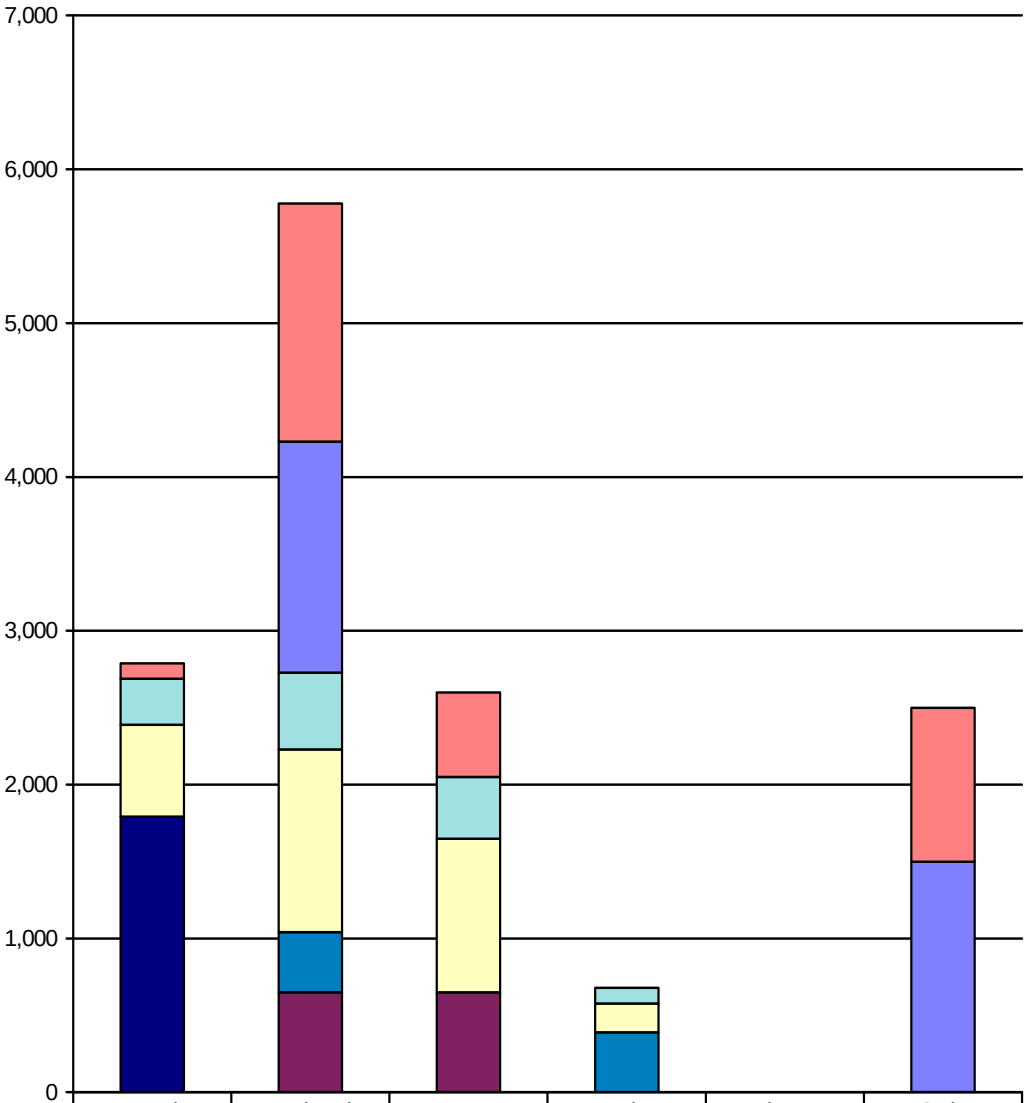
	Israel	Total Arab	Egypt	Jordan	Lebanon	Syria
T-54/T-55		3,095	895		200	2,000
Centurion/Tariq	0	90		90		
M-47/M-48		78		78		
M-48A5	0	110			110	
Ramses II		260	260			
Ti-67(T-54/55)	114					
Magach 7	186					
T-62	100	1,550	550			1,000
Chieftan/Khalid		274		274		
T-72		1,600				1,600
M-60A1	300	500	400	100		
M-60A3	600	1,188	1,000	188		
Challenger 1/Al Hussein		390		390		
Merkava	1,790					
M-1		650	650			

Note: The totals include large numbers of vehicles that are in storage or are fixed in place. In 2000, these included 300 M-47/M-48A5s for Jordan, 1,200 tanks for Syria and an unknown number for Egypt, Israel, and Lebanon.
Source: Adapted from the IISS, The Military Balance, various editions. Some data adjusted or estimated by the author. Data differ significantly from estimated by US experts.

Figure 3.9

Israel versus Egypt, Syria, Jordan, and Lebanon: High Quality Tanks by Type

(High Quality Tanks include T-62s, T-72s, M-60s, M-1s, Merkavas, and Challenger 1s)

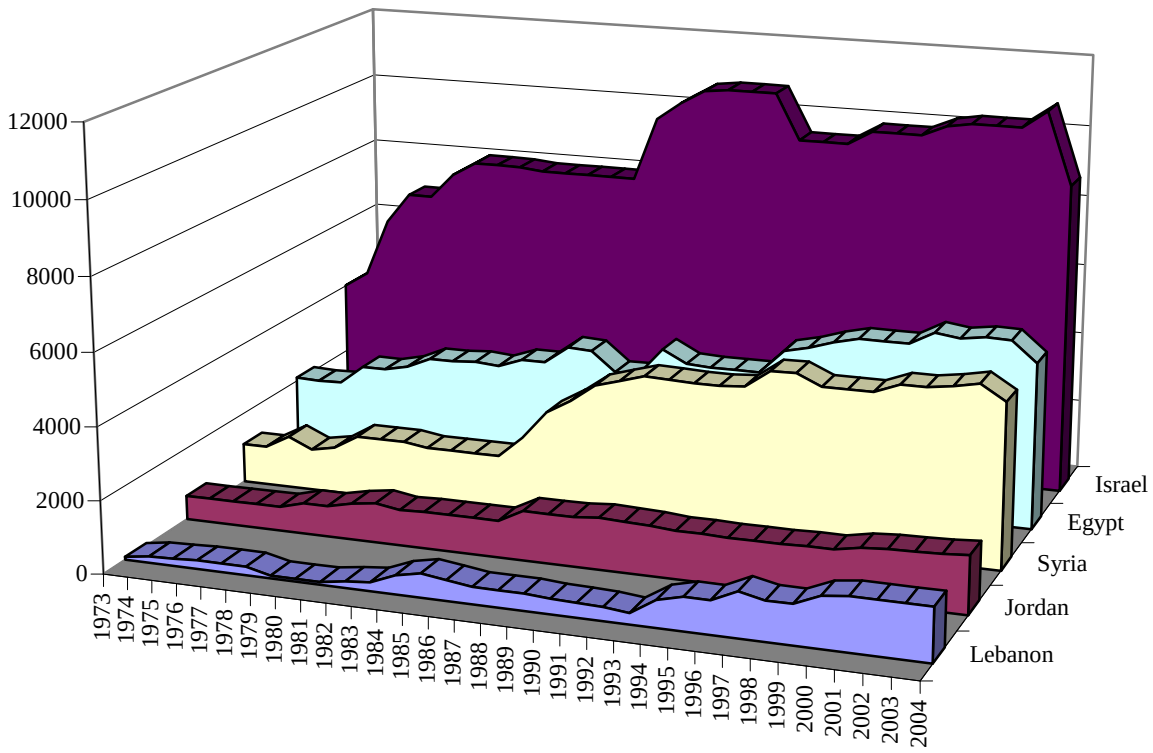


	Israel	Total Arab	Egypt	Jordan	Lebanon	Syria
T-62	100	1,550	550			1,000
T-72		1,500				1,500
M-60A1	300	500	400	100		
M-60A3	600	1,188	1,000	188		
Challenger 1/Al Hussein		390		390		
Merkava	1,790					
M-1		650	650			

Source: Adapted from the IISS, The Military Balance, various editions. Some data adjusted or estimated by the author. Data differ significantly from estimated by US experts.

Figure 3.10

Arab-Israeli Other Armored Fighting Vehicles (Lt. Tanks, AFVs, APCs, Scouts, Recce, OAFVs): 1973-2005



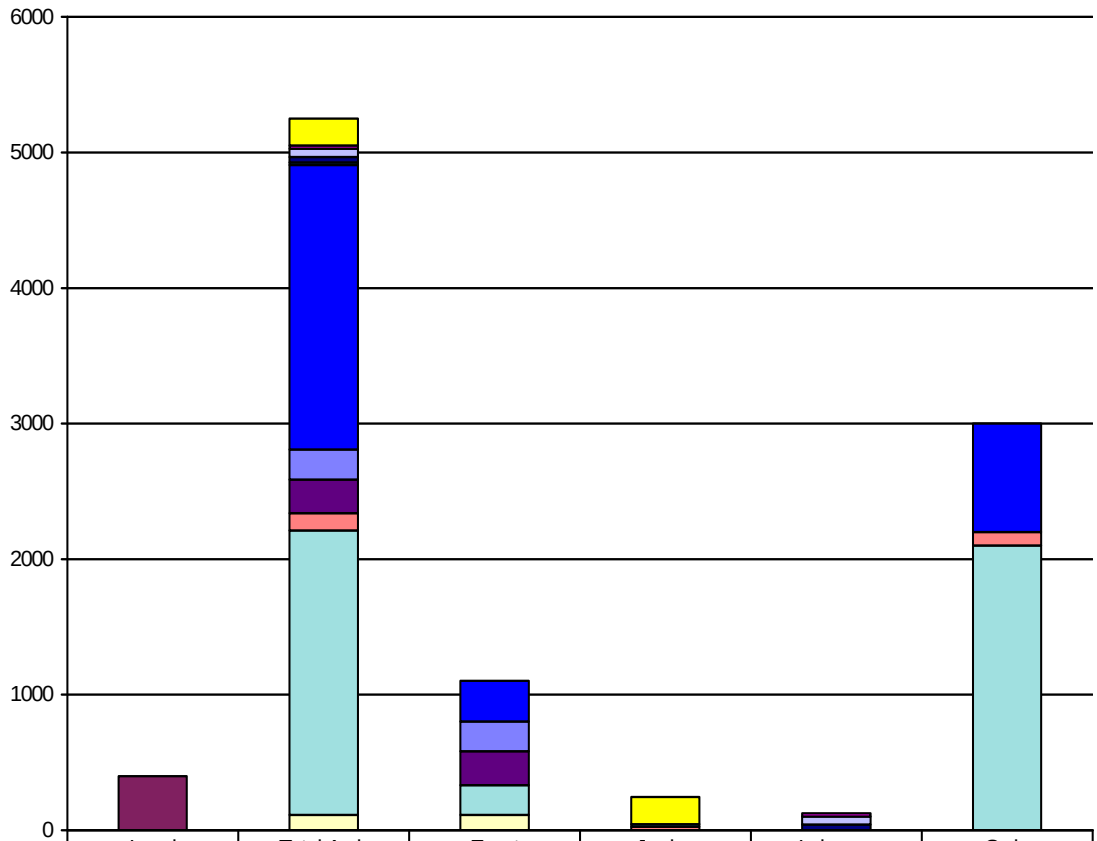
Country	'73	'75	'77	'79	'81	'83	'85	'91	'93	'95	'99	'01	'04	'05
Lebanon	80	204	239	80	80	245	658	402	312	915	1085	1463	1463	1463
Jordan	670	670	680	860	1102	1022	1022	1403	1324	1304	1324	1501	1595	1595
Syria	1100	1470	1300	1700	1600	1600	2200	4275	4250	4800	4510	4785	4600	4600
Egypt	2100	2100	2630	3080	3130	3330	3830	3660	3660	4501	4886	5172	4682	4752
Israel	4015	6100	6965	8080	8065	8000	8000	10780	8488	9488	10188	10308	8770	13078

Note: Includes APCs, scout cars, half-tracks, mechanized infantry fighting vehicles, reconnaissance vehicles and other armored vehicles other than tanks. The totals include large numbers of vehicles that are in storage or not operational. In 2003, they included 3,000-3,500 half tracks for Israel, 220 BMP-1s and 1,075 BTR-60/OT-62s for Egypt, and an unknown number for Lebanon, and Syria.
Source: Adapted by Anthony H. Cordesman from the IISS, The Military Balance, various years. Some data adjusted or estimated by the author

Figure 3.11

Israel Versus Egypt, Syria, Jordan, and Lebanon: "True AFVs"

(AFVs include Light Tanks, MICVs, AIFVs, and Reconnaissance)

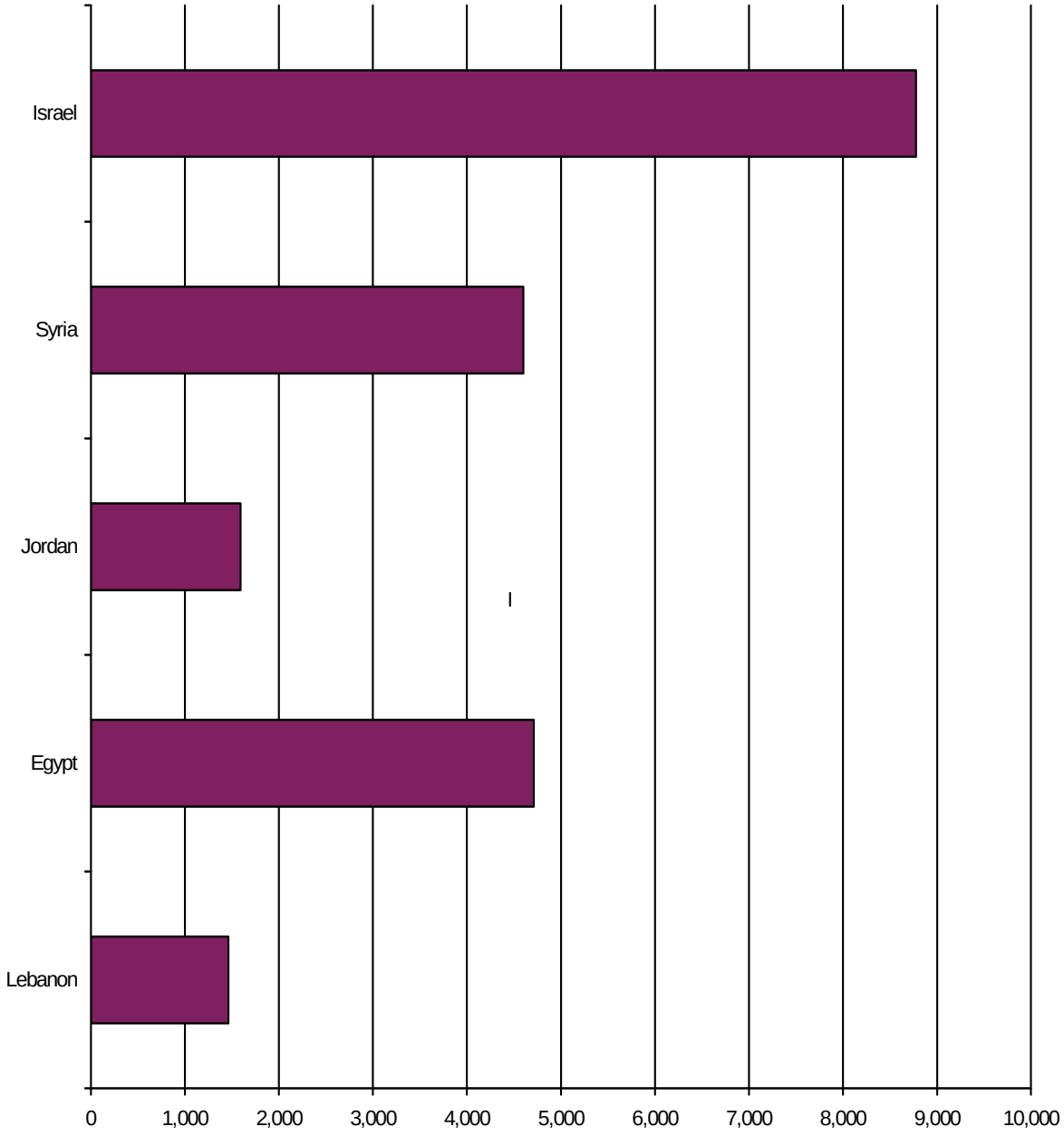


	Israel	Total Arab	Egypt	Jordan	Lebanon	Syria
Ratel-20		200		200		
Saladin		25			25	
AML-90		60			60	
AMX-13		40			40	
Scorpion		19		19		
BDRM-2 Rkh						
BDRM-2		2100	300			800
YPR-765		220	220			
BMR-600P		250	250			
BMP-3						
BMP-2		126		26		100
BMP-1		2100	220			2100
Commando Scout		112	112			
Ramta, RBY, BDRM	400					

Source: Adapted by Anthony H. Cordesman from the IISS, The Military Balance. Some data adjusted or estimated by the author on the basis of comments by US experts.

Figure 3.12

Operational Arab-Israeli Armored Personnel Carriers in 2005



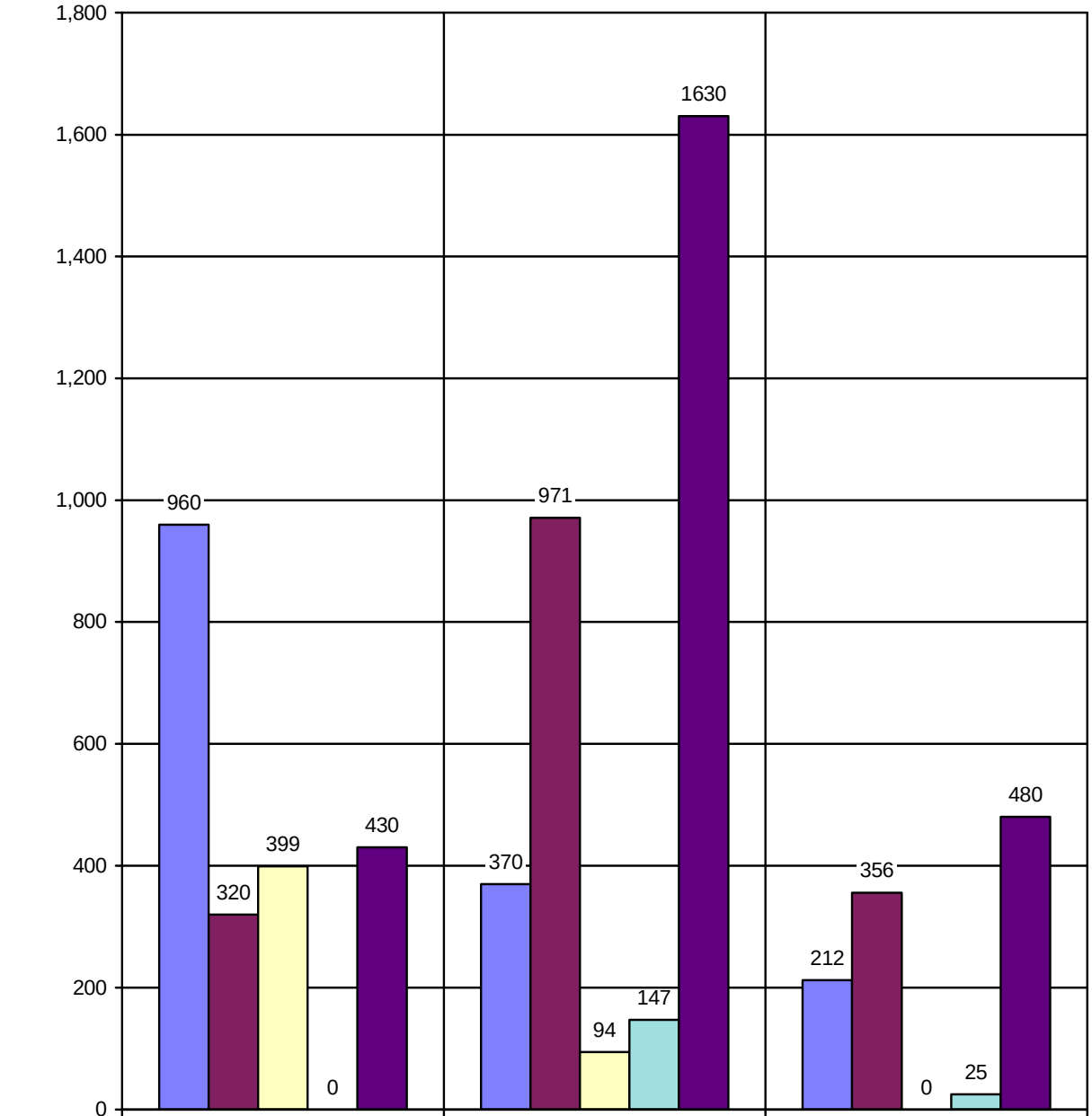
	Lebanon	Egypt	Jordan	Syria	Israel
APCs/OAFVs	1,463	4,712	1,595	4,600	8,778
Half-Tracks	0	0	0	0	0

Includes APCs, scouts cars, half-tracks, mechanized infantry fighting vehicles, reconnaissance vehicles and other armored vehicles other than tanks. The totals do not include large numbers of vehicles that are in storage or not operational. In 2000, they included 3,000-3,500 half tracks for Israel, 1,075 BTR-60/OT-62s for Egypt, and an unknown number for Lebanon, and Syria

Source: Adapted by Anthony H. Cordesman from the IISS, The Military Balance. Some data adjusted or estimated by the author on the basis of comments by US experts.

Figure 3.13

Arab-Israeli Artillery Forces by Category of Weapon in 2005



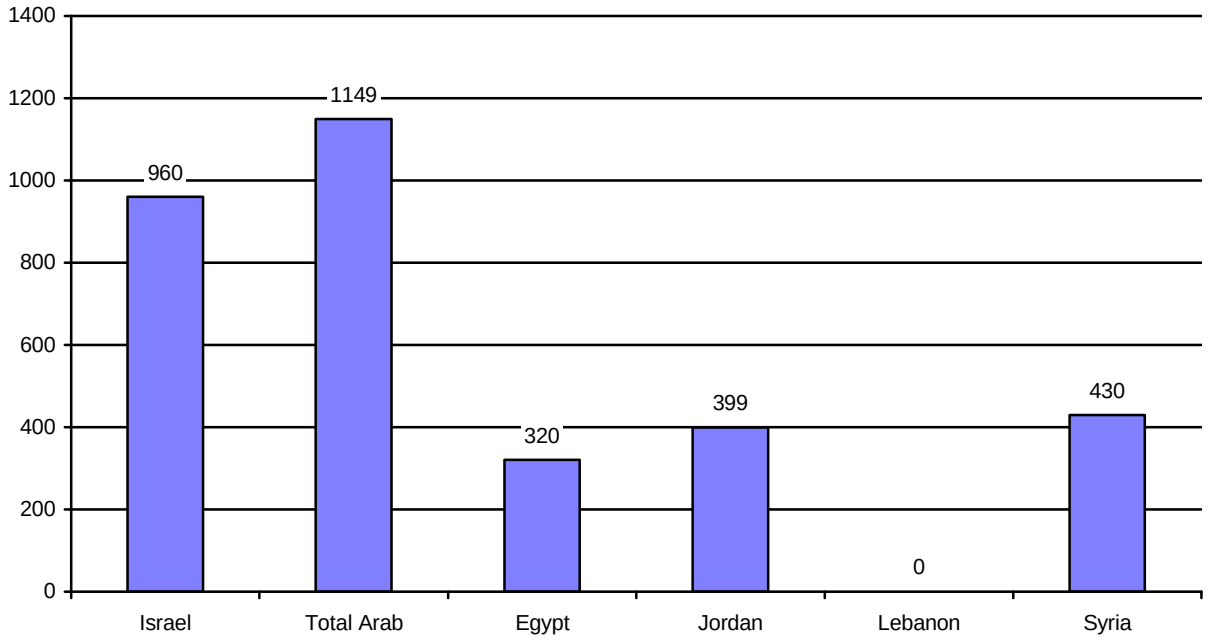
	SP Arty	Towed Arty	MRLs
Israel	960	370	212
Egypt	320	971	356
Jordan	399	94	0
Lebanon	0	147	25
Syria	430	1630	480

Source: Adopted by Anthony H. Cordesman, based upon the IISS, The Military Balance and discussions with US experts.

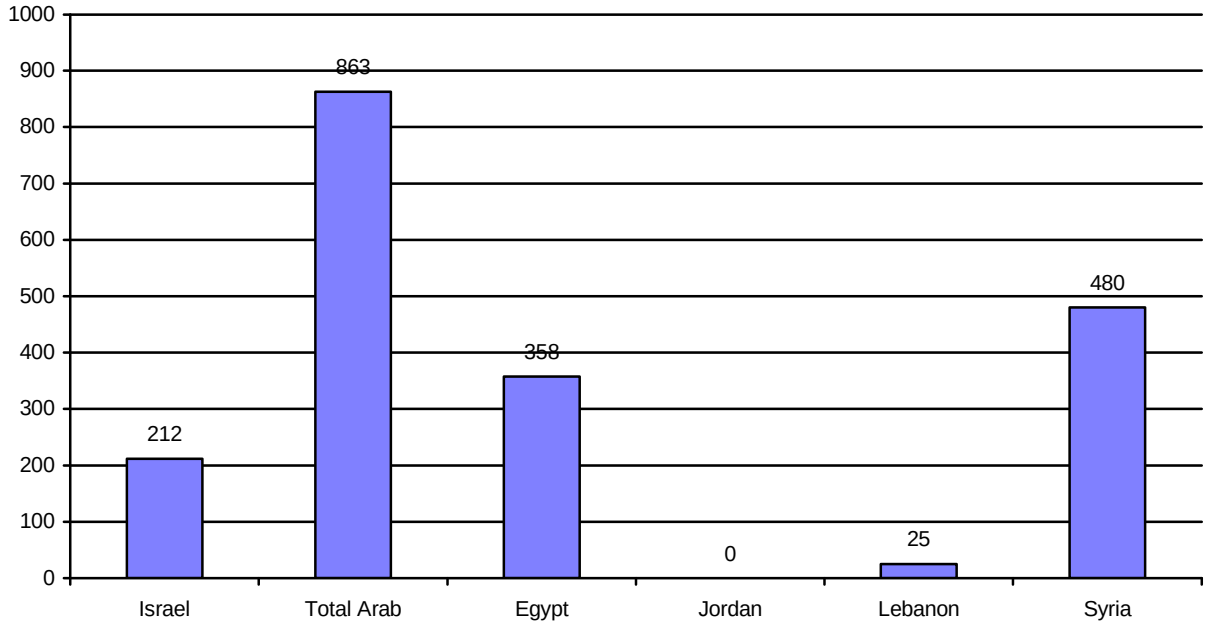
Figure 3.14

Israel versus Egypt, Syria, Jordan, and Lebanon: High Performance Artillery in 2005

Modern Self Propelled Artillery

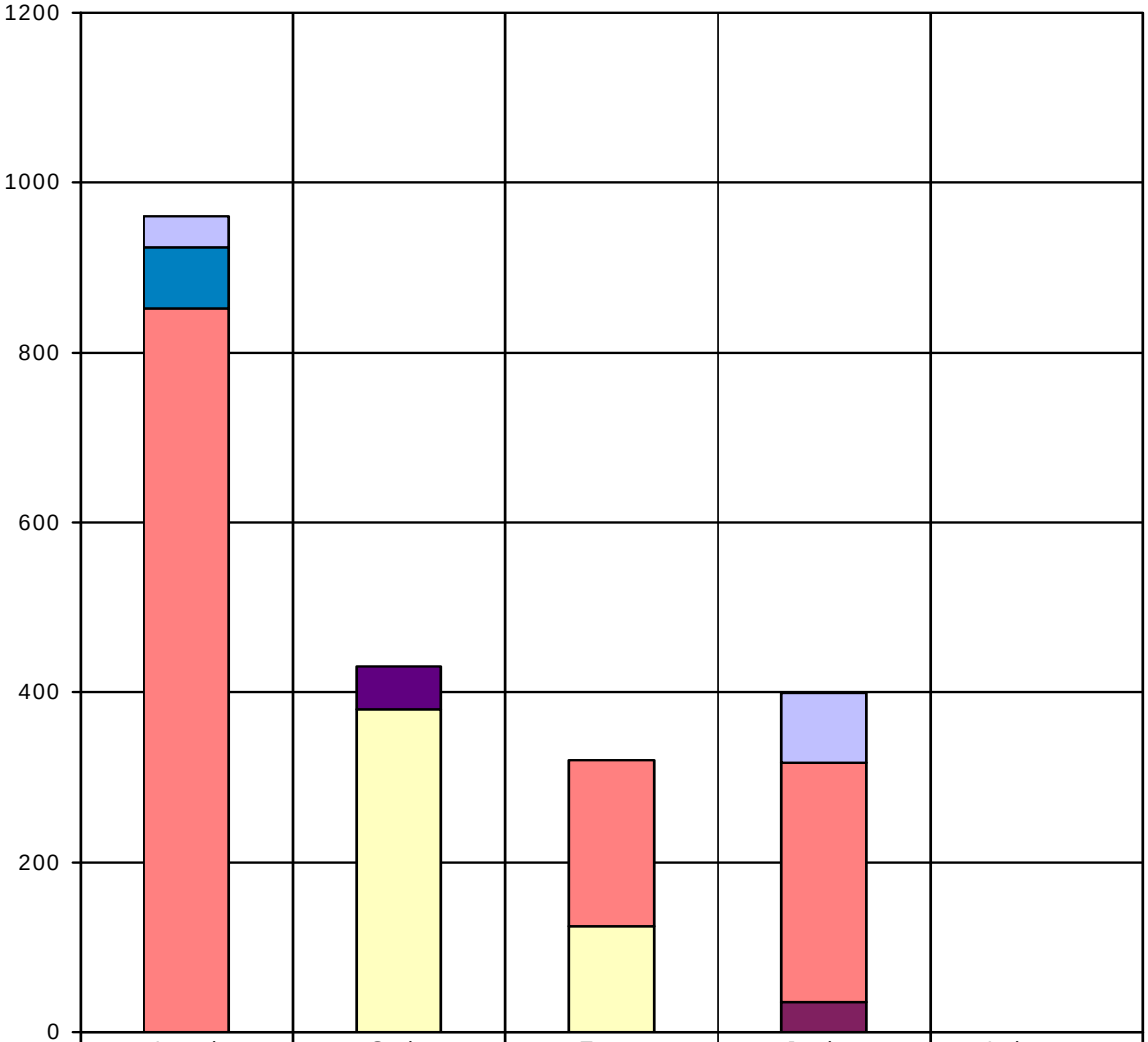


Multiple Rocket Launchers



Source: Prepared by Anthony H. Cordesman, based upon the IISS, The Military Balance and discussions with US and regional experts.

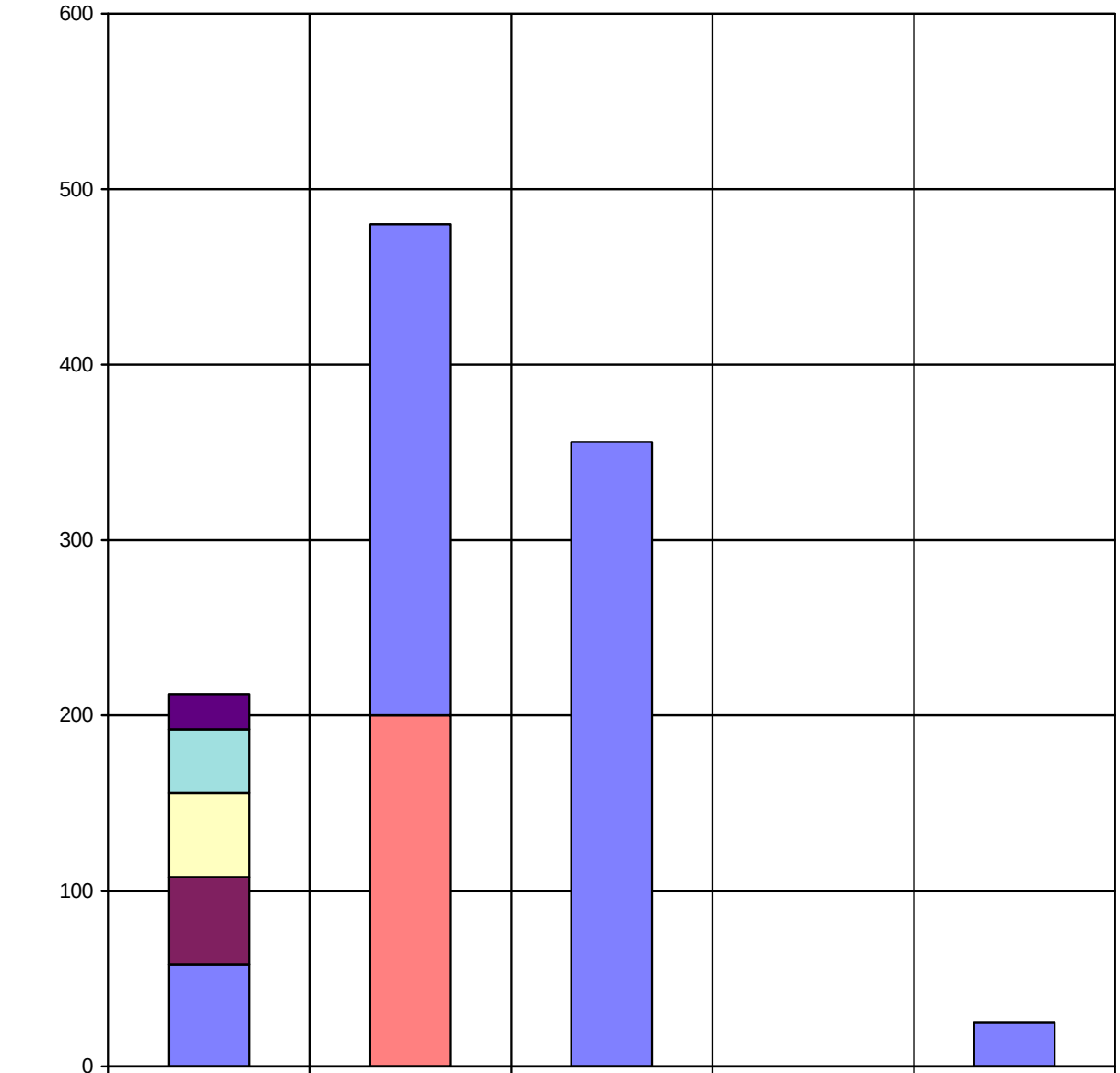
Figure 3.15
Arab-Israeli Self-Propelled Artillery by Caliber in 2005



	Israel	Syria	Egypt	Jordan	Lebanon
203 mm	36			82	
175 mm	72				
155 mm	852		196	282	
152 mm		50			
130 mm					
122 mm		380	124		
105 mm				35	
100 mm					

Note: Israel is phasing out its 175-mm weapons.
Source: Prepared by Anthony H. Cordesman, based upon the IISS, The Military Balance and discussions with US and regional experts.

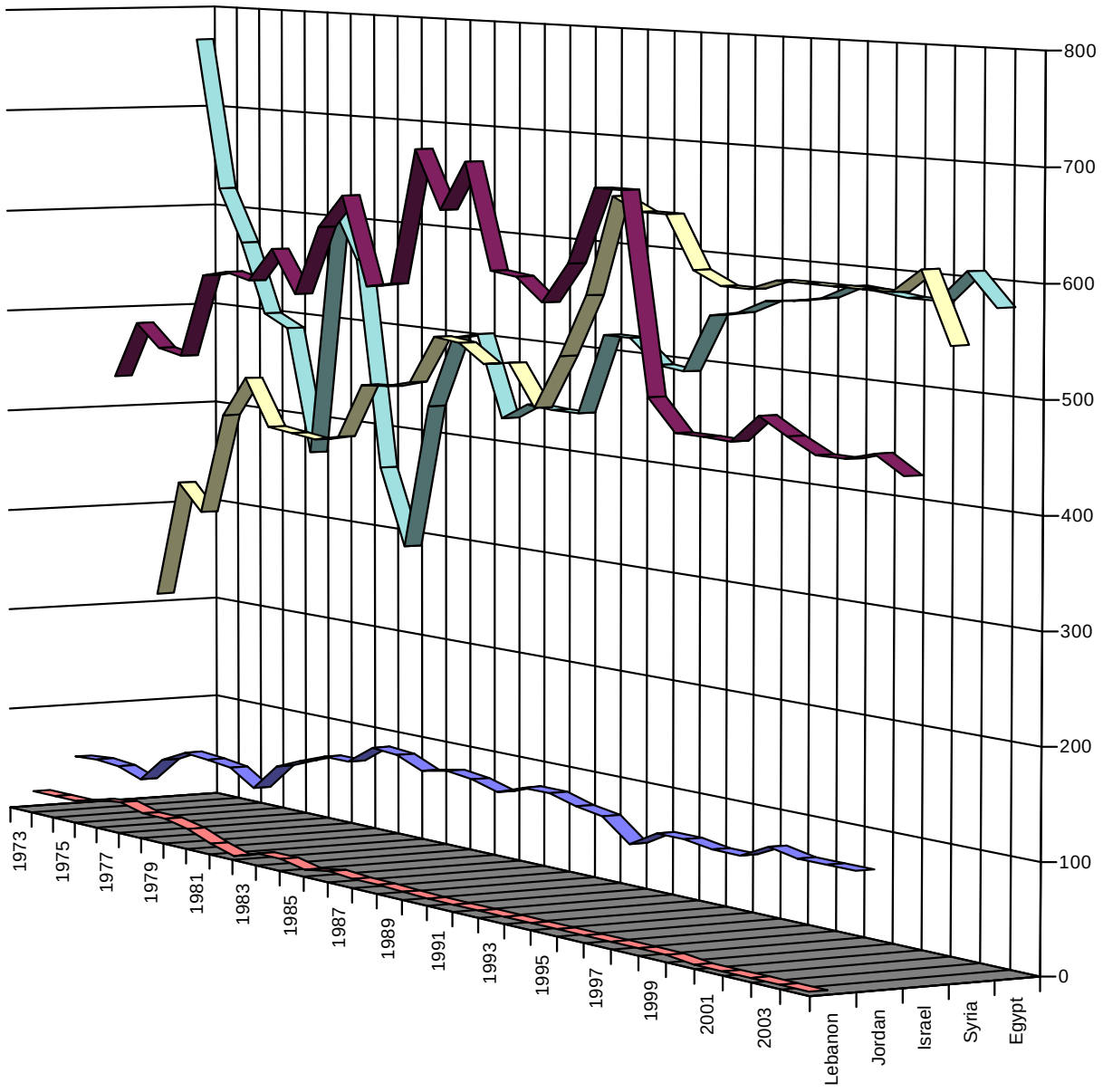
Figure 3.16
Arab-Israeli Multiple Rocket Launchers by Caliber in 2005



	Israel	Syria	Egypt	Jordan	Lebanon
290 mm	20				
240 mm	36				
227 mm	48				
160 mm	50				
122 mm	58	280	356		25
107 mm		200			

Source: Prepared by Anthony H. Cordesman, based upon the IISS, The Military Balance and discussions with US and regional experts.

Figure 3.17
Trends in Total Arab-Israeli Combat Aircraft: 1973-2005



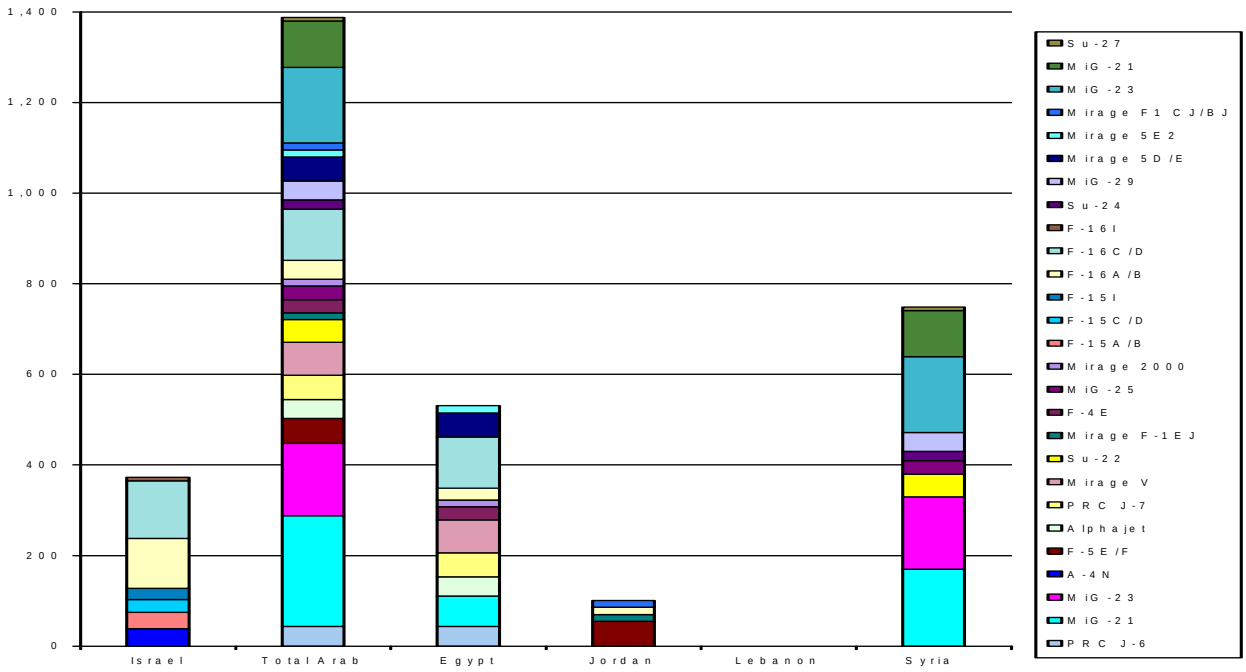
	'73	'75	'77	'79	'81	'83	'85	'87	'89	'91	'93	'95	'97	'99	'01	'04	'05
Lebanon	18	18	27	21	7	8	3	5	4	3	3	3	3	3	0	0	0
Jordan	50	50	66	76	58	94	103	119	114	104	113	102	97	93	106	101	101
Israel	432	466	543	543	535	634	555	629	577	553	662	478	449	474	446	438	399
Syria	210	300	440	392	395	450	503	483	448	558	639	591	579	589	589	548	520
Egypt	768	568	488	612	363	429	504	443	441	517	492	551	567	585	580	579	571

Source: Prepared by Anthony H. Cordesman, based upon the IISS, The Military Balance and discussions with US and regional experts.

Figure 3.18

Total Operational Arab-Israeli Combat Fighter, Attack, Bomber by Type in 2005

(Does not include stored, unarmed electronic warfare or combat-capable recce and trainer aircraft)



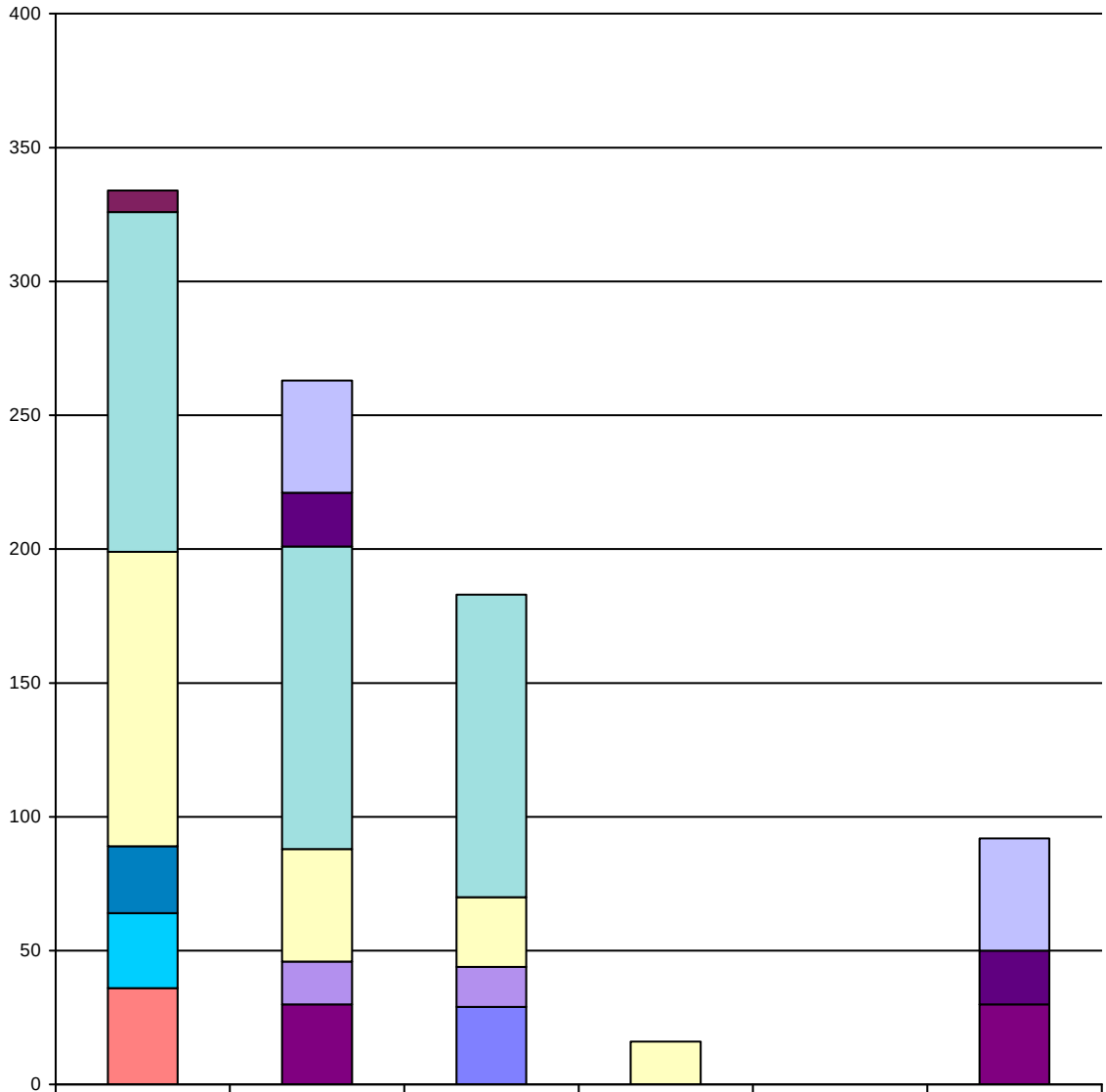
	Israel	Total Arab	Egypt	Jordan	Lebanon	Syria
PRC J-6		44	44			
MiG-21		244	67			170
MiG-23		160				160
A-4N	39					
F-5E/F		55		55		
Alpha jet		42	42			
PRC J-7		53	53			
Mirage V		73	73			
Su-22		50				50
Mirage F-1EJ		15		15		
F-4E		29	29			
MiG-25		30				30
Mirage 2000		15	15			
F-15A/B	36					
F-15C/D	28					
F-15I	25					
F-16A/B	110	42	26	16		
F-16C/D	127	113	113			
F-16I	8					
Su-24		20				20
MiG-29		42				42
Mirage 5D/E		53	53			
Mirage 5E2		16	16			
Mirage F1 CJ/BJ		15		15		
MiG-23		167				167
MiG-21		102				102
Su-27		8				8

Source: Adapted by Anthony H. Cordesman, from the IISS, The Military Balance and discussions with US and regional experts.

Figure 3.19

High Quality Operational Arab-Israeli Combat Aircraft in 2005

(Does not include stored, unarmed electronic warfare or combat-capable recce and trainer aircraft)

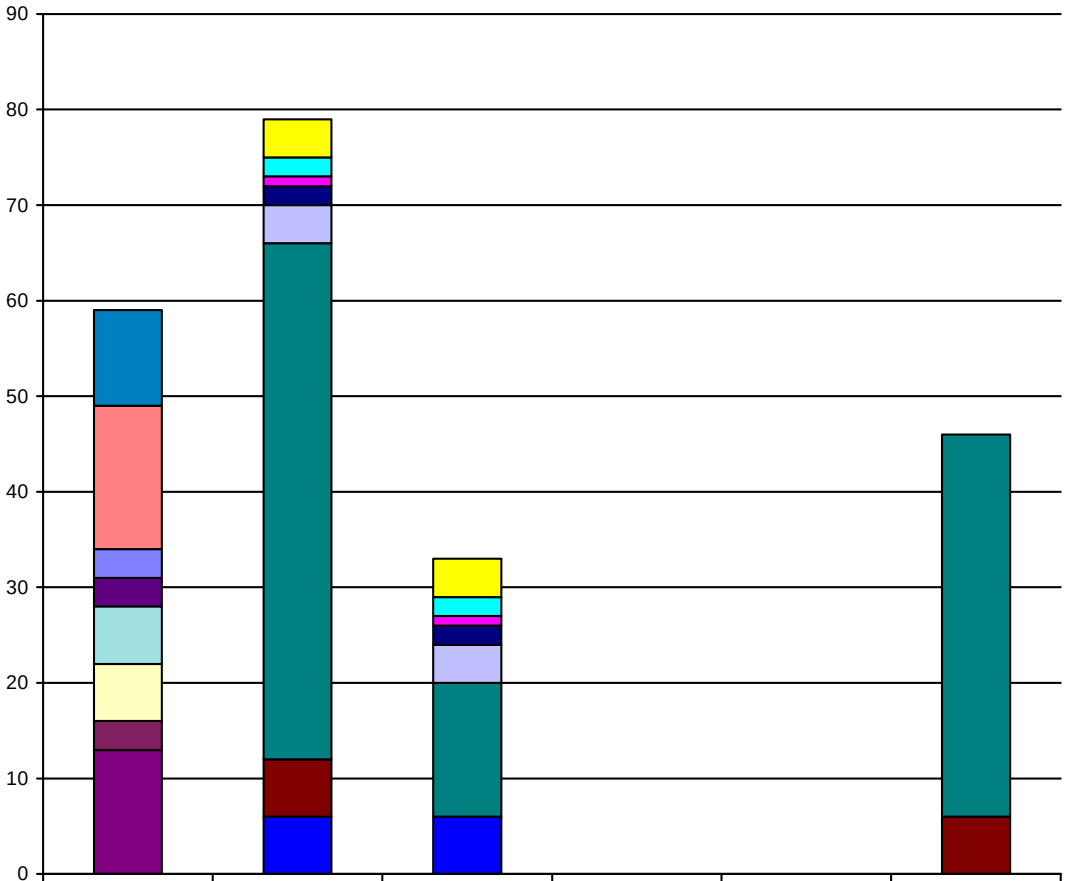


	Israel	Total Arab	Egypt	Jordan	Lebanon	Syria
F-16I	8					
MiG-29		42				42
Su-24		20				20
F-16C/D	127	113	113			
F-16A/B	110	42	26	16		
F-15I	25					
F-15C/D	28					
F-15A/B	36					
Mirage 2000		16	15			
F-4/2000			29			
MiG-25		30				30

Source: Adapted by Anthony H. Cordesman, from the IISS, The Military Balance and discussions with US and regional experts.

Figure 3.20

Unarmed Fixed and Rotary Wing RECCE, Electronic Warfare, and Intelligence Aircraft in 2005



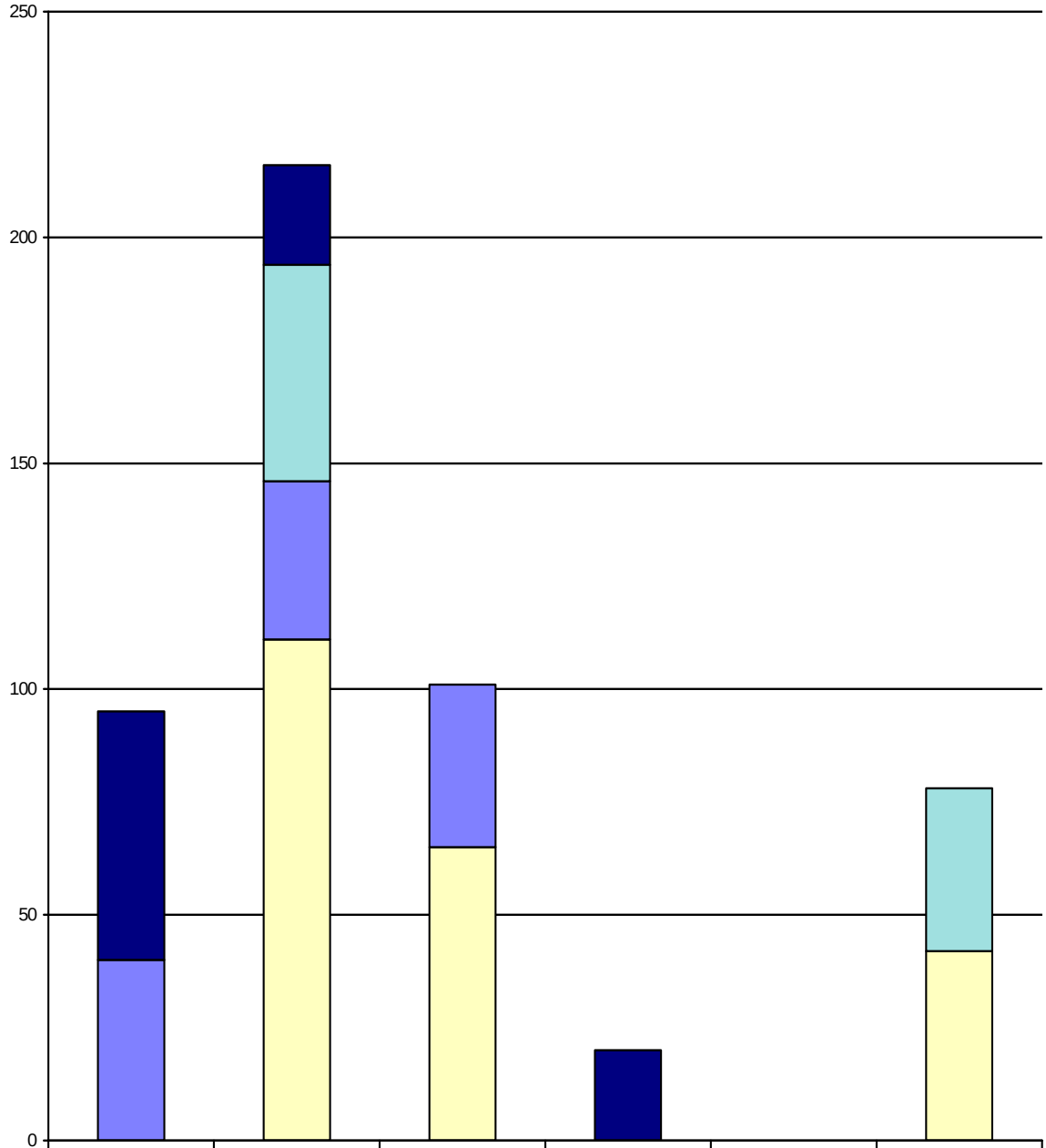
	Israel	Total Arab	Egypt	Jordan	Lebanon	Syria
Commando 2E ECM		4	4			
Beech 1900 MR		2	2			
Beech 1900 Elint		1	1			
C-130H Elint		2	2			
E-2C AEW		4	4			
King Air 2000 EW	10					
D0-28 EW	15					
IAI-1124 Seascan	3					
IAI-200 Elint	3					
RC-12D Elint	6					
B-707 Phalcon AEW	6					
B-707 EW/Elint	3					
MiG-21H/J/R		54	14			40
MiG-25R		6				6
Mirage 5SDR		6	6			
RF-4E	13					

Source: Adapted by Anthony H. Cordesman, from the IISS, The Military Balance and discussions with US and regional experts.

Figure 3.21

Operational Arab-Israeli Attack and Armed Helicopters in 2005

(Does not include ASW or anti-ship helicopters)



	Israel	Total Arab	Egypt	Jordan	Lebanon	Syria
Hughes 500D						
AH-1E/F	55	22		20		
Mi-25		48				36
AH-64A	40	35	36			
SA-342K/L		111	65			42

Source: Prepared by Anthony H. Cordesman, based upon the IISS, The Military Balance and discussions with US and regional experts.

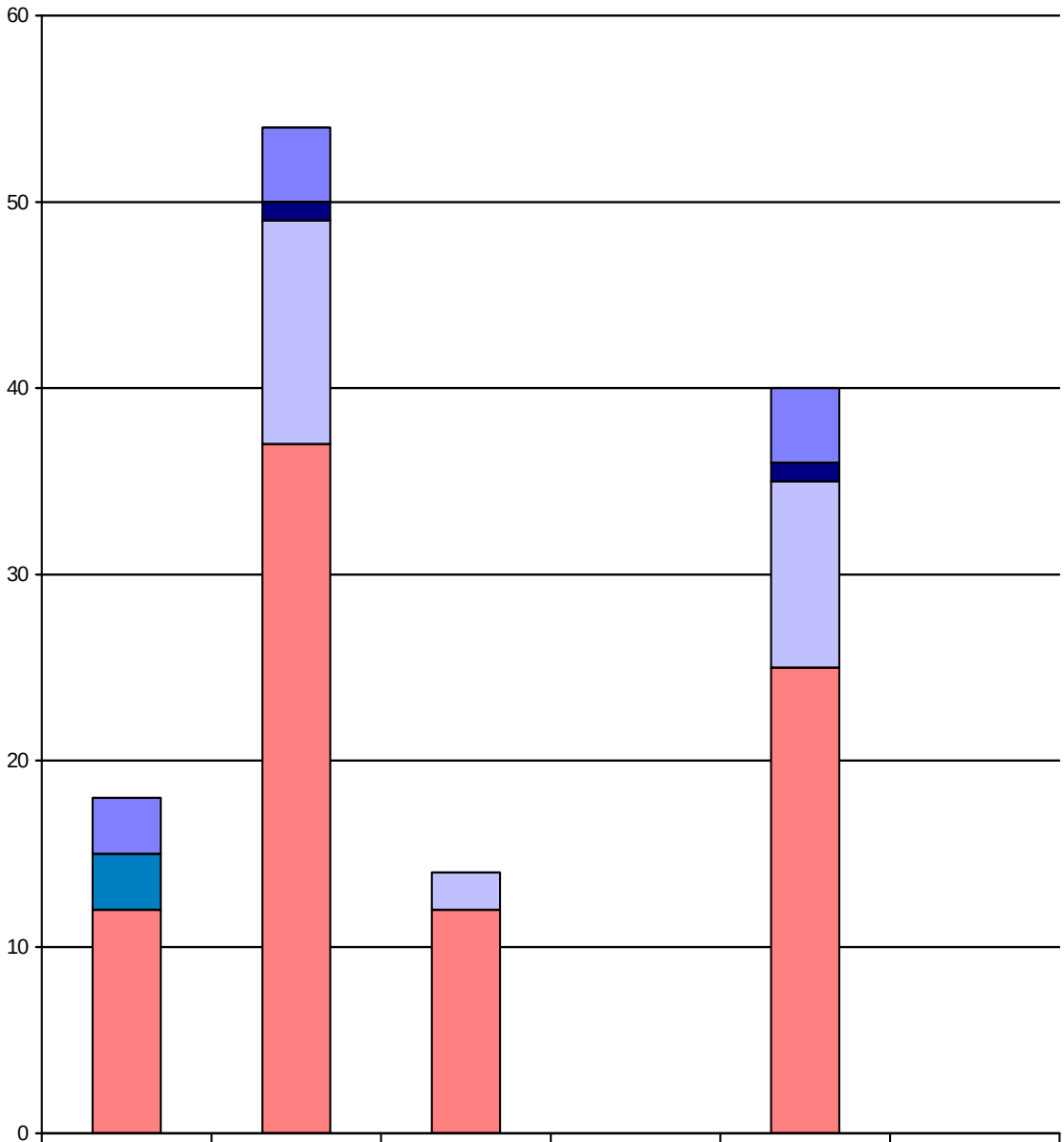
Figure 3.22

Arab-Israeli Land-Based Air Defense Systems in 2005

Country	Major SAM	Light SAM	AA Guns
Egypt	702+ launchers *282 SA-2* *212 SA-3A* *56 SA-6* *78 I Hawk*	2000 SA-7 Ayn as Saqr 20 SA-9 50 Avenger Stinger 26 M-54 Chaparral SP *24 Crotale* *72 Amoun Skyguard/ RIM-7F* *36 quad SAM Ayn as Saqr*	200 ZPU-2/4 14.5 mm 280 ZU-23-2 23mm 118 ZSU-23-4 SP 23mm 36 Sinai SP 23mm 200 M-1939 37mm some S-60 57mm 40 ZSU-57-2 SP 57mm *14/- Chaparral* *2000 20mm, 23mm, 37mm, 57mm, 85mm, 100mm* *36 twin radar guided 35mm guns* *Sinai-23 radar-guided 23mm guns*
Israel	*3 Patriot Bty.* *17 I Hawk Bty.* *2 Bty Arrow 2* *3 Bty PAC-2*	250 Stinger 1,000 Redeye *35 M-163 Vulcan/*	*850 20 mm: including 20mm, Vulcan, TCM-20, M-167* *Chaparral* *150 ZU-23 23mm* *60 ZSU-23-4 SP* *M-39 37mm* *150 L-70 40mm*
Jordan	*2 bde/14 Bbty/80 I Hawk* *3 PAC-2 bty*	50 SA-7B2 60 SA-8 92 SA-13 300 SA-14 240 SA-16 250 Redeye	395 guns 139 M-163 SP 20mm 40 ZSU-23-4 SP 216 M-42 SP 40mm
Lebanon	None	20 SA-7/B	20mm ZU-23 23mm 10 M-42A1 40mm
Syria	*25 Ad Brigades* *150 SAM Bty.* *560 SA-2/3* *220 SA-6* *48 SA-5*	35 SA-13 20 SA-9 4,000 SA-7 *160 SA-8* 20 SA-11 100 SA-14	2,050 Guns 650 ZU-23-2 400 ZSU-23-4 SP 300 M-1938 37mm 675 S-60 57mm 25 KS-19 100mm 10 ZSU-5-2 SP *Some 4,000 AD arty*

Note: Syria has S-300 SAMs on order from Russia. Figures in italics are systems operated by the Air Force or Air Defense commands.
Source: Adapted by Anthony H. Cordesman from the IISS, The Military Balance. Some data adjusted or estimated by the author.

Figure 3.23
Arab-Israeli Major Combat Ships by Category in 2005



	Israel	Total Arab	Syria	Jordan	Egypt	Lebanon
Submarines	3	4	0		4	
Destroyers		1			1	
Frigates		12	2		10	
Corvettes	3				0	
Missile Patrol	12	37	12		25	

Source: Adapted by Anthony H. Cordesman from the IISS, The Military Balance and Jane's Fighting Ships, various editions.

[i] Jane's Defense Weekly, "Israel, Turkey Sign Security Accord," January 21, 2004, http://jdw.janes.com, Accessed January 27, 2004 and Jane's Defense Weekly, "Russia Halts Plans to Sell Igla to Syria," November 6, 2002, http://jdw.janes.com, Accessed January 9, 2004.
[ii] Barbara Opall-Rome, "Tactical Successes, Strategic Failures," Defense News, December 22, 2003, p. 32.
[iii] Barbara Opall-Rome,"Israel Security Experts Seek Strategy," Defense News, December 22, 2003, p. 6.
[iv] Nina Gilbert, "Israeli Defense Forces: Significant Decline in 2004 Terror," Jerusalem Post, December 21, 2004, accessed on January 13, 2005.
[v] Barbara Opall-Rome, "Tactical Successes, Strategic Failures," Defense News, December 22, 2003, p. 34.
[vi] Barbara Opall-Rome and Riad Kawahji, "Rendering Assad Unviable," Defense News, October 20, 2003, p. 1.
[vii] Alon Ben-David, 'Extensive Cuts to Hit Israeli Ground Forces the Most," Jane's Defense Weekly, July 16, 2003, p. 16.
[viii] Barbara Opall-Rome, "Israel Security Experts Seek Strategy," Defense News, December 22, 2003, p. 6.
[ix] Alon Ben-David, "IDF Branches Sparring for Share of US Funding," Jane's Defence Weekly, January 28, 2004, http://jdw.janes.com, Accessed Januray 27, 2004.
[x] Jane's Defense Weekly, "Israel Decides Not to Develop Merkava Mk5," October 2, 2003, http://jdw.janes.com, Accessed January 8, 2004. Labeled as 2.
[xi] Barbara Opall-Rome, "Israel Eyes Merkava MBT Replacement," Defense News, November 10, 2003, p. 34.
[xii] Barbara Opall-Rome, "IMI Proposes Buy of Merkava Production Line," Defense News, January 12, 2004, p.6.
[xiii] Alon Ben-David, "Israel Adjusts Acquisition Plan," Jane's Defense Weekly, June 30, 2004, www4.janes.com, Accessed January 14, 2004.
[xiv] Jane's Sentinel Security Assessment, Eastern Mediterranean, Israel, Procurement, November 6, 2002, http://jdw.janes.com, Accessed January 28, 2003. Labeled 4.
[xv] Clifford Beal, Jane's Defense Weekly, "Israel's Spike Weapon Goes Network-Centric," October 1, 2003, http://jdw.janes.com, Accessed January 8, 2004. Labeled 7.
[xvi] Jane's Sentinel Security Assessment, Eastern Mediterranean, Israel, Procurement, November 6, 2002, http://jdw.janes.com, Accessed January 28, 2003. Labeled 5.
[xvii] Barbara Opall-Rome, Defense News, "LORA Missile Called No Threat," November 24, 2003, p. 6. Labeled 6. There is some concern that the LORA could be altered in such a way as to be in violation of arms control limits. The Israeli Missile Defense Organization vehemently denies this.
[xviii] Robin Hughes, Jane's Defence Weekly, "Israel Orders Surveillance Coverage," September 3, 2003, http://jdw.janes.com, Accessed January 8, 2004. Labeled 8.
[xix] Barbara Opall-Rome, "Israel Army Taps Elbit UAV for Over-the-Hill Missions," Defense News, February 4, 2004, http://www.defensenews.com, Accessed February 5, 2004.
[xx] Clifford Beal, Jane's Defence Weekly, "New Radio Units Primed for Israeli Forces," September 19, 2003, http://jdw.janes.com, Accessed January 8, 2004. Labeled Baetjer 9.
[xxi] Opall-Rome, Barbara, Defense News, "Israel Plans $550M JSTARS-Like Fllet," November 3, 2003, p. 14. Labeled 15.
[xxii] Opall-Rome, Barbara, Defense News, "Israel Plans $550M JSTARS-Like Fllet," November 3, 2003, p. 14. Labeled 16.
[xxiii] Barbara Opall-Rome, "From Foot Soldier to Network Node," Defense News, October 20, 2003, p. 30.
[xxiv] Hughes, Robin, Jane's Defence Weekly, "Israel Extols 'Solid Mirror'," October 3, 2003, http://jdw.janes.com, Accessed January 8, 2004. Labeled 17.
[xxv] Barbara Opall-Rome, Israel's Air Force Looks Beyond FLIRS to Multispectral Sensors," Defense News, January 19, 2004, http://www.defensenews.com, Accessed February 5, 2004.
[xxvi] Opall-Rome, Barbara, Defense News, "Israel Air Force to Buy More Apache Longbows," October 6, 2003, p. 44. labeled 11. One retired general insisted that the helicopter had mostly failed its missions in Iraq.
[xxvii] Jane's Defence Weekly, "Boeing Wins Israeli JDAM Contract," October 8, 2003, http://jdw.janes.com, Accessed January 8, 2004. Labeled 10.
[xxviii] Robin Hughes, Jane's Defence Weekly, "Israel Orders Gulfstream to Fulfill Early-Warning Need," September 10, 2003, http://jdw.janes.com, Accessed January 8, 2004. Labeled 12.
[xxix] The defecting pilot was on maneuver near the Golan, and suddenly turned towards Israel and flew very low and fast low over the Golan and the central Galilee. He landed in a remote civil strip near Megido. This led to a great deal of media comment in Israel, but such incidents are almost unavoidable. Although he flew for seven minutes without being intercepted, he flew at a time when IAF E-2Cs were not in the air and now nearby aircraft were

scrambled, when the IAF was in a state of low alert, and flew without using any radar or communications emissions. He also stated later that did receive warning he was being tracked by Israeli radar. Israel later used the MiG-23ML (G) for training and test and evaluation purposes. Washington Post, October 13, 1989, p. A-35, October 14, 1989, p. A-18; New York Times, October 12, 1989, p. A-10, October 14, 1989, p. A-2; Philadelphia Inquirer, October 12, 1989, p. 18A, October 13, 1989, p. 17A; Washington Times, October 12, 1989, p. A-8; Jane's Defense Weekly, February 10, 1990, p. 221.

[xxx] Dan Williams, "Eyeing Iran Reactors, Israel Seeks U.S. Bunker Bombs." Reuters, September 21, 2004.

[xxxi] The Arrow is a joint project between the U.S. and Israel. The Arrow had successfully intercepted target missiles during several tests. Concerns over Israel's ability to mass-produce Arrow parts have been alleviated by the construction of a parallel plant in the U.S. See Barbara Opall-Rome, Defense News, "Israel Boosts Arrow Arsenal As War Looms," November 25-December1, 2002, p.14 for additional information. Labeled 13.

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