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The Gulf Military Forces in an Era of Asymmetric War

United Arab Emirates

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Introduction

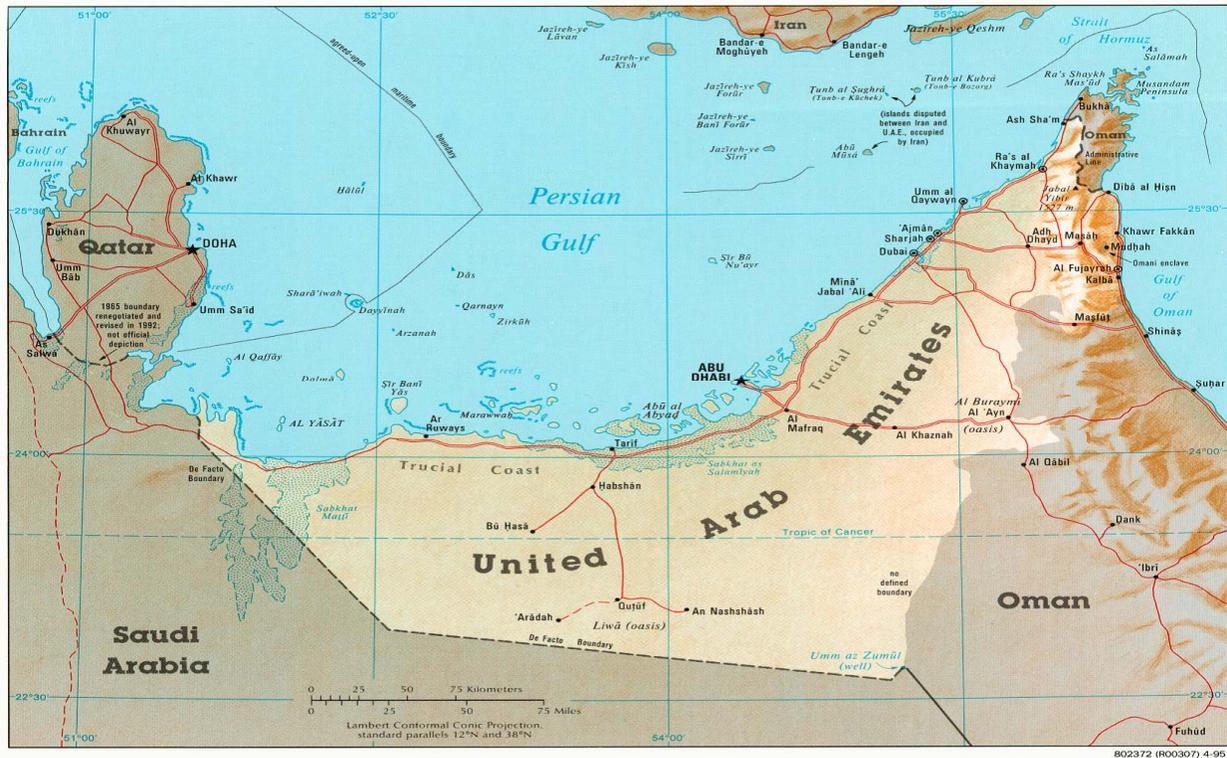
The United Arab Emirates (UAE) is composed of the seven emirates of Abu Dhabi, Dubai, Sharjah, Ajman, Umm Al-Qaiwain, Ras Al-Khaimah, and Fujairah.¹ Although the cohesion of the confederation has improved over time, there remain questions about its unity and stability. Its armed forces remain divided by emirate, and low-level rivalries still exist between the two main emirates: Abu Dhabi and Dubai.

The UAE also raises questions about nationhood. Like Qatar and Kuwait, the UAE has become a largely expatriate nation. It had an estimated population of around 4.5 million in 2006, but only 19% to 21% was Emirati and citizens. Some 74% of the 2.6 million labor force in the 15-64 age group was non-national. CIA estimates are dated, but still seem roughly accurate in indicating that another 23% of the population was Arab and Iranian 23%, 50% was South Asian, other expatriates were 8% (includes Westerners and East Asians). Some 96% of the population was Shi'a 16%), and Christian, Hindu, and "other" made up the remaining 4%.²

The UAE has become one of the most successful economies in the Middle East, and has developed from series of small coastal ports and oasis towns into major cities, ports, and trading facilities. Its wealth comes mainly from its oil and gas exports (30% of GDP) and trading position in the lower Gulf. In 2005, it had a GDP of \$74.67 billion and a per capita income of \$29,100.

The UAE is a medium sized country by Gulf standards with a total of 82,880 square kilometers. It occupies a strategic position in the southern Gulf, with borders with Saudi Arabia (457 kilometers) and Oman (410 kilometers). It has a 1,318 kilometer coastline on the Gulf of Oman as well as the Gulf. Its islands put it near Iran, and it has long standing disputes with Iran over the control of several islands in the Gulf that are near the main shipping channels.

Map 1: The United Arab Emirates



Source: CIA, "United Arab Emirates," 1995, available at http://www.lib.utexas.edu/maps/middle_east_and_asia/ united_arab_emirates_rel95.jpg

Like Bahrain, Qatar, and Oman, the UAE close military ties with US and Britain. It provided pre-positioning facilities for a US brigade before the Iraq War and assisted the US and Britain during the war, even though Sheikh Zayed and most of the UAE leaders personally opposed the conflict.

These links accord the UAE some de facto protection against hostile Iranian action or any invasion. But this does not mean that the UAE will receive military support in the event of a conflict with Iran over three islands whose control is disputed between the two countries. US relations with the UAE are also mixed in other areas. The CIA notes in its description of the UAE that, "the UAE is a drug transshipment point for traffickers given its proximity to Southwest Asian drug producing countries; the UAE's position as a major financial center makes it vulnerable to money laundering; anti-money-laundering controls improving, but informal banking remains unregulated."³

The GCC countries have usually supported the UAE against Iran, but this is no proof that they would offer military support in case there is war. The UAE also has a history of low-level tension between with Oman and Qatar, although tensions have largely faded.

The UAE has pursued its military development despite tension among its member emirates. The UAE has a small native population and has encountered political problems in its attempts to retain foreign manpower in its military. It claims to have 50,500 actives, about 30% of which are expatriates. In practice, its active manpower is significantly smaller. This is typical of the UAE's military behavior. It has some effective elements, and some well-trained officers, but only limited real-world military capabilities. Its large cash resources allow it to buy the shell of an

impressive military capability, but one it cannot maintain, sustain, or transform into an effective overall war fighting capability.

Command Structure of Armed Forces

The command structure in the UAE is complex because of its complex political structure. Power is divided by Emirate, and largely between the two wealthiest Emirates: Abu Dhabi and Dubai. The President is Khalifa bin Zayid al-Nahayyan (since 3 November 2004), who became the ruler of Abu Dhabi at the same time and succeeded his father. The Vice President and Prime Minister is Mohammed bin Rashid al-Maktum of Dubai (since January 5, 2006). The Deputy Prime Minister is Hamdan bin Zayid al-Nahayyan of Abu Dhabi (since October 20, 2003).⁴

The cabinet consists of a Council of Ministers appointed by the president, which mixes technocrats with various Emirati representatives of the ruling families. The real ruling body consists of a Federal Supreme Council (FSC) that consists of each of the rulers of the seven emirates. This body is the highest constitutional authority in the UAE; establishes general policies and sanctions federal legislation; and meets four times a year. The rulers of Abu Dhabi and Dubai have effective veto power.

In theory, the UAE has unified forces under a central command. In practice, the UAE is divided into three commands. The Northern and Western Command fall under the responsibility of the army commander; supported by the Abu Dhabi Air Force. The Central Military Command (Dubai) is commanded by the minister of defense and supported by the Dubai Air Force.

Operations during peacetime are fragmented, and there are still three separate military organizations in Abu Dhabi, Dubai, and Ras al-Khaimah. In case of war, coordination comes under the General Headquarters in Abu Dhabi, and the Dubai Army would be integrated with the Federal Armed Forces.⁵

Military Spending

The UAE's high national income has allowed it to become one of the largest defense spenders in the Arab world, and one of the world's largest spenders per man in uniform.⁶ The IISS estimates that the UAE's defense budget was \$9.23 billion in 2003, \$9.74 billion in 2004.⁷ And \$9.74 billion in 2005. This is a substantial amount for a country that the IISS estimates has a GDP of \$78.2 billion in 2003, and \$89.6 billion in 2004. It is a substantial amount for a country that spent under \$3 billion a year on military forces in the 1990s, and which the CIA estimates had a GDP that was still only \$101.6 billion in 2005, even when measured by the favorable official exchange rate, and whose national budget totaled \$34.93 billion in revenues and \$29.41 billion in expenditures; including capital expenditures of \$3.4 billion.⁸

The UAE has also been a major and ambitious arms importer in spite of the fact it possesses too little manpower to make full use of all its equipment. It has little ability to organize its forces into an effective and combat-ready structure or to project and sustain them at any distance. During the 1990s, the UAE took deliveries on some \$470 to \$1,600 million a year worth of arms, average over \$1 billion a year.⁹

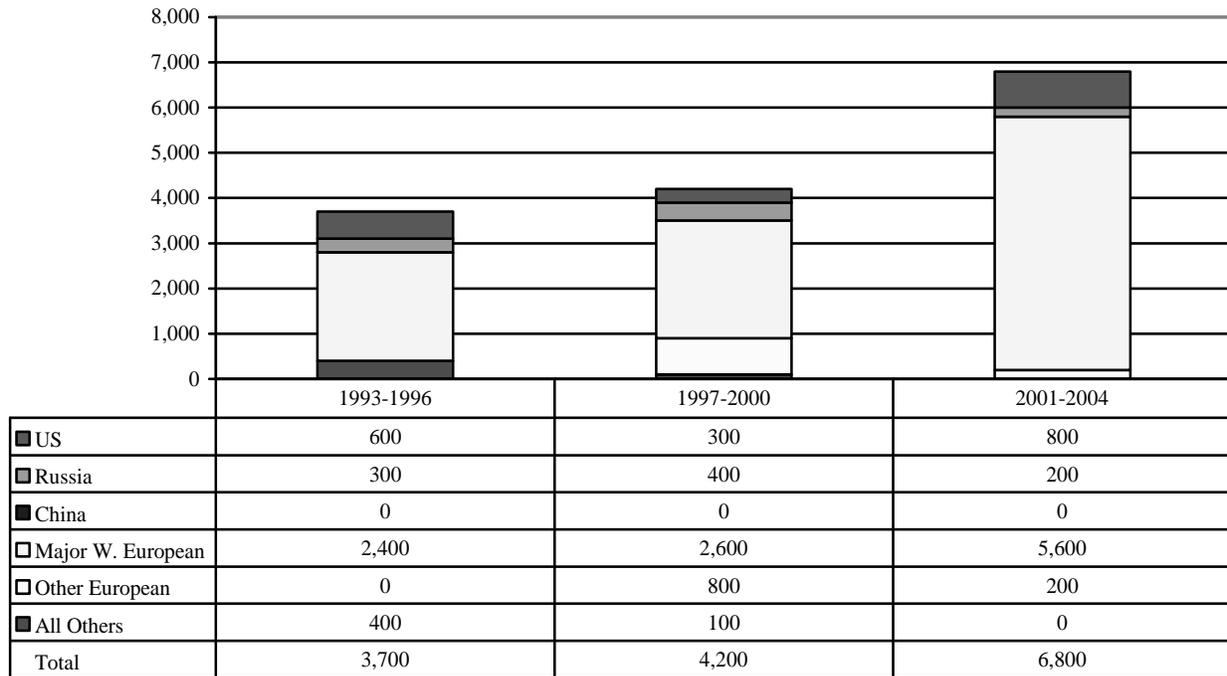
Figure 1 shows the trend in new arms deliveries by supplier from 1993 to 2004. In the 1993-1996 period, the sum of new arms deliveries was \$3.7 billion, in 1997-2000 it was \$4.2 billion and in 2001-2004 it was \$6.8 billion. New arms agreements are shown in **Figure 2**, and also

increased, though they peaked with the purchase of 80 F-16C/D Block 60s in 2000. This explains the drop in total new agreements between 2001 and 2004. The UAE's major suppliers have been from Western Europe though the F-16s boosted American sales to the country. Russia is also a supplier, albeit a smaller one compared to the West.

Recent purchases include 32 Fuchs 2 NBC 6x6 vehicles, 500 Nimr high mobility tactical vehicles (HMTVs), 390 Leclerc main battle tanks, nearly 150 other armored vehicles, two Corvettes, two Type 332 mine-hunters, 80 F-16C/D Block 60s with advanced air and air to surface munitions, 10 AH-64s and the upgrade of 30 to the Apache-Longbow, eight AB139 helicopters, plans for upgrading 12 CH47C Chinooks, and what may come to total over 90 Mirage 2000 fighters.

Figure 1: United Arab Emirates' Arms Deliveries by Supplier, 1993-2004

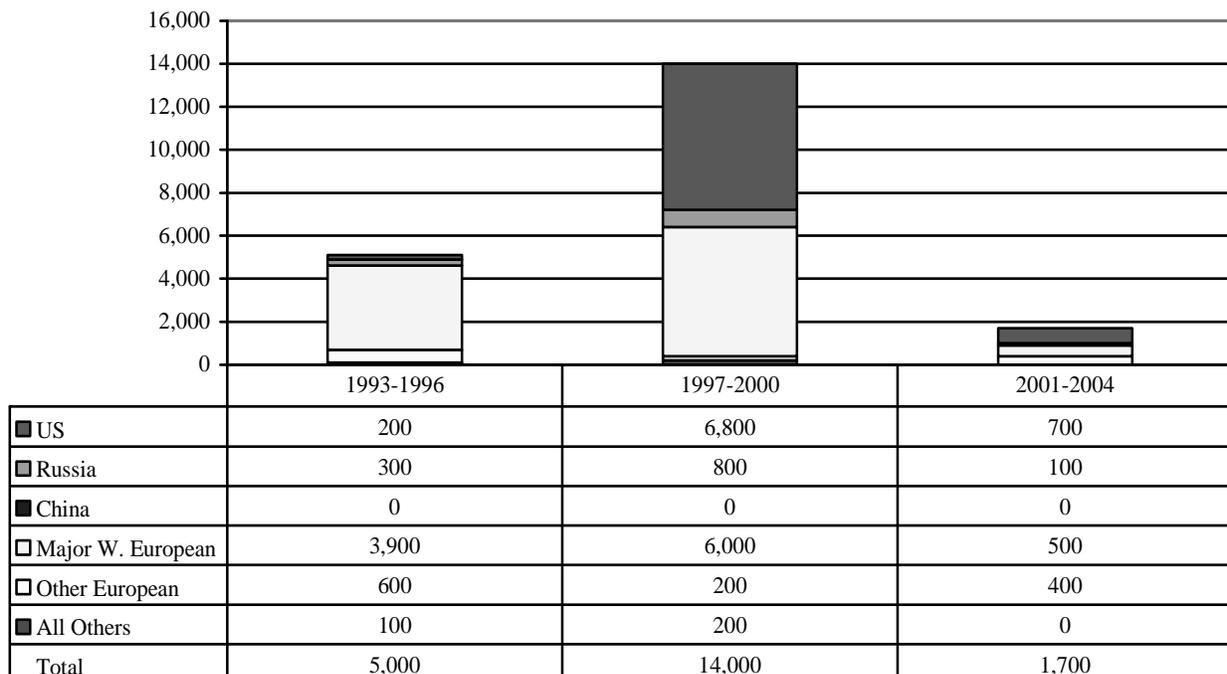
(In Current Million \$US)



Source: Richard F. Grimmett, *Conventional Arms Transfers To Developing Nations, 1997-2004*, CRS, August 29, 2005; and Richard F. Grimmett, *Conventional Arms Transfers To Developing Nations, 1993-2000*, CRS, August 16, 2001.

Figure 2: United Arab Emirates' New Arms Agreements by Supplier, 1993-2004

(In Current Million \$US)



Source: Richard F. Grimmett, *Conventional Arms Transfers To Developing Nations, 1997-2004*, CRS, August 29, 2005; and Richard F. Grimmett, *Conventional Arms Transfers To Developing Nations, 1993-2000*, CRS, August 16, 2001.

Note: US total for 1997-2000 includes a \$6.432 billion licensed commercial agreement with the United Arab Emirates in 2000 for 80 F-16 aircraft.

Military Manpower

The UAE has no draft and can only draw upon a limited manpower pool of citizens. The total manpower pool in Ages 18-49 was only 653,181 in 2005, including foreign nationals. The manpower fit for military service totaled 526,671. Even including foreigners, only 30,706 males reached the military service age of 18.¹⁰

The UAE has had higher manpower totals in the past, reporting peaks of 66,000 in the 1990s. Many were Omanis and other nationals, however, and the UAE cut the numbers of such personnel for political reasons.¹¹ It had a total reported military manpower pool of 50,500 in 2006, with 44,000 in the army, 2,500 in the Navy, and 4,000 in the air force. Dubai's portion of the army totaled 15,000. Similar data are not available for the other Emirates. Manning data were not available for security forces and other paramilitary units. Much of this manpower was foreign, and these numbers were probably "rounded upwards."¹²

The UAE Army

Figure 3 shows the trends in the manpower, force structure, and equipment of the UAE army. The army has an estimated strength of 44,000 personnel, which makes it large by Southern Gulf standards. This number includes 15,000 personnel in the Dubai independent forces, which are not fully integrated into the UAE force structure. *Jane's Sentinel Security Assessment* offers a different estimate, putting army forces at 59,000.

Force Structure

The "integrated army" is dominated by Abu Dhabi and includes a Royal Guard brigade, two armored brigades, three mechanized infantry brigades, two infantry brigades, and an artillery brigade. Two mechanized infantry brigades belong to the Dubai Independent force. The UAE army has eight known bases at Tarif Camp, Al-Ain Camp, Masafi Camp, Manama Camp, Madina Zayed, Fujairah Camp, Infantry Command School (Al-Ain), and Al-Maqam camp.

A number of the UAE's combat units and support units used to be badly under-developed, but acquisitions and equipment development since 2002 have made progress, and the UAE Army is creating a more balance force posture. Nevertheless, the UAE has only about 50-60% of the manpower it needs to fully man and sustain its forces in maneuver combat outside the range of their peacetime bases.

The Army's support problems are compounded by the fact the army has set out to avoid dependence on one source for military equipment, and tends to retain equipment after it has aged to the point where it should be withdrawn from service.

Armor

Figure 3 shows that the UAE's tank fleet increased from 207 in 1990 to 545 in 2006, largely as a result of the Leclerc acquisition from France. Its AIFV fleet increased almost tenfold, from 30 in 1990 to 430 in 2006. Its RECCE fleet has decreased, as more and more vehicles are put in storage or become non-operational. Its APC total went from 513 in 1990 to 860 in 2006; and

unlike the other increases which can be explained by a wave of arms purchase made in reaction to Iraq's invasion of Kuwait, major increases in APCs took place after 2000.

The UAE army's armored assets now include too many types of equipment, and a number of obsolescent systems. In 2006, it had 545 main battle tanks (MBTs), which included 388 Leclerc (Jane's reports a total of 436 due to the inclusion of 46 ARVs and two training Leclerc), 36 OF-40 Mk2 Lion, 45 aging and worn AMX-30s (the *Jane's* number is 95), and 76 Scorpion light tanks. The UAE would like to acquire 120 heavy equipment transporters (HETs) to boost the mobility of the LeClerc.¹³

In May 2004, the Army received the last of 388 tropicalized Leclerc main battle tanks (MBTs) ordered in 1993 from France's Giat Industries. In addition, the Army ordered 46 Armored Recovery Vehicles (ARVs) in a \$35 billion contract with the US and can now equip two armored brigades.

The army's armored infantry fighting vehicle (AIFV) fleet included 15 AMX-10P and 415 BMP-3, though Jane's estimates that number at 330. The reconnaissance fleet included 49 AML-90s (Jane's writes 90), 20 Saladin (in storage), 20 Ferret (in storage), and 24 VBL armored reconnaissance vehicles.

The figures for the UAE's holdings of armored personnel carriers (APCs) are uncertain. They seem to include 136 AAPC, 64 Tpz-1 Fuchs, 80 VCRs; it also has 120 EE-11 Urutu (*Jane's* estimate at 100), 370 M-3 Panhard (*Jane's* estimate is 240), and 90 BTR 3U Guardian (which *Jane's* reports are deployed with the UAE Marines). *Jane's* also reports that the UAE has 20 VAB, a number unreported by the IISS *Military Balance*.

A total of 24 of the French Panhard Vehicle Blinde Leger (VBL) 4x4 scout cars were delivered in 2004. Ninety Guardian 8x8 amphibious armoured personnel carriers (APCs) based on the Russian BTR-80 (powered in the water by a single waterjet) were delivered and equipped the UAE marines. Although these APCs are produced in the Ukraine, they are detailed by ADCOM Military Industries (AMI) based in Abu Dhabi. Within Abu Dhabi, these carriers are fitted with a 30mm cannon and 7.62mm coaxial machine gun and anti-tank missiles.¹⁴

The Russians will upgrade part of the UAE fleet of 415 BMP-3 infantry combat vehicles (IFVs). Some of the BMPs have already had upgrades and modifications from Russia, including a new Russian explosive reactive armor panels capable of defeating 100mm HEAT rounds on the front and sides along with improved ballistic protection. France's Giat Industries FINDERS – Fast Information, Navigation Decision and Reporting System has also been installed on MBP-3 IFVs.¹⁵

Armored training is limited and focuses on the small unit level. Serious tank firing training, armored maneuver training, and repair/recovery/sustainment training was limited. The UAE does, however, continue to seek improved capabilities.

Anti-Armor

The UAE's anti-tank missiles include 50 MSL HOT (20 self-propelled), 230 Milan, 25 MSL TOW, some MSL Vigilant, 12 RCL 106mm M-40, and 250 RCL 84mm Carl Gustav. Realistic live firing training is very limited.

The UAE is seeking to replace the Euromissile MILAN ATGW system and the 84mm Carl Gustaf recoilless rifle systems.¹⁶ It is developing a possible acquisitions deal with Raytheon/Lockheed Martin to acquire 1,000 Javelin 127mm medium-range anti-tank missiles and 100 command launch units complete with support systems. The Javelins could replace the Euromissile Milan anti-tank guided weapon (ATGW) that has a range of 2,000m. The contract is estimated at around \$135 million.¹⁷

Artillery

The artillery force also increased, partly in reaction to Iraq's invasion of Kuwait. Total holdings of major artillery steadily increased after 1990, although they have remained stable since 2000.

In 2006, the artillery strength of the UAE army consisted of 73 towed 105mm ROF It (Jane's estimate is 62), and 20 Towed 130 mm 59-1s. The strength of its self-propelled weapons included 78 SP 155mm G-6 (Jane's estimate at 72), 85 SP M-109 A3 (which the Jane's reports as M109 L47), and 18 SP Mk F3.

Its inventory of multiple rocket launchers included 48 122mm Firs-25 (24 inoperative), 6 300mm 9A52 Smerch, and 18 70mm LAU-97. The Smerch is one of the few long-range artillery rockets deployed in Southern Gulf forces. It is mounted on a Russian truck body with 12-tube launcher. According to Global Security, it can be used in either single or salvo firing, is deployed with six launchers and six transloaders. The transloader is another wheeled truck and carries 12 rockets, and reloads the launcher use a hydraulic crane. The weapon is a 300 mm 9M55K solid propellant rocket with a range of 20-70 kilometers. It either has a separable unitary warhead, a warhead containing 72 HE-FRAG (High Explosive Fragmentation) submunitions or a warhead containing five Bazalt MOTIV-3F anti-armor "smart" submunitions.¹⁸

Its holdings of mortars included 20 81mm Brandt, 114 81mm L16, and 21 120mm Brandt.

Finally, the UAE had 6 R-300 9K72 Elbrus/SS-1C/Scud B with capability of up to 20 missiles. These are aging systems with conventional warheads. They have a maximum range of 300 kilometers, and a payload of 770-950 kilograms.¹⁹ They have a nominal CEP of 900 meters, but operational accuracy is closer to 3 kilometers at best. This makes it too inaccurate to use against any target smaller than cities or the largest area targets like airfields and too lacking in lethality to have more than minor tactical effect in a city block-sized area even if it is equipped with an improved submunition warhead. (The normal warhead is unitary.) As such they are at best a "terror" weapon that may well do more to provoke than act as a deterrent or "terror" system.

These are large holdings for a small force, many are modern and relatively effective, and the UAE has to have at least adequate holdings of artillery support equipment. In November 2004, for example, it was reported that Germany and the UAE were in talks regarding the Emirates' acquisition of Germany's Cobra wheeled counterbattery active-array radar system. There are, however, too many types of weapons, exercise training is too static, and command and control and maneuver capabilities are uncertain.

Air Defense Holdings

The air defense holdings were composed of 20+ SAM Blowpipe, 20 SAM Mistral, 42 GUN/SP 20mm M3 VDAA, and 20 GUN/TOWED GCF BM2. According to Jane's, the army also has 10

Igla-1 (SA-16 ‘Gimlet’) and 3 Crotale units (with 9 launcher units.) These assets are aging and overall training and readiness is limited to moderate.

Modernization is underway. In November 2004 the army received the first batch of its \$734 million deal with Russia for Russian KBP Instrument design Bureau Pantsir-S1 self-propelled (SP) air-defense (AD) systems (NATO designation SA-19). The UAE is the first customer of the Pantsir-S1 that is replacing the ZSU-23-4 and is an advancement of the KBP 2S6M Tungkusa AD system.²⁰

As in some other deals that the UAE has been involved over the past few years, the UAE funded the development of the Pantsir-S1 project and had it tailored to its needs. The Pantsir-S1 has been designed so that it has an all-weather system that is capable of tracking and engaging aircraft, helicopters and UAVs, as well as a system of surveillance radars and an advanced electro-optical sensor pod with a total of eight missiles (four on either side) in the ready-to-launch position and two twin 30mm 2A38M rapid-fire cannon. A typical Pantsir battery has six fire units supported by two transporters based on 8x8 chassis and fitted cranes. The Pantsir order comprises of 24 units based on fully tracked armored chassis and 26 on 8x8 cross-country wheeled chassis for added mobility.²¹

Other Recent Developments and Acquisitions

In 2005, the UAE army placed several weapons orders:

- In February, the UAE placed an order for 500 Nimr 4x4 high mobility tactical vehicles, which would come in a mix of several variants: soft skinned, two door, four door, single cab and double cabin options.²²
- In November, the UAE signed a Euro160 million contract to purchase 32 Fuchs 2 NBC vehicles 6x6 from Germany’s Rheinmetall.²³
- In November, the UAE placed an order with BAE Systems Land Systems OMC (South Africa) for an undisclosed number of RG-31 4x4 mine-protected armoured personnel carriers, to be delivered in the first half of 2006.²⁴
- The UAE is also considering converting 18 Leclerc armored recovery vehicles into specialized armored engineering vehicles (AEVs); the upgrade would focus mainly on mine breaching capabilities.²⁵

Finally, the UAE Army is interested in acquiring simulators along with training, logistical, and spare parts support. The request will be under the United States’ government Foreign Military Sales program.

Overall Assessment

The UAE is steadily improving its equipment holdings and slowing improving training at the individual soldier and small unit level. It is, however, a divided force with too many types of diverse equipment best suited to garrison operations and static defense. Its readiness, manpower, sustainability, and maneuver capabilities cannot keep up with its arms purchases.

Figure 3: United Arab Emirates Army Force Structure, 1990-2006

	1990	2000	2005	2006
Manpower	40,000	59,000	44,000	44,000
<i>Active</i>	34,000	44,000	29,000	29,000
<i>Dubai Forces</i>	6,000	15,000	15,000	15,000
<i>Reserve</i>	0	0	0	0
Combat Units				
<i>Armored Brigade</i>	1	2	2	2
<i>Mechanized Infantry Brigade</i>	1	3	3	3
<i>Infantry Brigade</i>	2	2	2	2
<i>Artillery Brigade</i>	1	1	1	1
<i>Royal Guard Brigade</i>	1	1	1	1
<i>Dubai Mechanized Infantry</i>	1	2	2	2
Main Battle Tanks (MBTs)	207	407	545	545
<i>Leclerc</i>	0	250	388	388
<i>OF-40 Mk2 (Lion)</i>	36	36	36	36
<i>AMX-30</i>	95	45	45	45
<i>Scorpion</i>	76	76	76	76
Armored Infantry Fighting Vehicles (AIFV)	30	433	430	430
<i>AMX-10P</i>	30	18	15	15
<i>BMP-3</i>	0	415	415	415
Reconnaissance (RECCE)	220	69	113	113
<i>AML-90</i>	90	49	49	49
<i>Ferret</i>	60	0	(20)	(20)
<i>Saladin</i>	70	(20)	(20)	(20)
<i>VBL</i>	0	0	(24)	(24)
Armored Personal Carriers (APC)	513	620	860	860
<i>AMX-VCI</i>	30	0	0	0
<i>VAB</i>	20	0	0	0
<i>Saracen</i>	(12)	0	0	0
<i>AAPC</i>	0	50	136	136
<i>BTR 3u Guardian</i>	0	0	90	90
<i>EE-11 Urutu</i>	66	120	120	120
<i>M-3 Panhard</i>	300	370	370	370
<i>TPz-1 Fuchs</i>	0	0	64	64

VCR	85	80	80	80
Artillery	256	470	501+	501+
<i>M-56 Pack</i>	18	0	0	0
<i>TOWED 105mm ROF It</i>	59	73	73	73
<i>TOWED 130mm 59-I</i>	0	20	20	20
<i>SP 155mm G-6</i>	0	72	78	78
<i>SP M-109 A3</i>	0	87	85	85
<i>SP Mk F3</i>	20	18	18	18
<i>MRL 122mm Firos-25</i>	40	48	48+	48+
<i>MRL 300mm 9A52 Smerch</i>	0	0	6	6
<i>MRL 70mm 18 LAU-97</i>	18	18	18	18
<i>MOR 81mm Brandt</i>	0	0	20	20
<i>MOR 81mm L16</i>	80	114	114	114
<i>MOR 120mm Brandt</i>	21	20	21	21
Anti-Tank Weapons	70+	567+	567+	567+
<i>MSL HOT</i>	?	30	30	30
<i>MSL HOT SP</i>	?	20	20	20
<i>MSL Milan</i>	45	230	230	230
<i>MSL TOW</i>	25	25	25	25
<i>MSL Vigilant</i>	?	?	(?)	(?)
<i>RCL 106mm M-40</i>	0	12	12	12
<i>RCL 84mm Carl Gustav</i>	?	250	250	250
Air Defense Missiles/Guns	60+	82+	102	102
<i>SAM Blowpipe</i>	0	20	20	20
<i>SAM Mistral</i>	0	?	20	20
<i>GUN/SP 20mm M3 VDAA</i>	48	42	42	42
<i>GUN/TOWED GCF-BM2</i>	12	20	20	20
Tactical MSL/SSM	0	6	6	6
<i>SCUD-B</i>	0	6	6	6

Note: Numbers in parentheses imply storage. All question marks refer to weapons that the UAE is believed to possess, though the exact numbers in their possession are unknown.

Source: IISS, *Military Balance*, various editions including 1989-1990, 1999-2000, 2004-2005, 2005-2006.

The UAE Air Force

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The air force has an estimated strength of 4,000 men, including the police air wing. The facilities used by the air force are the Al-Dhafra Air Base (military), Bateen Air Base (military-civil joint use), Al-Ain International (military-civil joint use) in Abu Dhabi; Dubai international airport (civil airport) and Mindhat (military) in Dubai; and Sharjah International (military-civil joint use) in Sharjah.²⁶

Fixed Wing Air Strength

The UAE Air Force has 146 combat capable aircraft, though the details of its force structure are somewhat opaque. **Figure 4** shows the *IISS Military Balance* numbers which report there is one fighter squadron with 20 M-2000 EAD (M-2000E) Mirage planes; three fighter ground attack squadrons, the first of which has 57 F-16E/F Desert Falcon Block 60m, 18 M-2000 DAD (M-2000ED) Mirage, and 44 M-2000 RAD Mirage; the second has 17 Hawk MK63A/ Hawk MK63C/ Hawk MK63 trainers; and the third has 13 Hawk MK102s. There is also a reconnaissance squadron with seven Mirage 2000 RADs.

According to *Jane's Sentinel Security Assessment*, the UAE Air Force has received 7 of 55 F-16E Desert Falcon and 3 of 25 F-16F Desert Falcon (report was published in October 2005); the report also estimated that the UAE has 46 Dassault Mirage 2000-9, without details about their specifications, though *Jane's* suggests that a contract for upgrading existing aircraft and for procuring new ones would bring the UAE close to the target of 63 Mirage 2000-9 in service by the end of 2005. *Jane's* also estimated the reconnaissance-capable Mirage fleet at eight and put the number of Hawks (63A/B/C) at 20 with 19 of those in service.

There is a light training attack squadron and a mixed combat unit with 5 Hawk Mk 61 trainers. Other training aircraft include 12 Grob 115TA, 30 PC-7 Turbo Trainers, as well as Hawk Mk63 which operate in other squadrons as well. A transport squadron has 23 fixed wing aircraft, including 1 An-24 Condor, 2 Beech 350 Super King Air, 7 CN-235Ms, 1 DHC-6-300 Twin Otter, 4 C-130Hs, 2 C-130H-30 Hercules, 2 L-100-30s, and 4 leased IL-76s.

Helicopters

The UAE helicopter fleet consists 30 AH-64A Apache, which the UAE is trying to upgrade to AH-64D,²⁷ some AS-550C3 Fennec, 10 SA-342K assault helicopters with HOT, and 12 CH-47 Chinook helicopters bought from Libya in 2003. Its utility helicopters consist of three A-109K2, eight AB-139 (of which two are used for VIP transport), four AS-365F Dauphin 2 (VIP), nine training Bell 206 JetRanger, three Bell-214, one Bell-407, and nine Bell 412 Twin Hueys. The UAE's firepower includes AGM-114 Hellfire missiles, AS-15 Kent, Hydra-70, PGM-1 Hakeem 1, and PGM-2 Hakeem 2; there are also some AIM-9L Sidewinder, and some R-550 Magic. There are no precise figures for these weapons.

Jane's Sentinel Security Assessment breaks down the forces according to Emirates; Abu Dhabi has 12 SA-342L ASLT helicopters, ten of which are in service, two AS 532SC Cougar for anti-submarine warfare, seven AS565SB Panther for anti-ship warfare, four AS 532 UC Cougar utility helicopters, five BO105 CBS utility helicopters, two AS 332L Super Pumas and 14 AS 350B Ecureuil trainers.

Dubai's communications helicopters include one AS365N1 Dauphin 2, one EC155B, five Bell 206B JetRanger, two Bell 206L-1 LongRanger, and one Bell 407. Its utility helicopters include six AB205A-1, two B-212, four B-214B, six AB412, three BO 105 CBS, and three A109 light

utility helicopters. Sharjah has two AB and three BK117 B1 communications helicopters. Umm Al-Qaiwain has three B-222 communications helicopters. Ras Al-Khaimah is reported to possess Mi-2 and W-3 Sokol helicopters for police functions, though precise numbers are unknown.

Uncertain Strength and Capabilities

The following trends and discrepancies from **Figure 4** are worth mentioning:

- The Mirage numbers are not easily comparable because so many planes have undergone renovations and upgrades and hence they do not appear in the same type of aircraft across the years.
- The overall trend for the helicopter fleet has been upward, though with the exception of the Apache helicopters, most acquisitions have been for support and utility functions. The latest drop from 2005 to 2006 underlines the obscurity of the data on the Helicopter fleet.
- Five AS-332F helicopters in anti-ship role (with Exocet AM-39 missiles) appear in the 2005 version of the *IISS Military Balance* but not in the 2006 version. *Jane's* does not report on these either.
- There are seven ASLT SA-316 helicopters that appeared in the 2005 *IISS Military Balance* but not in the 2006 version. *Jane's* does not report on these helicopters.
- The number of Bo-105 utility helicopters varies; the 2005 *IISS Military Balance* reported 3 Bo-105s, while the 2006 version reports none. *Jane's* reports that Abu Dhabi has six (five in service) and Dubai has three, probably as part of the Police Air Wing.
- The number of SA-330 utility helicopters dropped because *Jane's* estimates that only five of the ten are in service.
- The *IISS Military Balance* estimates the number of AB-139 utility helicopters at eight, two of which are for VIP transport. This number does not appear either in the 2005 version or in the *Jane's* reports.
- One AS350 utility helicopter is not reported in the 2006 *IISS Military Balance*, though it was in the 2005 version. According to *Jane's*, Abu Dhabi has 14 AS 350B Ecureuil trainers.
- Four AS-365F Dauphin 2 helicopters are reported in the 2006 *IISS Military Balance*, though not in the 2005 version. *Jane's* reports that Dubai has one AS 365N1 Dauphin 2 utility helicopter.
- Eight Bell205 helicopters are reported in the 2005 *IISS Military Balance*, but none in the 2006 version. *Jane's* reports that Dubai as six AB205A-1.
- Five Bell206L helicopters in 2005 *IISS Military Balance* are not reported in the 2006 version, while *Jane's* estimates that Dubai has two Bell206L-1 Long Rangers.

Recent Developments and Acquisitions

As of 2006, the UAE's most recent major orders were reported to be an additional 33 Mirage 2000-9 and 80 F-16 Block 60s. The first F-16s and Mirages were to be delivered by mid-2005 with final deliveries expected in 2007 (the *IISS Military Balance* estimates that the UAE has received 57 of the 80). The UAE may immediately experience problems with the F-16s as the supplying company has demanded a new contract before any upgrades will be made available.²⁸

To compliment this influx of new aircraft, the air force is looking to purchase approximately 12 jet aircraft trainers to replace its older Hawk trainers. The UAE's 30 Pilatus PC-7 turboprop trainers are also earmarked for retirement, with the Swiss PC-21 the likely successor.²⁹ The UAEAF believed that its Hawk trainers are old and wanted to purchase a training aircraft that would prepare its pilots for more complicated aircrafts such as the F-16 Block 60 jets.³⁰

The \$6.4-\$6.8 billion acquisition of F-16E/F Block 60s enhance the UAE's weapons systems and specifically the Air Force's over-the-horizon capabilities, provide interoperability with US forces in the region and are likely to stay in operation beyond 2030. The F-16s will be outfitted with two Raytheon air-to-surface weapons systems; one system is the medium-range AGM-65 Maverick infrared guided missile and the second system is the AGM-84 Harpoon anti-ship missile (HARM). Once these aircraft have been fitted with conformal fuel tanks that carry an additional 2,271 liters they will be able to fly long-range sorties. Sorties can be lengthened even more with additional drop tanks on the wings that can hold another 4,450 liters.³¹

The F-16s will also be outfitted with Northrop Grumman APG-80 Agile Beam fire control radar and forward-looking infrared targeting system, with Agile Beam being less detectable and more accurate than what the F-16s are currently fitted with. These F-16s also carry devices that can jam enemy radar systems and electronic systems. These aircraft are more advanced than the aircraft that the US and Europe air forces currently have, this is partially due to the fact that the UAE assisted the US in development costs, amounting to around \$2 billion UAE money spent solely on development.³²

The air force wanted to acquire up to three E-2C Hawkeye 2000s for electronic warfare and warning purposes.³³ However, the UAEAF has canceled the E-2C Hawkeye deal because the US Navy refused to allow them to acquire an advanced radio system within the aircraft.³⁴ The UAEAF is in the process of opening the bidding for an early warning system. Furthermore, the UAE is also looking for a tanker aircraft, and it was reported that the list was narrowed to the Boeing 767 tanker transport and Airbus A330 Multi Roler tanker Transport. Both Airbus and Boeing are scheduled to submit their proposals in mid-2005.³⁵

In June 2005, the UAE disclosed that it had awarded a contract to AgustaWestland and Piaggio Aero Industries to upgrade 12 CH-47C to CH-47C+, similar to those in service by the Italian army. These helicopters, which will be used by the Special Forces, are in dire need of overhaul and will not be operational for some time.³⁶

In addition, the UAE signed a \$10.2 million contract with South Africa's Avitronics for a Helicopter Self-Protection System, "similar to that which the UAE has for its SA-330 fleet."³⁷ The UAE placed an order, in February 2005, for eight AB139 helicopters; six of them will be geared to search-and-rescue operations while the other two will be configured for VIP transport.³⁸ The UAE is also looking, though has yet to commit, for unmanned air vehicles.³⁹

Summary Assessment

According to *Jane's International Defense Review* the UAE is "one of the best-equipped air forces in the Middle East" partly due to its acquisition over the past decade of an estimated 140 advanced strike aircraft. This is an impressive total and a focus on air power is the UAE's best option in deterring Iran or its neighbors, defending its territory.

Pilot training is still a work in progress, but individual aircrew and "squadron leader" capabilities are often good, and training programs set a high standard. As is the case with all UAE training, and promotion, however, nepotism, favoritism, and a failure to enforce training standards and requirements for personnel with good family contacts is an occasional problem.

The most serious problem with the UAE air force, however, is typical of most Southern Gulf air forces. It has a "knights of the air" character, rather than acts as a modern, netted, and cohesive

force. It lacks airborne air control and warning and battle management assets. There is limited training for jointness, or force-wide air-to-air and air-to-ground combat. Real-world systems capability for managing integrated air and land-based air defense are very limited. The same is true of air-navy joint operations. Emphasis is placed on the pilot, aircraft, and its weapons and not on sustainability and maintaining high sortie rates, and many key maintenance tasks are left to contract personnel.

These problems are compounded by the problems in Southern Gulf air defense integration. The UAE lacks strategic depth and “mass.” It should be part of a fully integrated GCC air defense system. In practice, the GCC has invested in what is little more than an expensive façade and internal rivalries preclude the development of well-trained and integrated forces. This makes the UAE Air Force heavily dependent on the US for any large-scale operation against Iran.

The UAE does, however, continue to make progress, has some excellent planners, and improvements are expected in pilot training, transport aircraft and attack helicopters. The acquisition of in-flight refueling aircraft and three aerial tankers would also improve UAE’s air force standing, as would the acquisition of AC&W/battle management aircraft.⁴⁰

The recently built Air Warfare Center at the Al-Dhafra Airbase could have a major impact in improving operations. Built by France, the US, and Britain, the facility could become the center of coalition operations for the Gulf countries, Egypt and Britain. However, such missions would be limited in scope as the three countries that helped build the center would have to take part.⁴¹

Figure 4: United Arab Emirates Air Force's Force Structure, 1990-2006

	1990	2000	2005	2006
Manpower (includes Police Wing)	2,500	4,000	4,000	4,000
<i>Active</i>	2,500	4,000	4,000	4,000
<i>Reserve</i>	0	0	0	0
Fighter Interceptor	1/27	1/22	1/22	1/20
<i>M-2000EAD Mirage</i>	27	1/22	1/22	1/20
Fighter Ground Attack	12	2/26	2/31	3/149
<i>F-16E Falcon Block 60</i>	0	0	0	57
<i>M-2000E Mirage</i>	0	1/9	1/9	0
<i>M-2000-9 Mirage</i>	0	0	5	0
<i>M-2000DAD Mirage (M-2000 DE)</i>	12	0	0	18
<i>M-2000 RAD Mirage</i>	0	0	0	44
<i>Hawk MK102</i>	0	1/17	1/17	1/13
<i>Hawk MK 63</i>	1/15	1/17	1/17	1/17
Combat Capable Trainer	11	11	0	0
<i>MB 326 KD</i>	2	2	0	0
<i>MB 326 LD</i>	4	4	0	0
<i>MB-339A</i>	5	5	0	0
RECCE	1/11	1/8	1/8	1/7
<i>M-2000RAD Mirage</i>	1/11	1/8	1/8	1/7
Transport	8	24	19	23
<i>G-222</i>	1	0	0	0
<i>BN-2</i>	1	1	1	0
<i>An-124 Candor</i>	0	0	0	1
<i>Beech 350 Super King Air</i>	0	2	2	2
<i>C-130H</i>	4	4	4	4
<i>C-130H-30 Hercules</i>	0	0	0	2
<i>C-212</i>	0	4	0	0
<i>CASA-235M-100/CN –235M</i>	0	7	7	7
<i>DHC-6-300</i>	0	0	0	1
<i>Il-76 Candid</i>	0	4*	4*	4*
<i>L-100-30</i>	2	2	1	2
Training Aircraft	21	64	59	64
<i>GROB 115TA</i>	0	12	12	12

<i>SF-260</i>	6	5	0	0
<i>Hawk MK 61</i>	0	0	5	5
<i>PC-7 Turbo Trainer</i>	24	30	30	30
Helicopters	56	83	123+	104+
<i>ATK AH-64A Apache</i>	0	20	30	30
<i>AS-550C3</i>	0	0	0	?
<i>ATK AS-332 F ASW</i>	?	?	5	?
<i>ASLT SA-316</i>	7	7	7	0
<i>ASLT SA-342K Gazelle with HOT</i>	10	10	10	10
<i>IAR-330 SOCAT Puma ASLT</i>	0	0	10	10
<i>SPT CH-47C Chinook</i>	0	0	12	12
<i>Bo-105</i>	0	3	3	8
<i>UTL SA-330</i>	11	10	10	5
<i>UTL A-109K2</i>	0	3	3	3
<i>UTL AB-139</i>	0	0	0	8
<i>UTL AS 332(VIP)</i>	8	2	2	2
<i>UTL AS 350</i>	8	1	1	0
<i>UTL AS-365F Dauphin 2 (VIP)</i>	0	0	0	4
<i>UTL Bell 205</i>	2	8	8	0
<i>UTL Bell 206L</i>	5	5	5	0
<i>UTL Bell 206 Jet Ranger</i>	1	9	9	9
<i>UTL Bell 214</i>	4	4	4	3
<i>UTL Bell 407</i>	0	1	1	1
<i>UTL Bell 412 Twin Huey</i>	0	0	3	9

Note: All question marks refer to weapons that the UAE is believed to possess, though the exact numbers in their possession are unknown. * Refers to weapons that are on lease.

Source: IISS, *Military Balance*, various editions including 1989-1990, 1999-2000, 2004-2005, 2005-2006.

UAE Land-Based Air Defense

The manpower of the UAE Air Defense is spread between the army and navy. **Figure 6** shows the overall trends in these forces, though information on the precise numbers of each weapons system is sometimes sparse to non-existent. There are two air defense brigades with three battalions each. Three battalions have I-HAWK MIM-23B, and three battalions are equipped with Crotale, Mistral, Rapier, RB-70, Javelin and SA-18 Grouse (Igla). Precise numbers are unavailable, though *Jane's Sentinel Security Assessment* estimates that the Hawk systems are low- to medium-altitude SAM, with 30 launchers in five batteries.

The Pantsir-S1E

The UAE is in the process of acquiring a newly developed Pantsir-S1E self-propelled hybrid air-defense gun-missile system. In October 2002, the UAE and Russia signed a deal whereby Russia would develop and design a new, fifth-generation integrated advanced anti-ballistic air-defense missile and the UAE would fund the development. The missile would then be used first by the two countries and Russia would be barred from exporting it to other countries for between five to seven years of the initial deployment to the Emirates.

The new GM-352M1E vehicle will have an unmanned turret and all crewmembers will be in the front section of the chassis. Some of the vehicles will be mounted on track and others on wheels.⁴²

Ballistic and Cruise Missile Defense

Reportedly, the UAE air defense commander stated that the UAE, along with the rest of the GCC, had been studying the possible deployment of both a low and high-level ballistic missile interception system. The potential provider and other specifics remain unknown. A study that was due by the end of 2003 was interrupted by the Iraq war.

Some believe that the expenses incurred by such a system would be prohibitive despite the GCC's oil revenues.⁴³ The more serious issue may be that current off-the-shelf systems like the Patriot and variants of the Russian S-300/S400 have a very limited "footprint" in terms of area coverage even against Scud time missiles and little real-world capability against the higher closing velocities of new, longer-range Iranian missiles like the Shahab 3. Improved systems are in development, but it seems likely that an investment in current systems could be wasteful and only of limited effectiveness.

The Facade of Integration

There have been limited improvements in C⁴I/BM capabilities. On February 25, 2001, the development of a joint air defense system, named Hizam Al-Tawaun (HAT), was commissioned. This system, which is linked to the GCC air defense structure, includes tracking capabilities that enable the council countries to track any airplane in their air space to help them synchronize defensive actions. Unfortunately, it lacks the overall netting and integration with air and surface-based fire units, and many other capabilities necessary to produce true, modern, real-time integration. It is a first step, but is now more a façade than a capability.

The UAE is, however, making improvements in other areas. It plans to boost the capabilities of 11 air surveillance radar systems at the cost of \$23.8 million.⁴⁴ The head of the UAE Air Force, Brig. General Khalid Abu Ainnain, has introduced a proposal to improve warning of attack by missile through the deployment of S-band radars on three fronts: northern Saudi Arabia, the UAE, and Oman.⁴⁵

Summary Assessment

Only limited data are available on combat readiness and proficiency. The data that are available indicate that alert and sustained operational readiness standards are limited, but that IHawk crew training is generally adequate. The readiness of shorter-range air defense units is uncertain. Realistic fire training, maneuver training, and joint warfare training with air and land units seem to be limited.

Figure 5: United Arab Emirates Air Defense's Force Structure, 1990-2006

	1990	2000	2005	2006
Manpower	Unlisted	Unlisted	Unlisted	Unlisted
<i>Active</i>	Unlisted	Unlisted	Unlisted	Unlisted
<i>Reserve</i>	0	0	0	0
Air Defense Brigade	0	1	2	2
I-HAWK-MIM-23B Battalions	5	5	3	3
SAM Battalions	0	?	3	3
<i>SAM</i>	20	121	?	?
<i>Crotale</i>	8	9	?	?
<i>Mistral</i>	0	100	?	?
<i>Rapier</i>	12	12	?	?
SP	140	13	?	?
<i>RBS-70</i>	140	13	?	?
<i>TOWED/MIM23</i>	5	?	?	?
<i>I-HAWK MIM-23B</i>	?	?	?	?
<i>MANPAD</i>	0	0	?	?
<i>Javelin</i>	0	0	?	?
<i>SA-18 Grouse/ Igla 9KB</i>	0	0	?	?

Note: All question marks refer to weapons that the UAE is believed to possess, though the exact numbers in their possession are unknown.

Source: IISS, *Military Balance*, various editions including 1989-1990, 1999-2000, 2004-2005, 2005-2006.

The UAE Navy

The UAE Navy is based at Abu Dhabi with facilities at Dalma, Mina Zayed. There are also facilities at Mina Rashid, Mina Khalid, Mina Jabal Ali in Dubai, Mina Sakr in Ras al-Khaimah, and Mina Khalid and Khor Fakkan in Sharjah.

The UAE has approximately 2,500 men according to the IISS. According to the *Jane's Sentinel Security Assessment*, the UAE Navy is composed by 2,400 personnel, including 200 officers. In both cases, the manning is barely adequate to crew and support the Navy's ships and equipment, and the Navy is heavily dependent on contract support.

Ship Strength

Figure 6 shows key trends in the UAE's Navy's force structure since the Gulf war. In 2006, the Navy's combat strength consisted of two frigates, two corvettes, eight missile patrol craft, six coastal patrol craft, five amphibious craft, and two support ships.

The two NL Kortenaer class frigates are 3,630-ton Dutch vessels recommissioned and refitted in the late 1990s. They each have 2 AS-565 assault helicopters, 1 Mk 29 Sea Sparrow octuple with 24 RIM-7F/M SAM, 5 Mk 141 Harpoon quad (8 effective with no weapons embarked), each with 1 AGM-84A Harpoon tactical ASM, 2 Twin 324mm TT (4 effective) each with A244/Mk46, and a 76mm gun. Their radars, fire control, and battle management systems are relatively modern. The crews were trained in the Netherlands and the ships are active and participate in exercises.

The two Muray Jib (German Lurssen 62m) class corvettes are 630-ton ships commissioned in the early 1990s. They each have one SA-316 Alouette III utility helicopter, 2 quad (8 effective) each with 1 MM-40 Exocet tactical SSM. The corvettes are well-equipped modern ships, although they lack ASW capability. Both are active. There are also two 260-ton Mubarraz class and six 2350-ton Ban Yas class missile patrol boats, with 4 MM-40 Exocet missiles each. They were delivered in the early 1980s and are operational. The Ban Yas vessels are being modernized.

Naval Aviation

The navy's aviation branch has four SA-316 Alouette, seven AS-585 Panther, seven AS-332E Super Puma in ASuW role helicopters (*Jane's* writes that the Super Pumas are AS-535), and two Learjet 35A transport aircraft.

As the comparative statistics show, the AS332E Super Pumas are recent acquisitions, presumably to counter the threat posed by the Iranian purchase of three Kilo submarines from Russia. Indeed, with the exception of the two Corvettes, the naval aviation branch is the one that has experienced the greatest change from a total of two aircraft in 1990 to 20 in 2006 (both fixed and rotary wing). Otherwise, the numbers are relatively stable between 1990 and 2006.

Naval Modernization

The UAE is acquiring six Bayunah class missile patrol boats with Harpoon or MM40 ship-to-ship missiles and RAM or Sigma surface-to-air missiles. There are six 175-ton gunned patrol craft, and 20 light 4-ton patrol craft. The UAE has four 850-ton LCTs, and is considering buying three more. It has three 650-ton LCUs and, according to *Jane's*, a L6401 and a L6402 landing

craft tank, and two Serna landing craft utility (IISS, *Military Balance* classified the landing craft as “other”). The navy is also buying 12 Transportbat 43-ton ships. Support ships include one dividing tender and one tug boat, though *Jane’s* reports that the navy has one D 1051 diving tender, 12 Al-Shaali small transport, and 8 Arctic 28 rigid inflatable boats.

The Abu Dhabi Shipyards are supplying the navy with 12 Ghannatha-class amphibious troop transports. The transports can carry up to 42 personnel or can be used to deliver mines. Additionally, Abu Dhabi will deliver three landing crafts and will upgrade the Ban Yas missile boats with Block 3 Exocet 2 missiles.⁴⁶

The UAE has reportedly finished the selection of four new 70mm Baynunah-class corvettes to be built by Construction Mecaniques de Normandie (CMN), a French company, and will be all delivered in 2008. The goals for these corvettes are to provide the UAE navy with the capability of patrolling their shores, intelligence gathering, anti-surface operations, maritime interdiction, and mine laying.⁴⁷ The corvettes, that have a range of 2,400 miles at 15kt, along with two former Royal Netherlands Navy Kortenaer-class frigates armed with US Harpoon surface-to-surface missiles, commissioned in 1997 and 1998 respectively, give the Emirate’s forces unprecedented reach. (The sale of 12 RGM-84L Block II Harpoons were approved to be sold by the US Department of Defense in late 2001.) The keel of the first corvette was laid in September 2005 in the CMN shipyard.⁴⁸ The UAE is now trying to acquire the remaining two Royal Netherlands Navy Kortenaer frigates but of late that option does not look promising.⁴⁹

The Baynunah program will consist of CMN working with Abu Dhabi Shipbuilding (ADSB) as a prime contractor to build a high-speed, missile-armed corvette based on the CMN’s Combattante BP67 hullform. This will be the first time a vessel is constructed in the Gulf region. The implications of this deal are very meaningful for the Emirates; this contract clearly puts the ADSB ahead of other industries in the region because it advances ADSB in the field of technological advancement, staff training and export possibilities. The first vessel is currently being built in CMN’s Cherbourg facility and expected to arrive in the Gulf in 2008, followed by the next two vessels that will be produced at ADSB, along with another possible three to be ordered in the future.⁵⁰

The ships will be able to accommodate up to 45 personnel and will afford to give support for medium size helicopters such as the AS565 currently operated by the UAE Navy. Each will be equipped with N-25XM (a fire-control radar), and Sea Giraffe Agile Multiple Beam (a 3D surveillance radar), while the local and point area defense will be provided by Raytheon’s RIM-162 Evolve SeaSparrow Missile, the infra-red search function will performed by Sagem’s VIGY-EOMS electro-optical system. It is still uncertain the kind of a guided surface-to-surface weapon or mine avoidance and detection sonar the vessels will have, but space has been reserved for each system.⁵¹

A radar-band electronic support measures system and a Naval Laser Warner System, NLWS310, will be provided by South Africa’s Avtronics for \$1.73 million on the new 4 corvettes. *Jane’s Defense Weekly* reported that:⁵²

The system provides full hemispherical coverage using 90° LAS310 laser detectors for overlapping azimuth coverage and LWS500 laser detector for vertical coverage and refelection cancellation. It detects direct laser energy incidence from dazzlers, designators, range finders and command guidance pulse trains, and uses pulse-width filtering techniques to discriminate

between laser sources and non-coherent sources of radiation to minimize their risk of a false alarm.

In February 2006, The UAE reached an agreement with the German Ministry of Defence for the purchase of two Type 332 mine hunters, the FGS Frankenthal and FGS Weiden, which would join the UAE fleet in mid-2006. The vessels are made of magnetic steel and usually embark the sonar and TV-camera equipped Pinguin B3 drones, though it is not clear whether this specific sale would include this equipment.⁵³

The UAE is also in talks about the purchase of anti-submarine warfare/maritime patrol aircraft. In November 2005, Alenia Aeronautica submitted a revised bid for supplying the UAE navy in an effort to win out on a contract currently held by Turkey. There is little indication, however, that a deal is imminent since it has been almost ten years since the UAE has been working on enhancing its ASW capability and there has been no concrete progress on this issue.⁵⁴

There has been talk of the Emirates' interest in submarines and looking at the retired Italian Toti-class boats that would suit the shallow waters of the Gulf. Should this talk come to bear fruit the UAE would be the first country within the Gulf Cooperation Council to integrate submarines into its naval inventory.⁵⁵

Summary Assessment

The UAE Navy is not capable of fleet operations without British or US support, and has little joint warfare training or readiness. It has improved over the past few years with training programs and weapons systems' acquisitions. The Navy's goal is to upgrade itself from a coastal defense force to a blue-water capable one by Gulf standards.

The procurement program, which was just past its midpoint in 2006, is designed so that the UAE Naval Forces can conduct and sustain operations throughout the Gulf region, Arabian Ocean and as far as the Red Sea and Indian Ocean. In theory, together with Saudi and Omani capabilities the GCC can deploy quite a sizeable naval force to the region.⁵⁶

The key problem the UAE faces is manpower. Its expansion plans are highly ambitious and it already has serious manpower and support problems. Moreover, expanding to the size of a serious fleet requires the ability to fully integrate operations with the air force, and raises issues about the level of interoperability that can be achieved with the US 5th Fleet and various GCC navies. Unfortunately, real-world contingency planning and exercise activity may be far easier with outside navies than with other Southern Gulf forces.

Figure 6: United Arab Emirates Navy's Force Structure, 1990-2006

	1990	2000	2005	2006
Manpower	1,500	2,000	2,500	2,500
<i>Active</i>	1,500	2,000	2,500	2,500
<i>Reserve</i>	0	0	0	0
Frigates	0	2	2	2
<i>NL Kortenaer</i>	0	2	2	2
Corvettes	2	2	2	2
<i>Murray Jip</i>	2	2	2	2
Patrol and Coastal Combatants	15	14	14	14
<i>Ardhana (UK Vosper 33m)</i>	6	6	6	6
<i>Ban Yas (TNC-45)</i>	6	6	6	6
<i>Mubarraz</i>	0	2	2	2
<i>Unspecified PFI</i>	3	0	0	0
Amphibious Craft	2	5	5	5
<i>LCT unspecified (Jananah in 1990)</i>	2	2	2	2
<i>LCT Al Feyi</i>	0	3	3	3
Logistics and Support	1	2	2	2
<i>SPT unspecified</i>	0	1	1	1
<i>AT unspecified</i>	0	1	1	1
Naval Aviation	2	11	18	20
<i>Learjet 35A</i>	0	0	0	2
Naval Helicopter	2	11	18	18
<i>ASLT AS-585 Panther</i>	0	7	7	7
<i>ASUW AS-332F Supper Puma</i>	2	0	7	7
<i>UTL SA-316 Alouette III</i>	0	4	4	4

Note: All question marks refer to weapons the UAE is believed to possess, though the exact numbers in their possession are unknown.
Source: IISS, *Military Balance*, various editions including 1989-1990, 1999-2000, 2004-2005, 2005-2006.

Paramilitary, Security, and Intelligence Services

UAE security involves a number of elements, and public reporting on the trends in these forces is shown in **Figure 7**. The national police organization is believed to be about 6,000 men strong and belongs, operationally, to the Ministry of Interior. In that force, 2,500 come from Dubai and are supported by about 500 civilians. The UAE customs force, estimated at 1,000 people, is regarded as one of the most efficient customs services in the Middle East and is particularly effective in curbing drug smuggling.

Reporting by the US State Department notes that some aspects of the UAE's operations remain divided by Emirate, including the police:⁵⁷

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The federal Ministry of Interior oversees Police General Directorates in each of the seven emirates; however, each emirate, via its corresponding Police General Directorate, maintains its own police force and supervises the police stations therein. While all emirate police forces theoretically are branches of the ministry, in practice they operate with considerable autonomy. Police stations take complaints from the public, make arrests, and forward all cases to the public prosecutor. These cases are then transferred to the courts. All cases are filed with the Ministry of Interior. While reported incidents of police corruption are uncommon, the ministry intervened several times in criminal cases to keep local police actions in harmony with federal law and policy.

The government has taken measures to upgrade police capability to enforce anti-trafficking standards. In May, the government created a 70-person anti-trafficking section within the Ministry of Interior, and in October Dubai Police established a special Human Trafficking section that works in conjunction with the Human Rights Care Department.”

...There were reports of government corruption at the administrative level. An Abu Dhabi Police study published in February cited a problem of "rampant" bribery, nepotism, embezzlement, and abuse of power throughout local administrations. Subsequently, special anti-corruption sections were established to investigate and prosecute violators. In December the Penal Code was amended to increase penalties for corruption-related offenses, including mandatory prison time (minimum of one year) for any government official accepting a bribe, up to five years for attempting to bribe an official, and various prison terms for embezzlement. These measures were taken by government officials in response to the problem of corruption.

The administration of civil and security law is also divided and can be slow and present human rights problems:⁵⁸

The constitution provides for an independent judiciary; however, its decisions are subject to review by the political leadership. The judiciary, composed largely of contracted foreign nationals potentially subject to deportation, was not generally considered independent....

There is a dual court system. Shari'a (Islamic law) courts adjudicate criminal and family law matters based on each emirate's interpretation of Islamic law; civil courts adjudicate civil law matters.

Civil courts generally are part of the federal system, except in the Dubai and Ras al-Khaimah emirates, and are accountable to the Federal Supreme Court, which has the power of judicial review as well as original jurisdiction in disputes between emirates or between the federal government and individual emirates.

The emirates of Dubai and Ras al-Khaimah have their own local and appellate courts, which have jurisdiction over matters within their territories that the constitution and federal legislation do not specifically reserve for the federal system. The emirates of Dubai and Ras al-Khaimah do not refer cases in their courts to the Federal Supreme Court for judicial review, although they maintain a liaison with the federal Ministry of Justice, Islamic Affairs, and Endowments.

Each emirate administers Shari'a courts. In some emirates, these courts consider all types of civil and commercial cases as well as criminal cases and family matters. They act in accordance with their interpretation of Islamic law, but also are required to answer to the Federal Supreme Court, with the exception of the emirates of Dubai and Ras al-Khaimah. In criminal cases, Shari'a is applied first and, if evidence required by Shari'a is found insufficient, the Penal Code is used. Dubai has a special Shi'a council to act on matters pertaining to Shi'a family law

...Trials can last more than a year, depending on the seriousness of the charges, number of witnesses, and availability of judges. In Abu Dhabi Emirate, review of criminal cases by the local ruler's court, or diwan, as well as an extralegal requirement that the diwan approve the release of every prisoner whose sentence has been completed, resulted in bureaucratic delays in processing or releasing prisoners, and some prisoners served time beyond their original sentences.

Approximately 50 percent of federal judges were noncitizen Arabs, whose mandates were subject to periodic renewal by the government. In contrast, judicial positions held by citizens are permanent and are

subject to termination only for specific reasons set out in the Judicial Authority law. The percentage of citizens serving as public prosecutors...

The UAE has spent money on improving its mine-breaching capabilities, motivated in part by a desire to improve border control and anti-terrorism capabilities. The recent purchases are listed in the army section of this chapter, but these moves are ultimately connected to the need to buttress the country's capacity to defend its borders more effectively.

There is a police special unit trained in counterterrorism based in Abu Dhabi Airport, and there is also a 50-men strong SWAT-type police force in Dubai, specializing in counter-terrorism and having received British and American training. Although the UAE has not faced a significant indigenous terrorist threat, it seems unlikely that these forces would be sufficient to counter any decision by terrorists to focus their attention on the UAE.

The Boarder and Coast Guard Directorate (BCGD) has its HQ in Abu Dhabi; its role is in search and rescue, curbing illegal immigration and smuggling of arms and drugs. It monitors about 30 fishing ports and is responsible dealing with oil spills. The BCGD used to belong to the Ministry of Interior but has, since 2001, been transferred to the operational authority of the UAE Armed Forces Command.

There are no reliable estimates on its size, though the UAE government announced a \$144 million contract for the supply of M3SR software radios for Coast Guard vessels along with some M3TR tactical radio in order to achieve interoperability with land forces.⁵⁹

Figure 7 shows the evolution of the Coast Guard force structure. The main change since 1990 has been the acquisition of 3 Baglietto 59 ft coastal patrol craft and the purchase of 30 Assault 9.5m boats which are being delivered starting in 2003.

The detailed structure of the UAE intelligence apparatus is largely unknown.

The UAE has reasonably effective security forces, but they tend to operate on the basis that extremist elements and possible threats with foreign ties only come under tight surveillance and control if they directly threaten internal UAE security. They are more tolerant of groups that potentially threaten other Gulf. Control of the drug trade, money laundering, and the transfer of military equipment and dual use items to third parties is sometimes lax. Trafficking in human beings remains a serious issue.

Figure 7: United Arab Emirates Internal Security's Force Structure, 1990-2006

	1990	2000	2005	2006
Manpower	?	?	?	10,000
Coast Guard	35	38	68	68
<i>Camcraft 77ft</i>	5	5	5	5
<i>Camcraft 65 ft</i>	16	16	16	16
<i>Baglietto GC 23 Type</i>	6	6	6	6
<i>Baglietto 59 ft</i>	0	3	3	3
<i>Watercraft 45 ft</i>	8	8	8	8
<i>Assault Boat 9.5 m</i>	0	0	30	30

Note: All question marks refer to weapons that the UAE is believed to possess, though the exact numbers in their possession are unknown.
Source: "Security and Foreign Forces: United Arab Emirates," *Jane's Sentinel Security Assessment – Gulf States*, October 21, 2005 "Navy: United Arab Emirates," *Jane's Sentinel Security Assessment – Gulf States*, October 21, 2005

The UAE Continuing Strategic Challenges

The chief strategic challenge for the UAE comes from Iran's regional ambitions and from the persistence of terrorism in the region, even though the UAE itself does not yet have a significant terrorism problem with Islamist extremists or foreign workers. The strategic predicament that emerges from this nexus is complicated by the weakening of the GCC, the insurgency in Iraq and the future of Iran's nuclear weapons. At the same time, the UAE's territorial revisionism, directed against Saudi Arabia, may complicate regional relations or, worse, lead to serious tensions within the GCC.

The UAE also faces two major internal challenges. One is the country's fast paced development— "its futuristic tourism developments, proliferating skyscrapers and liberal use of superlatives to market each project."⁶⁰ This economic growth may be encouraging, but it may also preface an economic slowdown. The second challenge is demographic, emerging largely from the excessive reliance on expatriate labor.

Political Uncertainty

Sheikh Zayed of Abu Dhabi, founder of the UAE, died on November 2, 2004 and was succeeded by his son Khalifah. While the transition has been smooth, it is still unclear if Khalifah has the ability to keep Al-Nahayan family together without losing the support of the other six families ruling the emirates. Zayed left behind 19 sons from many wives, and the competition for power between them might threaten the stability of Abu Dhabi, the largest emirate, as well as the union.

Some experts have argued that Khalifah lacks the leadership skills of his father, and that he will be overshadowed by his younger half-brother, Mohammad, whom his father named as deputy crown prince in 2003.⁶¹ Mohammad bin Zayed is also the Chief of Staff of the UAE Armed Forces and competes in this area with the emir of Dubai, Mohammad bin Rashed Al-Maktoom, who acceded to this position after the ruler of Dubai, Sheikh Maktum bin Rashid al Malkum, died in January 2006. While the friction has been kept civil during Zayed's life, it is unclear whether this will remain so in the future.

Other analysts believe that Khalifah is "far more than a figurehead ruler for his crown prince."⁶² Although Khalifah lacks the charisma of Zayed, his rise to power had the backing of important constituencies in the UAE. During his time in power, Khalifah has tried to "install a number of safety checks on the power of [Mohammad bin Zayed]."⁶³ Hard as it may be to ascertain with any precision the internal dynamic in the echelons of power of the UAE, it is clear that a power struggle is not beyond the realm of possibility.

Another incident that highlighted the competition within and between the families was the June 2003 replacement of Crown Prince Khalid of Ras Al-Khaimah, who opposed the US-led war in Iraq, with Khalid's younger half-brother Shaykh Saud. Supporters of Crown Prince Khalid took to the streets, and the situation got under control only after the government in Abu Dhabi sent armored vehicles to Ras Al-Khaimah.⁶⁴

Iran and the UAE

At the core of Iran-UAE relations lies a territorial dispute over three islands on the Persian Gulf, Abu Musa and the Greater and Lesser Tunbs, which are controlled by Iran but claimed by the UAE. The dispute dates back to 1971, when Iran took over the islands. The UAE has tried to resolve this issue either by holding bilateral talks with Iran or by submitting the dispute to international arbitration, but Iran has rejected both possibilities.

The strategic importance of the islands rests with their location near the Strait of Hormuz, a vital shipping lane for world trade through which 17.4 million barrels of oil pass every day.⁶⁵ Despite their significance, the islands remain little militarized; following the revelation of satellite images of the Abu Musa island, Jane's concluded in March 2000 that, "the most remarkable aspect about Abu Musa is its lack of major military infrastructure and fortification, despite the fact that it has been under Iranian occupation for 29 years."⁶⁶

This has not prevented the UAE from building its military capability vis-à-vis Iran on the issue of the three islands: "The UAE has been upgrading its naval forces for some years, building up the UAE Naval Forces from a coastal defence force to one with blue-water capabilities and reach."⁶⁷ The UAE is also "expanding its amphibious naval force, although it is unlikely to be in a position to challenge Iran militarily for several years until its procurement cycle has been completed."⁶⁸

Iran's nuclear program is another source of friction. On one level, there is concern that the fallout from an accident at the Bushehr nuclear reactor would have grave repercussions for the region. Rashid Abdullah, the UAE's foreign minister, has said that the UAE and other Gulf states are alarmed by Iran's nuclear program because Iran does not have enough experience to deal with a nuclear emergency.⁶⁹

These fears notwithstanding, it is Iran's strategic ambitions that most worry regional leaders. Iran's new president, Mahmoud Ahmadinejad, has attracted plenty international attention by calling for the destruction of Israel and by pursuing Iran's nuclear program more openly and aggressively. The region's leaders fear that Iran may act as a destabilizing force either by prompting an arms and even nuclear race, or by energizing Shiite populations in countries such as Saudi Arabia, Kuwait, Qatar, or Bahrain.

This increased anxiety about Iran's ambitions is reflected in the regional efforts to contain it. As the *New York Times* reported, "Saudi officials and other Gulf state leaders have called for Iran to abandon its nuclear research, without demanding that Israel disarm first. Separating those two demands in a major policy change, and many experts see the shift as a sign that Iran's Arab neighbors may even back United Nations sanctions against Iran."⁷⁰ The GCC, however, continues to call for a Middle East WMD-free zone that includes Israel.

There is no doubt that as the UAE configures its strategic dogma and selects the appropriate force posture for its needs, the fear of Iran will loom largely in the minds of its leaders.

The GCC and the UAE

As is the case with the other Southern Gulf states there are two countervailing trends towards security cooperation and the Gulf Cooperation Council; one towards cooperation, the other towards discord. The former emerges from the perception of a common enemy in Iran; the latter

reflects the deteriorating relations between Saudi Arabia and its allies in the Gulf. The strategic challenge for the UAE is to ensure that the GCC remains a force multiplier while, at the same time, preventing intra-alliance problems from degenerating into confrontation or conflict.

The centripetal dynamic for the GCC is the idea that Iran forms a common threat to the region—a threat that is best confronted in unison. The formation of a missile defense system is the most obvious way in which the GCC can deal collectively with Iran, given Iran's Shahab-3 intermediate range ballistic missiles that could be deployed against Gulf countries. The United States has encouraged and the UAE has supported the creation of a missile defense system, though little has come of it yet.⁷¹

Despite this rationale for unity, however, there remain strong centrifugal forces that push the GCC countries apart from one another. Oman and Qatar, for example, maintain closer ties to Tehran than does the rest of the GCC; it was pressure from these two countries, which diluted a strongly worded communiqué against Iran's nuclear program at the GCC summit meeting in the end of 2005.⁷²

The Gulf Cooperation Council (GCC) is dismantling its joint military unit, Dira Al-Jazeera or Peninsula Shield, 20 years after it was created. The force has never been as effective as the GCC had hoped and the decision to disband it also reflects a widening rift between Saudi Arabia and Qatar, a growing US presence in the region and preference by member states to switch emphasis to economic development, internal security and bolstering their indigenous militaries.

Although the fear of Iran may bring the GCC countries together, the trajectory so far does not bode well for increased or deepened cooperation between the six GCC states.

Relations between Saudi Arabia and Qatar have worsened because of “the alleged anti-Riyadh stance of the Qatari Al-Jazeera TV channel, the growing Qatari role as a US ally, the expulsion of thousands of Qatari tribesmen of Saudi origin over the past two years [from Qatar] and Qatar's growing anger at Saudi Arabia's hegemony and domination in the GCC.”⁷³

The proliferation of Free Trade Areas (FTAs) between GCC countries and the United States is another concern, particularly for Saudi Arabia. The U.S. has an FTA with Bahrain and is negotiating with the other GCC members. In addition, the talks with the UAE have reached such an advanced stage that a signature is expected soon.

In 2001, the GCC signed an Economic Agreement, which stated that “no member states may grant to a non-member state any preferential treatment exceeding that granted herein to member states, nor conclude any agreement that violated provisions of this agreement.”⁷⁴ FTAs contradict the spirit of this agreement. The Saudi Foreign Minister, Prince Saud al-Faisal, said it was “alarming” that GCC countries would enter into FTAs since they “diminish the collective power and weaken not only the solidarity of the GCC as a whole, but also each of its members.”⁷⁵

The most evident example of the deteriorating GCC relations is in the military field, where “pledges to create a fully integrated GCC-wide early-warning system and command-and-control centre have proved to be rather empty, despite a long-delayed joint defence pact agreed in Bahrain in December 2000.”⁷⁶ In late 2005, the GCC decided to abolish its joint military unit:⁷⁷

Territorial Dispute with Saudi Arabia

The UAE has recently raised long-standing border issues against Saudi Arabia. The issue revolves around a border settlement that dates back to 1974, when an opaque agreement settled a border dispute between Saudi Arabia and the UAE. The agreement settled a 25-kilometer strip of land that connected the UAE to Qatar as well as the ownership of the Shaybah oil field.

With the passing of Sheikh Zayed of the UAE, who believed it would be dishonorable to revisit the 1974 agreement,⁷⁸ the UAE's leaders have become increasingly assertive over this issue, signaling their intent to address this topic anew. A map published in the 2006 edition of the official UAE Yearbook "shows the UAE extending westward as far as Qatar, across territory currently controlled by Saudi Arabia."⁷⁹

This development comes amidst the growing rift between Saudi Arabia and Qatar mentioned above. The fear that closer ties between Qatar and the UAE may undermine Saudi Arabia's strategic preeminence in the GCC is widespread. The Dolphin project, which seeks to connect Qatar, the UAE and Oman in a natural gas grid, is another example where closer ties between Qatar and the UAE may be made at the expense of Saudi Arabia. This territorial revisionism, which would bring the UAE's borders up to Qatar's, could form the cornerstone for a closer association between the two countries, and take Saudi influence off the picture.

The potential for conflict should not be overstated. Both countries have an interest in resolving the dispute amicably. As a former UAE diplomat put it, "while such statements [that the 1974 treaty is no longer in force] were strong, I do not think this means the two countries are bracing for war."⁸⁰ After all, Saudi Arabia's border deal with Kuwait over the Neutral Zone between the two countries, which also provided for joint exploitation of the oil in the area, is an encouraging precedent.

All the same, the UAE has focused during 2005 on boosting its anti-mine warfare land forces, with purchases or upgrades of vehicles that have mine-breaching capabilities. Although this amounts to little more than speculation about the connection between the border issue and this force posture choice, it should be noted that the one country in the region with a reservoir of land mines is Saudi Arabia.⁸¹

Economic Challenges

The UAE has made some efforts to diversify its economy away from oil, driven in part by low reserves in all the emirates except Abu Dhabi. As the Financial Times put it, "In four decades [Dubai] has gone from being a pearl fishing and trading outpost to a regional centre for commerce, transport, tourism – and increasingly finance."⁸² This fast-paced economic development, centering upon Dubai and fueled by oil revenues in the Emirates and around the Middle East, has allowed the UAE to reposition itself as a "modern" country in the region.

The UAE has benefited greatly from the recent boom in oil prices and revenues. Much of the oil wealth that has come to the region has found its way to the UAE. From 2003 to 2005, the Abu Dhabi stock market increased 77% and the Dubai stock market 123%. Although this influx has enriched many people and has helped avoid some of the spending excesses that accompanied previous windfalls, there is still cause for concern. This concern emerges, on the one hand, from the unsustainability of this financial boom and, on the other, from the political repercussions that will accompany a stock market slowdown or crash.

The speedy increase in stock market indices is the initial indicator that a financial bubble may be brewing. And a closer look at the numbers confirms this intuitive hypothesis. The price-earning (PE) ratio for the Dubai stock market is 47 (in contrast, it is about 20 for the Dow Jones). This means that stocks are greatly overvalued against the price that their earnings would normally justify.

Abu Dhabi stock market capitalization makes up 38% of the UAE's GDP, and Dubai stock market makes up 18%. This figure may not seem excessive, but the former lists 35 companies and the latter 18. That so few companies would constitute such percentage of GDP is more evidence to suggest that the index is driven by excess liquidity rather than by an underlying improvement in commercial and financial fundamentals.

The political consequences of any drastic crash could be severe. The desire to buy stock has spread widely and more people own stock, both in the UAE and in other Gulf countries, than ever before. The consequence of this dispersal is that a stock market crash will translate into a wealth loss for a great number of people. It also means that the various policy efforts that could be mustered to cool down the market might prove politically difficult to implement.

Demographic Challenges

Another key challenge is the UAE's dependence on so many foreigners. As has been discussed earlier The UAE has a population of 2.5 million, 60% to 80% of which are estimated to be non-nationals.⁸³ The influx of foreign labor has caused the population of the UAE to triple since 1970, and now the country boasts the second largest expatriate population in the GCC after Saudi Arabia. The population growth rate between 1970 and 1980 was estimated at 343%; by 2005 it was 38%, and by 2050 it will decline to 10%. These estimates are conservative but they underscore the country's demographic dynamics.⁸⁴

The CIA *World Factbook* estimates that 25.3% of the population is in the 0-14 years bracket, 71.1% between 15 and 64, and 3.6% is 65 and over. The median age is expected to increase from 29 in 2005 to 40 in 2050.⁸⁵ The sex ratio is 1.05 males/females at birth, and at 1.44 male/females for the entire population.⁸⁶

There are various nationalities that find their way to the UAE, but most come from South Asia, and a smaller percentage from East Asia and the Greater Middle East region. The CIA *World Factbook* estimates are largely outdated (1982 numbers) when it comes to the composition of the UAE's population. Estimates by Andrzej Kapiszweski suggest that there are about 1 million Indians in the UAE, 450,000 Pakistanis, 160,000 Sri Lankans, 135,000 Egyptians, 120,000 Filipinos, 110,000 Jordanians and Palestinians, 100,000 Bangladeshis, and smaller amounts of Iranians and Yemenis.⁸⁷

The implications for internal stability are many. A diverse population is hard to manage, and the consequences of an economic downturn may be more severe in the absence of a national bond among the various ethnicities that make up the UAE. The efforts to "naturalize" have been less than successful—a reality which does not bode well for the future. In the military sphere, the fact that 30% of the total active military personnel is expatriate underlines both the management challenge of integrating this diverse force as much as it underscores the probability that in the event of a war, the cohesion and unity of the military might turn out to be less than stellar.

¹ The UAE was formed when the UK decided to leave its positions east of Suez and granted the Trucial States on the Southern Gulf coast control of their defense and foreign affairs that had been ceded to Britain in a series of 19th century treaties. Six of these states - Abu Zaby, 'Ajman, Al Fujayrah, Ash Shariqah, Dubayy, and Umm al Qaywayn - merged to form the United Arab Emirates (UAE) in 1971. They were joined by Ra's al Khaymah in 1972, after Iran seized control of the Tumbs and Abu Musa from Ra's al Khaymah.

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